

**Oracle® Demantra**

Implementation Guide

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Oracle Demantra Implementation Guide, Release 11.5.10

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**Oracle Demantra Implementation Guide, Release 11.5.10**

**Part No. E05392-01**

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# Preface

## Intended Audience

Welcome to Release 11.5.10 of the *Oracle Demantra Implementation Guide*.

See Related Information Sources on page xxx for more Oracle Applications product information.

## TTY Access to Oracle Support Services

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## Structure

### **1 Introduction to Demantra**

This chapter provides an overview of the Demantra platform.

### **2 Core Concepts**

This chapter explains worksheets and other basic concepts.

### **3 How Demantra Calculates and Stores Data**

As an implementor, you should understand how Demantra calculates and stores data, because this can affect how you set up your solution. This chapter provides an overview of most important details.

### **4 Implementation Tools and Process**

This chapter provides a quick overview of the implementation and hand-off processes and tools you use during these processes.

### **5 Levels**

This chapter describes levels and related concepts, outlines the primary configuration options, and summarizes the available tools.

### **6 Series**

### **7 Units, Indexes, and Exchange Rates**

This chapter describes units and related concepts, outlines the primary configuration options, and summarizes the available tools.

### **8 Worksheets**

This chapter describes worksheets, outlines the primary configuration options, and summarizes the available tools.

### **9 Methods and Workflow**

This chapter describes options that you can use to create automated actions in your application, outlines the primary configuration options, and summarizes the available tools.

### **10 Security**

This chapter explains the Demantra security mechanisms.

### **11 Proport**

This chapter explains the proportion mechanism.

### **12 Demantra Data Tables and Integration Processes**

This chapter describes the Demantra table structure (at a high level) and gives the basic data requirements. It also describes ways you can import data into and export data from Demantra.

### **13 EnterpriseOne to Demantra Demand Management Integration**

#### **14 EBS - Demantra Demand Management Integration**

This chapter overviews integration processes that synchronize or move data between the Oracle Demantra and E-Business Suite applications.

#### **15 Getting Started with the Configuration Tools**

This chapter introduces the primary tools you use to configure Demantra, namely, Business Modeler and Workflow Manager. For an introduction to Demantra concepts and an overview of the implementation process, see Part I, "Concepts and Tools".

#### **16 Database Tools**

The Business Modeler provides a simple user interface for creating and modifying database tables that is useful during implementation.

#### **17 Using the Data Model Wizard**

This chapter describes how to use the Data Model Wizard.

#### **18 Configuring Levels**

This chapter describes how to configure levels with the Configure > Levels option.

#### **19 Configuring Series and Series Groups**

This chapter describes how to configure series and series groups.

#### **20 Configuring Units, Indexes, and Update-Lock Expressions**

This chapter describes how to perform miscellaneous configuration tasks.

#### **21 Series and Level Integration**

This chapter describes how to use the Integration Interface Wizard, which you use to import or export series data and level members.

#### **22 Importing Supplementary Data**

This chapter describes how to import data into the Demantra database by using Tools > Import File. You use this tool to import supplementary data such as lookup tables.

#### **23 Creating Workflows**

This chapter describes how to create Demantra workflows, which are automated or semi-automated processes that you can use for a wide variety of purposes.

#### **24 Configuring Methods**

This chapter describes how to configure methods that the users can run within worksheets or within a Members Browser content pane.bp

#### **25 Demantra URLs**

#### **26 Non-Engine Parameters**

This chapter describes parameters unrelated to the Analytical Engine and lists their default values, if any. As indicated, most parameters are visible to all users; a few are visible only if you log in as the owner of the component.

#### **27 Database Procedures**

This chapter lists the most commonly needed database procedures.

#### **28 Key Tables**

This chapter provides reference information for some of the most important tables in Demantra, especially the data fields used by or written by the Analytical Engine. Unless otherwise noted, this information applies to all Demantra products.

#### **29 Server Expression Functions and Operators**

This appendix provides reference information for the operators and functions that are allowed in server expressions.

### **30 Client Expression Functions and Operators**

This appendix provides reference information for the operators and functions that are allowed in client expressions.

### **31 Workflow Steps**

This chapter provides reference information for the available workflow steps.

### **32 Configuring Promotion Effectiveness**

This chapter describes how to configure Promotion Effectiveness, if an existing Demantra implementation is already in place.

### **33 Configuring DSM**

This chapter describes how to configure DSM and load an initial set of data.

### **34 Configuring Promotion Optimization for PTP**

This chapter describes how to configure the Promotion Optimization module. You can skip this chapter until you need to work with Promotion Optimization.

### **35 Loading Data for PTP**

This chapter describes how to load data into PTP and maintain PTP levels and data. It also provides all the related reference information.

### **36 Other Configuration for PTP**

This chapter describes how you can configure PTP, apart from configuring Promotion Optimization.

### **37 PTP Reference**

This chapter provides reference information for PTP series, levels, methods, and so on.

### **38 Fine Tuning and Scaling Demantra**

Typically you adjust parameters to control your solution's global behavior, including various defaults and performance settings. This chapter provides an overview of most of the parameters, grouped into specific areas.

### **39 Customizing Demantra Web Pages**

This chapter describes how to customize the Demantra Web pages.

### **40 Configuring Rolling Data**

This chapter describes how to roll selected data, saving a copy of the current version of that data.

### **41 Performing Constraint Profit Optimization**

This chapter describes how to use the Constraint Profit Optimizer.

### **42 Introduction to the Analytical Engine**

#### **43 Basic Concepts**

#### **44 Configuring the Analytical Engine**

#### **45 Configuring the Forecast Tree**

This chapter describes how to configure the forecast tree. In the case of PE mode, it also describes how to configure the influence relationships, and competition among the combinations.

#### **46 Configuring Causal Factors**

This chapter describes how to create causal factors, configure them, and populate them with data. It also describes the predefined causal factors provided by Demantra.

#### **47 Configuring Promotions and Promotional Causal Factors**

#### **48 Tuning the Analytical Engine**

It is usually necessary to adjust some parameters to configure the Analytical Engine correctly before running it the first time. Other adjustments can be made later to optimize the behavior and performance.

#### **49 Using the Engine Administrator and Running the Engine**

Before you run the Analytical Engine for the first time, it is useful to ensure that you have configured it correctly:

#### **50 Engine Details**

This chapter provides details on the Analytical Engine, for the benefit of advanced users.

#### **51 Engine Parameters**

This chapter describes the Analytical Engine parameters that you can see in Business Modeler and lists their default values, if any.

#### **52 Theoretical Engine Models**

This chapter contains reference information for the theoretical models that the Analytical Engine uses.

#### **53 Administering Demantra**

This chapter briefly introduces the tasks that the system administrator for Demantra would perform. It also lists all the URLs that Demantra uses.

#### **54 Managing Security**

The Demantra data and features are secured, so that not all users have access to the same data and options. This chapter describes how to maintain security:

#### **55 Managing Workflows**

This chapter describes how to use the Workflow Manager to start, stop, and view workflow instances and to manage schema groups.

#### **56 Managing Worksheets**

Worksheets are created within the user interfaces, but you can manage them from the Business Modeler.

#### **57 Other Administration**

Demantra provides a Web-based interface to perform other, less common administrative tasks, described here. This chapter contains the following sections:

#### **58 Tips and Troubleshooting**

For reference, the first section describes the first-time login procedure for Demantra applications, followed by several sections of tips. After that, this chapter lists possible errors that users may encounter and describes how to resolve them. The errors are listed alphabetically by message text or general description.

See Also

Oracle Demantra Release Notes Oracle Demantra Installation Guide

## Related Information Sources

### Do Not Use Database Tools to Modify Oracle Applications Data

Oracle STRONGLY RECOMMENDS that you never use SQL\*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle Applications data unless otherwise instructed.

Oracle provides powerful tools you can use to create, store, change, retrieve, and maintain information in an Oracle database. But if you use Oracle tools such as SQL\*Plus to modify Oracle Applications data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle Applications tables are interrelated, any change you make using an Oracle Applications form can update many tables at once. But when you modify Oracle Applications data using anything other than Oracle Applications, you may change a row in one table without making corresponding changes in related tables. If your tables get out of synchronization with each other, you risk retrieving erroneous information and you risk unpredictable results throughout Oracle Applications.

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications also keeps track of who changes information. If you enter information into database tables using database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL\*Plus and other database tools do not keep a record of changes.

# Part 1

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## Concepts and Tools



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# Introduction to Demantra

This chapter provides an overview of the Demantra platform.

This chapter covers the following topics:

- Demantra Platform and Applications
- Elements of a Demantra Solution
- Integration
- Workflow
- How the User Interfaces Can Be Configured

## Demantra Platform and Applications

The Demantra Spectrum Platform provides a flexible data model on which we build the comprehensive business logic of our applications.

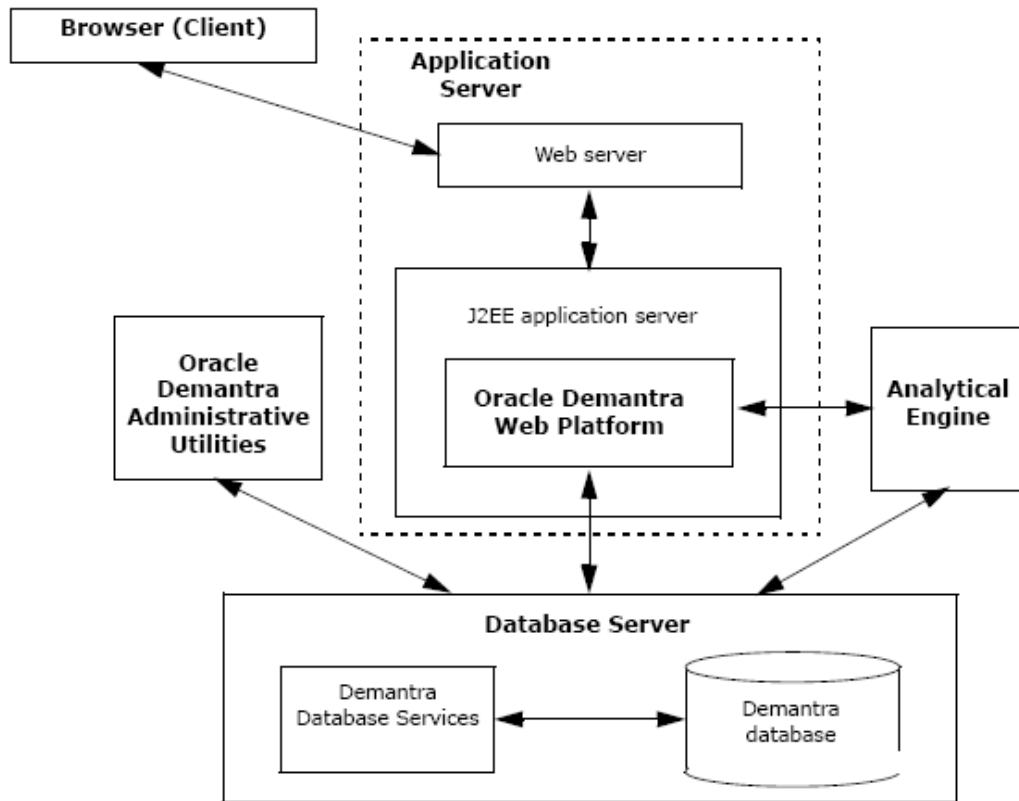
The platform includes a number of services that are leveraged to provide out-of-the-box application functionality in three key areas:

- Trade Promotion Management
- Promotion Modeling and Optimization
- Real Time Sales and Operation Planning

These standard out-of-the-box applications can be further tailored to reflect a customer's specific business logic in these business areas.

## Elements of a Demantra Solution

Whether you use a Demantra application as-is or you use the Application Platform, a Demantra solution consists of the following elements:



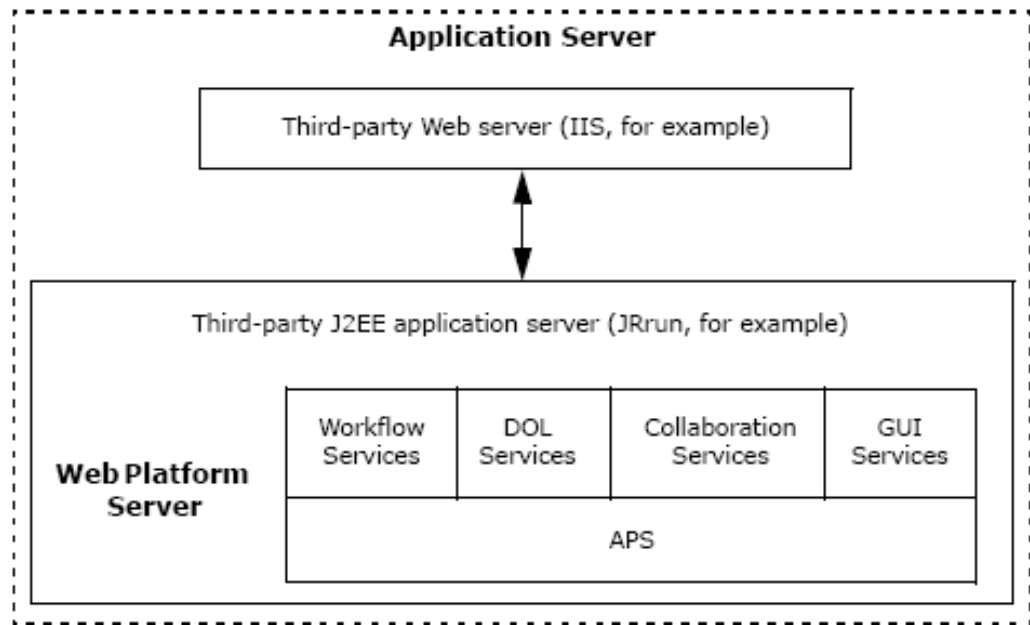
- This figure is not meant to show specific hardware architecture.
- A Demantra solution can also include a Citrix server or other software for terminal emulation, not shown here.
- For information on supported databases, platforms, and configurations, see the *Oracle Demantra Installation Guide*.

## Clients

A Demantra solution includes multiple client machines, each running a browser to access Demantra.

## Application Server

Any Web-based solution includes the Application Server:



This server includes a Web server and a J2EE application server, which can be on the same or different machines; for supported software, see the Oracle Demantra Installation Guide.

Within the J2EE server, Demantra runs the **Oracle Demantra Web Platform Server**, which includes the following:

- Workflow Services
- DOL Services
- Collaboration Services
- GUI Services
- APS (this is the main support layer and handles all communications with the database, as needed by the other services)

### Database Server

Every Demantra solution includes a database server.

### Oracle Demantra Administrative Utilities

The Oracle Demantra Administrative Utilities include the desktop configuration and maintenance utilities, as well as Member Management, Chaining Management, and Allocation Management tools. Administrative Utilities coordinate running the Analytical Engine, communicate with the database as needed, schedule database procedures, and run other background processes as needed.

## Analytical Engine

Most Demantra solutions include the Analytical Engine.

**Note:** In general, the documentation refers to either mode as the "Analytical Engine". Wherever the distinction is necessary, the documentation is more specific.

**Note:** Oracle provides two different modes for the Analytical Engine:

- In PE mode, the engine is suitable for use with Promotion Effectiveness.
- In DP mode, the engine is suitable for use in demand planning applications.

You may have access to the Distributed Engine (a mode in which the Analytical Engine automatically distributes its work across multiple machines).

## SSL Security

The Demantra Web products can use either http or SSL protocol. You can deploy a Demantra solution in either of two ways:

- Use http for all pages
- Use SSL for all pages (so that Web addresses start with https instead of http)

## Pure Desktop Solutions

A desktop-based solution is different from a Web-based solution in two key ways:

- Users access Demantra via the desktop Demand Planner, which communicates directly with the database.
- There is no Application Server. Instead, you use the Stand-Alone Integration Tool (the aps.exe executable), which handles import and export. The Oracle Demantra Installation Guide assumes that most solutions are Web-based.

## Integration

You can import and export data either with core Demantra tools or with Demantra Enterprise Integrator (powered by Pervasive).

## Core Demantra Tools

The core Demantra tools allow you to do the following:

- Import lowest-level item, location, and sales data
- Import or export series data at any aggregation level, with optional filtering
- Import promotions and promotional series
- Export members of any aggregation level
- Import supplementary data into supporting tables as needed

## Demantra Enterprise Integrator

You can also (or instead) use the Demantra Enterprise Integrator (powered by Pervasive), which is licensed, packaged, and documented separately from the core Demantra products.

Demantra Enterprise Integrator provides enterprise database connectivity, with native connectors to more than 100 enterprise systems. It stores all design metadata in an open XML-based design repository for easy metadata interchange and reuse. Within Demantra Enterprise Integrator, you map the integration and capture that information in a DEI file. Then you can run that integration from within a workflow.

## Workflow

The Application Platform provides the Workflow Manager. A workflow is a logically connected set of steps. Each step can be automated or can require interaction from one or more users or groups.

Workflows can do all the following kinds of actions:

- Run integration interfaces.
- Run stored database procedures.
- Run external batch scripts and Java classes.
- Pause the workflow until a specific condition is met, possibly from a set of allowed conditions. For example, a workflow can wait for new data in a file or in a table.
- Send tasks to users or groups; these tasks appear in the My Tasks module for those users, within Collaborator Workbench. A typical task is a request to examine a worksheet, make a decision, and possibly edit data. A task can also include a link to a Web page for more information.

Special workflow steps programming logic. For example, one step type provides a user with a selection of choices to direct the continuation of the workflow instance.

## How the User Interfaces Can Be Configured

Whether you start from a Demantra application as-is or from the Application Platform, you can configure the user interfaces in the following complementary ways:

- You typically create worksheets to meet the needs of specific users. A worksheet is a working environment that shows specific data, aggregated and filtered as needed. Users can view, sort, edit, print, and so on. The next chapter, "Core Concepts", describes the elements of worksheets.
- You can create methods that the users can execute from within worksheets. The methods appear in the worksheets as options on the right-click menu. Demantra also provides default methods that you can redefine or disable. These allow users to create, edit, and delete level members.
- You create components that subdivide the data as needed for different organizational roles. Each component has an owner, who acts as the administrator of the component. In turn, the owner can log onto the Business Modeler and further restrict data access for particular users.
- You apply security so that different users have access to different menu options. See "Managing Security".
- You can configure the default layout of Collaborator Workbench, access to different elements of Collaborator Workbench, and the links and menus in Collaborator Workbench. You can also substitute custom graphics throughout the Web products. See "Customizing Demantra Web Pages".

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## Core Concepts

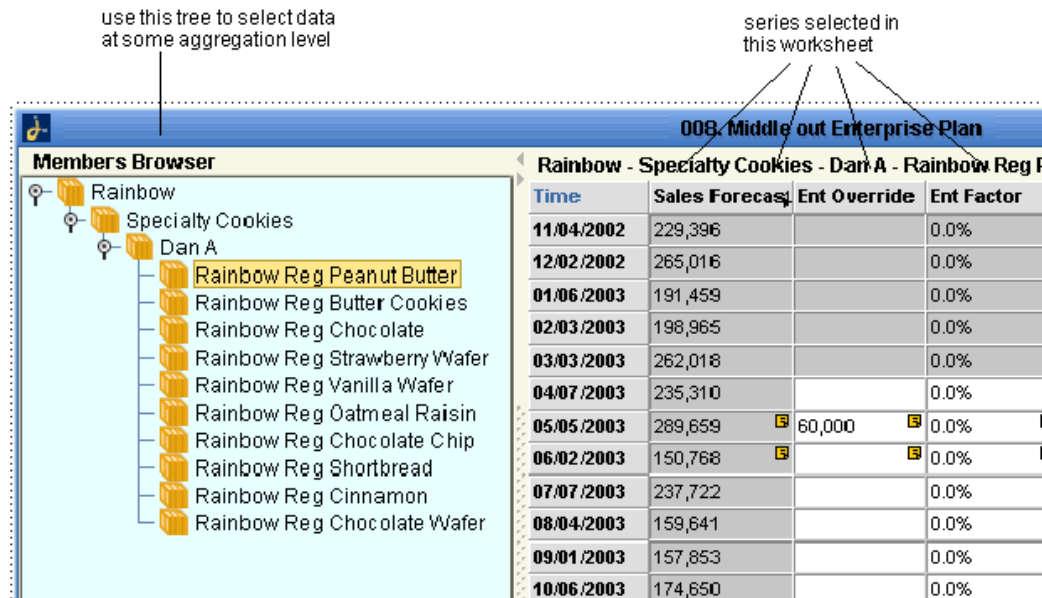
This chapter explains worksheets and other basic concepts.

This chapter covers the following topics:

- Worksheets
- The Basic Input Data
- Time Resolution
- Levels
- Combinations
- Series
- Filtering and Exceptions
- Methods
- Security
- Forecasting

### Worksheets

A worksheet (sometimes known as a query) is the primary user interface to Demantra data. A typical worksheet might look like this:



Within a worksheet, a user can examine and edit data as needed, view the forecast, run simulations, and save changes back to the database, for the benefit of other users and downstream operations. The precise details vary from application to application, but worksheets share the following characteristics:

- Most of the worksheet data is usually based on imported data.
- The data is organized in a set of multi dimensional hierarchies that enable users to slice and dice data in any way. These hierarchies are completely configurable and are easily extended.
- A worksheet displays series of data, usually time-dependent data for specific items and locations. Some series are editable, and other are not.
- A worksheet can display series at an aggregated level, based on any of the hierarchy levels in the system.
- A user can zoom in and out in time, viewing data aggregated into different buckets of time.
- At any given time, the worksheet uses a single unit of measure, which applies to some or all of the displayed series (some series do not include units). The worksheet can also use a financial index or exchange rate. The user who is working with the worksheet can switch to another unit of measure or another index as needed.
- A worksheet can be filtered. In addition, users generally have access to only some of the data, and that filters the data further.
- Multiple users can access the data, depending on their authorization.

For details, see "Worksheets".

## The Basic Input Data

When fully configured, Demantra imports the following data, at a minimum, from your enterprise systems:

- Item data, which describes each product that you sell.
- Location data, which describes each location to which you sell or ship your products.
- Sales history, which describes each sale made at each location. Specifically this includes the items sold and the quantity of those items, in each sale.
- For Promotion Effectiveness: Historical information about promotional activities.

Demantra can import and use other data such as returned amounts, inventory data, orders, and settlement data.

For details, see "Data Assumptions and Requirements".

## Time Resolution

Sales data is typically available at the daily (or sometimes hourly) level, but demand plans do not usually go down to that level of detail. When sales data is imported into Demantra, it is automatically binned into time buckets corresponding to the base time unit, depending on how you configure the system.

Specifically, when the sales data is imported, each sale date is changed automatically to the start date of the appropriate time bucket. For example, suppose you use a weekly base time unit, starting on Monday. If a sale actually happened on Wednesday, May 7, the sale date in Demantra is changed to Monday, May 5.

The base time unit is specified during configuration to a length that is appropriate for your planning cycle. Oracle provides three sizes of base time unit (day, week, or month) and can support hourly time units if needed.

Oracle also provides larger time units for use in worksheets, and you can define additional time units. You specify the time unit to use in a given worksheet, and the worksheet shows data for the time buckets that correspond to that time unit.

For details, see Time Units, page 7-3.

## Levels

The first interesting feature of any worksheet view is the aggregation level or levels that it uses. For example, you might want to view data at the account level, as follows:

Accounts		Accounts and SKUs				
Members Browser		CVS				
<ul style="list-style-type: none"> <li>BJ</li> <li>CVS</li> <li>McKessen</li> <li>Rainbow Company</li> <li>Ralphs</li> <li>Stop and Shop</li> <li>Walmart</li> </ul>		Time	Demand	Price \$	Revenue \$	Market Plan \$
		02/04/2002	5,757,460	\$10.00	\$57,574,600	\$19,771,290
		05/06/2002	7,674,924	\$10.00	\$76,749,240	\$19,771,290
		08/05/2002	7,285,994	\$9.99	\$72,606,928	\$19,609,128
		11/04/2002	5,736,909	\$9.97	\$57,049,760	\$19,609,128
		02/03/2003	1,571,396	\$9.99	\$15,649,532	\$36,329,952
		05/05/2003		\$10.00	\$67,828,136	\$58,347,280
		08/04/2003		\$10.00	\$63,045,580	\$57,779,168
		11/03/2003		\$10.00	\$47,297,200	\$46,307,320
		02/02/2004		\$10.00	\$49,651,088	\$48,727,416

The worksheet might include a drop down list instead of this tree control.

For example:

Accounts Accounts and SKUs

Page Items

Account CVS

All

Time	Demand	Price \$	Revenue \$	Market Plan \$
02/04/2002	5,757,460	\$10.00	\$57,574,600	\$19,771,290
05/06/2002	7,674,924	\$10.00	\$76,749,240	\$19,771,290
08/05/2002	7,285,994	\$9.99	\$72,606,928	\$19,609,128
11/04/2002	5,736,909	\$9.97	\$57,049,760	\$19,609,128
02/03/2003	1,571,396	\$9.99	\$15,649,532	\$36,329,952
05/05/2003		\$10.00	\$67,828,136	\$58,347,280
08/04/2003		\$10.00	\$63,045,580	\$57,779,168
11/03/2003		\$10.00	\$47,297,200	\$46,307,320
02/02/2004		\$10.00	\$49,651,088	\$48,727,416

In either case, you can view data for any account. For example, for the quarter that started on February 3, 2003, the Demand for the CVS account was 1, 571, 396 units, and the unit price was \$9.99. You can edit any data that is shown in white, such as the price and market plan.

In generic terminology, the word *member* refers to a unit within a level. For example, CVS is a member of the account level.

Levels are also used in import and export, security, and forecasting.

For details, see "Levels".

## Combinations

When users explore their sales data, they generally examine data associated with some item (or aggregation of items) at some location (or aggregation of locations). Each possible pairing of item and location is known as a combination.

**Note:** In theory, some implementations may have more than two chief dimensions. For example, you might track sales for items, locations, and demand types. In this case, a combination is an item, a location, and a demand type.

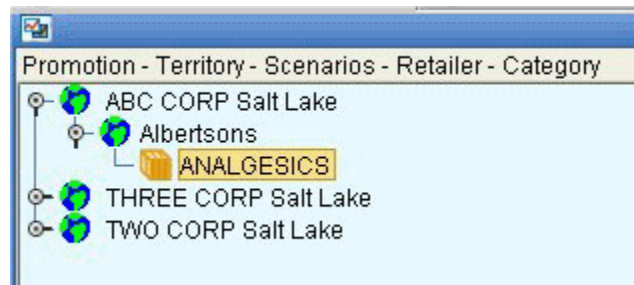
Combinations are central to Demantra. At any given time, a worksheet displays data for one combination at any aggregation level, for example:

- Low fat items in Northeast stores
- SKU PLLF202FCPB at CVS 0051
- Private Label Brand cookies at the account Retailer D
- Ice cream, aggregated at all locations

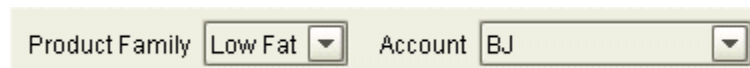
## Selecting Combinations

Apart from completely aggregated worksheets, each worksheet provides a way to select the combination to view. Demantra provides two equivalent mechanisms, as in the following examples.

**Members Browser** (available only in Web worksheets)



**Drop down lists**



In either case, the selected combination is "Low fat products at the BJ account." The rest of the worksheet shows data for that combination.

In some cases, you view data that is aggregated across one dimension. For example, if the worksheet contains only the product family level, and you select the Low Fat member, that means that you have selected the combination "Low fat products at all locations."

## Combination Status

Not all items are sold at all locations. By default, Demantra stores only those combinations that have actual sales, and the Analytical Engine considers only those combinations. You can enable users to create new combinations, for simulation purposes; to do so, they use tools called Member Management and Chaining Management.

The Analytical Engine also considers the relative age of each combination, as well as other combination-specific details. For the details, see "Combination-Specific Settings".

## Series

A series is a set of data that represents some value that varies over time or that varies between item-location combinations (or most commonly, that varies in both ways). A worksheet displays the series data in a table, or in a graph, or both. The following shows an example of a worksheet table:

Private Label LF Butter - BJ Store # 0006							
Time	Demand	Final Plan	Pseudo	Simulation	Sales Forecast	Sales Fcst Bias	Stat Frcst (Y/N)
04/08/2002	1,258,700				1,240,202	-18,498	Do Forecast
07/08/2002	1,232,800				1,161,719	-71,081	Do Forecast
10/07/2002	1,326,200				1,057,580	-268,620	Do Forecast
01/06/2003	488,500				903,675	415,175	Do Forecast
04/07/2003		1,193,227			1,193,227		Do Forecast
07/07/2003		1,123,295			1,123,295		Do Forecast
10/06/2003		1,040,942			1,040,942		Do Forecast
01/05/2004		820,737			820,737		Do Forecast
04/05/2004		280,121			280,121		Do Forecast
Summary	4,306,200	4,458,322			8,821,497	14,244	

The example here shows series at the lowest level, but you can generally view data for any given series at any aggregation level. The definition of the series controls how the data is aggregated. Data can be aggregated in various ways, for example by totalling it, or by taking the maximum or the minimum value.

Series have many properties, including the following:

- It is editable or non editable. Some series are editable only within certain spans of time or when certain conditions are met.
- The data type: numeric, string, or date.
- The series type. Most series apply to sales data, which means that the series data

can be different for each item-location combination at each time bucket. Demantra provides other types of series as well; see "Types of Series".

- The series may or may not be stored in the database.
- Its definition specifies how data for that series is to be calculated at any level or at any higher level time aggregation.

The Analytical Engine directly populates the data used in some of the base series:

- For Demand Management, Demand Planner, and Demand Replenisher, these series include information about the forecast and related information such as markers that indicate regime changes, outliers, and so on.
- For Promotion Effectiveness, these series include information about the forecast and switching effects that describe the impact of various promotions.

For details, see "Series".

## Filtering and Exceptions

Both filters and exceptions both limit the members that users can see. Filters act directly, and exceptions act indirectly.

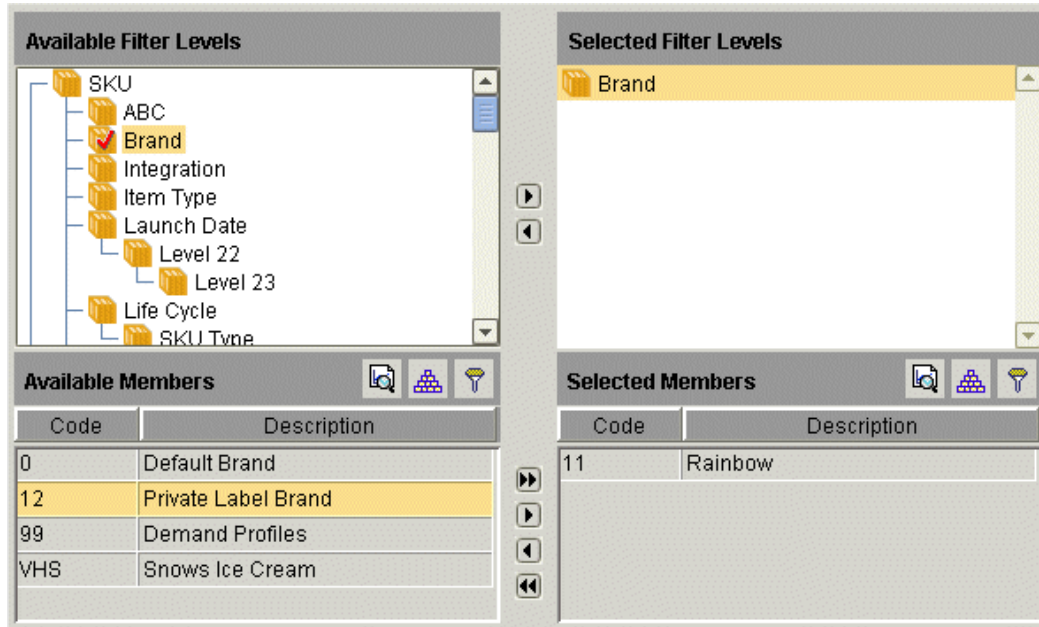
### Filters

Filters specify the members that users can see. When you apply a filter, you specify the following:

- An aggregation level. You can filter data at any level in any dimension.
- Specific members of that aggregation level that are allowed through the filter; other members are not included.

The net result is that a filter allows Demantra to display only certain item-location combinations.

Demantra uses filters in various contexts. In all cases, it uses a standard user interface to display a filter. In the following example, the filter blocks data for all brands except for the Rainbow brand.

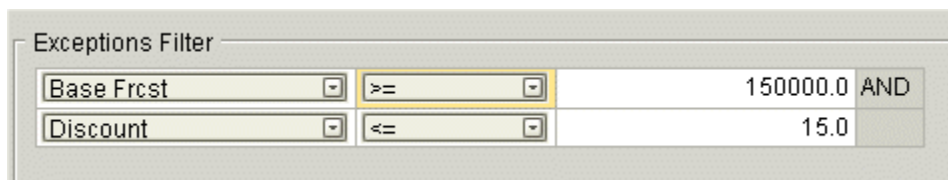


As a result, the worksheet will display only those item-location combinations that are associated with the Rainbow brand. You can filter data at any level, whether or not it is chosen as an aggregation level of the worksheet.

## Exceptions

Exceptions (or exception filters) indirectly control which members the users can see. When you apply an exception, you specify a true/false expression that specifies a series, an operator, and a value, for example: Sales > 50000. A combination is displayed only if this expression is true for at least some of the time buckets in the time range of interest.

You can specify multiple expressions and relate them by logical AND or logical OR.



## Methods

You can define level methods, which the user sees as ordinary right-click menu options in Demantra (either in worksheets or in Members Browser content panes). Each level can have its own set of methods. Demantra provides a set of default methods (Create, Edit, and Delete) that you can redefine or disable as needed.

Each method runs a workflow. In Demantra, a workflow is a logically connected set of steps. Each step can be automated or can require interaction from one or more users or

groups. Demantra provides a set of workflow steps, each with predefined behavior. Workflows can also be used for general automation purposes. For details, see "Methods and Workflow".

## Security

The Demantra data and menus are secured, so that not all users have access to the same data and options. The security model includes the following features:

- The Oracle *license* controls which menus are secured, so that not all users have access to the same data and options. The security model includes the following features:
- The data is partitioned into components, which generally correspond to organizational roles. In the definition of a component, you can control the following:
  - The levels that can be seen
  - The degree of access for members of each level: no access, read-only access, read/write access, or full control (including the ability to delete members)
  - The series that can be seen

Each component has an owner, who acts as the administrator and who can create additional users:

- Within a component, you can restrict each user to a subset of the data associated with that component. You can control the same data elements as previously described.
- You can control access to menu items at the component level, the group level, or the user level. This includes both the menu bar and the right-click menu.
- You can define program groups, or sets of menu items, and apply security at that level, for greater convenience.

For details, see "Security".

## Forecasting

The Analytical Engine reads data from the database, generates a forecast and performs other analyses, and writes the forecast to the database. This section provides a brief overview of the concepts.

## Demand and Causal Factors

The forecast considers both the historical demand and the causal factors (such as seasons, price changes, and specific events such as promotions).

In a Demantra solution, the demand data is ultimately imported from external systems. Typically, the data that is actually imported needs to be adjusted by the forecasters, as they apply their own knowledge to better describe the history.

Causal factors provide information about historical events that are expected to recur in the future. Causal factors cause demand to deviate from a trend. More specifically, a causal factor is a time-varying quantity (such as promotions, price, season, or day of the week) that affects demand. Demantra requires historical data for causal factors, as well as future data that describes expected occurrences that will affect demand.

In the case of Promotion Effectiveness, you also configure promotional causal factors, influence ranges, and influence groups, all of which control how the Analytical Engine determines the effects of promotions on the forecast.

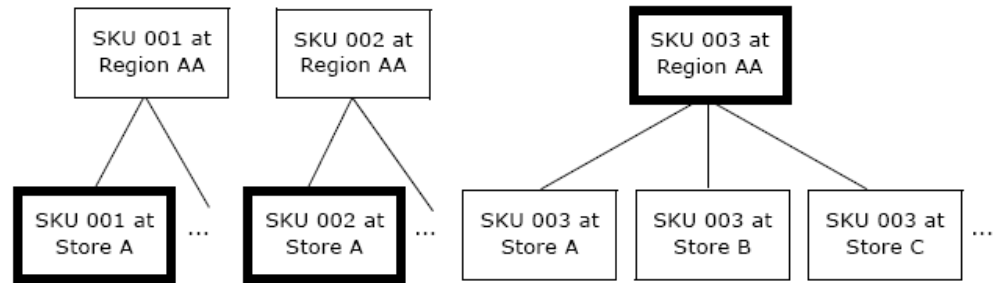
## Engine Coefficients

As a result of the forecasting process, the Analytical Engine calculates a set of *coefficients* that describe how each causal factor affects demand for each item-location combination, over time. The Analytical Engine then uses those coefficients, along with future values for the causal factors, to calculate the forecast. The Promotion Optimization module also makes use of these coefficients.

## Forecasting Models and the Forecast Tree

The Analytical Engine uses a set of mathematical forecast models. When forecasting, the engine follows a specific process of examining the data, checking for outliers and so on, evaluating the usefulness of each model, and generating the forecast.

In general, forecasting is most accurate when it can be performed at the lowest possible allowed aggregation level. However, sometimes there is not enough data at that level for all combinations. For those combinations, the Analytical Engine aggregates the data to a higher level and tries to generate a forecast there. The purpose of the forecast tree is to organize data for this process. Each node in the forecast tree aggregates both by items and by locations. The following example shows a small part of a forecast tree.



The bold boxes show the nodes at which the Analytical Engine is forecasting in this example.

## Parameters and Engine Profiles (PE)

Demantra provides parameters to control both the theoretical models and the overall engine flow.

The engine uses engine profiles, which are sets of engine parameters with specific values. Demantra provides some predefined profiles for different purposes, and you can define additional engine profiles, as needed. When you run the engine, you specify the engine profile to use.

## Batch and Simulation Modes

The Analytical Engine runs in two modes:

- When a forecast is made in the batch mode (in the background), the Analytical Engine creates a forecast for all item-location combinations within the forecast tree. You configure Demantra to run the Analytical Engine periodically, usually after importing new data.
- If the Analytical Engine is running in simulation mode, it waits for simulation requests and then processes them.

From within a worksheet, a user submits a simulation request to create a tentative forecast for a subset of the data. The user can then accept or reject the results of the simulation. In this mode, the user is usually performing a "what if" analysis. That is, he or she has made some changes within the worksheet and then performs the simulation to see whether those changes have the desired effect.

See Also

"Introduction to the Analytical Engine".



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## How Demantra Calculates and Stores Data

As an implementor, you should understand how Demantra calculates and stores data, because this can affect how you set up your solution. This chapter provides an overview of most important details.

This chapter covers the following topics:

- How Data Is Stored
- How Data Is Calculated at the Lowest Level
- How Data Is Calculated at Higher Levels
- How Proportions Are Chosen
- How Proportions Are Used
- How Splitting Handles Null Values
- How Splitting Handles Zero Values
- When and How Data Is Saved to the Database

### How Data Is Stored

In order to understand how Demantra works, you should be aware of two central facts about how Demantra stores data:

- Demantra stores data only at the lowest possible level.
- Demantra stores data only where the sales data is non-null.

These facts have wide-ranging implications. The following subsections expand these two facts, and the sections after that provide further details.

### Data Is Stored at the Lowest Level

Demantra stores data only at the lowest possible item level, lowest possible location level, and base time unit. This has the following implications:

- When data is viewed or exported at a higher level, that data must be calculated.
- When data is edited or imported at any higher level, Demantra must calculate and then write the data for the appropriate lowest-level members.
- If the Analytical Engine generates a forecast at a higher level, Demantra must split that forecast and write it into the appropriate lowest-level members.

## Data Is Stored Only Where the Sales Data Is Non-Null

Theoretically there might be a very large number of item-location combinations, but some items just might not be sold at some locations. It would be incorrect for Demantra to assume that all items could be sold at all locations during any time buckets. If Demantra assumed that, the result would be a very inaccurate forecast.

Instead, Demantra assumes (by default) that if there were no sales for a given combination during a specific time bucket, sales were not possible for that combination and time. Specifically, Demantra uses this assumption as follows:

- The Demantra database does not, by default, contain records that represent null sales. That is, for a given item-location combination, if no sales occurred during a given time bucket, Demantra does not contain a record for that combination and time bucket.
- If there is no sales record for a given combination and time bucket, Demantra ignores that combination and time bucket when performing various operations, such as forecasting.

In some cases, however, a null value for sales really does mean zero sales. Depending on the context, you can force Demantra to treat null values as zero values.

## How Data Is Calculated at the Lowest Level

In general, the definition of a series also specifies how to calculate data at the lowest level, in the case when data changes at a higher level. Data can potentially change at a higher level either when it is imported at a higher level or when users edit a series while displaying data at a higher level.

Each series can be configured as proportional or non-proportional.

- If a series is proportional, the parent value is split among the child members according to the proportions of those child members.
- If a series is non-proportional, the value for each child member is set equal to value of parent.

Other series are neither proportional nor non-proportional. Data for these series should not be changed except at the lowest level. For details, see "Summary of Calculation

Options".

## How Data Is Calculated at Higher Levels

The definition of a series specifies how to calculate data at any level. A series can have either or both of the following expressions:

- A server expression, which aggregates data from the lowest level in the database.
- A client expression, which calculates the series data, based on other series at the same level. If a series has a client expression, that series is automatically made non editable.

### Server Expressions: Aggregation from Lower Levels

A server expression is an SQL expression that calculates the series data at any level by aggregating the associated lowest-level data. A very common server expression has the following form:

`sum (table_name.update_column_name)`

Here *table\_name.update\_column\_name* is the table and column that stores data for this series.

If you view a combination at the lowest level, this expression reads the series value for one row in the given table. On the other hand, if you view a combination at a higher level, this expression sums the series values associated with all the rows that correspond to the child members.

- Parent: muffins
  - Expected: 200
  - Actual: 220

**Note:** The values for Expected and Actual series are calculated by aggregating from child members

- Child: apple muffins
  - Expected: 100
  - Actual: 110
- Child: blueberry muffins
  - Expected: 100

- Actual: 110

Similarly, if you view a combination at a larger time bucket, this expression sums the series values associated with all the rows that correspond to the smallest time buckets for the combination.

A server expression can also aggregate by averaging or taking the minimum or maximum value of the child members.

#### Client Expressions: Calculations within a Level

A series can also have a client expression, which calculates data in a different way. In contrast to server expressions, a client expression always refers to data at the same level. You use client expressions to calculate numbers that cannot be calculated by aggregation from lowest-level data. For example, consider the following client expression for a hypothetical series called ErrorSquared:

$$(\text{Expected} - \text{Actual}) * (\text{Expected} - \text{Actual}) / (\text{Expected} * \text{Expected})$$

For a given combination at a given time bucket, this expression calculates the ErrorSquared series directly in terms of the Expected and Actual series for the same combination at the same time bucket. As you can see from the following example, it would not be possible to compute this series by aggregating lowest-level members:

- Parent: muffins
  - Expected: 200
  - Actual: 220
  - ErrorSquared: 0.0001

**Note:** The value for the ErrorSquared series is calculated at this level, not aggregated from child members

- Child: apple muffins
  - Expected: 100
  - Actual: 110
  - ErrorSquared: 0.01
- Child: blueberry muffins
  - Expected: 100
  - Actual: 110

- ErrorSquared: 0.01

In addition to formulas as these, you can use client expressions to perform the following kinds of computations, which are not possible with server expressions:

- Conditional expressions, including nested conditional expressions
- Expressions that refer to data at earlier or later time buckets

### Using Both Server and Client Expressions

A series can have both a server expression and a client expression. The client expression always takes precedence. Therefore, if a series has both expressions, the client expression is usually of the following form:

If (*condition*, *client-expression-value*, *series-name*)

Here *series-name* is a reference to the same series to which this client expression applies. This reference directs Demantra to the server expression that this series uses.

Depending on whether the condition is true for a given cell, this expression returns either the client expression value or server expression value.

## How Proportions Are Chosen

Demantra provides three general ways to specify the relative proportions of different combinations:

- Actual proportions. This option splits higher-level data according to the proportions of the Demand series. This is an option when importing data.
- Proportions of a reference series. When you configure a series as proportional, you also specify a reference series (the Proportion Calculation series). You typically use one of the following series:
  - Demand (suitable for a historical series)
  - Final Plan (suitable for a forecast series)

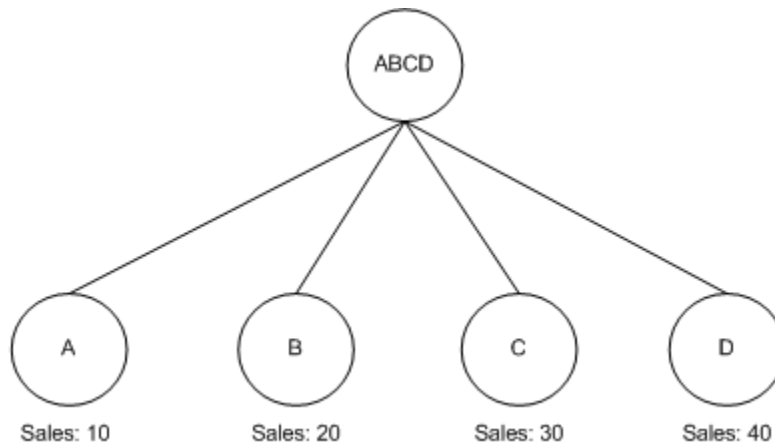
This option is available when you define a series and is used when data for that series is edited at an aggregated level.

- Matrix proportions, which are stored proportions that Demantra calculates and saves. (The mechanism that performs the calculation is called *proport*.) The calculation is based upon the demand, but also considers recent average demand, month-to-month variations, and so on. See Chapter 12, "Proport". These proportions are available in multiple cases:
  - When importing data.

- Automatically used when forecast must be created at higher level.
- When a user performs a chaining operation (data copy) at a higher level. A user performs chaining in order to use existing data for a given combination as a basis for a new combination; see the Oracle Demantra Demand Management User's Guide.

## How Proportions Are Used

The following figure shows an upper-level member, ABCD, and its four child members. It also shows a reference series (Sales), and it shows the value of that series for each child member, all within the same time bucket.

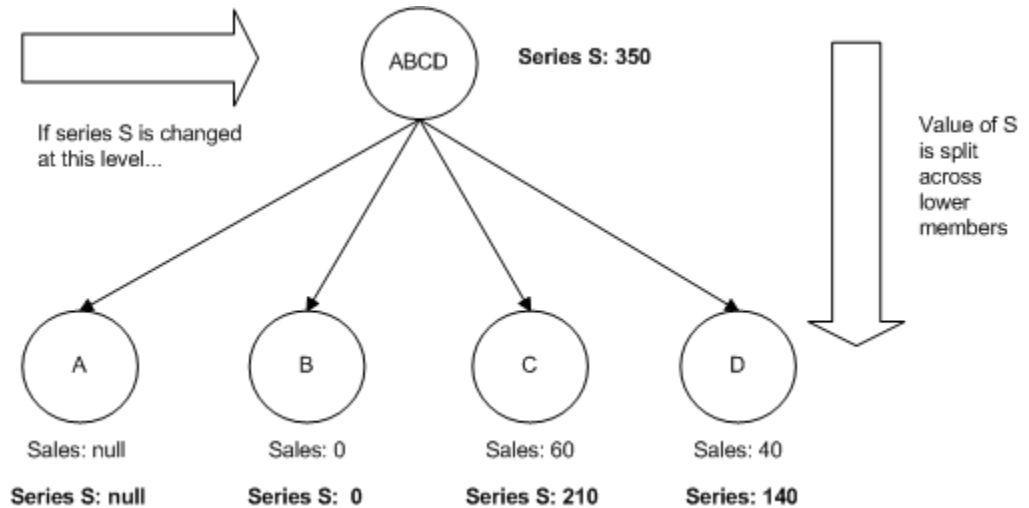


Now suppose that series S is a proportional series that uses Sales as its reference series, and suppose that the value of S is changed to 350 for the parent member. In this case, the series S is split across the child members as follows:



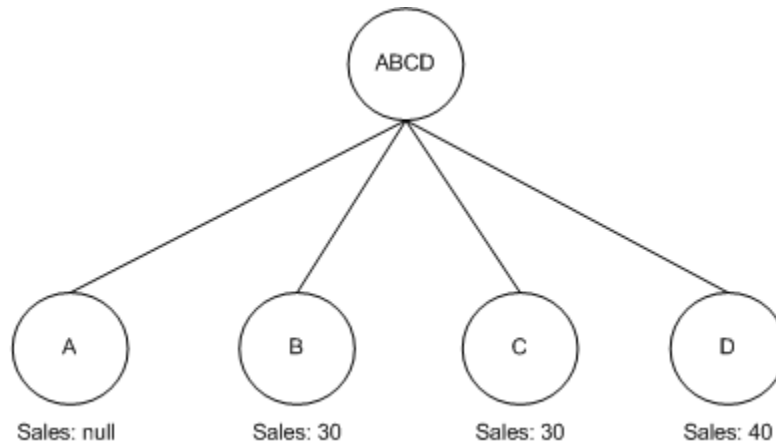
## How Splitting Handles Null Values

Now consider a case where the reference series has a null value for one of the child member. The proper mechanism ignores that member, as follows:



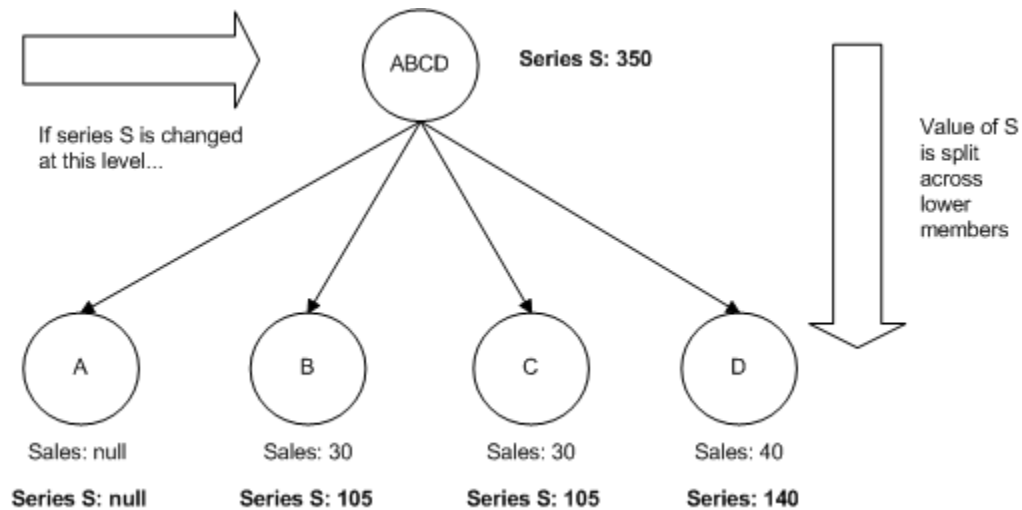
## How Splitting Handles Zero Values

Now let us consider two cases where child members have zero values. In the first case, the reference series is zero for one of the child members, but has non zero numbers for other child members. Any member with 0 sales receives 0% of the split, as follows:



Notice that member A that has a null value for the reference series; for this member, the value of series S is null, rather than 0.

In the second case, none of the child members has a non zero value. In a case like this, the parent value is split equally among all members that have zero values for the reference series.



As always, if a child member has null for the reference series, the proprot mechanism ignores that member entirely.

## When and How Data Is Saved to the Database

A series may or may not be stored in the database. If it is stored, its data is saved in the series update field. Because you can potentially have different values from splitting at different levels, it is important to understand when and how Demantra saves data to the update field for a series.

For a series that has an update field, Demantra saves data to that update field as

follows:

- When you import data for that series, Demantra splits it down to the lowest level and saves it in the update field. In this case, the MANUALS\_INS\_INTEGRATION procedure performs the splitting and saving.
- When a user edits data for that series, Demantra splits it down to the lowest level and saves it in the update field. If the user is working with the desktop products (Demand Planner or Demand Replenisher), the MANUALS\_INS procedure performs the splitting and saving. If the user is working with the Web products, no database procedure is needed.

If this user changes causes a change to the value of another series in the worksheet, Demantra splits that other series value down to the lowest level and saves it in the update field for that other series.

Demantra ignores any series whose values have not been changed.

If the series also has a client expression, Demantra also saves data to that update field as follows:

- When a user runs a worksheet that contains the series, Demantra evaluates the client expression for that series, computing the values at that level. Demantra then splits it down to the lowest level and saves it in the update field. If the user is working with the desktop products (Demand Planner or Demand Replenisher), the MANUALS\_INS procedure performs the splitting and saving. If the user is working with the Web products, no database procedure is needed.
- When the Business Logic Engine evaluates a worksheet, Demantra evaluates the client expression for all series in that worksheet, computing the values at that level. Demantra then splits the values down to the lowest level and saves them in the update fields of the appropriate series. In this case, the MANUALS\_POPULATE\_INS procedure performs the splitting and saving.

**Caution:** Demantra does not automatically launch the database procedures. Instead, you must make sure to schedule the procedures to run periodically or otherwise automate running them. Use the Workflow Engine. See "Workflows".



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## Implementation Tools and Process

This chapter provides a quick overview of the implementation and hand-off processes and tools you use during these processes.

This chapter covers the following topics:

- Overview of Tools
- Initial Phase of Implementation
- Middle Phase of Implementation
- End Phase of Implementation
- Handoff Details

### Overview of Tools

This section provides a brief overview of the tools you use during implementation. All these tools are available later for use by system administrators.

### Setup Scripts

Some Demantra products, such as DSM, assume that your database contains specific levels, parameter settings, and other configuration options. Demantra provides setup scripts that perform all the required configuration for these products. See "Other Configuration".

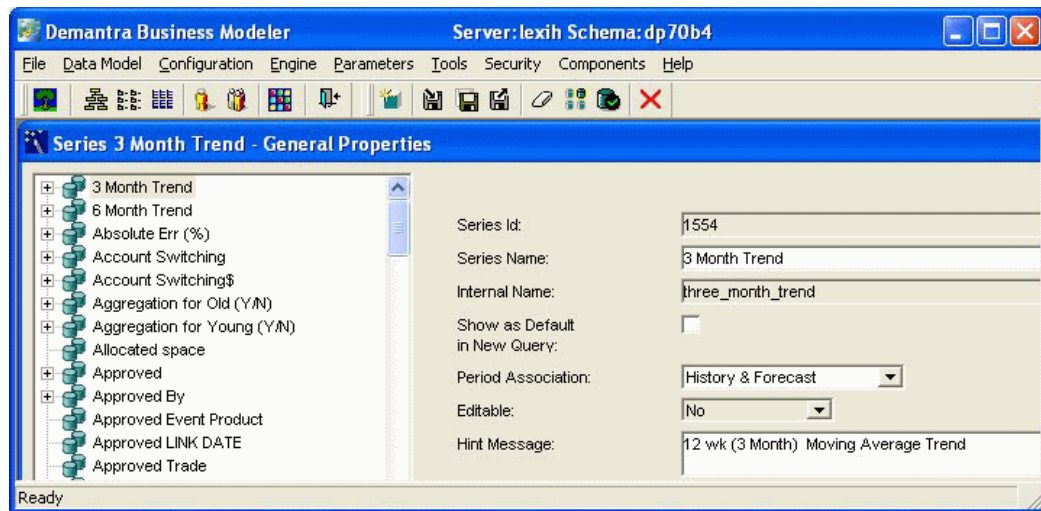
### Business Modeler

You use the Business Modeler for most configuration tasks, including the following tasks:

- Defining all elements used in worksheets: levels, series, units of measure, indexes and exchange rates
- Defining level methods

- Defining integration
- Defining components and users
- Setting parameters

The Business Modeler is desktop-based and looks like this; this example shows the wizard for configuring series:



## Workflow Manager

You use the Web-based Workflow Manager enables you to create and manage workflows or automated processes. The Workflow Manager looks like the following:

name of currently displayed schema group

use these buttons to manage schema groups

View according to Schema Groups:

Schema ID	Schema name	Owner	Creation Date	Last Modified	Instances	Status	Action			
1	<a href="#">Partner Plan Collaboration</a>	dp	Feb 28 20:10:02 2003	Aug 21 16:55:48 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
2	<a href="#">Space consumption Alert</a>	guy_yehiaiv	Apr 14 21:21:46 2003	May 07 18:06:46 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
22	<a href="#">Stockout Alert</a>	guy_yehiaiv	Apr 14 22:40:47 2003	Sep 22 16:31:00 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
23	<a href="#">CPFR Step 1</a>	guy_yehiaiv	Apr 29 17:46:04 2003	Apr 29 17:46:34 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
43	<a href="#">Stockout Alert Per Store</a>	guy_yehiaiv	May 08 13:05:53 2003	May 08 13:05:53 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
63	<a href="#">Export Dynamic Data</a>	lmv	May 16 09:58:59 2003	May 16 10:00:14 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>

schemas in the currently displayed group

[Process Log](#) [New Schema](#) [Refresh](#)

view workflow process details

create a new schema

refresh this screen

For information on creating and managing workflows, "Creating Workflows" and "Managing Workflows".

## Analytical Engine

The Analytical Engine reads data from the database, generates a forecast and performs other analyses, and writes the forecast to the database.

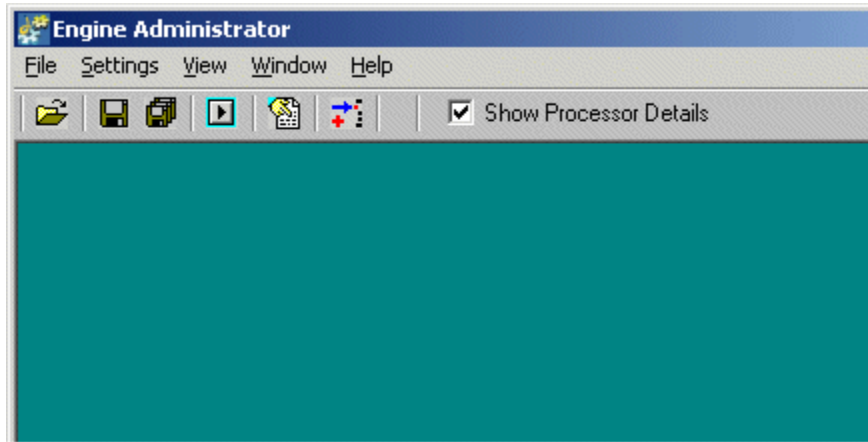
You use the following tools to configure the Analytical Engine:

- The Business Modeler, where you configure causal factors, the forecast tree, and parameters that control the engine. Here you can also define engine profiles.
- The Engine Administrator, where you specify additional engine settings. You save the settings in an XML file for convenience. You can open and use settings files that you have previously saved.

Some of the configuration details are different for the two engine versions (Promotion Effectiveness and demand planning), as noted in the engine manuals.

You use the Engine Administrator to specify logging options, choose machines to run the engine (if you have the Distributed Engine), to choose batch or simulation mode, and to start the engine run.

The Engine Administrator looks like the following:



For information on configuring and running the engine, see "Configuring and Running the Analytical Engine".

### **Business Logic Engine**

The Business Logic Engine evaluates client expressions in the background so that Demantra can update series that use client expressions. The main way to run the Business Logic Engine is to call it from within a workflow step. You specify the worksheet to be evaluated. See "BLE Step".

### **Collaborator Workbench Administrator**

You can use the Web-based Collaborator Workbench Administrator to configure Collaborator Workbench as follows:

- Specify the items on the Planning Applications and Tools and Applications menus.
- Specify which of those menu items are available to each user.
- Specify the default layout of the core content panes (such as My Tasks).
- Specify which core modules are available to each user.

The Collaborator Workbench Administrator looks like the following:

[Define Menus](#)  
[Define Program Groups](#)  
[Define Program Permissions](#)  
[Define Content Security](#)  
[Personalize Component Templates](#)  
  
[Logout](#)  
[Login to Collaborator Workbench](#)  
[Login to Demantra Anywhere](#)

See "Administration".

## Demantra Enterprise Integrator (DEI)

The Demantra Enterprise Integrator (powered by Pervasive) is licensed, packaged, and documented separately from the core Demantra products.

Demantra Enterprise Integrator provides enterprise database connectivity, with native connectors to more than 100 enterprise systems. It stores all design metadata in an open XML-based design repository for easy metadata interchange and reuse. Within Demantra Enterprise Integrator, you map the integration and capture that information in a DEI file. Then you can run that integration from within a workflow.

## Initial Phase of Implementation

In the initial phase of an implementation, you gather information and perform groundwork. It is important to analyze the business and demand planning requirements of the enterprise. Generally, you complete a questionnaire that outlines the enterprise business model, products, workflow, sales data, and distribution channels. The information usually includes the following:

- Sales history, including what was sold, where, the quantity and the dates on which an item was shipped
- Other operational/logistics data relating to sales history
- Item and location information
- Information about the various item and location hierarchies that are meaningful to this organization
- For Promotion Effectiveness: Information on sales promotions
- Required lowest-level time resolution

After gathering this information, you should create a detailed design document for later

use during the implementation process. The design process itself is beyond the scope of the Demantra documentation.

## Middle Phase of Implementation

The main implementation phase uses many tools. Here the steps are grouped loosely into three areas:

- Configuring data and the engine
- Setting up integration and workflow
- Setting up users; configuring and customizing the user interfaces

## Data and the Engine

For any implementation, you typically perform all the following tasks:

Task	Tool used	For details, see
Build the data model.	Business Modeler	"Using the Data Model Wizard"
Add more levels if needed	Business Modeler	"Configuring Levels"
Configure the series and groups of series	Business Modeler	"Configuring Series and Series Groups"
Configure units of measure, financial indexes, and conversion rates for use in series and worksheets	Business Modeler	"Configuring Units, Indexes, and Update-Lock Expressions"
Configure Promotion Effectiveness	Database setup scripts	"Configuring Promotion Effectiveness"
Configure DSM	Database setup scripts	"Configuring DSM"
Configure Promotion Optimization	Database setup scripts	"Configuring Promotion Optimization for PTP"

Task	Tool used	For details, see
Configure the engine: <ul style="list-style-type: none"> <li>Set up causal factors</li> <li>Set up the forecast tree</li> <li>For Promotion Effectiveness: Configure the influence groups and influence ranges that affect how the engine works.</li> <li>Tune the Analytical Engine</li> </ul>	Business Modeler	"Configuring and Running the Analytical Engine"
Run the Analytical Engine and check the results  Specify additional engine settings and save them in an XML file for convenience.	Engine Administrator	
Set parameters that control Demantra behavior in many ways.	Business Modeler	"Configuring Parameters"

## Integration, Workflow, and Automation

During a typical implementation, you typically perform at least some of the following tasks:

Task	Tool used	For details, see
Define import and export mechanisms.	Business Modeler	"Series and Level Integration"
	Demantra Enterprise Integrator	Demantra Enterprise Integrator documentation, available separately

<b>Task</b>	<b>Tool used</b>	<b>For details, see</b>
Load sample data and test the import and export processes.		
Write database procedures to maintain data as needed.	Text editor	Outside the scope of this documentation
Define workflows.	Workflow Editor	"Creating Workflows"

## Users and User Interfaces

During a typical implementation, you typically perform at least some of the following tasks:

<b>Task</b>	<b>Tool used</b>	<b>For details, see</b>
Create components, or subdivisions of Demantra data	Business Modeler	"Creating or Modifying a Component"
Specify which levels and series are displayed in the each component		
Create additional users for the components, as needed.	Business Modeler	"Creating or Modifying a User"
Create user groups for collaboration.		
Define security for menu options.	Collaborator Workbench Administrator	"Specifying Permissions for Menu Items"
Define worksheets. Worksheets are visible only within the component where they were defined.	Worksheet designer	Oracle Demantra Demand Management User's Guide or other user manual
Define methods that the users can execute from within the worksheets; redefine or disable default methods.	Business Modeler Workflow Editor	"Configuring Methods"

Task	Tool used	For details, see
Optionally customize Collaborator Workbench.		"Customizing Demantra Web Pages"

## End Phase of Implementation

The end phase of an implementation includes the following general steps.

### Fine-Tuning

After you define the data model and the components, it is often necessary to iterate by making adjustments to both the data model and the components.

- You may need to use the Business Modeler for the following tasks:
  - Make series and levels available or unavailable
  - Further customize the components
- You may need to adjust the worksheets. To do so, you use the worksheet wizard. See the Oracle Demantra Demand Management User's Guide or other user manual.

### Delivering the Solution

To deliver the solution, you must perform the following general tasks:

- Wrap the database procedures. See "Wrapping Database Procedures".
- Make sure that all server machines are configured correctly.
- Set up the client machines and verify that each can run the Demantra software.
- Run the Analytical Engine, examine the results, and tune the Analytical Engine as needed.
- Perform acceptance testing with the qualified users.
- Train users and provide handoff details. Here you must train end users and one or more designated administrators who will be responsible for maintaining the system in the future.

## Handoff Details

When the system goes online, you should provide the following information to the end users and one or more designated administrators who will be responsible for maintaining the system in the future.

### Handoff Details for the Users

When you hand off the solution to the users, be sure to provide details on the following implementation-specific topics:

- The worksheets that you have preconfigured for the solution: the purpose of each and intended users, as well as the levels, series, and other details that describe those worksheets.
- The level hierarchies and the purpose of each level. Make particular note of the levels that are used in the forecast tree, as those affect the Analytical Engine.
- The series and their interrelationships.
- Which data each user can see.
- How often new data is imported.
- How often the engine runs.
- Workflows that require user participation.

Also, make sure that users are familiar with the basic concepts, as documented in the user manuals. In particular, make sure they know how to make and save changes in the worksheets, as well as understand why changes do not always immediately appear in the worksheets.

### Handoff Details for the System Administrator

When you hand off the solution to an administrator, be sure that the administrator understands how to keep the solution running. Depending on how Demantra is configured, it needs some or all of the following:

Component	When needed	See
Database	Always	Information for Oracle or SQL Server
Workflow Engine	If workflows are being used	"Managing Workflows"

<b>Component</b>	<b>When needed</b>	<b>See</b>
Web server	If solution uses any Web-based components	Documentation for the Web server
Possible other background processes	Varies	Contact the implementors of your Demantra system

Also, be sure to provide details on the following implementation-specific topics:

- The specific automated processes that the solution uses, including any database procedures that must be scheduled to run periodically
- How often the Analytical Engine runs
- Any workflows that are in the solution
- How many components have been defined and who owns them; user IDs and initial passwords; permissions for each user
- User groups, their memberships, and their purposes

The administrator will probably have to add, remove, or change permissions for users, also described in "Managing Security".



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## Levels

This chapter describes levels and related concepts, outlines the primary configuration options, and summarizes the available tools.

This chapter covers the following topics:

- Introduction
- Level Terminology
- Hierarchy Variations
- Types of Levels
- Members
- Member Identifiers
- Introduction to the Data Model Wizard
- Levels and the Forecast Tree
- Filtered Levels
- Other Concepts Related to Levels
- Configuration Notes

### Introduction

Levels control how data is aggregated and organized. They are used in worksheets, in filters, in import and export, and in forecasting. In a worksheet, for example, you can display data at the account level, as follows:

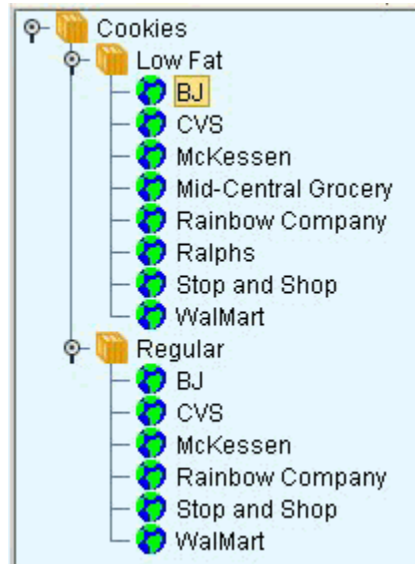
Accounts		Accounts and SKUs				
Members Browser		CVS				
<ul style="list-style-type: none"> <li>BJ</li> <li>CVS</li> <li>McKessen</li> <li>Rainbow Company</li> <li>Ralphs</li> <li>Stop and Shop</li> <li>Walmart</li> </ul>		Time	Demand	Price \$	Revenue \$	Market Plan \$
		02/04/2002	5,757,460	\$10.00	\$57,574,600	\$19,771,290
		05/06/2002	7,674,924	\$10.00	\$76,749,240	\$19,771,290
		08/05/2002	7,285,994	\$9.99	\$72,606,928	\$19,609,128
		11/04/2002	5,736,909	\$9.97	\$57,049,760	\$19,609,128
		02/03/2003	1,571,396	\$9.99	\$15,649,532	\$36,329,952
		05/05/2003		\$10.00	\$67,828,136	\$58,347,280
		08/04/2003		\$10.00	\$63,045,580	\$57,779,168
		11/03/2003		\$10.00	\$47,297,200	\$46,307,320
		02/02/2004		\$10.00	\$49,651,088	\$48,727,416

The worksheet might include a drop down list instead of this tree control. For example:

Accounts		Accounts and SKUs				
Page Items						
		Account CVS				
All						
		Time	Demand	Price \$	Revenue \$	Market Plan \$
		02/04/2002	5,757,460	\$10.00	\$57,574,600	\$19,771,290
		05/06/2002	7,674,924	\$10.00	\$76,749,240	\$19,771,290
		08/05/2002	7,285,994	\$9.99	\$72,606,928	\$19,609,128
		11/04/2002	5,736,909	\$9.97	\$57,049,760	\$19,609,128
		02/03/2003	1,571,396	\$9.99	\$15,649,532	\$36,329,952
		05/05/2003		\$10.00	\$67,828,136	\$58,347,280
		08/04/2003		\$10.00	\$63,045,580	\$57,779,168
		11/03/2003		\$10.00	\$47,297,200	\$46,307,320
		02/02/2004		\$10.00	\$49,651,088	\$48,727,416

In either case, you can display data for any account.

You can use multiple levels together, for example:



In generic terminology, the word *member* refers to a unit within a level. For example, CVS is a member of the account level. When the user hovers the mouse over a member, Demantra displays a hint indicating the name of the level to which that member belongs.

## Levels and Filtering

Within Demantra, you generally apply filters by specifying a level and the members of that level to include. For example, the following filter includes only the Rainbow brand.

Available Members		Selected Members	
Code	Description	Code	Description
Default	Default Brand	11	Rainbow
12	Private Label		
99	Demand Profiles		
VHS	Snows Ice Cream		

level members not included in the filter

level members included in the filter

(and therefore displayed in the worksheet)

You can apply multiple filters at the same time. For example, for the preceding worksheet, you could also filter by account.

You can apply use filters in worksheets, in user security, and in import and export.

## Levels and Member Management

Within a worksheet, a user can right-click and operate on a member. For example, a user can edit a member, displaying a dialog box like the following:

Attribute	Value
Brand	Rainbow
Item Type	0
Life Cycle	Catalog
Make or Buy	M
Measurement Unit	unit
Name	Rainbow Reg Chocolate Chip
Product Family	Regular
Unit Cost	1.25
Unit Volume	1

Here the user can edit attributes of the member, including its parent members. Most level members are imported from external systems, and users generally create or change members only if they expect the same change to occur in the imported data.

You can disable or hide the right-click menu options that permit these activities.

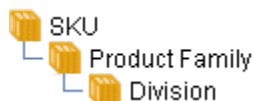
### Custom Methods

As the implementor, you can define custom methods to perform operations on a selected member, for users to access as an option on the right-click menu. You can apply security to your methods, just as you do with the core right-click actions.

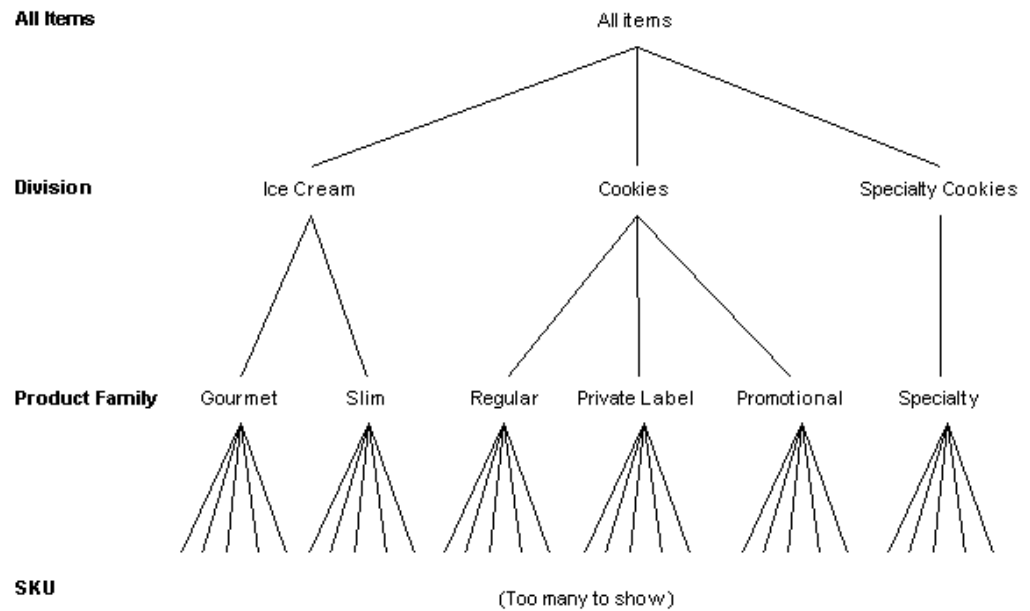
For information on methods, see "Methods and Workflow".

## Level Terminology

Demantra uses standard terminology to describe level hierarchies. The following figure shows an example of item levels:



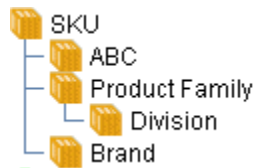
This hierarchy corresponds to the following data:



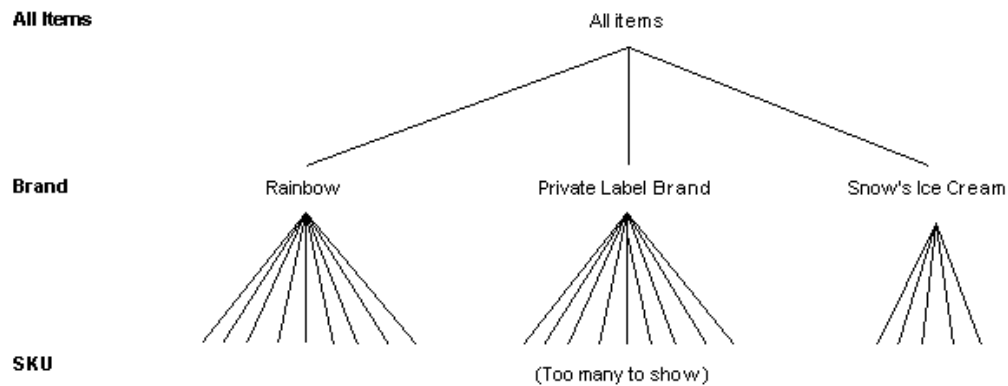
The Product Family level is the parent of the SKU level, and conversely, SKU is the child of Product Family.

## Hierarchy Variations

Your application can include multiple, independent hierarchies. For example, you could include the following three independent hierarchies:



The Product Family hierarchy is described above. The Brand hierarchy is as follows:



Note that this hierarchy is independent of the Product Family hierarchy. That is, there is not necessarily any relationship between brands and product families. The ABC hierarchy is not shown here, but is also independent of the other hierarchies.

Each hierarchy can contain as many levels as needed. Some hierarchies are typically much more complex than others.

## Types of Levels

Demantra supports the following types of levels, most of which are indicated with different icons:

- *Item levels*, which group data according to characteristics of the items you sell. Item levels typically include brand, item type, product category, and so on.
- *Location levels*, which group data according to characteristics of the locations where you sell. For example, location levels could describe a hierarchy of geographical places or of company organization. Another location hierarchy could organize the locations in some other manner, such as by type of store.
- *Combination levels*, which group data according to time-independent characteristics of the item-location combinations. Combination levels are also known as matrix levels.
- *Time levels*, which group data by sales date. You typically use time levels on the x-axis of a worksheet, instead of the predefined time units.
- *General levels*, which group data by item, location, and date. General levels are provided as a modeling tool to be used as needed. Demantra does not provide a standard icon for this type of level, because the possible uses can vary a great deal.

Demantra also provides special-purpose levels for use with specific products; see "Special-Purpose Levels".

**Note:** The desktop products (Demand Planner and Demand Replenisher) can display only item, location, and combination levels. The Web products can support all kinds of levels.

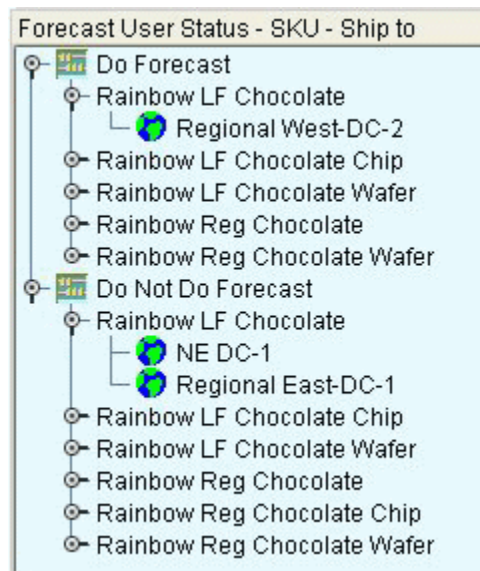
## Item and Location Levels

Every application includes at least one item level and one location level. These are useful levels because generally our applications are interested in products and how those products perform at different locations.

Item and location levels are also used in the forecast tree; see "Levels and the Forecast Tree".

## Combination Levels

As noted earlier, combination (matrix) levels group data according to time-independent characteristics of the item-location combinations. For example, the following partial worksheet uses a combination level that groups data by a user-controlled flag that determines which combinations the Analytical Engine will forecast:



## Time Levels

A time level aggregates data by time, and time levels are often used for custom calendars. Your solution can use time levels, custom time units, or a combination of both. Use the following guidelines to determine which you need:

na	Names	Uses in worksheet
time level	Each member can have a user-friendly name that you create.	You can use a time level like any other level, such as placing it on a worksheet axis.
time unit	Each time bucket in the worksheet is automatically labeled with the start date of that bucket.	You can use time units only on the x-axis (the time axis) of the worksheet.

See also "Time Units".

### General Levels

A general level groups data by the item, location, and time bucket. Promotion Effectiveness uses general levels to model marketing promotions, but they could be used in other ways.

In addition to ordinary attributes, a general level can have a population attribute, which specifies a set of item-location combinations and consecutive time buckets with which the general level is associated; see "Population Attributes".

### Special-Purpose Levels

Demantra also provides the following special-purpose levels:

- Promotion levels, which are used by Promotion Effectiveness and which group data by sales promotions. Depending on how your needs, you may have a hierarchy of promotional levels (to organize the promotions), and the higher levels might use different icons.
- Settlement levels, which are used only by DSM. In general, a settlement is an outstanding sum of money that needs to be resolved, related to a promotion. If you use a settlement level in a worksheet, you cannot use levels from any other hierarchy in that worksheet.
- Check request levels, which are used only by DSM. A check request is an instruction to send a check to a customer or designated third party. Check requests are exported to the accounting systems that actually perform them.

## Members

Each level includes a set of members, each with different characteristics. For example, the SKU level includes a set of members, each corresponding to a different value of SKU.

## Member Attributes

A level can have attributes, which are descriptive properties associated with the level (and stored in the table associated with the level). Each member can have different values for each attribute. You use attributes in several different ways:

- To provide extra information for the end users to view and edit, within the worksheets. To view attributes of a member, the user can right-click the member within a worksheet; see "Levels and Member Management".
- To act as levels, that is, to provide a further subdivision of the level data. To do this, you add an attribute to a level and select an option to create it as a child level. For example, suppose you create an attribute called ABC. If ABC can have the values A, B, or C, and if you create this attribute as a level, then the ABC level would have three members: A, B, and C. The member A, for example, would consist of all the data that had the A value for this attribute, within the parent level.
- For integration.
- In the case of promotions, promotion attributes are converted into promotional causal factors for use by the Analytical Engine. See Chapter 44, "Configuring Causal Factors".

You can have different types of attributes (numeric, character, or date), and you can specify a default value for each.

## Population Attributes

As noted earlier, a general level can also have a population attribute, which specifies a set of item-location combinations and consecutive time buckets with which the general level is associated.

Because it is more complex than an ordinary attribute, a population attribute is stored in several additional tables that Demantra automatically creates.

## Member Defaults

Users can create new members by using the right-click menu in a worksheet. To simplify this work, it is useful to provide default values for the attributes and for the parent members.

For parent members, Demantra provides a predefined default member for each level, and that member is initially named Default level name. You can choose whether to display this member and you can rename it. This predefined default member is not normally associated with any data, however; it is provided for convenience.

If you have data loaded in the system, you can instead choose an existing member to use as the default member.

So, for example, you could use any of the following as the default member of the Brand

level:

- The predefined default member: Default Brand
- The predefined default member, renamed by you: Unspecified Brand
- An existing member: Acme

A given level can have multiple parent levels. This means that you can specify a default within each of those parent levels. For example, in the default setup for Promotion Effectiveness, the Promotion level has three parents: Promotion Status, Promotion Type, and Scenario. When a user creates a new promotion, you may want the user to have a default value for each of these.

## Member Identifiers

Whenever Demantra retrieves data for a worksheet, it uses the levels in that worksheet to determine how to group the database rows. For example, consider the following set of rows in a table of items.

SKU	SKU_DESC	...	FAMILY	...
RLF0013OR	Rainbow LF Oatmeal Raisin	...	Low Fat	...
RLF0016CH	Rainbow LF Chocolate	...	Low Fat	...
RLF0018VW	Rainbow LF Vanilla Wafer	...	Low Fat	...
RLF0019CW	Rainbow LF Chocolate Wafer	...	Low Fat	...
PLRG0209C	Private Label Reg Chocolate Wafer	...	Regular	...
PLRG0210S	Private Label Reg Strawberry Wafer	...	Regular	...
RLF0011CC	Rainbow LF Chocolate Chip	...	Low Fat	...

SKU	SKU_DESC	...	FAMILY	...
RLF0012PB	Rainbow LF Peanut Butter	...	Low Fat	...
RRG0007CN	Rainbow Reg Cinnamon	...	Regular	...
RRG0008VW	Rainbow Reg Vanilla Wafer	...	Regular	...
RRG0010SW	Rainbow Reg Strawberry Wafer	...	Regular	...
RSP0021AC	Rainbow Spc Animal Crackers	...	Specialty	...

Here the FAMILY field indicates the product family to which each SKU belongs. When aggregating to the family level, Demantra groups together all the rows with the same value of FAMILY.

The field that can be used in this way is called the code field for the level. When you define a level, you identify the field that Demantra should use as the code field for that level. For each unique value of the code field, all records with that value are grouped together as one member. (The nature of the grouping is controlled by the series definitions, as described in "Series".)

## Code and Description Fields

For each level, the enterprise data must have at least one unique field that can be used to distinguish level members; this is used as the code. In some cases, the enterprise may have two fields: an internal identifier and the corresponding user-friendly, "pretty name," to be used as the description field. The SKUs in the previous example have two such fields: SKU and SKU\_DESC.

If the enterprise data includes only a single field that is unique to a given level, you use that field as the code and the description.

### ID Field

Internally, Demantra generates and uses its own unique numeric ID, which is not meant to be exported to external systems.

### Code Display Field

Within the Demantra user interface, users see and use two unique labels for each level

member, the code display field and the description field:

Code	Description
Default	Default SKU
PLLF0211C	Private Label LF Cho
PLLF0212P	Private Label LF Pear
PLLF0213O	Private Label LF Oatr
PLLF0214B	Private Label LF Butt

63 rows retrieved.

As the implementor, you can configure the code display field in three different ways.

- The code display field can be equal to the internally generated numeric ID.
- The code display field can be equal to the code field.
- The code display field can be equal to the description field.

## Introduction to the Data Model Wizard

Level definitions are generally coupled tightly with integration, because each level is defined by a code field, and most code fields are imported from corporate systems. Consider, for example, a level such as Brand. Any SKU belongs to a brand, and Demantra imports that information. Adding an item or location level usually requires a new field in the data, which also requires changes to the integration.

The Data Model Wizard (in the Business Modeler) therefore has two related, primary purposes:

- To create batch scripts to load the lowest level item, location, and sales data.
- To create database procedures that define Demantra levels based on that data.

**Note:** The Data Model Wizard also performs other configuration tasks, not discussed here, that can be performed only within the Data Model Wizard.

The Data Model Wizard prompts you for the location and format of the raw data. It helps you describe the contents of the staging tables so that the data can be moved into the Demantra internal tables. You then specify how to use the fields in the staging tables, generally using each field in a level definition or in a series definition. Demantra ignores any field for which you do not specify a use.

The Data Model Wizard is discussed further in "Loading Basic Data".

As a final result, the Data Model Wizard creates a batch script and database procedures.

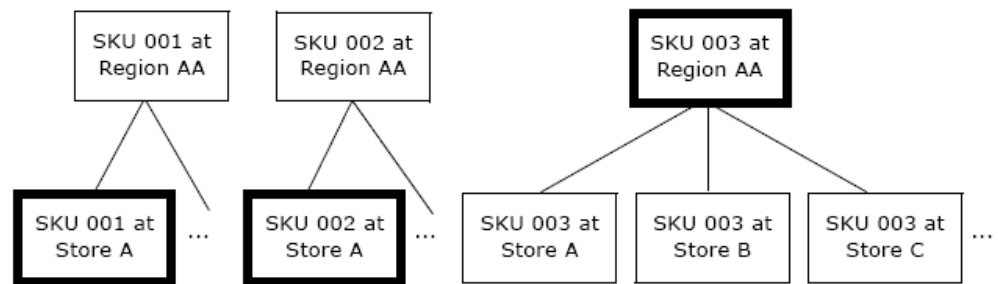
The script executes the procedures, which load the data into the Demantra internal tables and synchronize the tables as needed.

**Note:** You can define additional levels later, outside of the Data Model Wizard, but you should do so only if you do not need a corresponding change in the load scripts. The Data Model Wizard automatically removes any levels that you define outside of the wizard.

## Levels and the Forecast Tree

If your application uses the Analytical Engine, you will also need to consider what sort of forecast tree you will need. The forecast tree organizes data for use by the Analytical Engine. In this hierarchy, each node aggregates by both item and location.

In general, forecasting is most accurate when it can be performed at the lowest possible allowed aggregation level. However, sometimes there is not enough data at that level for all combinations. For those combinations, the Analytical Engine aggregates the data to a higher level and tries to generate a forecast there. Consider the following example, showing a small part of a forecast tree.



The bold boxes show the nodes at which the Analytical Engine is forecasting.

- In this example, there is enough data at the SKU-store level for SKU 001 and SKU 002; the Analytical Engine can generate a forecast at that level for those SKUs.
- On the other hand, there is less data for SKU 003, so the Analytical Engine aggregates data for that SKU across all the stores in Region AA, generates the forecast for those SKUs at the SKU-region level, and then splits to the store level.

## Filtered Levels

By default, a level of a given type groups all the associated data; for example, an item-type level groups all the item data. You can, however, create filtered levels. A filtered level contains a filtered subset of the data. To create a filtered level, you join the underlying data to another table of your choice, and you then add an SQL WHERE

clause to filter the data.

To do this, you use the EXTRA FROM and EXTRA WHERE options for the level.

## Other Concepts Related to Levels

After you configure levels, you associate them with several other kinds of Demantra objects.

### Levels and Units

In Demantra, you associate each unit with the levels where it makes sense to use that unit. For example, a relatively small unit might make sense only at lower levels.

Demantra uses this association within worksheets. If a worksheet contains three levels, for example, then only the units associated with those levels can be used in that worksheet.

For information on units, see "Units, Indexes, and Exchange Rates".

### Levels and Methods

It is useful to be able to right-click a level member within a worksheet and perform some operation on it. With Demantra, you can define methods, which the user sees as an ordinary right-click menu options. Demantra also provides a set of default methods that you can redefine or disable as needed; these allow the users to view, edit, delete, and so on.

Each method is associated with a specific level. Also, a method can be available in all worksheets or in a single specific worksheet. You can apply security to all methods.

For information on methods, see "Methods".

### Level and Worksheet Association

It is useful to be able to examine a level member more closely, to launch a worksheet from that member that is filtered to show only that member. But typically, a Demantra application includes a large number of worksheets, and most of those worksheets would not be useful in this way. So Demantra provides an option for associating each level with any number of worksheets. Demantra uses this association in two ways:

- A user can start from a level member and launch a worksheet that is filtered to that member. To do so, the user right-clicks the member and clicks the Open or Open With option. Alternatively, this worksheet can show just the combination from which the user started.
- A worksheet can include a sub tab worksheet that is associated with any of the levels in the main worksheet. Then when a user selects a member in the main worksheet, the sub tab shows the details.

For information on worksheets, see "Worksheets".

## Configuration Notes

This section contains configuration notes related to levels.

### Standard Levels

Some Demantra products, such as DSM, assume that your database contains specific levels, parameter settings, and other configuration options. Demantra provides setup scripts that perform all the required configuration. See Part IV, "Other Configuration".

### Dependencies

Before you can configure levels, you will need some sample data.

Because level definitions are generally coupled tightly with integration, you typically need to define levels at the same time as your basic loading scripts. For this, you use the Data Model Wizard.

You can define additional levels later, outside of the Data Model Wizard, but you should do so only if you do not need a corresponding change in the load scripts. The wizard automatically removes any levels that you define outside of the wizard.

### Tools

Demantra provides the following tools for creating and configuring levels and related objects:

Tool	Purpose/Notes
Data Model Wizard*	Defines levels (and other model elements) and creates a script to import data, particularly sales, item, and location data, at the lowest level.
Configure > Levels option*	Defines additional levels.
CREATE_PE_STRUCT procedure	<p>Creates basic promotion levels needed by Promotion Effectiveness.</p> <p>You can customize these levels to some extent, after running the procedure.</p>
UPGRADE_TO_DSM procedure	Creates the settlement and check request levels required by DSM.

Tool	Purpose/Notes
Configure > Units for Levels option*	Associates units with levels.
Configure > Methods option*	Defines methods.
Components > Open/Create Component option*	Creates components, which define the associations between levels and worksheets.
*These options are in the Business Modeler.	

For information on these tools, see Part II, "Basic Configuration".

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## Series

This chapter covers the following topics:

- Introduction
- Main Series Options
- Data Types of Series
- Types of Series
- Update Field
- Editability
- Series Calculation: Server Expressions
- Series Calculation: Client Expressions
- Series Calculation: Using Both Server and Client Expressions
- Series Calculation: Proportionality Option
- Summary of Calculation Options
- Display Properties
- Color Expressions
- Display Precision and Format
- Display-Only Summaries
- Other Basic Series Options
- Advanced Series Options
- Preserving Promotional Data While Moving or Copying
- The Aggregated Base Level Option
- Extra From and Extra Where
- Note and Promotion Indicators
- Series Groups

- Configuration Notes

## Introduction

A series is a set of data that can be displayed in a worksheet table or graph, at any aggregation level. The following example shows several series displayed at the lowest level:

Private Label LF Butter - BJ Store # 0006							
Time	Demand	Final Plan	Pseudo	Simulation	Sales Forecast	Sales Fcst Bias	Stat Frcst (Y/N)
04/08/2002	1,258,700				1,240,202	-18,498	Do Forecast
07/08/2002	1,232,800				1,161,719	-71,081	Do Forecast
10/07/2002	1,326,200				1,057,580	-268,620	Do Forecast
01/06/2003	488,500				903,675	415,175	Do Forecast
04/07/2003		1,193,227			1,193,227		Do Forecast
07/07/2003		1,123,295			1,123,295		Do Forecast
10/06/2003		1,040,942			1,040,942		Do Forecast
01/05/2004		820,737			820,737		Do Forecast
04/05/2004		280,121			280,121		Do Forecast
Summary	4,306,200	4,458,322			8,821,497	14,244	

## Main Series Options

When you define a series, you specify many options. To start, the following list gives an overview of the main, interrelated options:

- An external and an internal identifier. The external identifier appears in worksheets, and you use the internal identifier when you refer to the series in server expressions.
- The data type of the series.
- An option that controls the type of series. For example, some series are associated with sales; these series potentially have different values for each time bucket and each item-location combination. (If you are familiar with database terminology, note that this property determines the primary key of the series.)
- An option that controls whether the series is stored in the database or not. If a series is stored in the database, the series has an *update field*, which is the database column that stores the series data.
- Options that control whether the series is editable, and if so, under what conditions.
- Options that control how the series is calculated at any aggregation level and how series data is split to the lowest level. These options include the server expression, the client expression, the proportionality option, and the proportions reference series.

The following sections discuss these options. Additional options are discussed later in the chapter.

## Data Types of Series

Demantra supports the following data types for series:

- Numeric
- String
- Date

**Note:** The desktop products (Demand Planner and Demand Replenisher) can display only numeric series.

## Types of Series

Demantra supports the following types of series:

sales series	Consists of time-dependent data for each item-location combination. That is, each data point in the series corresponds to a given item-location combination at a given point in time. This type of series is the most common.
matrix series	Consists of time-independent data for each item-location combination. That is, each data point in the series corresponds to a given item-location combination. You use matrix series to store and maintain information about item-location combinations.
promotion series	Consists of data for each promotion at each item-location combination, at each time bucket.

---

level series	Stores data associated with a specific level. Each data point in the series corresponds to a given member of that level. For example, suppose that a level is the page size in a catalog, which lets you view and group items by their assigned page sizes. If you created an editable level series, you could easily reassign items to different page sizes.
--------------	---

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**Note:** The desktop products (Demand Planner and Demand Replenisher) can display only sales and matrix series.

## Update Field

A series may or may not be stored in the database. If it is stored, its data is saved in the series update field. This option is known as the update field because it refers to the field that is updated when changes are saved to the database.

When you use the Business Modeler to configure a series, it automatically adds the update field if needed.

Although you generally should avoid working directly in the database, when you configure series, you need to write SQL expressions to aggregate data from the tables in which the series are stored. Depending on the type of series, the update field is in one of the following tables:

---

For sales series	sales_data
matrix series	mdp_matrix
promotion series	promotion_data (not promotion as implied by the Business Modeler)
For level series	Table associated with the level.

---

Demantra provides an alias (branch\_data), which you can use to refer to sales\_data or promotion\_data.

## Editability

You control whether a series is editable in a combination of the following ways:

- You can make an entire series editable or non-editable with a single setting.
- You can control the time periods during which a series is editable. To do so, you specify whether the series is associated with history, forecast, or history and forecast. For an editable series:
  - If the series is configured as history, then it is editable only in the current time bucket and previous time buckets.
  - If the series is configured as forecast, then it is editable only in the current time bucket and future time buckets.
  - If the series is configured as history and forecast, then it is editable for all time buckets.
- You can apply an edit-lock expression to the series to further restrict editing. An edit-lock expression evaluates to true or false; for each cell where the expression is true, that cell is locked.

## Series Calculation: Server Expressions

A server expression must be an aggregating SQL expression that returns a value with length greater than zero for each element. (If you never plan to use the series within a cached worksheet, it can return null or a zero-length value; but you may not be able to prevent the series from being misused.)

A server expression must have one of the following forms:

*aggregate\_function* (branch\_data.database\_column \* #UNIT#)

*aggregate\_function* (branch\_data.database\_column)

*aggregate\_function* (mdp\_matrix.database\_column \* #UNIT#)

*aggregate\_function* (mdp\_matrix.database\_column)

*aggregate\_function* (other\_expression)

Here:

- *aggregate\_function* is one of the SQL aggregating functions, most commonly sum.
- *database\_column* is a column of the branch\_data or mdp\_matrix table, most often the update field that corresponds to this series. That is, if SeriesA is associated with branch\_data.SeriesA, then the server expression for SeriesA could be sum(branch\_data.SeriesA)

**Note:** branch\_data is a synonym for the sales\_data table or the promotion\_data table.

- #UNIT# represents the unit conversion factor. Within a worksheet, this token is automatically replaced by the conversion factor that corresponds to the unit that the worksheet is currently using.

In turn, *other\_expression* can be made up of some or all of the following components:

- Other SQL functions.
- Constants and expressions that have numeric, string, date, and true/false values.

**Note:** Enclose any literal negative value within parentheses, as in this example: (-0.33)

- Operators such as +, -, \*, /.
- Demantra tokens such as #UNIT#.
- Columns of the branch\_data and mdp\_matrix tables.

You can use parentheses to control the precedence of calculations, according to standard algebraic rules.

**Caution:** SQL expressions have a limit of 3000 characters. To avoid reaching this limit, use small fieldnames.

For information on the supported operators, tokens, and SQL functions, see "Server Expression Functions and Operators".

## Forecast Versions

Each time the Analytical Engine runs, it generates a forecast. The most recent forecast is numbered 0, the previous one is numbered 1, and so on.

Each series is implicitly or explicitly associated with a specific forecast version, or possibly multiple forecast versions. Typically, the large majority of series are associated with the most recent forecast, but it is often useful to configure some series to capture information associated with a previous forecast, or to compare multiple forecasts.

You can include forecast versions, if needed, in the server expression for the series. When you specify a server expression, you can refer to a previous forecast version. To do so, you use the #FORE@<Version># token. For example, #FORE@0# is replaced by the current forecast version, #FORE@1# is replaced by the most recent previous forecast version, and so on.

The server expression can refer to multiple forecast versions, for example, to compare them.

In the case of Promotion Effectiveness, the forecast details are more complex, because

the Analytical Engine decomposes the forecast into multiple effects. Therefore, Demantra provides tokens such as #SW\_BRAND@<Version># and #SW\_CHANNEL@<Version># for these separate effects. See Chapter 27, "Server Expression Functions and Operators".

**Note:** Within the hint message for a series, you can include the token #FDATE@<Version># to refer to the date on which a forecast version was generated. This can be very useful to the users of the worksheets.

## Units of Measure

You can include the #UNIT# token, if needed, in the server expression for the series. At any time, a worksheet uses one unit of measure, which is used by most of the numeric series in that worksheet. The user can switch to another unit of measure, and all those series are correspondingly scaled by the appropriate conversion factors.

**Note:** You can instead hardcode the unit into a series definition, so that it expresses, for example, the buyback per case. Whatever your choice is, be sure to give useful names and hints to the series.

For more information on units, see "Introduction".

## Series Calculation: Client Expressions

### Expressions

A client expression uses Demantra functions. The client expression can be made up of some or all of the following components:

- Constants and expressions that have numeric, date, true/false or null values.

**Note:** Enclose any literal negative constant within parentheses, as in this example: (-0.33)

- Demantra functions.
- Operators such as +-\*./.
- References to other series. To refer to a series, you use the name of the series.
- References to series at other time periods. Here, you use the following syntax:  
series\_name [relative-time-bucket]

An expression like this is sometimes called a vertical formula. For example: Sales [-1] refers to the Sales series for the previous period. Sales [1] refers to the Sales

series for the next period. [0] is not allowed.

Here relative-time-bucket must be any of the following:

- An integer
- A series name
- A simple expression using integers, series names, and the basic mathematical operators.

For information on the supported operators and functions, "Client Expression Functions and Operators".

## Time-Shifted Client Expressions (Vertical Formulas)

When a client expression includes a reference to another series, by default, Demantra uses data from the same time bucket. You can refer to data from earlier or later time buckets, however. The following example shows three series, each of which has a client expression that refers to the Example series.

Date	Example	Unshifted	Shifted1	Shifted2
12/2/2002	2	2		3
12/9/2002	3	3	2	4
12/16/2002	4	4	3	5
12/23/2002	5	5	4	6

Client expression:  
Example Series

Client expression:  
Example Series[-1]

Client expression:  
Example Series[1]

Notice that the series Shift1 is null for 11/25/3002. This is because Recaptured use this cell refers to the Example series at a time bucket that is not displayed in the worksheet.

## Null Sales Records and Time-Shifted Client Expressions

You do not typically have sales records for all combinations for all dates. This affects client expressions that refer to series at other time buckets. When a client expression refers to a time bucket that does not have sales data, Demantra automatically uses the next available non-null sales data. The following figure shows an example:

Date	Example	Shifted1
2/24/2003	2	
3/3/2003	3	2
3/10/2003	4	3
8/11/2003	5	4
8/18/2003	6	5
8/25/2003	7	6

For 8/11/2003, Shifted1 series refers to Example series at last non-null time bucket, 3/10/2003

Client expression:  
Example Series[-1]

### Using Expressions to Refer to Time Buckets

The previous examples have used the simplest syntax for time-shifted client expressions, in which you use an integer to refer to the relative time bucket. You can instead use simple expressions that include series names, integers, and mathematical operators. For example, if you have series A, B, C, and D, the client expression for D could be something like the following: A[B+C]

For example, suppose you want to know how much inventory your warehouse will contain on a given date. The date is determined relative to today based on both the production lead time and the transportation lead time. That is, you want to know Inventory[Production lead time + Transportation lead time].

### Precedence of Calculations for Client Expressions

The following rules apply for the recalculation order, and will be performed recursively:

1. The system looks for vertical formulas, which use data in other time buckets. Such as formulas either use a function such as FSUM or they reference data in time buckets: Demand [2].
2. The system calculates the data series that are the source for those in the Step 1.
3. The system calculates the data series of Step 1.
4. The system calculates the series that use the series in Step 1 as source.
5. The system calculates the series that are the result of Step 4, and so on.

## Series Calculation: Using Both Server and Client Expressions

It is important to understand how server and client expressions are used in combination. All series must have a server expression, although the expression is not

always important. The client expression always takes precedence. That is, the client expression, if present, is evaluated, displayed, and stored in the database, instead of the server expression.

If a series has a client expression, the series should be configured in one of the following ways:

- The server expression is trivial. For example, it is a constant such as 0. Because this value is never meant to be seen or stored, the specific value is irrelevant.
- The server expression is meaningful and useful in some cases. In this case, the client expression consists of a conditional expression of the following general form:

If (*condition*, *client-expression-value*, *series-name*)

Here *series-name* is a reference to the same series to which this client expression applies. This reference directs Demantra to the server expression that this series uses. Depending on whether the condition is true for a given cell, this expression returns either the client expression value or server expression value.

**Note:** In some cases, it is useful for a client expression to null out data in the worksheet table in situations where the data might be confusing.

There is another important difference between server and client expressions, as far as end users are concerned. Server expressions are evaluated in the background and the resulting changes are not available instantly in the worksheets. Client expressions, on the other hand, are evaluated immediately.

In many cases, a server expression and a client expression can be mathematically equivalent, but the client expression might be more user-friendly.

## Series Calculation: Proportionality Option

In general, the definition of a series also specifies how to calculate data at the lowest level, in the case when data changes at a higher level. Data can potentially change at a higher level either when it is imported at a higher level or when users edit a series while displaying data at a higher level.

Each series can be configured as proportional or non-proportional.

- If a series is proportional, the parent value is split among the child members according to the proportions of those child members.
- If a series is non-proportional, the value for each child member is set equal to value of parent.

When you configure a series as proportional, you also specify a proportions reference series. For best performance, Oracle recommends the following:

- Proportions from the same table are better than proportions from a different table.
- If the proportions are not in the same table that stores the series that uses those proportions, consider caching the proportions into the same table that stores the series. For example: create a cache of GLOB\_PROP in sales\_data and promotion\_data.
- Use PROPORTION\_COLUMN when the proportions are from the same table and do not require a server expression.
- Use a series that is not empty (most of the time) for the proportion reference.

## Supported Proportion Configuration

The series data should have a 1:1 relationship with its proportioned by series data.

For example:

### Example

- sales\_data series proportioned by sales\_data, or mdp\_matrix, or item level, or location level series.
- mdp\_matrix series proportioned by mdp\_matrix, or item level, or location level series.
- item level series proportioned by a higher aggregated item level, such as Item series proportioned by Brand series, Brand by Product line, and so on.
- promotion\_data series proportioned by promotion\_data, or promotion\_matrix, promotion hierarchy levels, sales\_data, mdp\_matrix, item level, location level.
- promotion level series proportioned by higher aggregated promotion hierarchy levels.

## Unsupported Proportion Configuration

The series data have a 1:n relationship with its proportioned by series data.

For example:

### Example

- sales\_data series proportioned by promotion\_data, promotion\_matrix, or promotion hierarchy levels.
- mdp\_matrix series proportioned by sales\_data, promotion\_data, promotion\_matrix, or promotion hierarchy level series.
- item level series proportioned by location level, sales\_data, promotion\_data,

promotion\_matrix, or promotion hierarchy level series.

- promotion level series proportioned by promotion\_data, promotion\_matrix, sales\_data, mdp\_matrix, item level, or location level.

## Summary of Calculation Options

When you configure a series, you have many options to set, and not all the combinations are useful. This section summarizes the useful combinations of the most important series options.

### Combinations of Key Series Options

The following table summarizes the combinations of the most important series options:

Expression	Update field	Proportional	Editable
Server only or Server and client	Yes	Depends on the nature of the server expression	Editable or non-editable*
	No	Non-proportional only	Probably should be non-editable.
Client only (server expression is trivial and its value is never seen)	Yes	Depends on the nature of the client expression	Non-editable only
	No	Non-proportional only	
*Depending on how the series is configured, it may be necessary to ensure that data changes only at the lowest level. Apart from those cases, these series can be either editable or non-editable.			

### When to Configure a Series as Proportional

The following table indicates when to make a series proportional:

Update field	Form of expression*	Proportional	Editable	If data changes at a higher level...
Yes	<b>SERVER:</b>  sum ( <i>table_name.update</i> <i>_column_name</i> )	Should be proportional	Editable or non-editable	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
	<b>SERVER:</b>  avg ( <i>table_name.update</i> <i>_column_name</i> ) max ( <i>table_name.update</i> <i>_column_name</i> ) or min ( <i>table_name.update</i> <i>_column_name</i> )	Should be non-proportional	Editable or non-editable	Value for each lower level is set equal to value of parent level.
	Any other expression	Should be non-proportional	Should not be editable except at lowest level	Undesirable behavior occurs.
	<b>CLIENT:</b>  Name of a proportional series	Should be proportional	Non-editable	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
	<b>CLIENT:</b>  Any other expression	Should be non-proportional	Non-editable	Value for each lower level is set equal to value of parent level.

Update field	Form of expression*	Proportional	Editable	If data changes at a higher level...
No	Any	Must be non-proportional	Non-editable	Undesirable behavior occurs.

\*Where *table\_name.update\_column\_name* is the update field for this series. In all cases, the expression can also include the token #UNIT#, which represents the unit conversion factor. For example: `sum (table_name.update_column_name * #UNIT#)`

### Useful Series Configurations

For any series, data can safely be changed at the lowest level. Depending on how the series is configured, it may or may not be safe to change data at higher levels.

The following table indicates which series configurations support data changes at higher levels:

Update field	Form of expression*	Proportional	If data changes at a higher level...
Yes	Server expression:  <code>sum (table_name.update_column_name)</code>	Should be proportional	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
	Server expression, any of the following:  <code>avg (table_name.update_column_name)</code>  <code>max (table_name.update_column_name)</code> or  <code>min (table_name.update_column_name)</code>	Should be non-proportional	Value for each lower level is set equal to value of parent level.

Update field	Form of expression*	Proportional	If data changes at a higher level...
	Any other expression	Should be non-proportional	Undesirable behavior occurs.
	Client expression: Name of a proportional series	Should be proportional	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
	Client expression: Any other expression	Should be non-proportional	Value for each lower level is set equal to value of parent level.
No	Any	Must be non-proportional	Undesirable behavior occurs.
<p>*Where <i>table_name.update_column_name</i> is the update field for this series. In all cases, the expression can also include the token #UNIT#, which represents the unit conversion factor. For example: <code>sum (table_name.update_column_name * #UNIT#)</code></p>			

### Series That Can Be Changed at Any Level

For any series, data can safely be changed at the lowest level. Depending on how the series is configured, it may or may not be safe to change data at higher levels.

The most common series are the ones that are configured so that the data can be changed at any level. Remember that data can change for many reasons, by editing within a worksheet, by importing changed data, or by changing data from which the series is derived.

Update field	Proportional	Form of expression	*If data changes at a higher level...
Yes	Proportional	<p>SERVER:</p> <p>sum (  <i>table_name.update_column_name</i>) Where  <i>table_name.update_column_name</i> is the  update field for this  series.</p> <p>CLIENT:</p> <p>Name of a  proportional series</p>	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
Yes	Non-proportional	<p>SERVER:</p> <p>avg (  <i>table_name.update_column_name</i>) max (  <i>table_name.update_column_name</i>) or min (  <i>table_name.update_column_name</i>)</p> <p>CLIENT:</p> <p>Any other expression</p>	Value for each lower level is set equal to value of parent level.

\*Where *table\_name.update\_column\_name* is the update field for this series. In all cases, the expression can also include the token #UNIT#, which represents the unit conversion factor. For example: sum (*table\_name.update\_column\_name* \* #UNIT#)

#### Series That Must Be Changed Only at the Lowest Level

If a series is configured in the following ways, it should be edited or changed only at the lowest level:

Update field	Form of expression	Proportional
Yes	Any expression other than the ones in "Series That Can Be Changed at Any Level".	Should be non-proportional. Otherwise, undesirable behavior occurs.

Update field	Form of expression	Proportional
No	Any	Must be non-proportional.

## Calculating Data at Lower Levels

For a series that has a server expression and that is stored in the database, Demantra needs to know how to calculate data at lower levels if data changes at a higher level. When you configure a series, you specify whether the series is proportional. The following table shows which series should be proportional and explains how these series behave.

Form of server expression	Proportional	If data changes at a higher level...
<code>sum (</code> <code>  <table_name.update_column_name< code="">  <code>)</code>             Where  <code>table_name.update_column_name</code>  <code>e</code> is the update field for this series.         </table_name.update_column_name<></code>	Series should be proportional.	Lower levels are calculated by splitting the higher-level value according to the proportions in the Proportion Calculation series.
<code>avg (</code> <code>  <table_name.update_column_name< code="">  <code>) max (</code>  <code>  <table_name.update_column_name< code="">  <code>) or min (</code>  <code>  <table_name.update_column_name< code="">  <code>)</code>             Where  <code>table_name.update_column_name</code>  <code>e</code> is the update field for this series.         </table_name.update_column_name<></code></table_name.update_column_name<></code></table_name.update_column_name<></code>	Series should be non-proportional.	Value for each lower level is set equal to value of parent level.
Any other expression	Series should be non-proportional.	Data should not be changed except at lowest level.

## Display Properties

You can control how Demantra displays each series in a variety of ways.

## Color Expressions

Any series can have a color expression, which controls the background color of the series when displayed in a worksheet table.

## Display Precision and Format

For each numeric series, you can specify the format that worksheet tables should use when displaying the series. By specifying this format, you are also implicitly specifying the maximum possible size of numbers in the series.

For example, if the display format of a series is ##,###.##, the maximum size of a number in this series is 99999.99.

## Display-Only Summaries

For each series, you also can specify a summary function or expression for use only within the worksheet. The following figure shows examples of Total and Average, in a worksheet:

	Sales Forecast	Ent Factor	Fixed Plan Lift	Ent Forecast
10/06/2003	278	0.0%	100	378
11/03/2003	264	0.0%		264
12/01/2003	304	0.0%	50	354
01/05/2004	438	25.0%		547
02/02/2004	668	0.0%		668
03/01/2004	184	0.0%		184
Summary	2,136	4.2%	150	2,395

**Total**   **Average**   **Total**

The summary is only for display and the results are not stored in the database. However, to avoid user confusion, you should probably summarize data in a manner consistent with the server or client expressions you define for this series; see "Series Calculation: Using Both Server and Client Expressions".

For example, if you define this series by a server expression that sums data, the summary function should probably be Total.

The worksheet table may also include subtotal rows. The following shows an example:

Product Family	Account	Time	Price \$	Revenue \$	Discount	Approved
Gourmet	Stop and Shop	03/10/2003	\$10.00	\$6,963,948	9.00%	<input type="checkbox"/>
		09/08/2003	\$10.00	\$3,190,742	0.00%	<input type="checkbox"/>
		03/08/2004	\$10.00	\$3,141,407	0.00%	<input type="checkbox"/>
		Summary	\$10.00	\$13,296,097	3.00%	3
	Summary		\$10.00	\$13,296,097	3.00%	1
Regular	Stop and Shop	09/08/2003	\$10.00	\$52,827,440	0.00%	<input type="checkbox"/>
		03/10/2003	\$9.14	\$47,052,748	9.00%	<input type="checkbox"/>
		03/08/2004	\$10.00	\$13,265,270	0.00%	<input type="checkbox"/>
		Summary	\$9.71	\$113,145,464	3.00%	3
	McKessen	03/10/2003	\$10.00	\$769,117	0.00%	<input checked="" type="checkbox"/>
		09/08/2003	\$10.00	\$1,168,671	0.00%	<input type="checkbox"/>
		03/08/2004	\$10.00	\$308,523	0.00%	<input type="checkbox"/>
		Summary	\$10.00	\$2,246,312	0.00%	3
	Summary		\$9.86	\$115,391,776	1.50%	2
Slim	Stop and Shop	03/10/2003	\$10.00	\$22,640,676	9.00%	<input type="checkbox"/>
		09/08/2003	\$10.00	\$21,201,430	0.00%	<input type="checkbox"/>
		03/08/2004	\$10.00	\$7,785,908	0.00%	<input type="checkbox"/>
		Summary	\$10.00	\$51,628,012	3.00%	3
	Summary		\$10.00	\$51,628,012	3.00%	1
Summary			\$9.93	\$180,315,888	2.25%	4

A given series can be summarized in different ways within a single worksheet table, although that usually means that the series is useful only within that worksheet.

## Other Basic Series Options

This section discusses other basic options you can use when configuring series.

### Drop-down Lists

A series can be configured as a drop-down list, which means that when the series is displayed in a worksheet, each series cell includes the same dropdown list of choices. When a user includes the series in a worksheet, he or she can set the value of a series element by selecting from the list, if the series is editable.

Typically each list element is a text string that has a corresponding numeric value. When the user chooses a list element, Demantra finds the corresponding numeric value and sets the series value equal to that.

To configure the dropdown list for a series, you can use any of the following:

- A table that exists in the Demantra database.
- A level.
- A list that you enter directly in the Business Modeler for use by this series.

All three variations behave in the same way.

## Scaling

If the series is numeric, it can be configured as scaled. At any time, a given worksheet uses a single scaling factor. The user chooses this factor and Demantra automatically divides all numbers in the worksheet by that factor, except for any series that are marked as "unscaled".

## Caching by Item

A series can be cached (aggregated by item and cached in the `branch_data_items` table). This improves performance of worksheets that are aggregated across locations and that do not have any location or matrix filtering.

## Advanced Series Options

On occasion, you may need to consider the more advanced options for series.

## Preserving Promotional Data While Moving or Copying

When you copy and paste a promotional level, Demantra copies data for the promotional series, as well. The span of time of the new copy might not be the same as the span of time of the original, so the definition of each series needs to specify how to perform the computation. Similarly, when a user changes the length of a promotion, Demantra adjusts the associated promotional series data.

In either case, Demantra uses two configuration options of the promotional series. These options are called Copy/Paste preservation type and Move preservation Type. The settings should be consistent with the rest of the settings for the series. The following guidelines are suggested:

Option	Meaning	Suggested Series Type	Suggested Aggregation Function
Most Common	Demantra ensures that the pasted data closely resembles the source data. Use this setting for any kind of series; the other settings apply only to numeric series.	Any, but not usually appropriate for proportional numeric series	Any function other than Sum

Option	Meaning	Suggested Series Type	Suggested Aggregation Function
Volume Preservation	Demetra first aggregates the data according to the Aggregation Function of the series. It then ensures that in the pasted data, the overall volume is the same (area under the curve) as the volume of the source data.	Numeric; proportional	Sum
Percentage Preservation	Demetra first aggregates the data according to the Aggregation Function of the series. It then ensures that the pasted data generally has the same level, over time, as the source data.	Numeric; not proportional	Any function other than Sum
As Is Preservation	Demetra shifts the data to the new dates but makes no other changes. If the new date range is longer than the original date range, Demetra uses nulls for the dates at the end. If the new date range is shorter than the original date range, Demetra omits the "extra" dates.	Any	Any
None	Demetra does not copy the data for this series.	Any	Any

For most series, you will want to use the same setting for both options. However, for some series, it does not make sense to copy the data when you create a new promotion

(so you would use the setting None for copy/paste), although it does make sense to preserve the data if you are just moving a promotion. In such cases, it is useful to have two separate options.

The following figure shows examples of series that are configured with each of these preservation types:

Promotion	Time	Preserve As Is	Preserve Vol	Preserve Percent	Preserve None	Preserve Most Common
Promo 1	01/02/2006	100	90	80	70	a
	01/09/2006	100	90	80	70	a
	01/16/2006	100	90	80	70	b
	01/23/2006	100	90	80	70	a
	01/30/2006	100	90	80	70	a
	Summary	500	450	80	350	
Copy (1) of Promo 1	01/02/2006	100	26	80		a
	01/09/2006	100	26	80		a
	01/16/2006	100	26	80		a
	01/23/2006	100	26	80		a
	01/30/2006	100	26	80		a
	02/06/2006		26	80		a
	02/13/2006		26	80		a
	02/20/2006		26	80		b
	02/27/2006		26	80		b
	03/06/2006		26	80		b
	03/13/2006		26	80		a
	03/20/2006		26	80		a
	03/27/2006		26	80		a
	04/03/2006		26	80		a
	04/10/2006		26	80		a
	04/17/2006		26	80		a
	04/24/2006		26	80		a
	Summary	500	450	80		
Summary		1,000	900	80	350	

This worksheet table shows two promotions, Promo 1 and a copy which spans more time. Notice the following in the copy:

- The Preserve As Is series contains the same numbers for the first five time buckets, which the length of the original promotion. After that, this series is null in the promotion copy.
- For the Preserve Vol series, the level of this series is lower in the copy so that there is the same overall volume as in the original.
- For Preserve Percent, the pasted data is at the same level as the original, and is extended for the length of the pasted promotion.
- For Preserve None, there is no pasted data.
- For Preserve Most Common, the pasted data mimics the original data in overall pattern.

## The Aggregated Base Level Option

This option lets you specify how this series is aggregated in a worksheet that includes a promotion level:

- If you choose sales\_data, this series is aggregated by the items, locations, and dates selected in the worksheet. Most series are aggregated this way in a typical implementation.
- If you choose promotion, this series is aggregated by the items, locations, dates, and promotions selected in the worksheet. That is, when the series is aggregated, any data that is not associated with a promotion is ignored.

Within a worksheet that does not include a promotion, the series is aggregated in the same way with either setting: that is, it is aggregated by the items, locations, and dates selected in the worksheet.

The following shows two series that are defined almost identically. The Orders series is aggregated by sales\_data and the Orders for Promotions series is aggregated by promotion.

Private Label Brand - BJ				
Promotion	Time	Orders	Orders for Promotions	Promo0
3. Q2 2002 B.	07/08/2002	442,956	233,135	100
	07/15/2002	589,276	310,145	100
	07/22/2002	665,507	350,267	100
	07/29/2002	572,546	301,340	100
	08/05/2002	455,318	239,641	100
	08/12/2002	829,641	436,653	100
	Summary	3,555,244	1,871,181	600

This worksheet is aggregated to the Brand, Account, and Promotion levels. The worksheet is filtered to show only the Private Label brand and two specific BJ's locations (these locations are children of the Account level):

- BJ 0005 ran a promotion on all Private Label products during the time span of the worksheet.
- BJ 0003 did not run any promotion.

Notice that the values are greater for Orders than for Orders for Promotions. This is because only one of the locations ran the promotion.

## Extra From and Extra Where

Normally the server expression can refer only to fields in the following tables:

For sales and matrix series	branch_data and mdp_matrix tables. Note that branch_data is a synonym for the sales_data table or the promotion_data table.
For promotion series	branch_data table.
For level series	Table associated with the level.

In rare cases, you may need to refer to data in other tables. In such a case, use the Extra From field. In this field, specify an optional list of additional tables (separated by commas) that contain data relevant to this series.

If you include a table here, the server expression can refer to columns in that table.

**Note:** Internally, these tables are added to the From clause in the SQL query that retrieves data for this series.

If you need to filter the data further, use the Extra Where field. The syntax of this field is as follows:

*table.column operator other\_table.other\_column*

Here *operator* is a comparison operator, one of the following

:=  
<>  
>  
>=  
<  
<=

and *table.column* and *other\_table.other\_column* are key columns in the database.

**Note:** Internally, the Extra Where field is added to the WHERE clause in the SQL query that retrieves data for this series.

## Note and Promotion Indicators

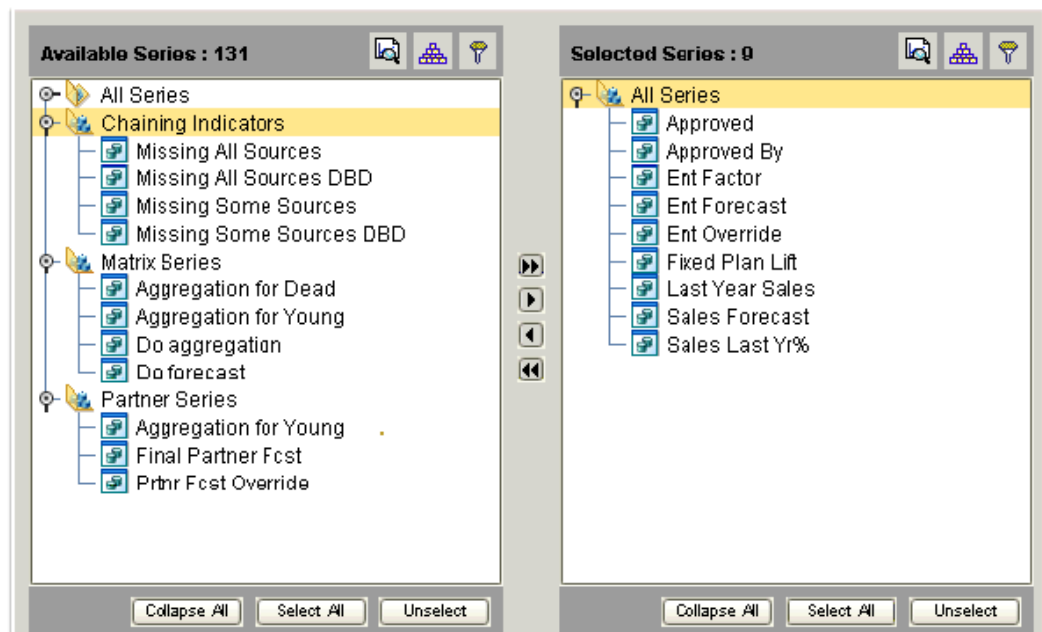
Within a worksheet, a user can attach a promotion (in the case of Promotion Effectiveness) or a note to a given item-location combination, at a given date. Depending on how the series was configured, the series will be displayed with an indicator in all worksheet cells that correspond to that item-location combination and date.

You control these indicators when you define components, within the Business Modeler

**Note:** If your solution uses other types of general levels, you can associate an indicator for any general level that does not have child levels.

## Series Groups

You can define optional groups of series, in order to make the lists of series more manageable, especially in cases where there are a large number of series. For example, the Worksheet Designer includes a screen like the following.



Well-defined series groups can make it easier to place related series on a worksheet.

A series can belong to any number of groups.

You define, modify, and delete series groups in the Business Modeler. The series groups are visible in the Worksheet Designer, within in the Web-based products (Demand Planner Web, Promotion Effectiveness, and Settlement Management).

**Note:** Series groups are not visible in the desktop products (Demand Planner and Demand Replenisher).

## Configuration Notes

This section contains configuration notes related to series.

## Dependencies

Before you can configure series, you will need to load some sample data for items, locations, and sales (and promotions, if you want to create promotion series).

Before creating a dropdown-type series, you must consider where to look up the dropdown choices. You may need to create the table for the lookup data and then load that data (as indicated in "Loading Supplementary Data"). Or you can use an existing level or you can enter the choices directly in the Business Modeler.

Series can be added fairly easily throughout implementation and later as needed.

## Tools

Demantra provides the following tools for creating and configuring series:

Tool*	Purpose/Notes
Data Model Wizard	Can define series, although this wizard provides only a small subset of the series options.
Configure > Series option	Defines series.
Configure > Series Group option	Defines series groups.
Components > Open/Create Component option	Creates components. Among other things, a component defines the associations between series and indicators.
*These options are in the Business Modeler.	

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## Units, Indexes, and Exchange Rates

This chapter describes units and related concepts, outlines the primary configuration options, and summarizes the available tools.

This chapter covers the following topics:

- Introduction
- Unit Conversion Data
- How Units Are Used
- Time Units
- Setting and Modifying the Base Time Unit
- Unit-Level Association
- Indexes and Exchange Rates
- Configuration Notes

### Introduction

At any time, a worksheet uses one unit of measure, which is used by most of the series in that worksheet. The user can switch to another unit of measure; any series that uses a unit of measure is correspondingly multiplied by the appropriate conversion factors. For example, a worksheet can express sales and forecast in units or in cases or dollar value.

**Note:** You do not need to use units in this way. You can instead hard code the unit into a series definition, so that it always expresses, for example, the buyback per case. Whatever your choice is, be sure to give useful names and hints to the series.

Similarly, at any time, a worksheet can use one index or exchange rate, which is used by any series that express financial quantities. The user can switch to a different index (such as CPI) or exchange rate, and the worksheet automatically multiplies those series

by the index or exchange rate.

## Unit Conversion Data

The imported data contains the item quantity per sales record, expressed as the number of units sold. Note that you can rename units.

The imported data also includes the unit price, which depends on the item, location, and date. You use the item price as a conversion unit, to represent monetary values.

Typically, you define additional units of measure, of two general kinds:

- Size units, which measure the size of a sale: cases, truckloads, and so on. When you define these units, you provide a conversion factor by which the base item quantity is automatically multiplied. This conversion factor does not have to be the same for all items.
- Monetary units, which measure the value of a sale. When you define these units, you provide a conversion factor (the imported unit price), which depends on the item, location, and date. You can also specify time-dependent indexes and exchange rates that can be applied to monetary units within a worksheet.

## Size Units

When you define a size unit, you specify the following:

- A name, used on the vertical axis of worksheet graphs.
- The table and data field that contains the associated conversion factor, which is generally different for different products.

The unit conversion factors must be supplied in the imported data. For example, the `t_ep_sku` table might include a column that indicates the number of cases per unit, as follows:

SKU	...	Cases	Pallets	...
109784	...	0.01	0.001	...
109785	...	0.015	0.0015	...
109786	...	0.005	0.0005	...
...	...	...	...	...

This means that the SKU 109784 has 0.01 cases per unit, or inversely, 100 units per case.

When you define the Case unit, you would specify the Cases column of t\_ep\_sku as the source of the conversion factor for this unit.

### Monetary Unit

When you define a monetary unit, you specify the following:

- A name, used on the vertical axis of worksheet graphs.
- The table and data field that contain the price per unit.
- An optional expression for the conversion factor, if the factor cannot be simply read from the table.
- Optional time-dependent exchange rates and indexes that can be applied to this unit.

## How Units Are Used

The token #UNIT# represents the unit conversion factor. You can include this token within the server expression for a series, which should have the following general form:

quantity \* #UNIT#

Within a worksheet, this token is automatically replaced by the conversion factor that corresponds to the unit that the worksheet is currently using. For example, if the Demand was 1200 units, and if the worksheet is using cases instead, then Demand is displayed as 12 cases.

To configure a series to use units, do either of the following:

- Create a server expression with the form shown previously.
- Create a client expression that refers to another series that uses units.

## Time Units

Any Demantra solution has a base time unit, such as weeks or months. Demantra provides some larger predefined time units, and you can add others. In general, there are two types of time units:

- Simple time units (such as quarters) are simple multiples of the base time unit. For these, you just provide a scaling factor. For example, for a weekly system, a quarter consists of 13 time units. These time units are assumed to divide evenly into one year, and Demantra automatically figures out which base time bucket each date belongs to.
- Data-dependent time units, such as 4-4-5 time units, require explicit data. That is,

they must be assigned explicitly to each date in the system, in the Inputs table.

Note that by default, in any worksheet, the date and label for a given bucket is the first date in that bucket. Within a worksheet, another date format can be used.

### Data-Dependent Time Units

The following example represents rows in the Inputs table. It shows a set of dates from a weekly system and shows how those dates are mapped into quarters and 4-4-5 periods. (A 4-4-5 time system creates quarters that consist of a four-week "month," followed by another four-week "month," and then followed by a five-week "month." In practice, 4-4-5 calendars vary from company to company.) The second and third columns show the bucket numbers associated with each date, depending on the date system.

Date	Bucket number when quarters are used	Bucket number when 4-4-5 periods are used
1/3/05	100	122
1/10/05	100	122
1/17/05	100	122
1/24/05	100	122
1/31/05	100	123
2/7/05	100	123
2/14/05	100	123
2/21/05	100	123
2/28/05	100	124
3/7/05	100	124
3/14/05	100	124
3/21/05	100	124
3/28/05	100	124

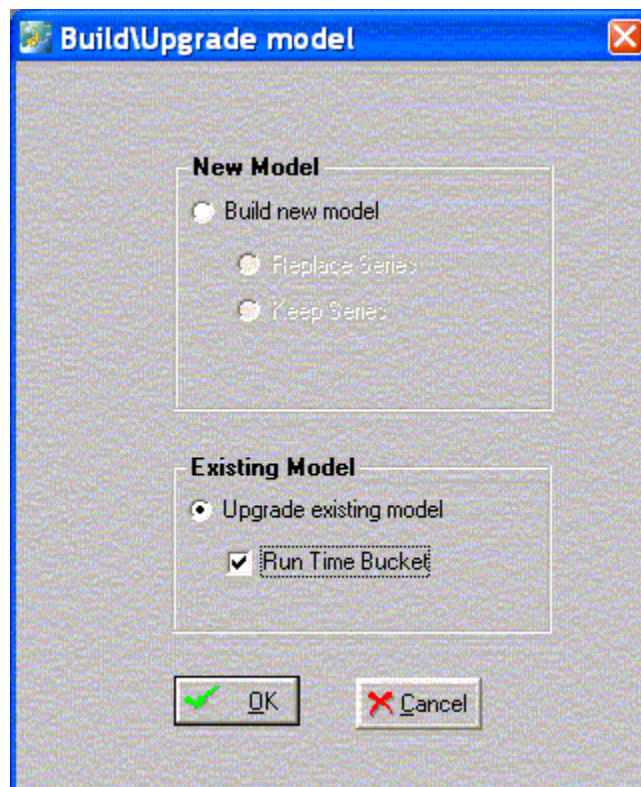
Date	Bucket number when quarters are used	Bucket number when 4-4-5 periods are used
4/7/05	101	125

The first thirteen dates belong to a single quarter, and the last date belongs to the following quarter. The first four dates belong to the first 4-4-5 "month" and so on.

## Setting and Modifying the Base Time Unit

The base time unit is used by the Data Model to aggregate the source data to the specified time bucket size. Allowed settings of the base time unit (time bucket size) are:

- day
- week
- Gregorian month



## Impacts of Changing the Base Time Unit:

If the time bucket is re-configured, the time aggregation set for all worksheets is modified to match the new time aggregation. A review of all worksheets is strongly recommended. See Worksheets, page 8-1.

After making changes, the Data Model should be upgraded, *not Rebuilt*, with the Run Time Bucket option checked. See Building the Data Model, page 17-22 and Manipulating Existing Data Models, page 17-24.

The erased member and fact data in Demantra must then be downloaded again. See Loading the Data into the Data Model, page 17-24.

Integration profiles are required to be redefined by the user, if the unit of time specified therein becomes invalid. For details, see Loading Series and Promotions, page 12-6.

## Common changes to the base time unit:

The Business Modeler allows the Demand Management System Administrator to change the base time unit at any time after initial installation. Common changes include:

- Setting the start date of the weekly time bucket from Monday to Sunday
- Changing the base time unit to month or day from week

## Prerequisites

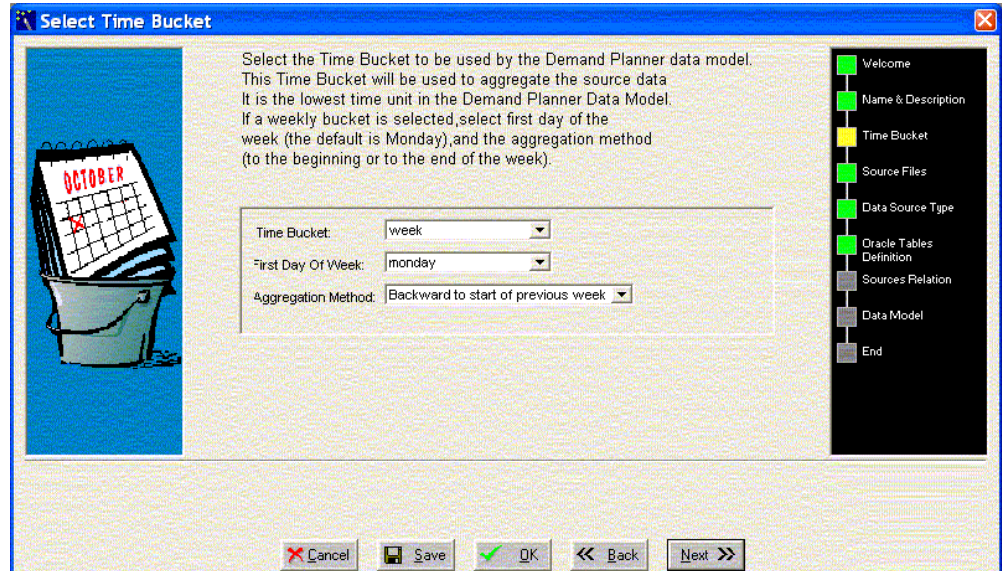
- ☐ Install the Business Modeler.

### To set or change the base time unit:

1. Navigate to the data model.

Business Modeler > Data Model > Open Data Model

The Select Time Bucket window appears.



2. Select the Base Time Unit from the time bucket list of values. The default value is: week
3. If the Time Bucket field is set to week, then choose the day that represents the starting day of the week from the First Day Of Week list of values. The default value is Monday. User may change the default but must then rebuild the model.
4. If the Time Bucket field is set to week, then select the Aggregation Method from the list of values to determine whether events that occur mid week are aggregated to the start date or the end date of the weekly time bucket.
5. Save your work.
6. Click OK.

## Unit-Level Association

In Demantra, you associate each unit with the levels where it makes sense to use that unit. For example, a relatively small unit might make sense only at lower levels.

Demantra uses this association within worksheets. If a worksheet contains three levels, for example, then only the units associated with those levels can be used in that worksheet.

## Indexes and Exchange Rates

Monetary units of measure can use financial indexes and exchange rates. This means that when users display data in a worksheet, they can apply any of those associated

indexes or exchange rates.

Each index and exchange rate is stored in a different table, except for the placeholder index (constant, equals one for all dates).

The placeholder index is used to switch a worksheet back to the same monetary units that are used in the imported data. By default this is called **dollar \$**, because monetary values are usually imported in dollars.

## Configuration Notes

This section contains configuration notes related to units, indexes, and exchange rates.

## Dependencies

Before you can configure units, you will need to load some sample data for items, including unit conversion data.

If a unit requires an index or exchange rate, you must configure that index or exchange rate first.

## Tools

Demantra provides the following tools for creating and configuring units:

Tool	Purpose/Notes
Data Model Wizard*	Can define units, although this wizard provides only a subset of the options.
<b>Configure &gt; Display Units</b> option*	Defines units.
<b>Data Model &gt; Global Factors</b> option*	Allows you to add columns and values to the Inputs table.
<b>Configure &gt; Configure Units for Levels</b> option*	Allows you to associate units with levels.
*These options are in the Business Modeler.	

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## Worksheets

This chapter describes worksheets, outlines the primary configuration options, and summarizes the available tools.

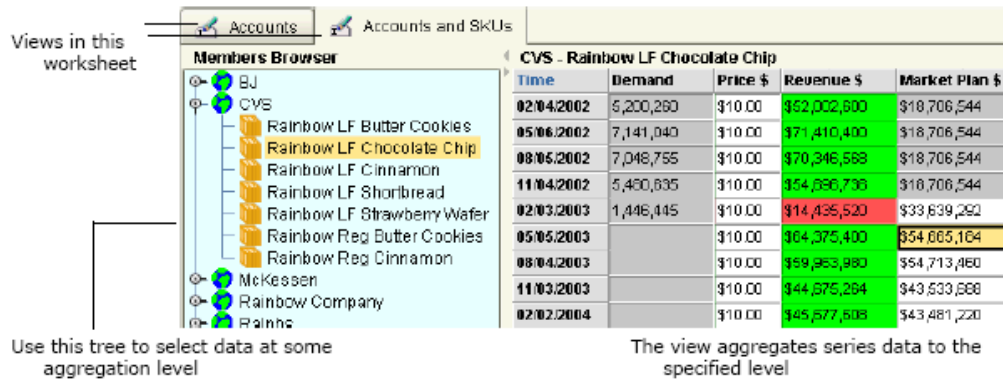
This chapter covers the following topics:

- Introduction
- Main Worksheet Options
- Elements of a Worksheet View
- Level Layout in a View
- Filtering per View
- Level and Worksheet Association; Embedded Worksheets
- Worksheet and Layout Ownership
- Configuration Notes

### Introduction

Within Demantra, users work almost entirely within worksheets. A worksheet is a customized working environment where users can view and edit data. When users save changes back to the database, they become available to other users and to downstream operations.

A worksheet consists of one or more views, usually displayed as tabs within the worksheet. Each view retrieves a set of data that is aggregated in a specific way and that may also be filtered. The following shows an example:



Views in this worksheet

Use this tree to select data at some aggregation level

The view aggregates series data to the specified level

You can also display views as child windows of the worksheet.

## Main Worksheet Options

This section provides a quick overview of the main worksheet options:

- Levels in the worksheet
- Series in the worksheet
- Time resolution and time span
- Optional filters
- Optional exception filters
- View definition and layout

### Levels in a Worksheet

A worksheet usually includes aggregation levels. Based on the levels included in a worksheet, Demantra automatically determines which item-location combinations the worksheet should include. Depending on which combination you select, the worksheet displays series data associated with that combination. For example, if you select one location level (city) and one item level (SKU), the worksheet will contain series data associated with each city-SKU combination. On the other hand, if you select one location level (city) and you do not specify an item level, the worksheet aggregates data for all items. That is, the worksheet will contain series data associated with each city, aggregated for all products.

- If you do not specify any aggregation levels in a worksheet, the data is completely aggregated across all selected items and locations.
- If you use a settlement level in a worksheet, you cannot use levels from any other hierarchy in that worksheet.

## Advanced Selection Options

By default, if a worksheet includes a promotion level, the worksheet includes all the following types of combinations:

- Combinations that have both sales data and promotions
- Combinations that have sales data, but no promotions
- Combinations that have promotions, but no sales data

The worksheet displays placeholders for combinations that do not have promotions. For example:



You can exclude some of these combinations. For example, you might want the worksheet to include only the combinations that have both sales and promotions, as follows:



## Series in a Worksheet

Every worksheet must include at least one series. You can display series in the worksheet table, the graph, both, or neither. (It can be useful to add series to a

worksheet but leave them undisplayed, so that the series are available for any client expressions that depend on them.)

**Note:** If you use a settlement level in a worksheet, all series in the worksheet must refer to tables used by the settlement hierarchy.

## Time Criteria

Each worksheet selects data for a specified span of time and optionally aggregates it in time using a time unit.

You can specify the span of time as a fixed range of dates, a time range relative to today, or a time range relative to the last sales date in the loaded data.

To aggregate data in time, you can also include a time level in the worksheet.

## Filters

Within Demantra, you generally apply filters by specifying a level and the members of that level to include. For example, the following filter includes only the Rainbow brand.

Available Members		Selected Members	
Code	Description	Code	Description
Default	Default Brand		
12	Private Label		
99	Demand Profiles		
VHS	Snows Ice Cream		
		11	Rainbow

level members not included in the filter

level members included in the filter  
(and therefore displayed in the worksheet)

You can apply multiple filters at the same time. For example, for the preceding worksheet, you could also filter by account.

In contrast to an exception filter ("Exception Filters"), this type of filter is static and behaves the same no matter how the data changes.

## Exception Filters

If you attach an exception filter to a worksheet, Demantra checks the values of the worksheet data and displays only the combinations that meet the exception criteria. In contrast to an explicit filter, this type of filter is dynamic and can behave differently as the data changes.

Specifically, you define an exception condition that consists of a series, a comparison operator, and a value, for example:

Exceptions Filter		
Sales Plan	>=	150000.0

When you open the worksheet, Demantra checks each combination in the worksheet. For each combination, if the condition is met for any time in the worksheet date range, Demantra displays that combination. For example, the worksheet shows combinations that have Sales Plan values greater than or equal to 150000, within the time range included in the worksheet.

If the condition is not met at any time for any of the worksheet combinations, Demantra shows the worksheet as empty. That is, if all values in the Sales series are less than 15000 for all combinations, the worksheet comes up empty.

**Note:** If the worksheet includes a promotion level or a promotion series, the behavior is slightly different. In this case, the Members Browser or dropdown list does initially show all combinations. When you click display a combination to display it, the worksheet then checks for exceptions.

You can apply multiple exceptions to a worksheet. When you apply multiple exceptions, you can relate them to each other by logical AND or logical OR relationships. For example:

Exceptions Filter			
Base Frst	>=	150000.0	AND
Discount	<=	15.0	

## View Layout

A worksheet contains one or more views, which the user can display either as tabs or as sub windows. For each view, you specify the following options:

- Name of the view
- Elements to include in the view
- Layout of levels and series in the view
- Additional filtering of the view
- Sub tab worksheets in the view

The following sections provide more details on view layout.

## Elements of a Worksheet View

For each worksheet view, you can control which of the following elements are included in that view:

- The Members Browser or combination-selection lists. A worksheet view usually includes either a Members Browser or a set of drop down menus, with which the user chooses the data to display in the rest of the worksheet:
- The worksheet table, which shows series data for the item-location combination that is currently selected in the view. Depending on how the layout is configured, this may appear as an ordinary table or it may appear as a cross tab; see "Level Layout in a View".

By default, each row in the table corresponds to a point in time, and each column displays the data for a series. As noted earlier, the table also has a summary row. If the worksheet is in cross tab layout, the table also includes subtotal rows.

- The graph, which displays data for the current selection. By default, the horizontal axis shows time, and the vertical axis shows one or more series.
- The Notes/Attachments sub tab, which displays notes and attachments related to the selected combination.
- The Activity Details sub tab, which displays promotions and the promotion hierarchy. The Activity Browser displays an expandable tree view of the promotions associated with the currently selected combination. The Gantt chart displays the promotions associated with the currently selected combination.
- Sub tabs that contain related worksheets. When a selection is made in the worksheet, the related worksheet shows further details. This related worksheet potentially includes different series than the rest of the worksheet and may also be filtered further.

## Level Layout in a View

When you include levels in a worksheet, that means you can see data associated with each member of those level. In each view of a worksheet, you can use any of those levels in any of the following ways:

- Use it within the Members Browser or combination-selection lists, as in the previous examples.
- Use it on one of the worksheet axes, creating a crosstab layout. Each worksheet view has an x-axis and a y-axis.

- In the graph, the x-axis is shown horizontally and the y-axis is shown vertically.
- In the table, the x-axis is displayed vertically and the y-axis is displayed horizontally. (This way, the x-axis displays the same data in the table and in the graph.)
- Hide it, causing Demantra to aggregate data to that level.

## Crosstab Layouts

In a crosstab layout, you include a level on an axis. The table (also known as a pivot table) provides a cross tabulation of all the members.

The following figure shows a worksheet table in crosstab layout, with a row for each SKU member within each time bucket:

Time	SKU	Demand	Price \$	Revenue \$	Market Plan \$
02/04/2002	Rainbow LF Butter Cookies	155,250	\$10.00	\$1,552,500	\$231,660
	Rainbow LF Chocolate Chip	5,200,260	\$10.00	\$52,002,600	\$18,706,544
	Rainbow LF Shortbread	67,000	\$10.00	\$670,000	\$243,243
	Rainbow LF Strawberry Wafer	265,000	\$10.00	\$2,650,000	\$162,162
	Rainbow Reg Butter Cookies	69,950	\$10.00	\$699,500	\$427,680
	Summary	5,757,460	\$7.14	\$57,574,600	\$19,771,290
05/06/2002	Rainbow LF Butter Cookies	133,934	\$10.00	\$1,339,340	\$231,660
	Rainbow LF Chocolate Chip	7,141,040	\$10.00	\$71,410,400	\$18,706,544
	Rainbow LF Shortbread	46,717	\$10.00	\$467,170	\$243,243
	Rainbow LF Strawberry Wafer	330,000	\$10.00	\$3,300,000	\$162,162
	Rainbow Reg Butter Cookies	23,233	\$10.00	\$232,330	\$427,680
	Summary	7,674,924	\$7.14	\$76,749,240	\$19,771,290

Notice that the Members Browser does not include the SKU level, because all SKUs are displayed at the same time.

For another example, the worksheet could instead display the SKU members across the top of the table rather than down the side, as in the following example:

Accounts Accounts and SKUs Accounts and SKUs crosstab

Members Browser

BJ

CVS

McKessen

Rainbow Company

Ralphs

Stop and Shop

WalMart

SKU

Rainbow LF Butter Cookies

Rainbow LF Chocolate Chip

Time	Demand	Price \$	Revenue \$	Market Plan \$	Demand	Price \$	Revenue \$	Market Plan \$
02/04/2002	55,250	\$10.00	\$1,552,500	\$231,660	5,200,260	\$10.00	\$52,002,600	\$18,760,000
05/06/2002	133,934	\$10.00	\$1,339,340	\$231,660	7,141,040	\$10.00	\$71,410,400	\$18,760,000
08/05/2002	169,484	\$10.00	\$1,679,586	\$231,660	7,048,755	\$10.00	\$70,348,566	\$18,760,000
11/04/2002	156,500	\$10.00	\$1,549,350	\$231,660	5,480,635	\$10.00	\$54,696,736	\$18,760,000
02/03/2003	75,400	\$10.00	\$746,460	\$1,310,872	1,446,445	\$10.00	\$14,435,520	\$33,600,000
05/05/2003		\$10.00	\$1,718,029	\$1,900,434		\$10.00	\$64,375,400	\$54,600,000
08/04/2003		\$10.00	\$1,470,648	\$1,689,744		\$10.00	\$59,963,960	\$54,700,000
11/03/2003		\$10.00	\$1,173,626	\$1,515,806		\$10.00	\$44,675,264	\$43,500,000
02/02/2004		\$10.00	\$2,030,132	\$2,281,640		\$10.00	\$45,677,608	\$43,400,000
Summary	690,568	\$9.00	\$13,259,671	\$9,624,935	26,317,136	\$9.00	\$477,584,064	\$304,600,000

Other variations are possible.

### Hidden Levels

You do not have to use all the levels in a worksheet within every view of that worksheet. You can hide the level in any view. This causes Demantra to aggregate data across that level. As a consequence, data in this view is uneditable.

## Filtering per View

In some cases, you create multiple views so that you can show different series in each view. In other cases, you might need to show different combinations in each view. You can separately filter each worksheet view. In this case, you filter a view by choosing a subset of the members of the levels included in the worksheet.

DSM uses this feature to segregate settlements with different statuses. Settlements of each status are on a different worksheet tab.

## Level and Worksheet Association; Embedded Worksheets

It is useful to be able to examine a level member more closely, to launch a worksheet from that member that is filtered to show only that member. But typically, a Demantra application includes a large number of worksheets, and most of those worksheets would not be useful in this way. So Demantra provides an option for associating each level with any number of worksheets. Demantra uses this association in two ways:

- A user can start from a level member and launch a worksheet that is filtered to that member. To do so, the user right-clicks the member and clicks the Open or Open With option.

Alternatively, this worksheet can show just the combination from which the user started.

The worksheet appears in a new window.

**Note:** Demantra indicates the filtering as follows:

- If the worksheet is filtered by member, the name of the worksheet is preceded by the name of the member by which you are filtering it.
  - If the worksheet is filtered by combination (full context), the name of the worksheet is preceded by the word "Filtered".
- 
- A worksheet can include an embedded worksheet that is associated with any of the levels in the main worksheet. Then when a user selects a member in the main worksheet, the embedded worksheet shows the details. The embedded worksheet is displayed in a sub tab.

## Worksheet and Layout Ownership

In general, any worksheet is available as follows:

- A private worksheet is available only to the user who created it.
- A public worksheet is available to all users but can be changed only by the user who created it.

In any case, Demantra automatically prevents any user from seeing data for which he or she does not have permissions.

## Worksheet Definition, Layout, and Local Adjustments

As users work with a Demantra worksheet, they often sort columns, hide or display features, and make various other changes. It is useful to understand how these settings are saved.

Base Demantra configuration	<ul style="list-style-type: none"><li>• Display format for each series</li></ul>
These settings affect all users and all worksheets.	<ul style="list-style-type: none"><li>• Initial display width of series and levels</li><li>• Colors and graph style for each series</li><li>• Other display colors (generally dependent on a condition)</li></ul>

---

#### Worksheet definition

These settings are saved through the File > Save Worksheet menu option. Only the worksheet owner can make these changes.

- Initial number of views within the worksheet and their initial names
- Initial elements (Members Browser, table, graph, and so on) in worksheet view
- View synchronization setting
- Aggregation levels used in worksheet and initial level layout; advanced selection options
- Series used in worksheet and initial series layout
- Time aggregation; time span; time formatting
- Filtering and exception filtering
- Unit of measure used in worksheet; overall scale used in worksheet, if any; index or exchange rate, if any

#### Layout changes

These settings are saved separately for each user if the user clicks File > Save Worksheet. Any user can save these changes, not just the worksheet owner.

- Additional views in the worksheet
  - New names of worksheet views
  - Level layout: order of levels; placement on axes in each view; whether level is hidden in each view
  - Series layout: order of series; where each series is displayed (table, graph, both)
  - Hide/show time axis
-

---

Local adjustments	<ul style="list-style-type: none"> <li>• Use of windows or tabs for views within a worksheet</li> </ul>
These settings are saved automatically separately for each worksheet and each user.	<ul style="list-style-type: none"> <li>• Size and position of the Members Browser, table, graph, and so on in each view</li> <li>• Sorting in the worksheet table</li> <li>• Graph type; legend; grid lines</li> <li>• Hide/show empty rows setting</li> <li>• Activity synchronization setting (Options menu)</li> </ul>
Not saved	<ul style="list-style-type: none"> <li>• Changes to column widths in the worksheet table</li> <li>• Initial view focus; focus in each worksheet view</li> <li>• Expansion state in the Members Browser and Activity Browser</li> <li>• Focus and scroll in all areas</li> <li>• Zoom setting in Gantt</li> </ul>

---

The auto run option (Options menu) is saved separately for each user, but applies to all worksheets that the user sees.

## Configuration Notes

This section contains configuration notes related to worksheets.

## Dependencies

Before you can create worksheets, you will need to load some sample data, create any needed levels, and create any needed series.

## Design Considerations

- It is common practice to create a master worksheet, which is public and meant for multiple users. Different users typically have permission to see different subsets of the worksheet data, such as different accounts. In addition, users can launch the worksheet from a level member, to further filter the worksheet results.
- For performance reasons, don't select too much data to view, unless there is no other choice.
- If you receive a message saying "out of memory," try the following techniques to reduce the amount of memory that your worksheet selects:
  - Remove series if possible
  - Reduce the span of time
  - Apply filters
- If you do need to select a large amount of data, use the levels to your advantage. Specifically, use the levels in the Members Browser or selector lists rather than moving them to a worksheet axis. If levels are in the Members Browser or selector lists, each combination in the worksheet is relatively smaller and will load more quickly.
- Remember that you can filter the worksheet by any level, including levels that are not shown in the worksheet. For example, you might want to see data at the region level, but exclude any data that does not apply to the Acme territory. To do this, you would filter the worksheet to include only the Acme member of the Territory level, but you would select data at the Region level.
- A multi-view worksheet is useful in following cases:
  - If you need to edit data at one aggregation level and see easily how that affects higher aggregation levels.
  - If you need to display a large number of series without having to scroll to see each one.
- To make sure that all client expressions in a worksheet are always evaluated correctly, make sure that the worksheet includes all series to which those client expressions refer. (Note that you can add series to a worksheet but leave them undisplayed.)

## Tools

Demantra provides the following tools for configuring worksheets and related objects:

Tool	Purpose/Notes	See
Worksheet wizard in the Web client (Demand Planner Web, Promotion Effectiveness, and Settlement Management)	Define worksheets and Collaborator Workbench content panes.	Oracle Demantra Demand Management User's Guide or other user guide
Content wizard in Collaborator Workbench	Define worksheets and Collaborator Workbench content panes.	Oracle Demantra Demand Management User's Guide
Components > Open/Create Component option in the Business Modeler	Creates components. Among other things, a component defines the associations between levels and worksheets.	"Creating or Modifying a Component"



---

## Methods and Workflow

This chapter describes options that you can use to create automated actions in your application, outlines the primary configuration options, and summarizes the available tools.

This chapter covers the following topics:

- Introduction
- Overview of Method Types
- Overview of Workflow Step Types
- Typical Step Properties
- Passing Arguments to a Method
- Workflow Schema Examples
- Configuration Notes

### Introduction

Demantra provides two closely related options that you can use to create automated actions in your application:

- A method is an object-specific action, which the user sees as an ordinary right-click menu option in a worksheet. With the method, the user can view or edit attributes of a level member and automatically launch any processing steps that you create. In Demantra, methods are typically used for any of the following purposes:
  - Viewing, editing, copying, pasting, or deleting level members.
  - Running the Promotion Optimization engine, from a selected promotion.
  - Performing custom processing as needed by the DSM product (for example, matching a settlement to a promotion).

- A workflow is an automated or semi-automated software process. In Demantra, a workflow can perform any kind of processing needed in a Demantra application. These are typically used for any of the following purposes:
  - To automate routine work such as loading data, running the Business Logic Engine, and maintaining the Demantra database.
  - To define activities that require organized participation from multiple users. Multiple users can participate in an automated workflow, receiving tasks at the appropriate times and sending tasks to others as needed.

These two options are closely related because most methods actually include a workflow.

## Methods

Each method is associated with a specific level. Also, a method can be available in all worksheets or in a single specific worksheet.

Demantra provides a set of default methods that you can redefine or disable as needed. When you create a level, Demantra automatically creates the following default methods for it:

- New level\_name
- Edit level\_name
- View level\_name
- Delete level\_name
- Copy (only for promotional levels)
- Paste (only for promotional levels)
- Paste from Clipboard (only for promotional levels)

You can customize, disable, or delete these methods. You can add other methods as needed.

## Method Security

Within the Collaborator Workbench Administrator, you can specify user access to all methods (as well as to all menu bar items). See "Specifying Permissions for Menu Items".

## Workflows

In Demantra, a workflow is a logically connected set of steps. Each step can be

automated or can require interaction from one or more users or groups. Demantra provides a set of workflow steps, each with predefined behavior.

A workflow is associated with one component, the component to which its creator belongs. A workflow can include any users of the component, as well as any groups (groups can be defined across multiple components).

## Overview of Method Types

To execute a method, the user right-clicks a level member in a worksheet (or in a Members Browser content pane) and then selects the method name from the menu. The behavior after that depends on the type of method.

### Method Types

Demantra provides the following method types:

Constructor	Prompts the user for values of the attributes of the new member and then adds the member in the database.
Destructor	Removes the member from the database.
Edit	Prompts the user for new values of the attributes for this member and then saves the changes.
View	Displays the values of the attributes for this member.
Custom	Optionally prompts the user for new values of the attributes for this member and then runs a workflow.

Constructor, Destructor, and Edit type methods can also run workflows. The workflow is run after the level member is created, removed, or edited.

### Constructor, Edit, and Custom Methods

If the method type is Constructor, Edit, or Custom, the following occurs:

1. Depending on how the method is configured, Demantra may save the worksheet data immediately.
2. Demantra optionally displays a dialog box that prompts the user for values of

attributes for this level member, as follows:

The screenshot shows a dialog box titled "New SKU - Input". Inside the dialog, there is a text area at the top that says "Specify attributes for this new SKU". Below this, there are five input fields arranged vertically. The first three fields have labels in red: "Name", "Brand", and "Control Type". The "Name" field is empty. The "Brand" field contains the text "Rainbow". The "Control Type" field contains the text "NA". The fourth field is labeled "Unit Cost" and is empty. The fifth field is labeled "Unit Volume" and contains the text "0.0". At the bottom right of the dialog, there are two buttons: "Cancel" and "Create".

For a Custom type method, this dialog box includes an additional check box at the bottom. With this, the user can specify whether to save the attribute changes to the database.

You can customize the following:

- Text at the top of the dialog box
  - Attributes to list and the order in which to show them. The possible attributes include Name, each parent of this level, and any additional attributes. You can specify which attributes are required and which are editable. Required attributes are shown in red.
  - Label on the OK button ("Create" in this example).
3. Demantra creates or edits the member as indicated, and saves the changes to the database.
  4. If the method includes a workflow schema, Demantra continues as follows:
    1. Demantra constructs the set of arguments to pass to the workflow in memory. Specifically, it constructs an array that consists of the following:
    2. Name-value pairs of the attributes of the member, using the values that the user provided.

**Note:** Demantra does not necessarily pass all the attribute values to the method itself. For a custom method, you specify which attributes should be passed to the workflow.

3. Additional name-value pairs that describe the context in which the method was invoked; see "Passing Arguments to a Method".
4. Demantra runs the associated workflow.

Within the Business Modeler, the method configuration may include additional parameters that control how the method behaves. See "Passing Arguments to a Method". If any of these parameters have the same name as the arguments that are passed to the method, the values that are passed in memory take precedence over the values in the method definition.

For example, suppose the configuration for a given method includes a parameter called `unit_cost` and specifies the value for this parameter as 3.00. If the user invokes this method and specifies `unit_cost` as 3.50, then the value of 3.50 is saved in the database and is used in the method execution. On the other hand, if the user does not specify a value for `unit_cost`, the value of 3.00 is used in the method execution.

5. Demantra optionally displays an output dialog box. The output dialog box is similar to the input dialog box, except that the attributes are not editable.

### **View Methods**

If the method type is View, Oracle Demantra does the following:

1. Oracle Demantra displays a dialog box that displays the values of attributes for this level member. This dialog box is a read-only version of the one shown in "Constructor, Edit, and Custom Methods".
2. When the user clicks OK, Oracle Demantra closes the dialog box.

### **Destructor Methods**

If the method type is Destructor, Oracle Demantra does the following:

1. If the method includes an associated workflow, Oracle Demantra invokes that workflow.
2. It displays the standard deletion confirmation dialog box.
3. When the user clicks OK, Oracle Demantra closes the dialog box and removes the member from the database.

## **Overview of Workflow Step Types**

When you create or edit a workflow schema, the Workflow Manager displays a list of the available kinds of steps:

This section provides a brief overview of all the kinds of available steps, grouped into

rough categories. Some kinds of steps fall into multiple categories.

## Responding to External Events

A common use of workflows is to wait for specific conditions or external events and then launch actions. For example, a workflow could wait for a file to be updated and then import data into Demantra.

The primary tool here is the Wait Until Step, which pauses the workflow until a specific condition is met, possibly from a set of allowed conditions. When the condition is true, the Workflow Engine continues with the next step in the workflow. In this step, the Workflow Engine can look for a specific file and wait until the file is created, or is modified, or reaches a certain size. Or the Workflow Engine can execute an SQL query repeatedly until it returns a new value (for example, when a price changes). You control the frequency of testing, as well as the time-out period and other timing properties.

The Workflow Engine can also respond to user interaction. Several steps (User Step, Group Step, and Exception Step) send tasks to users and then wait until those users either mark the tasks as done or until the task times out. If the task times out, the workflow can continue with an alternative step.

Finally, the Workflow Manager itself can be used to schedule workflows.

## Sending Tasks and Email

Some steps send tasks to users or groups; these tasks appear in the My Tasks module for those users, within Collaborator Workbench. A typical task is a request to examine a worksheet, make a decision, and possibly edit data. A task can also include a link to a Web page for more information. A task can be accompanied by email. Also, a workflow step can simply send email.

The following kinds of workflow steps support tasks and email:

- User Step sends tasks to a specific user, to ask the user to review and update a worksheet, or to prompt for a workflow decision.
- Group Step sends tasks to a group of users using just one step instead of sending the task individually to each one. This allows you to coordinate your workflow processes with responses from whole groups of users.
- Email Step sends an email to a user that will arrive in the user's standard email application. This step allows integration with the organizational messaging system.
- Exception Step runs a worksheet on which an exception has been defined. If the worksheet returns data, the step then sends tasks to users to resolve the exception.
- Selection Step provides a user with a selection of choices to direct the continuation of the workflow instance. For instance, selection step can be used to obtain approval, rejection, or postponement of workflow activities, or selection of a priority from a list of activities.

## Integration

The Transfer Step initiates transfer procedures for the import and export of data. This kind of step is associated with an integration interface, as defined within the Business Modeler.

## Managing Demantra Objects

The following workflow steps should be used only as methods. Each of them uses arguments that are available when a user launches a method from a level member or a Members Browser:

- Create Member Step creates the specified level member.
- Edit Member Step makes changes to the specified level member.
- Delete Member Step creates the specified level member.

## Other Demantra Actions

The following specialized workflow steps perform actions that are specific to Demantra needs:

- Stored Procedure Step runs a stored database procedure on the database that holds the Demantra data. Demantra provides a set of predefined database procedures, some of which must run regularly in any Demantra solution. See "Database Procedures".
- BLE Step runs the Business Logic Engine directly on a worksheet to evaluate all the client expressions, split the resulting data to the lowest level, and save it to the database. This step automatically starts the Business Logic Engine if necessary.
- Simulation Step runs simulations and then either automatically accepts the results or displays the results in a worksheet for review by a user.
- Worksheet Cache Step refreshes the caches for specified worksheets, for some or all users.

## Logic

The following kinds of steps support programming logic within the workflow:

- Selection Step, which was introduced previously, provides a user with a selection of choices to direct the continuation of the workflow instance.
- Condition Step directs the course of the workflow instance depending on condition results obtained from worksheets run on the Demantra database. Instead of testing a worksheet, you can test an SQL query or a custom Java class.

- Exception Step runs a worksheet on which an exception has been defined. If the worksheet returns data, the step then send tasks to users to resolve the exception.
- Container Step runs multiple steps in parallel and then proceeds when all are completed.
- Wait Until Step waits until a specific condition is met before allowing the workflow to continue. The condition can be the existence or modification of a given file, or a change in a value in the database.

## External Functions

Finally, other kinds of steps call external functions:

- Executable Step runs executables such as Demantra executables (for example, the Analytical Engine), or external executable and batch files. This step allows interaction between Demantra and external software.
- Custom Step runs a Java class and is typically used to define custom methods. If a workflow is configured as a method, then a user can launch it from within a worksheet. In that case, Demantra automatically passes arguments to the workflow, which Custom Step can use.

## Typical Step Properties

This section provides an overview of the properties of a typical step.

## Connection Handles

Each step has connection handles that you use to connect it to other steps.

## Common Properties

When you add a step to a workflow, the Workflow Editor displays a popup page where you can specify properties for that step. Common properties include the following; not all steps have all these properties.

- The User and Group properties specify users and groups, respectively, associated with the step. Generally, the Workflow Engine sends tasks to these users or groups. Some kinds of steps have both these properties, some have only the User property, and some have neither. In some cases, you can specify only a single user, while in other cases, multiple users are permitted.
- The Worksheet Name property specifies an associated worksheet, from the set defined within Demantra. Different kinds of steps use worksheets in different ways. For example, BLE Step evaluates the client expressions in the worksheet.

- Several properties specify built-in processing delays with short default values. For example, the Pause property specifies how long the Workflow Engine should wait after the step is completed, before starting the next step. In this way, you can coordinate workflow activities by making the engine wait for defined periods of time.
- The Timeout>Timer property specifies when the step times out. For example, if the user does not mark a task as done before its due date, then the task will expire or time out. You use this property to prevent a step from stalling the workflow. If you specify a timeout period, you also specify an alternative following step that the Workflow Engine should execute.

**Note:** When a step times out, the Workflow Engine executes the timeout step immediately without waiting for the pause counter to finish.

- The Timeout>Alert Time property specifies when the step enters its alert phase.
- The Recovery property specifies the recovery action for the Workflow Engine to use if the system crashes while performing this step.

## Passing Arguments to a Method

Demetra can pass arguments in memory to the method. Considered as a group, these arguments are the context dictionary. For each argument, Demetra passes a variable name and its associated value.

### Available Arguments

The available arguments fall into three general categories:

- System information, for example, the ID of the worksheet from which the method was launched.
- Member information, that is, information that indicates the member from which the method was launched.
- User inputs, that is, all arguments shown on the Input dialog box. These arguments are generally attributes of the member from which the method was launched.

The following table lists the possible variables.

Category	Variable*	Value	Data Type
System	ws_id	Identifier of the worksheet from which the method was launched.	Java.util.String
System	worksheet_filter	The filter population of the worksheet from which the method was launched. Represented as a list of pairs of level_id and member_id.	java.util.String level_id,member_id;  pairs separated by comas and semi-colons.
System	view_name	The name of the active view from which the method was called.	java.util.String
Member	level_id	Identifier of the level from which the method was launched.	java.util.String
Member	member_id	Identifier of the member from which the method was launched.	java.util.String
Member	Combination_path	The context of the selected member for the method. Will be represented as a list of pairs of level_id and member_id.	java.util.String level_id,member_id

Category	Variable*	Value	Data Type
Member	population.filters (example)	Applies only to promotion levels. The population attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name.filters</i>	Array of com.demantra.applicationServer.metadataObjects.level.levelFilters.LevelFilterGetters
Member	population.from_date (example)	Applies only to promotion levels. The from_date attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name.from_date</i>	java.util.Date
Member	population.to_date (example)	Applies only to promotion levels. The to_date attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name.to_date</i>	java.util.Date

Category	Variable*	Value	Data Type
Inputs	Attribute_column_name	Values of the attributes of the selected member that are specified as inputs to the method (all attributes on the Select Input Arguments screen). The name of each variable is the same as the name of the column in which the attribute is stored.	java.util.Object

\*To use these variables, use the Demantra API. Contact Oracle for information.

## Passing Arguments

In order to pass arguments to the method, you must explicitly configure the variables that each workflow step should receive. To do so, you type the parameter names on the Parameters list for that step; see "Properties Used as Arguments for a Method".

**Note:** The parameter names are case-sensitive.

For the input variables, you also specify which variables to pass when you configure the method. Specifically you select the desired attributes on the Select Input Arguments screen.

## Properties Used as Arguments for a Method

When you configure a workflow as a method, Demantra can pass arguments in memory to the method. Considered as a group, these arguments are the context dictionary. For each argument, Demantra passes a variable name and its associated value.

In order to make these arguments available to a workflow step, you must explicitly configure the variables that each workflow step should receive. To do so, you type each variable name in the Name column of the Parameters list for that step, as follows:

**Parameters**

Description	Name	Value
	level_id	
	member_id	
Product Family	t_ep_Fam_EP_ID	
Brand	t_ep_Brand_EP_ID	
Name	SKU_D	

**Add**

**Remove**

In this example, the first two arguments are standard member variables, from the table in "Available Arguments". These arguments can be used in any method.

The remaining three arguments are input variables; these variables refer to attributes of the member. Specifically these are the names of the columns in which these attributes are stored (Product Family, Brand, and Name).

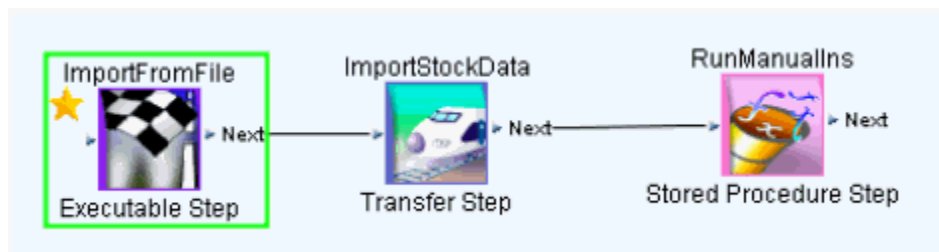
**Note:** In the Parameters list:

- The parameter names are case-sensitive.
- The descriptions are not used by the method.
- If a value is null in this table, then the value is taken from the member from which the method was launched. If the value is not null, then it is used instead of the value taken from that member.

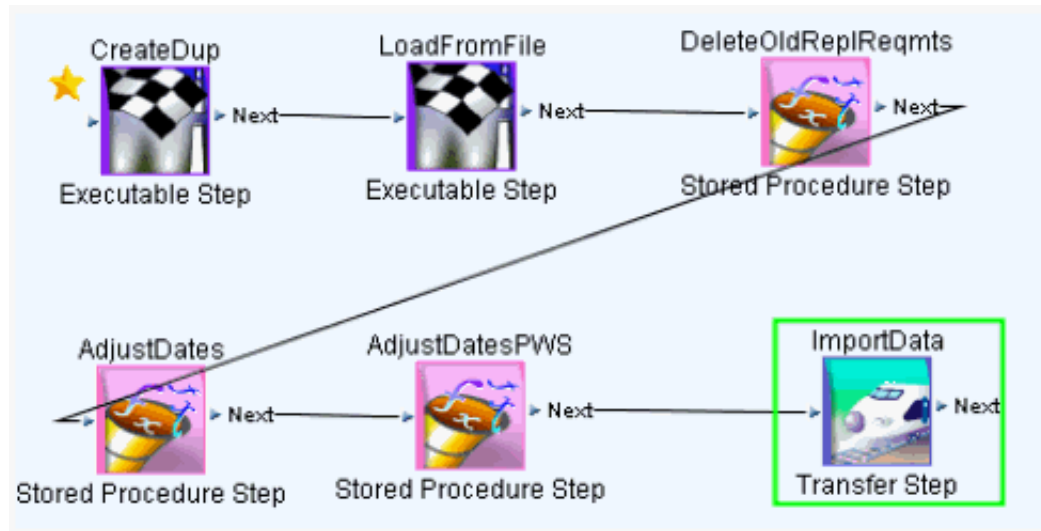
## Workflow Schema Examples

Workflows are very often used to import data. In the process of importing data, it is often necessary to perform various kinds of integrity checking and data cleanup, which you do within database procedures. As a consequence, many workflow schemas include the Stored Procedure Step in addition to the Transfer Step.

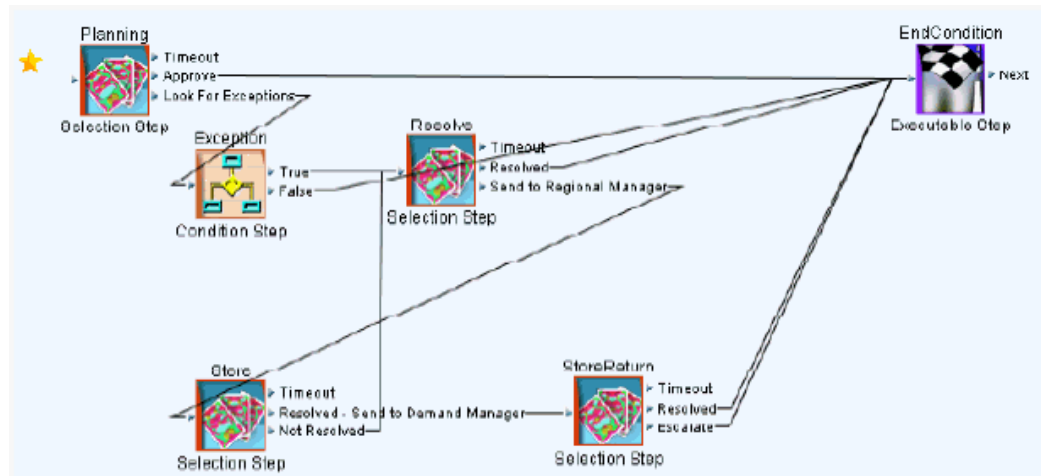
### Example 1



### Example 2



### Example 3



## Configuration Notes

This section contains configuration notes related to methods, workflows, and automation in general

## Dependencies

Before you can configure a workflow, you may need to define the following elements that it might use:

- Stored procedures
- Java classes

- Batch scripts
- Worksheets

Before you create a method, you may need to define the following elements that it might use:

- Worksheets
- Workflows

### Design Considerations

Before you begin creating a workflow schema, you should have a clear idea of the intended purpose, flow, and users of the schema. Also, you should consider the following issues:

- Remember that client expressions that are affected by data changes should not be used until the Business Logic Engine evaluates them. The Workflow Manager does provide a kind of step that submits worksheets to the Business Logic Engine.
- A worksheet must be public in order to be visible from a task. Also, users must have the correct security privileges to view worksheet results.
- Initiators of a workflow instance must have permissions to view worksheet results for all worksheets that the workflow schema includes. If the workflow instance is to be initiated by more than one user, the worksheet must be a public worksheet, and the users of the group must have permissions to view the worksheet results.
- Properties of workflow steps cannot be changed within or by the workflow instance. If you make changes to a workflow schema, those changes do not affect any instances that are currently running.
- Only the owner of a workflow schema can edit that schema. Anyone with login access to the Workflow Manager can launch it.

### Tools

Demantra provides the following tools for creating and configuring methods and workflows:

Tool	Purpose/Notes
Configure > Method option in the Business Modeler	Defines methods.

Tool	Purpose/Notes
Workflow Manager	Defines workflows.

---

## Security

This chapter explains the Demantra security mechanisms.

This chapter covers the following topics:

- Data Security
- Feature Security
- Other Security Features
- Program Groups
- Configuration Notes

### Data Security

Demantra data is secured as follows:

- The data is partitioned into components, which generally correspond to organizational roles, which can overlap.
- Each user is authorized for one component.
- Users can belong to groups, and group members can collaborate, inside or outside of workflows. When a user creates a note, he or she can control access to that note by user or by group.

The following table summarizes how Demantra controls access to data elements.

Data Element	Options	Controlled by		
		Yes	No	Yes

<b>Data Element</b>	<b>Options</b>	<b>Controlled by</b>		
Series indicators (which indicate the presence of a note or promotion within the worksheet table.)	Visible or not visible	Yes	No	No
Levels	Visible or not visible	Yes	No	No
Level members	<ul style="list-style-type: none"> <li>• Full control, including ability to delete members</li> <li>• Read/write existing members</li> <li>• Read existing members</li> <li>• No access</li> </ul>	Yes	No	Yes
Units of measure	Visible or not visible	Yes	No	No
Indexes and exchange rates	Visible or not visible	Yes	No	No
Notes	Similar to level member options	No	As specified by creator of note	

It is useful to remember that each user of a component sees a subset of the data associated with that component. You cannot give user access to data that is not contained in the component.

## Components

Each component has the following properties:

- Series, levels, units of measure, indexes, and exchange rates. For each level, you define permissions that the users have for the members of that level. The choices are as follows:
  - Full control, including ability to delete members
  - Read/write existing members
  - Read existing members
  - No access
- An owner. This owner acts as the administrator of the component.
- Possible additional users, created by the owner. The owner can also further restrict data access for particular users.

## Users

For users, you can specify the following details:

- Overall permission level, which can enable the user to log onto Demantra administrative tools and modify the component.
- Series that the user can access, generally a subset of the series included in the component.
- Optional permissions to control which level members the user can see and edit. The choices are as follows:
  - Full control, including ability to delete members
  - Read/write existing members
  - Read existing members
  - No access (the members are filtered out entirely for this user)
- Group or groups to which the user belongs.

## User Groups

For user groups, you can specify the following details:

- Which users are in the group.
- Whether this user group is also a collaboration group (for use by the Workflow Engine).

- Whether users of this group can log into the Workflow Editor.

### **Security for Deleting Members**

Most level members are created by integration and it would generally be undesirable to delete them. Most users, therefore, do not have delete access to these members. The exception is a user with System Manager permission; see "Permission Levels".

Level members can be created directly within Demantra (through Member Management). For any these members, the user who created the member has permission to delete it.

### **Data Security at Higher Levels**

When a user views data at an aggregation level that is higher than where the permissions are set, it is necessary to resolve how to aggregate editable members and uneditable members. Demantra uses the following rules:

- If all lower-level members are editable (either as read/write or full control), the member is editable.
- If some of the lower-level members are visible but read-only, the member is not editable.
- If some of the lower-level members are not visible, those members are filtered out and do not affect the aggregation. The upper-level member may or may not be editable, depending on the preceding rules.

## **Feature Security**

Demantra features are secured as follows:

- Permission levels control access to administrative tools and to menu items. Demantra provides four predefined permission levels that you can customize. You can control access to all of the Demantra menus:
  - Menus on the Collaborator Workbench menu bar
  - Menus on the DSM menu bar
  - Menus on the Promotion Effectiveness menu bar
  - Menus on the Demand Management menu bar
  - Right-click menus associated with each level in your system
- You can also control access to all the same menu items at the group and user ID level.

For convenience, you control access to individual menu items, to predefined collections of menu items, or to your own collections of menu items (your own program groups).

## Permission Levels

Demantra defines four permission levels, as follows:

- System Manager
- Supervisor
- Power user
- Casual user

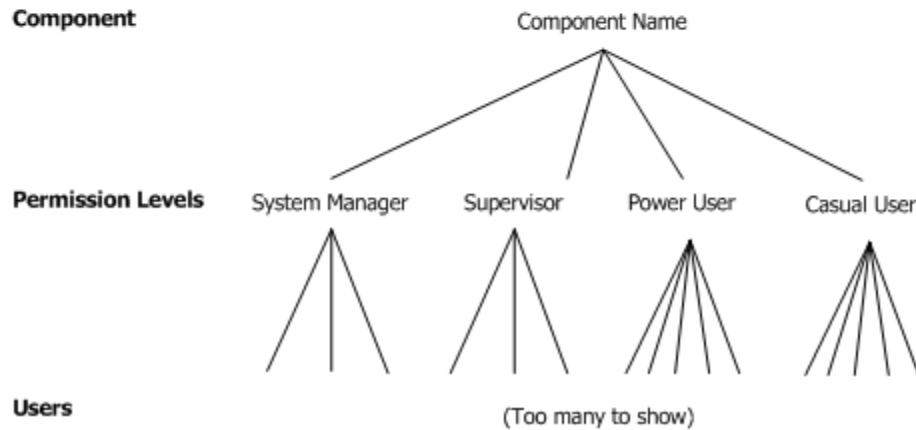
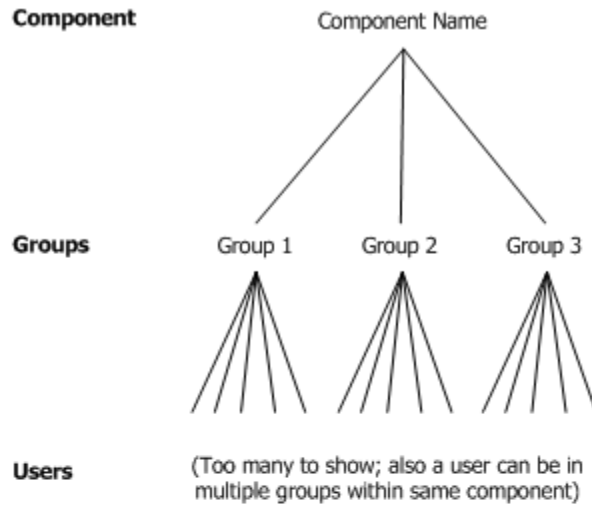
A user must have the System Manager permission level in order to log onto the administrative tools (such as the Business Modeler). Apart from that (and a few differences noted in "Other Security Features"), these permission levels provide the same access to menu items. You can redefine them as needed by assigning access to different menu items or sets of menu items.

## Permission Hierarchies

In order to understand how Demantra determines a given user's access to a given menu item, it is necessary to understand the permission hierarchies and how Demantra combines them.

Demantra has two independent permission hierarchies. In the first hierarchy, each component includes groups, and each group includes users. A user can belong to multiple groups, provided that all those groups belong to the same component.

In the second hierarchy, each component includes four permission levels, and each user has one permission level.



## Explicit and Implicit Permissions

You can display or hide any menu item. You can also display but disable a menu item, which can provide a useful clue about advanced features that are available to other users. Each permission is either explicit or implicit (inherited).

You define permissions in an expandable hierarchy like the following. For now, let's focus on the three check boxes:

Program Type Filter:  Level Filter:

	Program Object	Hidden <a href="#">Select All</a>	Disabled <a href="#">Select All</a>	Inherited Permission <a href="#">Select All</a>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Settlement Management</b>			
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>File</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Worksheet</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Edit</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>View</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Options</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Data</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <b>Help</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/> <b>Program Groups</b>			
<input type="checkbox"/>	<input type="checkbox"/> <b>Object Menu</b>			

The following table describes how to use these check boxes:

Desired outcome	Hidden	Disabled	Inherited Permission
Menu option is explicitly hidden	Checked	Irrelevant	Unchecked
Menu option is explicitly displayed but disabled	Unchecked	Checked	Unchecked
Menu option is explicitly displayed and enabled	Unchecked	Unchecked	Unchecked
Use implicit permissions for this menu item	Unchecked	Unchecked	Checked

## How Demantra Combines Multiple Permissions

For a given user and a given menu item, Demantra checks for all the following permission descriptions:

- For the component
- For each group to which the user belongs
- For the permission level that the user has
- For the user ID

- For each program group to which the menu item belongs

To determine whether a user has access to a given menu item, Demantra searches for and combines the permission descriptions as follows.

1. Demantra checks to see if the user has an explicit permission setting (for a given menu item). If so, that setting is used, and all others are disregarded.
2. If the user does not have an explicit permission setting for a given menu item, then Demantra looks at the settings for the groups to which the user belongs, the permission level that the user has, and each program group that the menu item is in. Here, the following rules apply:
  - An explicit permission takes precedence over an implicit permission.
  - Among explicit permissions, the most liberal permission takes precedence.
  - Among implicit permissions, the most liberal permission takes precedence.
3. If no explicit permission setting for the menu item has been found so far, then Demantra uses the permission setting at the component level, if any.
4. If there is no setting at the component level, Demantra displays and enables the menu item.

See Also

- "Data Security"

## Other Security Features

Note the following additional security features:

- Membership in a group is used to control access to the Workflow Editor.
- A user with the System Manager permission level can see all public worksheets and all private worksheets. Users with lower permission levels can see all public worksheets and all private worksheets created by themselves.
- A user with the System Manager permission level can see the System menu in the desktop Demand Planner, in addition to the other menus.
- Any user can log onto the Business Modeler. If the user's permission level is lower than System Manager, the user can only change his or her own password, as documented in the user guides.

## Program Groups

A program group is a collection of menu items, typically related to each other in some way. You create program groups so that you can easily control access to all the menu items in the group.

Demantra provides several predefined program groups, for convenience. These program groups contain only menu items from the right-click menus.

Program group	Menu items in this group, by default
Add	New <i>member</i> right-click menu option for every level in the system.
Edit	Edit <i>member</i> right-click menu option for every level in the system.
Delete	Delete <i>member</i> right-click menu option for every level in the system.
View	View <i>member</i> right-click menu option for every level in the system.
Copy	Copy, Paste, and Paste from Clipboard right-click menu options for every applicable level in the system. (Note that this option is available only for promotional-type levels.)
Open	Open and Open With right-click menu options for every level in the system.

## Configuration Notes

The following table summarizes the Demantra security tools.

Tool	Purpose/Notes
Components > Open/Create Component option*	Creates components, which are usually created as part of basic implementation.
Security > Create/Modify User option*	Creates users and configures all information except for access to menu items.

Tool	Purpose/Notes
Security > Create/Modify Group option*	Creates user groups and configures all information except for access to menu items.
Collaborator Workbench Administrator	Controls access to menu items; defines program groups.
*These options are in the Business Modeler.	

---

## Proport

This chapter explains the proportion mechanism.

This chapter covers the following topics:

- Overview
- How You Can Tune the Proportion Mechanism
- Calculating the Rolling Average Demand
- Calculating the Monthly Proportions
- Calculating the Average Daily Demand for Each Month
- Handling Data Issues
- Which Combinations Are Affected
- Other Notes on the Proportion Mechanism

### Overview

The proportion mechanism computes and stores information about the average demand per day for each item-location combination. Demantra uses this information whenever it needs to split higher-level data across the relevant lowest-level members.

For example, if one item-location combination had four times as many sales as another, the former combination should receive four times as much of the forecast.

### When Proportions Are Used

In general, Demantra splits data whenever necessary, including the following occasions:

- When the Analytical Engine generates a forecast at an aggregated level.
- When data is imported at an aggregated level.
- When users perform chaining at an aggregated level.

This chapter describes how matrix proportions are calculated.

## Kinds of Proportions

Demantra provides three general ways to specify the relative proportions of different combinations:

Kind of proportions	Details	When used
Matrix proportions or stored proportions	Proportions that Demantra calculates and stores for later use. The calculation is based upon the demand, but also considers recent average demand, month-to-month variations, and so on. Various parameters and combination-specific flags control exactly how proposit works.  These proportions are averages and are not as good as actual proportions.	Option when importing data  Automatically used when forecast must be created at higher level
Actual proportions	Use the proportions of the Demand series.	Option when importing data
Proportions of a reference series	Use the proportions of a reference series, typically:  Demand (suitable for a historical series)  Final Plan (suitable for a forecast series)	When data is edited at an aggregated level
<b>Added for Release 7.1.1 - Sunanda</b> SALES_DATA based proportion	Proportion that Demantra uses for future forecast splits. This proportion is used when the SKUs have insufficient historical demand data, and the engine forecasts several SKUs aggregated together with older SKUs providing history for the SKUs in use. In nodes where all participants are marked for SALES_DATA based proportion, the engine splits the forecast using the lowest level value of the series called Future Proportions.  <b>Note to reviewer:</b>  Do we need to put more information about Future Proportions series?	When the future forecast is split based on configurations set by the users.

## How You Can Tune the Proport Mechanism

You can tune the proposit mechanism as follows:

- Tuning how the proposit mechanism smooths data variations from month to month. You can tune these settings globally or separately for individual combinations.
- Specifying how the proposit mechanism handles null data and other data issues.
- Specifying which combinations the proposit mechanism should consider when it runs.

The following sections describe how proposit handles these steps.

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The following sections describe how proposit handles these steps.

## Calculating the Rolling Average Demand

For each combination, Demantra computes a rolling average of the most recent demand over some span of time. This rolling average (glob\_prop) depends on the following:

---

hist_glob_prop	Number of base time buckets to include when calculating the running average demand. Usually, you use one season's worth of data. Each combination can have a different value for this setting.
quantity_form	Expression that Demantra uses to calculate demand, based on sales data and various overrides.
proposit_missing	Specifies what value to use for dates with null sales. See "Specifying How to Treat Null Data"

---

# Calculating the Monthly Proportions

After calculating the rolling average demand for each combination, Demantra calculates the average demand per day (P1, P2, ..., P12) averaged over a month's time. This calculation consists of three steps:

- 1. Calculating the average daily demand for each month of the year.
- 2. Adjusting the level of these averages to account for any overall trend. This calculation uses the rolling average demand.
- 3. Smoothing these averages to account for month-to-month variations. This calculation also uses the rolling average demand.

**Note:** In weekly and daily systems, the proportion mechanism scales the monthly proportions (P1, ..., P12) by dividing by the number of days in the month, as appropriate.

# Calculating the Average Daily Demand for Each Month

For each combination, Demantra calculates the following average demand per day averaged over a month's time, for each month of the year. (This data is stored in mdp\_matrix):

P1	Average demand per day for the month of January
P2	Average demand per day for the month of February
and so on	

# Smoothing Out Variations

Depending on your business, you may want to smooth out the month-to-month variations. The delta field in mdp\_matrix specifies a weight for a given item-location combination. Demantra uses this weight to even out these variations as in the following example:

$$P1 = glob\_prop * delta + (old P1) * (1 - delta)$$

- The delta field must be a floating-point number, anywhere between 0 and 1, inclusive. The larger it is, the more you smooth out the day-to-day variations.
- The def\_delta parameter specifies the default value for the delta parameter for any new combinations.

These smoothed proportions are stored in mdp\_matrix follows, overwriting the old P1, P2, ... fields:

P1	Smoothed, level-adjusted average daily demand for the month of January
P2	Smoothed, level-adjusted average daily demand for the month of February
and so on	

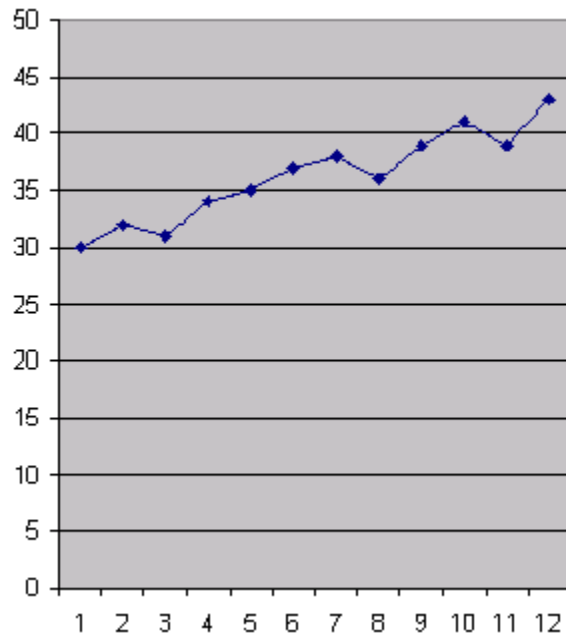
### Adjusting the Level

Starting with the average daily demands for each item-location combination for each month of the year, Demantra considers the change in level over the past year and adjusts the level of the proportions accordingly.

For a simple example, consider the following historical daily demand, over the last year:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
30	32	31	34	35	37	38	36	39	41	39	43

A slight upwards trend is fairly obvious, especially when this demand is graphed.



To keep matters simple, suppose that we have only one year's worth of data. If we just used demand from last January (that is, 30) for the next January, we would underestimate the demand, because the overall level of demand has increased over the last year. Therefore, Demantra calculates the level-adjusted daily demand for January as follows:

$$P1 = (\text{smoothed } P1) * (\text{rolling average}) * 12 / (\text{sum of all average demand})$$

Here smoothed P1 is the average demand per day for January as calculated previously and then smoothed as described in "Smoothing Out Variations". These level-adjusted, "normalized" proportions are stored in mdp\_matrix, overwriting the old P1, P2, ... fields:

---

P1	Level-adjusted, smoothed average daily demand for the month of January
P2	Level-adjusted, smoothed average daily demand for the month of February
and so on	

---

## Handling Data Issues

You can control how the proport mechanism handles various data issues.

## Specifying How to Treat Null Data

You must specify how to treat missing dates, which can have a large effect on the averages. If there are no sales for an item-location combination for a given month, that can either mean there truly were zero sales or it can indicate a problem with the data. You specify the `proport_missing` parameter as follows.

- If this parameter is equal to 0, dates with null data are treated as dates with zero sales. That is, suppose that you have three months worth of data as follows: 30, null, 60. If `proport_missing` equals 0, the average of these three months is calculated as 30 (or  $[30+0+60]/3$ ).
- If this parameter is equal to 1, dates with null data are ignored. Using the old example, if `proport_missing` equals 1, the average of these three months is calculated as 45 (or  $[30+60]/2$ ). This is mathematically equivalent to assuming that the missing month has average sales (45).

Similarly, suppose you have weekly sales data, but you do not have data for all the weeks in a given month. If `proport_missing` equals 0, the weeks with null sales are treated as having zero sales. If `proport_missing` equals 1, the weeks that have null sales are considered as having average sales.

For data with many missing observations, it is likely that the null sales actually represent no sales; in this case, it is suitable to specify `proport_missing` as 0.

For data with only a few missing observations, it may be more likely that the missing observations represent data problems. In this case, it would be better to specify `proport_missing` as 1 and ignore the missing observations.

## Determining Coverage of the Months of the Year

For any given item-location combination, the sales may not include data for every month of the year. For example, for a given item-location combination, suppose that you have 24 months worth of data, but that there were no sales in November or December—for any year. This means that you have ten distinct months represented in the history.

The `proport_threshold` parameter specifies the minimum number of distinct months that must be present in the sales data for any given item-location combination. For example, if you have data for three Januaries, that counts as one observation for January.

Then:

- If the history does contain enough distinct months, the averages are calculated as normal for the months that have non-null data. You must specify what values to use for the other months; see "Specifying How to Handle Missing Time Buckets".
- If the history does not contain enough distinct months, Demantra checks the value

of the `proport_missing` parameter and then does the following:

- If `proport_missing` equals 0, Demantra sets the averages equal to the `glob_prop * delta`.
- If `proport_missing` equals 1, Demantra sets all averages equal to the rolling average (`glob_prop`).

In the preceding example, suppose that you have monthly data and suppose that `proport_threshold` is 11. In this case, this combination does not have data for enough distinct months, and all monthly proportions are equal to `glob_prop`. In contrast, suppose that `proport_threshold` equals 8 instead. In this case, the monthly averages are calculated as normal for the months with non-null data.

### Specifying How to Handle Missing Time Buckets

You use the `proport_spread` parameter to specify what value to use for any bucket that has null data.

Suppose that we have the following data for a given item-location combination:

Nov 2002	Dec 2002	Jan 2003	Feb 2003	Mar 2003	Apr 2003	May 2003	Jun 2003	Jul 2003	Aug 2003
7	0	1	5	9	3	2	null	1	no data yet
no data before this month									

Before we examine the `proport_spread` parameter, it is worthwhile to rearrange this information and identify which months are missing:

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5	9	3	2	missi ng	1	missi ng	missi ng	missi ng	7	0

The `proport_spread` parameter can equal any of the following values:

- If `proport_spread` is 0, missing months receive 0 proportions. In this case, Demantra calculates the monthly averages as follows:

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5	9	3	2	0	1	0	0	0	7	0

- If `proport_spread` is 1, Demantra checks the value of the `proport_missing` parameter and then does the following:
  - If `proport_missing` equals 0, then missing months receive `glob_prop*delta`. In this case, Demantra calculates the monthly averages as follows:

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5	9	3	2	glob _pro p*de lta	1	glob _pro p*de lta	glob _pro p*de lta	glob _pro p*de lta	7	0

- If `proport_missing` equals 1, then missing months receive the rolling average (`glob_prop`). In this case, Demantra calculates the monthly averages as follows:

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5	9	3	2	glob _pro p	1	glob _pro p	glob _pro p	glob _pro p	7	0

- If `proport_spread` is 2, Demantra considers whether a missing month *could* have been included within the history. (This setting has an effect only if you have data for less than a full year as in our example.)

First, Demantra uses 0 for missing months that *could* have been included within the partial year.

For missing months that *could not* have been included, Demantra checks the value of the `proport_missing` parameter and then does the following:

- If `proport_missing` equals 0, then missing months receive `glob_prop*delta`.
- If `proport_missing` equals 1, then missing months receive the rolling average (`glob_prop`).

In our example, the history started in November 2002 and continues through July 2003.

That span of time does not include the months of August, September, and October, so those missing months receive glob\_prop; the missing month of June, on the other hand, receives 0. In this case, Demantra calculates the monthly averages as follows (assuming that proport\_missing does not equal 1)

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5	9	3	2	0	1	glob_ prop	glob_ prop	glob_ prop	7	0

**Note:** If you set proport\_missing to consider omitted values as null, there is no reason to set the Run\_full\_matrix\_proport parameter to 1.

## Which Combinations Are Affected

By default, the proport mechanism loads only combinations with non-null values, and it recalculates proportions based only on the loaded combinations. In some cases, this is correct; it may not be desirable to recompute proportions frequently if your data is intermittent.

In other cases, however, a null value really does mean zero sales, and the split should be recalculated accordingly. Assume that proport is considering three months of history data (hist\_glob\_prop equals 3). Consider this example:

Combination	January	February	March	April
1 (Product A at store A)	500	500	400	(null)
2 (Product A at store B)	50	60	40	70

In this case, if you calculated proportions in March, you would calculate the split between combination 1 and combination 2 as  $(500+500+400)/(50+60+40)$ , which is appropriate.

However, if you calculated proportions in April, you would not load new member data for combination 1. In this case, the system would calculate the split between combination 1 and combination 2 as  $(500+500+400)/(60+40+70)$ , which means that combination 1 would receive most of the split, even though there were no sales of this product in this store in April. This is probably not what you want.

The Run\_full\_matrix\_proport parameter specifies whether to run the proport

mechanism on all the item-location combinations.

- If no (0), run proposit only on the combinations that have newly loaded sales data or that have been flagged (prop\_changes=1) in the database.
- If yes (1), the proposit mechanism calculates proportions for all nodes at loading time and assumes that null values represent zero. This takes longer (possibly much longer), but avoids the miscalculation outlined previously.
- If equal to 2, the proposit mechanism calculates proportions for all combinations that have new\_member=1.

The proposit mechanism then recomputes the rolling average, individual monthly averages, and individual monthly proportions for each of those combinations, as described in "Calculating the Rolling Average Demand".

## Other Notes on the Proposit Mechanism

The proposit mechanism considers only real combinations. That is, it ignores combinations for which is\_fictive equals 1.

The proposit mechanism calculates the prediction status of each combination, in addition to calculating the proportions.



# Part 2

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## Integration



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## Demantra Data Tables and Integration Processes

This chapter describes the Demantra table structure (at a high level) and gives the basic data requirements. It also describes ways you can import data into and export data from Demantra.

This chapter covers the following topics:

- Demantra Data Tables
- Data Assumptions and Requirements
- Loading Basic Data
- Loading Series and Promotions
- Configure Series Load and Purge Options
- Loading Supplementary Data
- Exporting Data
- Configuration Notes

### Demantra Data Tables

When you configure Demantra, it is not necessary to work directly with the database, except in minor ways such as creating stand-alone tables. Also, you should use the Demantra configuration tools as much as possible, to avoid making database changes that could damage your configuration. However, it is useful to have a general understanding of the Demantra table structure and its many interconnections.

First, Demantra stores most of its basic data in the following internal tables:

---

items	Contains one record for each lowest-level item, with fields to indicate the membership of that item in every higher item-type level.
location	Contains one record for each lowest-level location, with fields to indicate the membership of that item in every higher location-type level.
mdp_matrix	Contains one record for each known combination of lowest-level item and lowest-level location. This includes all combinations that have had sales, as well as any combinations created manually in the user interfaces. Matrix series select data from this table.
sales_data	Contains one record for each lowest-level item, lowest-level location, and date—for all combinations and dates where sales actually occurred. Sales series select data from this table.
promotion_data	Contains one record for each lowest-level item, lowest-level location, promotion, and date—for all combinations, promotions, and dates where promotions actually occurred. Promotion series select data from this table.
Inputs	Contains one record for each date, through a date in the far future. You use this table to store purely time-dependent information, such as 4-4-5 calendars and global causal factors.

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Demantra also has the following tables:

- Several tables (promotion\_dates, promotion\_levels, and promotion\_members) that indicate the combinations and dates to which each promotion applies.
- A table (group\_attributes) that lists all the levels defined in Demantra.
- One table for each level, which lists the members of that level and their attributes. If you have defined series on this level, data for that series is also stored here.
- A table that describes all the series defined in Demantra. For each series, this

information includes details such as the table from which the series data should be retrieved.

- Tables that describe causal factors that the Analytical Engine should use.

As you can see, you should never directly edit any of these tables. These tables are interconnected and must be kept synchronized whenever new data is loaded or whenever structural changes are made.

You can, however, add your own tables to use in dropdown series or other purposes.

## Data Assumptions and Requirements

Demantra requires input data that describes the items, the locations at which the items are sold, and all sales of those items, at each location over time. It is important to understand the Demantra requirements for this data.

### Lowest-Level Item Data

Demantra requires the following fields for each record in the item data:

- A unique code that can be used as the identifier for any lowest-level item.
- A unique description, which is a short string that serves as a user-friendly name of the item. If no description is available, use the code.
- Additional codes that indicate the membership of this item within all levels of the item hierarchy. See "Member Identifiers".
- Additional fields that describe this item, as needed.
- Additional fields that specify unit conversion factors for this item, if needed. See "Unit Conversion Data".

Also, it is useful to be able to display quantities in different units of measure. The default unit of measure is called units, which simply counts the number of individually packaged product units. Sometimes you need to convert quantities to another unit such as case, carton, or truckload. In order to do so, you need a conversion factor, and that can be different for different items. This means that the item data usually also includes unit conversion factors.

### Lowest-Level Location Data

Demantra requires the following fields for each record in the location data:

- A unique code that can be used as the identifier for any lowest-level location.
- A unique description, which is a short string that serves as a user-friendly name of

the location. If no description is available, use the code.

- Additional codes that indicate the membership of this location within all levels of the location hierarchy. See "Member Identifiers" .
- Additional fields that describe this location, as needed.

## Sales Data

Demantra requires the following fields for each record in the sales data:

- The unique code of the item being sold.
- The unique code of the location of the sale.
- The date of the sale.
- The number of units that were sold for this item, location, and date. This field must be numeric. See "Unit Conversion Data".
- Price per unit for this item, at this location and date. This field must be numeric. "Unit Conversion Data".
- Additional fields as needed.

## Aggregation in Time

You must choose the smallest time unit that you will use within Demantra.

Correspondingly, you must also specify the start of that time unit (such as the starting day of the week) and an aggregation method for Demantra to use when importing data (backwards or forwards).

However, it is not necessary to pre-aggregate the raw data in time. The Demantra loading and integration tools can perform that aggregation if needed. That is, if you import multiple sales records for different dates for the same item-location combination, Demantra automatically sums them up into the time unit to which those dates belong.

**Note:** Together, the item, location, and date will form the primary key for the sales record. That is, Demantra stores no more than one record for each combination of item, location, and date.

## Data Denormalization

As you build the data model, you will probably import data from multiple sources in the enterprise. Some of these sources probably store data in a normalized manner. For example, one table would store the relationship between a product group and the product family, and another table would store the relationship between a product family and the marketing class.

Before you import data into Demantra, you will need to denormalize the data and get it into the flattened formats described in this section.

## Loading Basic Data

To load the basic data, you use the Data Model Wizard, which helps you describe the location, format, and structure of your raw data.

### The Raw Data

Before you can build a Demantra data model, you must have some sample data. You then use the Data Model Wizard to describe that data so that the system can load it.

This data can be in the form of either text files or database tables:

- If you use text files, the files must be either comma-delimited or tab-delimited.
- If you use database tables, you must create these tables before you start the Data Model Wizard. These tables must be within the same database user name as the Demantra database.

The Data Model Wizard assumes that you have one, two, or three source tables or files as follows:

Number of sources	First source	Second source	Third source
1	sales, locations, and items		
2	sales and locations	items	
3	sales	locations	items

### What the Data Model Wizard Does

The Data Model Wizard prompts you for the location and format of the raw data, as well as the number of sources. If you have two or three sources, the wizard prompts you for details on how to join them.

Then if your sources are text files, the wizard helps you map them into staging tables. If your sources are database tables, your tables are the staging tables. In either case, the wizard helps you describe the contents of the staging tables so that you can build a model on them.

You specify how to use the fields in the staging tables, generally using each field in a level definition or in a series definition. Demantra ignores any field for which you do not specify a use.

As a final result, the Data Model Wizard creates a batch script and database procedures. The script executes the procedures, which load the data into the Demantra internal tables and synchronize the tables as needed.

## Loading Series and Promotions

To load series and promotions, you use the Integration Interface Wizard, which provides a flexible way to import data into Demantra. (It also can be used to export data; see "Exporting Data".)

## Integration Interfaces

Within the Integration Interface Wizard, you create integration interfaces. An integration interface consists of at least one of the following:

- A data profile, which specifies how to import Demantra series, at the aggregation levels that you choose. You can import sales series, promotion series and other level series, but not matrix series.
- A level profile, which specifies how to import promotions and their attributes.

**Note:** When you import promotions, any existing promotions are not changed.

## Executing Integration Interfaces

Once you have created an integration interface, you can execute it in either of two ways:

- You can incorporate the integration interface in a workflow controlled by the Workflow Manager. See "Overview of Workflow Step Types".
- You can use the separate Stand-Alone Integration Tool, which is `Demantra_root/Demand Planner/Integration/aps.exe`. (This tool consists of a subset of the APS, packaged as an executable file.)

## Maintaining Database Consistency

If you import data using actual proportions (rather than matrix proportions), be sure to run the `MANUALS_INS_INTEGRATION` procedure after you run the integration interface. (Note that you can run database procedures from a workflow.)

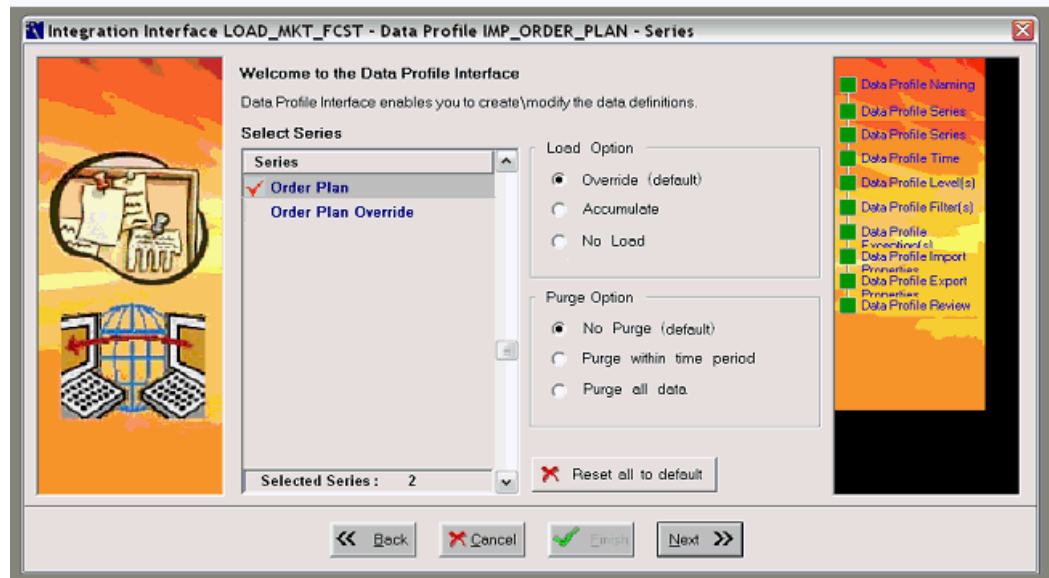
Depending on your database, it may be necessary to run additional database scripts.

## Configure Series Load and Purge Options

The Integration Interface provides the ability to set purge and load options for each series. This controls whether the import integration profile overrides, accumulates, or

purges (nulls out) the data for the specified integration profile date range.

The location of the Purge Data Before Import profile option within the integration profile wizard is shown:



**Selected Series:** This list box displays the selected series in the profile that were checked on the Data Profile Series page.

**Load Option:** The selected radio button indicates the load option for the series that is adjacent to the red check mark. The available load options are Override, Accumulate, or No Load. The default selection is Override.

**Purge Option:** The selected radio button indicates the purge option for the series that is adjacent to the red check mark. The default selection is No Purge.

**Reset All:** This button resets all series that appear in Selected Series list box to the default settings.

**Note:** To maintain backwards compatibility with old profiles, when upgrading:

- Set the Load Option to Override, and
- Set the Purge Option to No Purge.

**Load Options**

Setting	Description
Override	Override values on existing dates
Accumulate	Add values from the profile data to the values on existing dates
No load	Don't load data

**Purge Options**

Setting	Description
No purge	Do not purge
Purge within time period	Purge (null out) data within profile dates
Purge all data	Purge (null out ) all data on existing dates

**Load and Purge Option Combinations**

Settings	Option Explanation	Results
Override, No Purge	Load data for series in the date range of the profile. Do not touch any other data.	Override values on existing dates.  Insert the dates and values that are in the profile data, but not in the system.  Check that dates of the values are in date range of profile.
Accumulate, No Purge	Load data for series in the date range of the profile. Do not touch any other data.	Add the values from the profile data to the values on existing dates.  Insert the dates and values that are not in the system.  Check that dates of the values are in date range of profile.

Settings	Option Explanation	Results
No Load, No Purge	Do nothing to this series	
Override, Purge within Time Period	<p>Load data for series in the date range of the profile.</p> <p>Purge (null out) values for dates in the range of the profile that are not in the loading data.</p>	<p>Override values on existing dates.</p> <p>Insert the dates and values that are in the profile data, but not in the system.</p> <p>Check that dates of the values are in date range of profile.</p>
Accumulate, Purge within Time Period	<p>Load data for series in the date range of the profile.</p> <p>Purge (null out) values for dates in the range of the profile that are not in the loading data.</p>	<p>Add the values from the profile data to the values on existing dates.</p> <p>Insert the dates and values that are not in the system.</p> <p>Check that dates of the values are in date range of profile.</p>
No Load, Purge within Time Period	Purge (null out) all values in the system within the time range of the profile.	
Override, Purge all data	<p>Load data for series in the date range of the profile.</p> <p>Purge (null out) values for all dates that are not in the loading data.</p>	<p>Override values on existing dates.</p> <p>Insert the dates and values that are in the profile data, but not in the system.</p> <p>Check that dates of the values are in date range of profile.</p>
Accumulate, Purge all data	<p>Load data for series in the date range of the profile.</p> <p>Purge (null out) values for all dates that are not in the loading data.</p>	<p>Add the values from the profile data to the values on existing dates.</p> <p>Insert the dates and values that are not in the system.</p> <p>Check that dates of the values are in date range of profile</p>
No Load, Purge all data	Purge (null out) all values for all dates in the system.	

## Loading Supplementary Data

To load other data, such as lookup tables, you use the Demantra import tool (Tools > Import File).

In contrast to the Integration Interface Wizard, this tool does not load the data into Demantra internal tables; it is inappropriate for importing series or levels. Nor does it provide a way to export data.

Unlike the Data Model Wizard, this tool does not create the tables into which you are importing data. You must first create the tables.

## Import Interfaces

Within the import tool, you create import interfaces. An import interface consists of at least one profile. Each profile corresponds to one table; note that multiple files can be loaded into a single table.

The import tool creates a batch script that executes the import interface.

### Executing Import Interfaces

To execute an import interface, you run the corresponding batch script. If the data needs to be loaded only once, you can run the script manually. If the data needs periodic refreshing, you can run the batch script from a workflow controlled by the Workflow Manager. See "Overview of Workflow Step Types".

## Exporting Data

To export series and level members, you use the Integration Interface Wizard, which is introduced in "Loading Series and Promotions". When you define an interface, you specify how that interface will be used: for import, for export, or for both import and export. You can execute the interface in a couple of ways; see "Executing Integration Interfaces".

The Integration Interface Wizard provides slightly different functionality for export than for import:

- You can export sales series, promotion series and other level series, but not matrix series.
- You can export any kind of level, not just general levels.
- You can export members and attributes of a general level, but you cannot export the population attributes of the members. (The population attributes specify the item-location combinations to which each promotion applies.)

Note that an export profile creates a database view, and the data in that view is then

exported to the specified export file. The view is created when you run the export process, not before.

Also note that if you want to export a series that uses a client expression, you must first run the Business Logic Engine to evaluate the expression, split the resulting data to the lowest level, and save it to the database. You can run the Business Logic Engine from within a workflow; see "Overview of Workflow Step Types".

## Configuration Notes

This section contains configuration notes related to dependencies.

### Dependencies

Before you can set up integration, you will need sample data.

#### Tools

The following table summarizes the core Demantra import and export tools:

Data	To import, use...	To export, use...
Lowest level item and location data; sales data	Data Model Wizard*	N/A
Series data at any aggregation level	Integration Interface Wizard*	Integration Interface Wizard
Sales promotions	Integration Interface Wizard*	Integration Interface Wizard
Members and attributes of other levels	N/A	Integration Interface Wizard
Other data, for example, lookup tables	Demantra import tool*	N/A
*These options are in the Business Modeler.		

You can also use the Demantra Enterprise Integrator (powered by Pervasive).



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## EnterpriseOne to Demantra Demand Management Integration

This chapter covers the following topics:

- Overview
- Modelling Considerations
- EnterpriseOne Configuration
- Demantra Demand Management Configuration

### Overview

This chapter explains the integration processes that synchronize or move data between the Oracle Demantra and EnterpriseOne applications.

Oracle Demantra Demand Management provides access to your historical sales data, returns, and other reference data organized into multiple hierarchies that reflect the needs of your organization. An underlying spreadsheet provides a set of calculated (and input) values that you can use at any hierarchy level.

Integration between Oracle Demantra Demand Management and EnterpriseOne leverages Oracle Demantra Foundation functionality to the extent possible, and is supported using a series of batch processes. Booking history, price list, currency, calendars, users, and items collected from the EnterpriseOne applications are loaded into an intermediate file structure. These intermediate files are then imported into the Oracle Demantra Demand Management data model using a series of workflows. This model allows for additional information to be included to either augment EnterpriseOne data where it doesn't exist, or as additional forecasting-specific information provided within the DM module.

Forecasts are generated and then approved within Demand Management. This process may be iterative in nature, and allows for manual intervention before finalizing the forecast. At this point, the forecast is extracted into the intermediate file structure, and in turn imported into the EnterpriseOne data model in the existing forecast table.

To integrate Oracle Demantra Demand Management with EnterpriseOne, certain modifications are required to both your EnterpriseOne setup and the Demand Management application. The following sections outline the required changes.

## Modelling Considerations

When setting up integration between EnterpriseOne and Demantra, there are a number of considerations involved with modelling the integration solution. They include:

- Levels in EnterpriseOne
- Customer-Company Mapping in EnterpriseOne
- Multi-site Recommendations
- Null Handling During Integration
- "Open With" Worksheets
- Worksheet Filters
- Analytic Engine Guidelines

### Levels in EnterpriseOne

EnterpriseOne requires only three leaf levels: Item , Customer/Company and Branch. Each of these leaf levels can have several significant attributes which will need to be mapped to the parent level. This mapping is not fixed and will vary by implementation.

#### 3.2.1 Category Codes as Levels

As part of the EnterpriseOne extracts, up to 30 informational fields are available for Item, Customer and Branch. These fields are called Category Codes and can hold hierarchy-relevant information. As part of an implementation the information in these fields can be leveraged to enhance business value to the customer using Demantra Demand Management. The placeholder columns pre-configured in Demantra are defaulted to disabled and should be enabled if found to add to business value.

##### Using Category Codes in EnterpriseOne

1. Map what is held in each category code in EnterpriseOne.
2. Assess the business value of each category code and determine whether it contains hierarchal relevant information. For example, Item Category Code 13 holds brand information. It is very valuable to view which brand an item belongs to, and create reports based on brand.
3. Evaluate whether available place-holder levels are sufficient to contain relevant

hierarchy information. These are the available place-holder levels:

- 7 available item levels
- 5 available branch levels
- 7 available customer levels (level 7 currently mapped to company)

#### **Using Customer Codes in the Demantra Business Modeler**

1. Open the model Integration Template.
2. For existing levels:
  - Change level name to a more business meaningful name.
  - Ensure that field names point to the correct staging column containing relevant category code information.
3. For new levels:
  1. Add a new level as the parent of the leaf to which it is a category code.
  2. The table name should be `t_src_item_tmpl` for Items and `t_src_loc_tmpl` for Customer or Branches.
  3. Ensure field names point to the correct staging column containing relevant category code information.
4. Upgrade the existing model. Do not build a new model.
5. Open Demantra Demand Management and grant category code levels being used full control.

#### **Changing Levels and Hierarchy**

Although the predefined data model is designed to meet best practice demand management needs, each unique implementation may encounter a customer with different needs and hierarchies. The Demantra Hierarchy can be enhanced to support a more complex level structure model, considering the following:

- Where are additional levels coming from? Do the 3 staging tables (Item, Location, and Sales) have the relevant information to populate these additional levels? Enhancing EnterpriseOne exports to support more information may prove difficult. Lacking a data source, what process will maintain this level? A custom process or user maintenance?
- Do additional or changed levels support the implied father-son relationship? EnterpriseOne does not conduct any hierarchical data validation on the category

codes being exported. Data violating model-defined father-son relationships will be ejected during loading.

- Always upgrade the existing model instead of building a new model.

## Customer-Company Mapping in EnterpriseOne

EnterpriseOne sales data is exported at a resolution of item/customer/company/branch/date. The inclusion of company requires some changes in the integration configuration. Location leaf node site now contains a concatenation of customer and company. In order to sort by customer, this information needs to be loaded into the Account level. In order to sort by company, this information needs to be loaded into the Trading Partner Zone level. Implementation Recommendations:

- Rename level Site to Customer Company.
- Rename level Customer to Customer Old and disable level in Demantra Demand Management.
- Rename level Account to Customer.
- Rename level Trading Partner Zone to Company.

## Multi-Site Recommendations

If you have centralized data (that is, a single source of data) for all your sites and a single instance of Demantra, the recommendation is to generate a single set of extracts. The generated Sales Order History extract will have the information from all the sites. The existing Demantra Workflows will use the single Sales Order History extract.

However, in cases of multiple sources of data set up for various sites and a single instance of Demantra, Oracle recommends using multiple data extract scripts and workflows. For example, if there are two sites from which extracts are generated, then a workflow should be set up to extract Sales Order History from site one, and a second workflow to extract Sales Order History from Site one.

These workflows should be set up in series (that is, workflow one should call workflow two after it has been completely processed). This is to ensure that the data from site is imported from the staging tables into Demantra before the second set of data is processed. The two workflows cannot run in parallel.

## Null Handling During Integration

During integration, many of the category code fields may be null or empty when transferred from EnterpriseOne. Since these category code fields may be used as levels in Demantra, it is important that they not remain empty or null. As part of the integration process, when null values are found, they are replaced by a different string.

This string is configurable.

Configuring the string requires modification to the PACKAGE DATA\_LOAD. the package parameter VS\_DEFAULT contains the values which will replace null level information. Default for this is set to "N/A".

## **"Open With" Worksheets**

"Open With" worksheets should be unfiltered. If you wish to show a filtered version of the worksheet, you will need to create a duplicate for "My Worksheets". If you place a filter on a worksheet to be used by "Open With", the "Open With" filter will be applied to the already filtered population which may not provide a result set. For example, if the worksheet is filtered to Member 1 of Level 1, and "Open With" is launched from Member 2 of Level 1, the result set will be null.

## **Worksheet Filters**

The Demand Management worksheets have a default filter. This filter is to ensure that when first run in a large production environment, the worksheet will not attempt to run on the entire data population. The filter added is pointing to the default members of all levels configured as aggregation levels in the worksheet. When implementing, go into all the worksheets and their embedded worksheets, change the filters to match the business process and scope. Remember that very large worksheets are typically not representative of one user's business process and will typically be accompanied by degradation in performance.

## **Analytical Engine Guidelines**

The batch engine generates a new forecast for a system-wide population or a line of business. It uses distributed processing, analyzes very large amounts of data at night and on the weekends when users are not logged into the system. By contrast, the simulation engine is used to generate or regenerate a forecast for a very specific population subset. Simulations can be run on an as needed basis, and several users may run simulations concurrently. Due to the large amount of processing used by the batch engine and the fact that it typically regenerates the entire forecast, the batch and simulation engine are not enabled to run at the same time.

The analytic engine outputs several accuracy metrics when running the batch engine. They are:

- MAPE
- BIAS
- MRE
- RMSE

- And a number of historical observations used to produce the forecast.

The length of history serving as a basis for the first 4 metrics is set by INIT\_PARAMS\_0 parameter MetricsPeriod. This parameter defines the number of periods of history, starting with the last and moving backward when calculating the accuracy metrics. These metrics are stored on table MDP\_MATRIX and are generated by the engine at the level a node is forecast. This implies that nodes not receiving a forecast will not have these numbers and all MDP\_MATRIX combinations under a specific node will have the same engine metric values.

## EnterpriseOne Configuration

There are three processes that need to be customized to implement integration between EnterpriseOne and Demantra applications. They include:

- EnterpriseOne applications including versions, processing options, integration constants, and file definitions.
- Runubexml template files that contain all the EnterpriseOne variables necessary to start specific versions of the outbound and inbound extracts using the runubexml command from a script. These templates also indicate whether a full or incremental extract is run.
- Scripts that transfer EnterpriseOne data from the EnterpriseOne server to the Demantra server. The scripts also perform synchronization and error checking.

## Customizing the EnterpriseOne Applications

To generate properly formatted extracts for Demantra applications, EnterpriseOne must be customized in the following areas:

- Versions to support different Demantra workflows
- Planning Integration Constants
- Planning File Definitions
- Planning Outbound Processor (R34A400) processing options
- Planning Inbound Processor (R34A410) processing options
- SCP Sales History (R34A425), SCP F4211 Sales History Extract (R34A435), SCP Item UOM Extract (R34A480) processing options

### Versions to Support Different Demantra Workflows

To support the five Demantra workflows required, the following versions must be set

up:

Demantra Workflow	Processor	Suggested Version Name	Extracts
<p>E1 Full Download</p> <p>Goal: to extract 5 extracts from EnterpriseOne including the Branch, Customer, Item, ItemBranch, and SalesOrderHistory extracts.</p>	R34A400	full	<p>Process Branch Extract (R34A470)</p> <p>Customer Master Extract (R34A530)</p> <p>Item UOM Extract (R34A480)</p> <p>SalesHistory Extract (R34A425)</p> <p>F4211 Sales History Extract (R34A435)</p>
<p>E1 Incremental Download</p> <p>Goal: to extract the SalesOrderHistory extract based on a relative date range from EnterpriseOne.</p>	R34A400	incr	<p>SalesHistory Extract (R34A425)</p> <p>F4211 Sales History Extract (R34A435)</p>
<p>E1 Items Download</p> <p>Goal: to extract the Item extract from EnterpriseOne.</p>	R34A400	item	<p>Item UOM Extract (R34A480)</p>
<p>E1 Locations Download</p> <p>Goal: to extract the Branch, Customer, and SalesOrderHistory extracts from EnterpriseOne.</p>	R34A400	loc	<p>Process Branch Extract (R34A470)</p> <p>Customer Master Information Extract (R34A530)</p> <p>SalesHistory Extract (R34A425)</p> <p>F4211 Sales History Extract (R34A435)</p>

E1 Upload	R34A410	fcst	Inbound Forecasts Extract (R34A485)
Goal: To upload the Demantra forecast to EnterpriseOne.			

## Planning Integration Constants

Constants are interface definitions and formats. You must set up integration constants for use by the batch outbound and inbound processors. You typically define the constants during the development and setup stage of an implementation. Although you can change the integration constants at any time, Oracle recommends that you change the values in the Planning UOM and Shipping UOM fields only when you are performing a complete extract. Otherwise, inconsistent quantities might occur.

From the Supply Chain Planning & Scheduling menu (G34A), select Planning Integration Constants.

Access the General Tab.

Field	Description
Date Format	Specify the date format to use as the default value in the extract file or select it from the Select User Defined Codes form. The system date is represented in the EMD format (four-digit year, month, day) by default.  <b>Note:</b> For Demantra integration, the data format is hard coded to MMDDYYYY and the processing option should be set to 1 in the Planning Outbound Processor (R34A400) on the Demantra processing tab.

Flat File Delimiter	<p>Specify the character, such as a comma or semicolon, that the system uses to separate fields in flat files. The system requires a value in this field.</p> <p><b>Note:</b> For Demantra integration, the flat file delimiter is hard coded to semicolon and the processing option should be set to 1 in the Planning Outbound Processor (R34A400) on the Demantra tab.</p>
Text Qualifier	<p>Specify the character, such as a quote or double quote, that the system uses to denote text in flat files. The system requires a value in this field.</p> <p><b>Note:</b> For Demantra integration, the data format is hard coded to double quotes and the processing option should be set to 1 in the Planning Outbound Processor (R34A400) on the Demantra tab.</p>
Weekly/Monthly Forecast	<p>Specify the code that identifies whether the exported forecasts were generated using monthly or weekly periods or select it from the Select User Define Codes form. The system validates the value in this field against the values in UDC 34A/MW.</p>

## Planning File Definitions

You can use the Integration File Definition program to:

- Set up the interface definitions for the file locations that the outbound and inbound batch processor programs use.
- Define command line instructions for scripts that transfer files between the EnterpriseOne and Demantra servers.

**Note:** The entries for each file or command line in the Planning File Definition table (F34A11) are platform-specific. If the integration programs are moved from one platform to another, no filename translation is made. For example, if a batch program is set up to run on

a Windows NT EnterpriseOne server, the filenames that the program uses must be NT-compliant filenames. If that batch program is submitted to a UNIX or OS/400 server that is running EnterpriseOne, the program would fail to run properly because valid Windows NT filenames are not valid on the OS/400 or on UNIX. The same is true for command line (FTP script) table entries. A valid Windows NT command is not valid for other EnterpriseOne server platforms. In addition, the Integrated File System (IFS) of the OS/400 is not supported for inbound or outbound flat files. Inbound or outbound flat files on the OS/400 must use the traditional file system.

## Extract Files

It is recommended that the EnterpriseOne extract files used for Demantra integration are named as follows:

### Outbound Extracts

- Item.txt
- ItemBranch.txt
- Customer.txt
- Branch.txt
- SalesOrderHistory.txt

These files are placed in the e1\_output folder.

### Inbound Extracts

- Forecast.txt

The file is imported into e1\_input\_forecast folder.

## Script Files

There are two scripts used by the EnterpriseOne processors at the end of processing. They are:

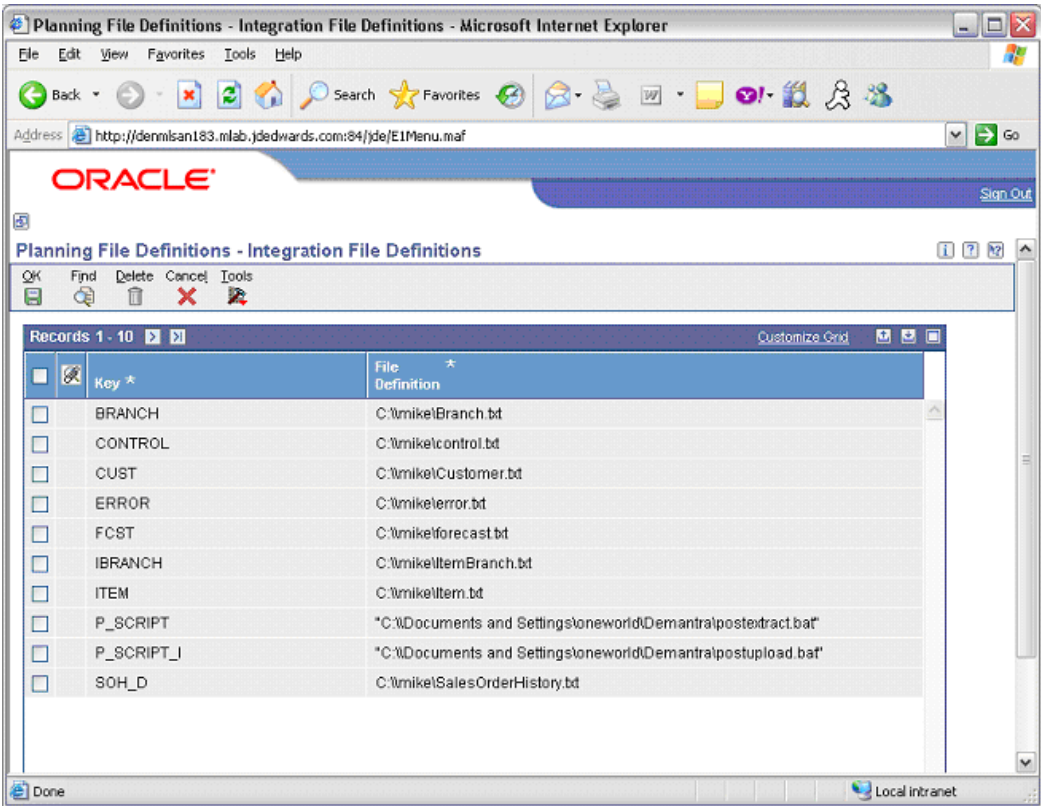
- postextract.bat (or postextract.sh). This script is called by the Planning Outbound Processor to transfer the extracts located in EnterpriseOne output folder to the Demantra server. It also creates a synchronization file, parses the EnterpriseOne extract control file for errors, and creates an error status file (if necessary).
- postupload.bat (or postupload.sh). This script is called by the Planning Inbound Processor to create a synchronization file, parse the EnterpriseOne extract control file for errors, create an error status file (if necessary), and copy synchronization & error status files to the Demantra environment.

It is suggested that these two scripts be located in the e1\_postprocessing\_scripts folder. Create a key for each of these scripts.

For more information about scripts, see Customizing Scripts, page 13-34.

**To Set the Planning File Definitions**

From the Supply Chain Planning & Scheduling menu (G34A), select Planning File Definition.



Field	Description
Key	A code that identifies the file definition. You cannot leave this field blank if you have text in the corresponding File Definition field.
File Definition	The name of the file, including the directory path where the file exists or where a command line is to be executed.

## SCP Outbound Processor (R34A400)

The SCP Outbound Processor (R34A400) is used to generate extracts needed for EnterpriseOne to Demantra integration.

The following EnterpriseOne extracts are required for Demantra integration:

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Outbound Extract	Demantra Application Supported	Data Retrieved
SCP Process Branch Information (R34A470)	Demand Management	Use this batch program to retrieve information from: <ul style="list-style-type: none"><li>• Inventory Constants (F41001)</li><li>• Business Unit Master (F0006)</li><li>• Address Book (F0101)</li><li>• Address By Date (F0116)</li></ul>
SCP Customer Master Information Extract (R34A530)	Demand Management	Use this batch program to retrieve: <ul style="list-style-type: none"><li>• Customer master information from the Address Book Master table (F0101)</li><li>• Customer information from the Customer Master by Line of Business table (F03012)</li><li>• Information from the Address by Date table (F0116)</li><li>• Information from the Address Book - Contact Phone Numbers table (F0115)</li><li>• Information from the Address Book - Who's Who table (F0111)</li></ul>

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SCP Item UOM Extract (R34A480)	Demand Management	<p>Use this batch program to retrieve:</p> <ul style="list-style-type: none"> <li>Item branch/plant and unit of measure information that is extracted from the Item Branch File table (F4102) and the Item Master table (F4101), thus creating two separate extract files</li> <li>Items by category codes (and other item branch information) from the Item Branch File table</li> <li>Planning unit of measure, using the user-specified planning unit of measure</li> <li>Shipping unit of measure, using the user-specified aggregate shipping unit of measure</li> <li>Weight and volume units of measure and conversion factors</li> </ul> <p>This extract program generates two extracts: SCP Item Branch Extract and SCP Master UOM Extract.</p>
SCP Sales History Extract (R34A425)	Demand Management	<p>Use this batch program to retrieve:</p> <ul style="list-style-type: none"> <li>Sales history information that is extracted from the Sales Order History File table (F42119)</li> <li>Sales orders with specific item category codes (and other sales detail information) from the Sales Order History File table</li> <li>Sales orders by document type, line type, and status, using the Supply/Demand Inclusion Rules program (P34004)</li> </ul> <p>You can also specify a date in the processing options to exclude from the extraction any sales orders with a promised date that occurs before the beginning date.</p>

SCP F4211 Sales History Extract (R34A435)	Demand Management	<p>Use this batch program to retrieve:</p> <ul style="list-style-type: none"> <li>• Sales order information that is extracted from the Sales Order Detail File table (F4211)</li> <li>• Sales orders with specific item category codes (or other sales detail information), using data selection from the Sales Order Detail File table</li> <li>• Sales orders by document type, line type, and status, using the Supply/Demand Inclusion Rules program (P34004)</li> </ul> <p>You can also specify the beginning date for the selection of sales order history records to be included. The system does not include sales orders with a promised ship date before this date.</p>
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Using the processing options associated with the SCP Outbound Processor or its extract programs, you can customize the extracts generated. For more finite customization, there are data selection options available. Using EnterpriseOne versions, you can create different configured sets of outbound extracts that can be run at different times during the day to meet your requirements.

### SCP Outbound Processor (R34A400) Processing Options

The SCP Outbound Processor processing options include general processing options that:

- Monitor the transmission of the extract files to ensure that data is not corrupted by more than one data transmission occurring at a time.
- Define error logging.
- Specify the extracts generated by EnterpriseOne.
- Specify any external programs or scripts to be run when the selected extracts are prepared.

The following options for the SCP Outbound Processor (R34A400) appear on tabs in the Processing Options window:

**Note:** Only those tabs used for Demantra integration are documented below.

SCP Outbound Processor (R34A400) Processing Option	Description
<i>Process 1 Tab</i>	<p>Processing options on this tab control batch processing.</p> <p>Oracle recommends that you turn off batch control only under certain conditions. For example, batch control is not needed the first time that you run the batch associated with this control file.</p>
1. Control File Definition - EnterpriseOne	<p>Use this processing option to specify the key value that is associated with the path name of the outbound control file. This processing option is required.</p> <p>The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Planning File Definition program (P34A11), which you access from the Supply Chain Planning &amp; Scheduling menu (G34A).</p>
<i>Process 2 Tab</i>	<p>Processing options on this tab control error handling and how the system processes external functions.</p>
2. Error Log Definition	<p>Use this processing option to specify the key value that is associated with the path name of the error log that is created in the batch. The error log is a text file containing batch status information and record counts. The same information appears on the standard report that is produced by this batch program. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definition program (P34A11) on the Supply Chain Planning &amp; Scheduling menu (G34A). If you leave this field blank, the system does not write the error log text file, but it still produces the standard report output.</p>

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4. External Function Definition (End of Processing)

Use this processing option to specify the key value that is associated with external commands that are carried out after any individual extract batch programs are run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that sends data, runs an external program, or performs most command line processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

For Demantra Integration, you would specify the key for the postextract.bat or postextract.sh script here.

*Sales History Tab*

Processing options on this tab control the processing of the SCP Sales History Extract program (R34A425) and the SCP F4211 Sales History Extract program (R34A435). The R34A425 program is associated with purged sales history; and the R34A435 program is associated with unpurged sales history.

1. History Extract Version - Sales History Table (F42119) (R34A425)

Use this processing option to specify the version of SCP Sales History Extract (R34A425) that you want the system to run in this batch. The SCP Sales History Extract program selects information from the Sales Order History table (F42119). Data selection for this table and processing options that are specific to this extract can be set on the SCP Sales History Extract version (R34A425) that you enter in this field. If you leave this field blank, the system does not run the extract in this batch.

**Note:** This extract program and the extract program in the History Extract Version - Sales Detail Table processing option create one extract file that contains any data, which is selected from either the Sales History table (F42119) or the Sales Detail table (F4211).

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2. History Extract Version - Sales Detail Table (F4211) (R34A435)

Use this processing option to specify the version of SCP F4211 Sales History Extract (R34A435) that you want the system to run in this batch. The SCP F4211 Sales History Extract program selects information from the Sales Order Detail table (F4211). Data selection for this table and processing options that are specific to this extract can be set on the SCP F4211 Sales History Extract version (R34A435) that you enter in this field. If you leave this field blank, the system does not run the extract in this batch.

**Note:** This extract program and the extract program in the History Extract Version - Sales History Table processing option create one extract file that contains any data, which is selected from either the Sales History table (F42119) or the Sales Detail table (F4211).

3. Clear Extract File

Use this processing option to specify whether to clear the extract file from the previous batch before adding new data extracted in this batch. Values are:

Blank—Do not clear the extract file before adding new data in this batch. Append the new data to any existing data in the extract file.

1—Clear the extract file before adding new data in this batch.

**Note:** If you enter 1 in this field but leave the Sales History Extract version processing options blank, the system still clears the extract files.

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4. Extract File Definition	Use this processing option to specify the key value that is associated with the path name of the extract file. You must enter a key value in this field if you entered a version in the version processing option. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning menu (G34A).
5. External Function Definition (Beginning of Processing)	Use this processing option to specify the key value that is associated with external commands, which are carried out immediately before this extract batch is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
6. External Function Definition (End of Processing)	Use this processing option to specify the key value that is associated with external commands, which are carried out immediately after this extract batch program is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
<i>Items Tab</i>	Processing options on this tab control the processing of the SCP Item UOM Extract program (R34A480).

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1. Item Extract Version (R34A480)	<p>Use this processing option to specify the version of the SCP Item UOM Extract (R34A480) that you want the system to run in this batch. The extract program selects item and branch information from the Item Branch table (F4102), and item unit of measure information from both the Item Master table (F4101) and the unit of measure conversion table. This extract program creates two separate extract files. You must enter keys for both of the extract files on this tab if you want to run this extract program. Data selection for the Item Branch table can be set on the SCP Item UOM Extract version (R34A480) that you enter in this field. If you leave this field blank, the system does not run the extract in this batch.</p>
2. Clear Extract File	<p>Use this processing option to specify whether to clear the extract file from the previous batch before adding new data extracted in this batch. Values are:</p> <p>Blank—Do not clear the extract file before adding new data in this batch. Append the new data to any existing data in the extract file.</p> <p>1—Clear the extract file before adding new data in this batch.</p> <p><b>Note:</b> If you enter 1 in this field but leave the Item Extract version processing option blank, the system still clears the extract file.</p>
3. Extract File Definition - Item Information	<p>Use this processing option to specify the key value that is associated with the path name of the extract file. You must enter a key value in this field if you entered a version in the version processing option. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys on the Planning File Definitions program (P34A11) from the Supply Chain Planning menu (G34A).</p>

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4. Extract File Definition - Units of Measure	Use this processing option to specify the key value that is associated with the path name of the extract file. You must enter a key value in this field if you entered a version in the version processing option. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
5. External Function Definition (Beginning of Processing)	Use this processing option to specify the key value that is associated with external commands that are carried out immediately before this extract batch is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
6. External Function Definition (End of Processing)	Use this processing option to specify the key value that is associated with external commands that are carried out immediately after this extract batch is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys on the Integration File Definitions program (P34A11) from the Supply Chain Planning & Scheduling menu (G34A).
<i>Branch Plant Tab</i>	Processing options on this tab control the processing of the SCP Process Branch Information program (R34A470).

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1. Branch Plant Extract Version (R34A470)	<p>Use this processing option to specify the version of the SCP Process Branch Information (R34A470) that you want the system to run in this batch. The R34A470 extract program selects branch and plant information from the Inventory Constants table (F41001). Data selection for the Branch Plant table can be set on the SCP Process Branch Information version (R34A470) that you enter in this field. If you leave this option blank, the system does not run the extract in this batch.</p>
2. Clear Extract File	<p>Use this processing option to specify whether to clear the extract file from the previous batch before adding new data extracted in this batch. Values are:</p> <p>Blank—Do not clear the extract file before adding new data in this batch. Append the new data to any existing data in the extract file.</p> <p>1—Clear the extract file before adding new data in this batch.</p> <p><b>Note:</b> If you enter 1 in this field but leave the Branch Plant Extract version processing option blank, the system still clears the extract file.</p>
3. Extract File Definition	<p>Use this processing option to specify the key value that is associated with the path name of the extract file. You must enter a key value in this field if you entered a version in the version processing option on the Branch/Plant tab.</p> <p>The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definition program (P34A11) on the Supply Chain Planning &amp; Scheduling menu (G34A).</p>

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4. External Function Definition (Beginning of Processing)	Use this processing option to specify the key value that is associated with external commands, which are carried out immediately before this extract batch is run. The commands that are associated with this key can be used to run a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
5. External Function Definition (End of Processing)	Use this processing option to specify the key value that is associated with external commands that are carried out immediately after this extract batch is run. The commands that are associated with this key can be used to run a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).
<i>Customer Master Information Tab</i>	Processing options on this tab control the processing of the SCP Customer Master Information Extract program (R34A530), which extracts customer master information from the Address Book Master table (F0101), Customer Master by Line of Business table (F03012), Address Book - Contact Phone Numbers table (F0115), and the Address Book - Who's Who table (F0111); and transfers the information to a flat file. The SCP Outbound Processor program (R34A400) runs this extract.

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1. Customer Master Information Extract (R34A530)	<p>Use this processing option to specify the version of the Customer Master Information Extract (R34A530) that you want the system to run in this batch. You can set the data selection for the Customer Master table on the Customer Master Information Extract version (R34A530) that you enter in this field. If you leave this option blank, the system does not run the extract in this batch.</p>
2. Clear Extract File	<p>Use this processing option to specify whether to clear the extract file from the previous batch before adding new data extracted in this batch. Values are:</p> <p>Blank—Do not clear the extract file before adding new data in this batch. Append the new data to any existing data in the extract file.</p> <p>1—Clear the extract file before adding new data in this batch.</p> <p><b>Note:</b> If you enter 1 in this field, but leave the processing option for the Customer Master Information Extract version blank, the system still clears the extract file.</p>
3. Extract File Definition	<p>Use this processing option to specify the key value that is associated with the path name of this extract file. You must enter a key value in this field if you entered a version in the version processing option on the Customer Master tab. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) the Supply Chain Planning &amp; Scheduling menu (G34A).</p>

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4. External Function Definition (Beginning of Processing)	<p>Use this processing option to specify the key value that is associated with external commands, which are carried out immediately before this extract batch is run. The commands that are associated with this key can be used to run a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys in the Planning File Definitions program (P34A11) from the Supply Chain Planning &amp; Scheduling menu (G34A).</p>
5. External Function Definition (End of Processing)	<p>Use this processing option to specify the key value that is associated with external commands, which are carried out immediately after this extract batch is run. The commands that are associated with this key can be used to run a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing.</p>
<i>Demantra tab</i>	<p>Processing options on this tab control date, flat file delimiter, and text qualifier formatting for Demantra integration.</p>
1. Indicate if the processor is used for Demantra Integration	<p>Use this processing option to specify whether you are integrating with Demantra. Valid values are:</p> <p>Blank - Not used for Demantra integration</p> <p>1 - Used for Demantra integration. The MDE date format, semicolon (;) flat file delimiter, and double quote (") text qualifier will be used to format the extracts. This formatting overrides the formatting set in the Planning Integration Constants, hardcoding the output to be compatible with Demantra applications.</p> <p>Selecting this option also augments the sales order history and item extracts to better integrate with Demantra Demand Management.</p>

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### SCP Sales History Extract (R34A425) Processing Options

In addition to the sales history processing options in the SCP Outbound Processor (R34A400), you must also set processing options for the SCP Sales History Extract (R34A425). The processing options are:

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Option	Description
Begin Date	Use this processing option to specify the beginning date for the selection of the sales history to be included. The system does not include sales orders with a promised ship date before this date.
Version of Supply/Demand Inclusion Rules	Use this processing option to define which version of supply/demand inclusion rules the program reads. The rules define the criteria used to select items for processing.

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### SCP F4211 Sales History Extract (R34A435) Processing Options

In addition to the sales history processing options in the SCP Outbound Processor (R34A400), you must also set processing options for the SCP F4211 Sales History Extract (R34A435). The processing options are:

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Option	Description
Begin Date	Use this processing option to specify the beginning date for the selection of sales history to be included. The system does not include sales orders with a promised ship date before this date.
Version of Supply/Demand Inclusion Rules	Use this processing option to define which version of supply/demand inclusion rules the program reads. The rules define the criteria used to select items for processing.

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### SCP Item UOM Extract (R34A480) Processing Options

In addition to the item processing options in the SCP Outbound Processor (R34A400), you must also set processing options for the SCP Item UOM Extract (R34A480). The processing options are:

Option	Description
Cost Type To Extract	Use this processing option to specify the cost method to be used. Select the value from the User Defined Code 40/CM.

### SCP Inbound Processor (R34A410)

The SCP Inbound Processor (R34A410) is used to import the forecast extract needed for EnterpriseOne to Demantra integration. The SCP Inbound Processor processing options include general processing options that:

- Monitor the transmission of the extract files to ensure that data is not corrupted by more than one data transmission occurring at a time.
- Define error logging. Specify the extracts to be imported by EnterpriseOne.
- Specify any external programs or scripts to be run when the selected extracts are imported.

### SCP Inbound Processor (R34A410) Processing Options

These processing options for the SCP Inbound Processor program (R34A410) appear on tabs in the Processing Options window:

Option	Description
<i>Process 1 Tab</i>	Use these processing options to control batch processing.  <b>Note:</b> You should turn off batch control only under certain conditions. For example, batch control is not needed the first time that you run the batch associated with this control file.

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1. Control File Definition - EnterpriseOne

Use this processing option to specify the key value that is associated with the path name of the Supply Chain Management inbound control file. This processing option is required.

The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

*Process 2 Tab*

Use these processing options to control error handling and processing of external functions.

2. Error Log Definition

Use this processing option to specify the key value that is associated with the path name of the error log that is created in the batch. If you leave this field blank, the system does not write the error log text file, but it still produces the standard report output. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A). The error log is a text file that contains batch status information and record counts. The same information appears on the standard report that is produced by this batch program.

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4. External Function Definition (End of Processing)

Use this processing option to specify the key value that is associated with the external commands that are carried out after any individual import batch programs are run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that sends data, runs an external program, or performs most command line processing. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

For Demantra Integration, you would specify the key for the postupload.bat or postupload.sh script here.

*Forecasts Tab*

Use these processing options to control the processing of the SCP Inbound Forecasts program (R34A485).

1. Forecast Import Version (R34A485)

Use this processing option to specify the version of the Inbound Forecasts program (R34A485) that you want the system to run in this batch. This program populates the Forecast table (F3460) with forecast information that is passed in from Supply Chain Planning. You can set processing options that are specific to this import program on the Forecasts Import version (R34A485), which you enter in this field. If you leave this field blank, the system does not run the import in this batch.

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## 2. Clear Import File

Use this processing option to specify whether to clear the import file after the data on the file has been processed. Values are:

Blank—Do not clear the import file after processing the batch. Save the incoming data on the import file.

1—Clear the import file after processing the batch. If you enter 1 in this field, but leave the SCP Inbound Forecasts version processing option blank, the system still clears the import file.

## 3. Import File Definition

Use this processing option to specify the key value that is associated with the path name of the import file. You must enter a key value in this field if you entered a version in the version processing option. The key value must be a valid entry in the Integration File Definition table (F34A11). You can enter path names and keys using the Integration File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

## 4. External Function Definition (Beginning of Processing)

Use this processing option to specify the key value that is associated with external commands, which are carried out immediately before this import batch is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

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5. External Function Definition (End of Processing)

Use this processing option to specify the key value that is associated with external commands that are carried out immediately after this import batch is run. The commands that are associated with this key can be used to carry out a script (for example, an FTP script) that retrieves data, runs an external program, or performs most command line-type processing. The key value must be a valid entry in the Planning File Definition table (F34A11). You can enter path names and keys using the Planning File Definitions program (P34A11) on the Supply Chain Planning & Scheduling menu (G34A).

*Demantra Tab*

1. Indicate if the processor is used for Demantra Integration Blank = Not used for Demantra Integration 1 = Used for Demantra Integration

1. Indicate if the processor is used for Demantra Integration

Use this processing option for Demantra integration. Valid values:

Blank - Not used for Demantra Integration

1 - Used for Demantra Integration

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### SCP Inbound Forecasts (R34A485) Extract Processing Options

In addition to the forecast processing options in the SCP Inbound Processor (R34A410), you must also set these processing options for the SCP Inbound Forecasts (R34A485)

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Option	Description
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Default Forecast Type	Use this processing option to specify the default forecast type that you want the system to use when adding new forecasts.
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Fiscal Date Pattern	Use this processing option to specify the code that identifies date patterns. You can use one of 15 codes. You must set up special codes (letters A through N) for 4-4-5, 13-period accounting, or any other date pattern unique to your environment. An R, the default, identifies a regular calendar pattern.
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## Customizing the RunUBE Commands

The Planning Outbound Processor (R34A400) and Planning Inbound Processor (R34A410) are launched by the runubexml command in scripts. In Demantra integration, there are five workflow scenarios that need to be represented by four outbound versions and one inbound version.

Demantra Workflow	UBE Launch Script	runubexml File
E1 Full Download	runextracts_full.bat located in the e1_environment_ube_launch_script_folder	R34A400_full.xml where "full" represents the version name.
E1 Incremental Download	runextracts_incr.bat located in the e1_environment_ube_launch_script_folder	R34A400_incr.xml where "incr" represents the version name.
E1 Items Download	runextracts_item.bat located in the e1_environment_ube_launch_script_folder	R34A400_item.xml where "item" represents the version name.
E1 Locations Download	runextracts_loc.bat located in the e1_environment_ube_launch_script_folder	R34A400_loc.xml where "loc" represents the version name.
E1 Upload	runupload.bat located in the e1_environment_ube_launch_script_folder	R34A410_fcst.xml where "fcst" represents the version name.

Before creating the runubexml template files, you must first:

- Create and configure four outbound versions to support the four Demantra workflows: Full (Customer, Branch, Item, ItemBranch, and SalesOrderHistory extracts), Incremental (SalesOrderHistory extract), Items (Item and ItemBranch extracts), and Locations (Customer, Branch and SalesOrderHistory extracts). To simplify the Demantra integration, you can use the following version naming conventions: "full", "incr", "item", and "loc".
- Create and configure an inbound version to support the uploading of forecast information from Demantra. To simplify the Demantra integration, you can use the "fcst" version name.

## Generate an XML File for Each Version

A runubexml template file needs to be created for each version that you require for Demantra integration. These xml files are called by the UBE launching scripts, launching the appropriate processor and version. In total, you will be generating five xml templates: R34A400\_full.xml, R34A400\_incr.xml, R34A400\_item.xml, R34A400\_loc.xml, and R34A410\_fcst.xml.

### To generate an XML File:

1. From the command line on the EnterpriseOne server, change to the e1\_system\_bin32 folder.
2. From the command line, type `runubexml G CREATE_XML jdeRequest.xml`. The jdeRequest.xml file is created in the same folder.
3. Open the jdeRequest.xml file and modify the following fields:

Field	Description
user	Your EnterpriseOne user ID.
pwd	Your EnterpriseOne password.
environment	The EnterpriseOne environment from which you want to extract information.
role	The role you want to use within EnterpriseOne.
REPORT_NAME_VALUE	Specify the processor from which you want to create a runubexml template such as R34A400 for the Planning Outbound Processor or R34A410 for the Planning Inbound Processor.
REPORT_VERSION_VALUE	Enter the version you want to use with the specified processor

**Note:** The user executing the runubexml command should have the same sign on rights to the server as the OneWorld services.

4. Save the changes to the jdeRequest.xml file.
5. At the command line, type `runubexml S jdeRequest.xml`

*Processor\_Version.XML* where *Processor* is either R34A400 (Planning Outbound Processor) or R34A410 (Planning Inbound Processor), and *Version* is either full, incr, item, loc, or fcst.

The resulting XML file called *Processor\_Version.XML* is generated in the *e1\_system\_bin32* folder. It contains all the processing options, data selections, report interconnects for the specified version of the processor.

6. For the incremental report (R34A400\_incr.xml, which only extracts SalesOrderHistory extract data based on a date range from EnterpriseOne), open the generated xml file in the *e1\_system\_bin32* folder and edit the Report\_Interconnect values at the end of the file as follows:

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Field	Description
FromDays	<p>In this field, you can specify the number of days before or after the current day to begin gathering extract data.</p> <p>To gather data starting after today, enter a positive number. For example, to gather data starting 3 days after today, enter 3.</p> <p>To start gathering data before today, enter a negative number. For example, to start gathering data 3 days before today, enter -3.</p> <p>The value 0 represents today.</p> <p>If both the FromDays and ThruDays fields are left blank, the value is assumed to be 0, which will extract only today's historical data.</p>

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ThruDays	<p>In this field, you can specify the number of days before or after the current day to stop gathering extract data.</p> <p>To stop gathering data after today, enter a positive number. For example, to stop gathering data 3 days after today, enter 3.</p> <p>To stop gathering data before today, enter a negative number. For example, to stop gathering data 3 days before today, enter -3.</p> <p>The value 0 represents today.</p> <p>If both the FromDays and ThruDays fields are left blank, the value is assumed to be 0, which will extract only today's historical data.</p>
IncrementalLoadIndicator	<p>This field specifies whether full or incremental data is extracted from the Planning outbound Processor. Valid values are:</p> <p>0 - Full extraction</p> <p>1 - Incremental extraction based on the FromDay and ThruDay fields.</p>

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**Note:** Oracle recommends the following initial FromDays and ThruDays settings:

- Daily system: -2 and 0, to capture a full 2 weeks.
- Weekly system: -41 and 0, to capture a full fiscal month with 5 weeks regardless of weekday run.
- Monthly system: -4 and 0, to capture a full quarter regardless of month day run.

## Customizing Scripts

There are three series of scripts used to automate the integration between EnterpriseOne and the Demantra system. They include:

- Scripts called by the Demantra workflows

- UBE launch scripts in the EnterpriseOne server
- Postprocessing scripts

Templates of all the scripts documented below are included with the Demantra installation in the `demantra_install_folder\e1_integration` folder. The scripts require modification to specify the correct directories and `runubexml` commands. After customization, the scripts need to be moved to the correct server and folder.

The folders involved in Demantra integration are:

Folder	Server	Role
Demantra_install_folder\e1_integration	Demantra	<p>Contains the scripts called by the Demantra workflows:</p> <ul style="list-style-type: none"> <li>• <code>runubexml_full.bat</code></li> <li>• <code>runubexml_incr.bat</code></li> <li>• <code>runubexml_item.bat</code></li> <li>• <code>runubexml_loc.bat</code></li> <li>• <code>backup_forecast.bat</code></li> <li>• <code>upload_forecast.bat</code></li> </ul>
Demantra_install_folder\e1_files	Demantra	<p>Location for all extracts, Demantra forecast, synchronization files, and error files.</p>
e1_environment_ube_launch_script_folder	EnterpriseOne	<p>Contains the UBE launch scripts:</p> <ul style="list-style-type: none"> <li>• <code>runextracts_full.bat</code></li> <li>• <code>runextracts_incr.bat</code></li> <li>• <code>runextracts_item.bat</code></li> <li>• <code>runextracts_loc.bat</code></li> <li>• <code>runupload.bat</code></li> </ul>

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e1_input_forecast_folder	EnterpriseOne	Location for the Forecast.txt file after it is copied from the Demantra server by the upload_forecast.bat script.
e1_output_folder	EnterpriseOne	Location for the extracts generated by the Planning Outbound Processor (R34A400), synchronization, control and error files.
e1_system_bin32_folder	EnterpriseOne	<p>Contains the runubexml files that start the Planning Outbound Processor (R34A400) and Planning Inbound Processor (R34A410):</p> <ul style="list-style-type: none"> <li>• R34A400_full.xml</li> <li>• R34A400_incr.xml</li> <li>• R34A400_item.xml</li> <li>• R34A400_loc.xml</li> <li>• R34A410_fcst.xml</li> </ul> <p>where full, incr, item, loc, and fcst represent the version names.</p>
e1_postprocessing_script_folder	EnterpriseOne	<p>Contains the postprocessing scripts called by the Planning Outbound Processor (R34A400) and the Planning Inbound Processor (R34A410):</p> <ul style="list-style-type: none"> <li>• postextract.bat</li> <li>• postupload.bat</li> </ul>

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### Scripts called by the Demantra Workflows

There are six scripts called by five Demantra Workflows. They are:

Workflow	Script Started	Result
<p>E1 Full Download</p> <p>Goal: To download all five extracts from EnterpriseOne:</p> <ul style="list-style-type: none"> <li>• Branch.txt</li> <li>• Customer.txt</li> <li>• Item.txt</li> <li>• ItemBranch.txt</li> <li>• SalesOrderHistory.txt</li> </ul>	<p>runubexml_full.bat located in the demantra_install_folder\e1_integration folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts, done.txt and ube_errors.txt files from the demantra_install_folder\e1_integration\e1_files folder</li> <li>2. Calls the runextracts_full.bat script in the e1_environment_ube_launch_script_folder on the EnterpriseOne server.</li> </ol>
<p>E1 Incremental Download</p> <p>Goal: To download the SalesOrderHistory extract from EnterpriseOne.</p>	<p>runubexml_incr.bat located in the demantra_install_folder\e1_integration folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts, done.txt and ube_errors.txt files from the demantra_install_folder\e1_integration\e1_files folder</li> <li>2. Calls the runextracts_incr.bat script in the e1_environment_ube_launch_script_folder on the EnterpriseOne server.</li> </ol>
<p>E1 Items Download</p> <p>Goal: To download two extracts from EnterpriseOne:</p> <ul style="list-style-type: none"> <li>• Item.txt</li> <li>• ItemBranch.txt</li> </ul>	<p>runubexml_item.bat located in the demantra_install_folder\e1_integration folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts, done.txt and ube_errors.txt files from the demantra_install_folder\e1_integration\e1_files folder</li> <li>2. Calls the runextracts_item.bat script in the e1_environment_ube_launch_script_folder on the EnterpriseOne server.</li> </ol>

<p>E1 Locations Download</p> <p>Goal: To download three extracts from EnterpriseOne:</p> <ul style="list-style-type: none"> <li>• Branch.txt</li> <li>• Customer.txt</li> <li>• SalesOrderHistory.txt</li> </ul>	<p>runubexml_loc.bat located in the demantra_install_folder\e1_integration folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts, done.txt and ube_errors.txt files from the demantra_install_folder\e1_integration\e1_files folder</li> <li>2. Calls the runextracts_loc.bat script in the e1_environment_ube_launch_script_folder on the EnterpriseOne server.</li> </ol>
<p>E1 Upload</p> <p>Goals:</p> <ol style="list-style-type: none"> <li>1. Backup old forecasts to a backup folder.</li> <li>2. Generate a new forecast from Demantra Demand Management into the demantra_install_folder\e1_integration\e1_files folder.</li> <li>3. Upload the forecast to EnterpriseOne with the name Forecast.txt.</li> </ol>	<p>Runs two scripts located in the demantra_install_folder\e1_integration folder:</p> <ol style="list-style-type: none"> <li>1. backup_forecast.bat</li> <li>2. upload_forecast.bat</li> </ol>	<p>The backup_forecast.bat script moves all old forecasts in the demantra_install_folder\e1_integration\e1_files folder to a backup folder.</p> <p>The upload_forecast.bat script does the following:</p> <ol style="list-style-type: none"> <li>1. Deletes the old synchronization file (upload_done.txt) and error file (forecast_errors.txt) from the demantra_install_folder\e1_integration\e1_files folder.</li> <li>2. Copies the new forecast file (forecast*.txt) from the demantra_install_folder\e1_integration\e1_files to the E1_input_forecast_folder on the EnterpriseOne server with the name Forecast.txt.</li> </ol>

## UBE launch scripts in the EnterpriseOne server

The five scripts located in the `e1_environment_ube_launch_script_folder` start the `runubexml` commands that start the Planning Outbound Processor (R34A400) and Planning Inbound Processor (R34A410). They are launched by the Demantra workflow scripts.

Sequence	UBE Launch Scripts	Results
Workflow: E1 Full Download  Demantra script: <code>runubexml_full.bat</code>  Goal: To download all five extracts from EnterpriseOne: <ul style="list-style-type: none"><li>• <code>Branch.txt</code></li><li>• <code>Customer.txt</code></li><li>• <code>Item.txt</code></li><li>• <code>ItemBranch.txt</code></li><li>• <code>SalesOrderHistory.txt</code></li></ul>	<code>runextracts_full.bat</code> located in the <code>e1_environment_ube_launch_script_folder</code>	<ol style="list-style-type: none"><li>1. Removes all old extracts in the <code>e1_output_folder</code></li><li>2. Removes the synchronization file (<code>done.txt</code>) from the <code>e1_output</code> folder.</li><li>3. Runs the <code>runubexml R34A400_full.xml</code> command where "full" is the name of the version customized to include the Branch, Customer, Item, ItemBranch and SalesOrderHistory extracts.</li><li>4. Generated extracts placed in the <code>e1_output</code> folder.</li></ol>

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<p>Workflow: E1 Incremental Download</p> <p>Demantra script: runubexml_incr.bat</p> <p>Goal: To download the SalesOrderHistory extract from EnterpriseOne.</p>	<p>runextracts_incr.bat located in the e1_environment_ube_launch_script_ folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts in the e1_output_folder</li> <li>2. Removes the synchronization file (done.txt) from the e1_output folder.</li> <li>3. Runs the runubexml R34A400_incr.xml command where "incr" is the name of the version customized to include the SalesOrderHistory extract.</li> <li>4. Generated extracts placed in the e1_output folder.</li> </ol>
<p>Workflow: E1 Items Download</p> <p>Demantra script: runubexml_item.bat</p> <p>Goal: To download two extracts from EnterpriseOne:</p> <ul style="list-style-type: none"> <li>• Item.txt</li> <li>• ItemBranch.txt</li> </ul>	<p>runextracts_item.bat located in the e1_environment_ube_launch_script_ folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts in the e1_output_folder.</li> <li>2. Removes the synchronization file (done.txt) from the e1_output folder.</li> <li>3. Runs the runubexml R34A400_item.xml command where "item" is the name of the version customized to include the Item and ItemBranch extracts.</li> <li>4. Generated extracts placed in the e1_output folder.</li> </ol>

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<p>Workflow: E1 Loc Download</p> <p>Demantra script: runubexml_loc.bat</p> <p>Goal: To download three extracts from EnterpriseOne:</p> <ul style="list-style-type: none"> <li>• Branch.txt</li> <li>• Customer.txt</li> <li>• SalesOrderHistory.txt</li> </ul>	<p>runextracts_loc.bat located in the e1_environment_ube_launch_script_ folder</p>	<ol style="list-style-type: none"> <li>1. Removes all old extracts in the e1_output_folder</li> <li>2. Removes the synchronization file (done.txt) from the e1_output folder.</li> <li>3. Runs the runubexml R34A400_loc.xml command where "loc" is the name of the version customized to include the Branch, Customer, and SalesOrderHistory extracts.</li> <li>4. Generated extracts placed in the e1_output folder.</li> </ol>
<p>Workflow: E1 Upload</p> <p>Demantra scriptst: backup_forecast.bat and upload_forecast.bat</p> <p>Goals:</p> <ol style="list-style-type: none"> <li>1. Backup old forecasts to a backup folder.</li> <li>2. Generate a new forecast from Demantra Demand Management into the demantra_install_folder\ e1_integration\ e1_files folder.</li> <li>3. Upload the forecast to EnterpriseOne with the name Forecast.txt.</li> </ol>	<p>runupload.bat located in the e1_environment_ube_launch_script_ folder</p>	<ol style="list-style-type: none"> <li>1. Removes the synchronization file (forecast_done.txt) from the e1_input_forecast_folder.</li> <li>2. Runs the runubexml R34A410_fcst.xml command where "fcst" is the name of the version customized to upload the forecast.txt file into EnterpriseOne from the e1_input_forecast_folder.</li> </ol>

## Postprocessing scripts

These two scripts are called by the Planning Outbound Processor (R34A400) and Planning Inbound Processor (R34A410) respectively.

Processor	Postprocessing Script	Results
Planning Outbound Processor (R34A400)	postextract.bat located in the e1_postprocessing_scripts_ folder	<ol style="list-style-type: none"> <li>1. Removes previous synchronization file (done.txt) and error status file (ube_errors.txt) from the e1_output_folder.</li> <li>2. Copies extracts in the e1_output folder to the demantra_install_folder\ e1_integration\ e1_files folder.</li> <li>3. Creates a new synchronization file (done.txt) in the e1_output_folder.</li> <li>4. Parses the E1 extract control file for errors (control.txt) and creates an error status file (ube_errors.txt) in the e1_output folder if any errors found.</li> <li>5. Copies done.txt and ube_errors.txt (if applicable) to demantra_install_folder\ e1_integration\ e1_files folder from the e1_output folder.</li> </ol>

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Planning Inbound Processor (R34A410)	postupload.bat located in the e1_postprocessing_scripts_ folder	<ol style="list-style-type: none"> <li>1. Removes previous synchronization file (upload_done.txt) and error status file (forecast_errors.txt) from the e1_input_forecast_folder.</li> <li>2. Creates a new synchronization folder (upload_done.txt) in the e1_input_forecast_folder.</li> <li>3. Parses the E1 extract control file for errors (control.txt) and creates an error status file (forecast_errors.txt) if any errors found.</li> <li>4. Copies upload_done.txt and forecast_errors.txt (if applicable) to demantra_install_folder\ e1_integration\ e1_files folder.</li> </ol>
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## Demantra Demand Management Configuration

### Overview

You must perform the following customizations to integrate the Demantra Demand Management application with EnterpriseOne:

- Specify the Demantra extract source folder.
- Configure the levels that you want to make available in Demand Management.
- Configure the EnterpriseOne Upload Integration Interface to set up the location of the output file.
- Changing system time
- Controlling System and Engine Max Sales Dates

- Setting the date range used for incremental extracts within Demantra

## Specifying the Demantra Extract Source Folder

You must specify the physical location of the UBE extract source folder, which is where Demantra looks for the extract flat files. This folder should be on a shared file system visible from both EnterpriseOne and Demantra environments.

The default (recommended) location for the extract source folder is:

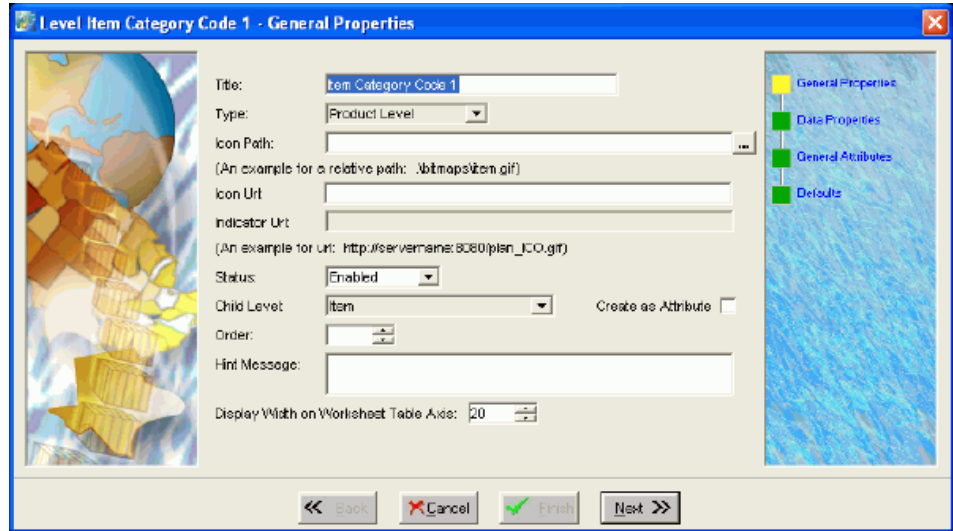
```
<Demantra_install_folder>\e1_integration\e1_files
```

To modify the folder in which Demantra looks for these extracts, you need to edit the `create_integration_dir.sql` file, which can be found in the `<Demantra_install_folder>\e1_integration` directory.

## Configuring Demand Management Levels

Use the following procedure to enable the Item, Organization, Site category code levels that you want to appear in the Demand Management worksheets.

1. Log in to the Demantra Business Modeler.
2. From the Configuration menu, choose Configure Levels.  
The Configure Levels dialog box appears.
3. Do the following for the Item, Organization, and Site category code levels that you want to enable:
  1. Right click the level and choose Open> General Properties.  
The General Properties dialog box appears.



2. From the Status drop-down list box, choose Enabled.
3. Click Finish.
4. Click Next until the Defaults dialog box appears.
5. Click Finish.

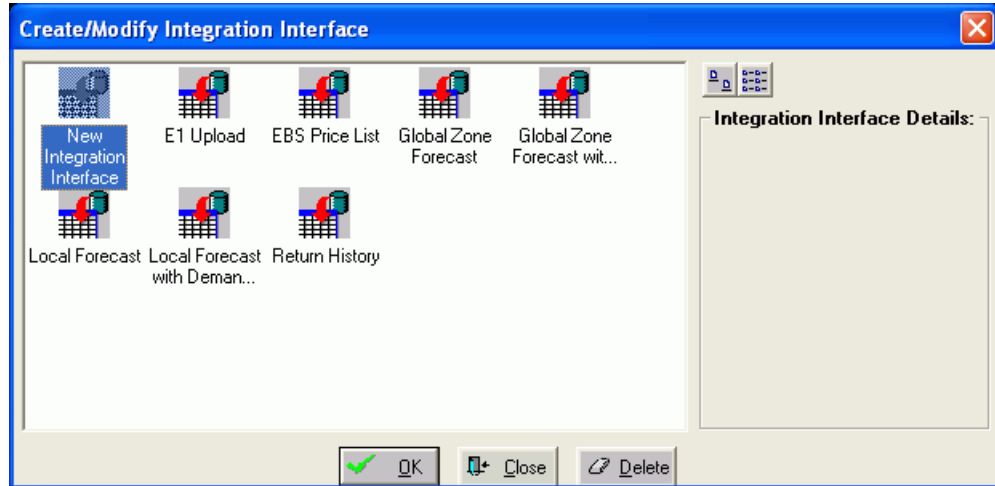
## Configuring the EnterpriseOne Upload Integration Interface

You can configure the EnterpriseOne Upload integration interface to specify the path where the forecast file will be generated. The forecast file's default path is `c:\e1_integration\e1_files\forecast.txt`.

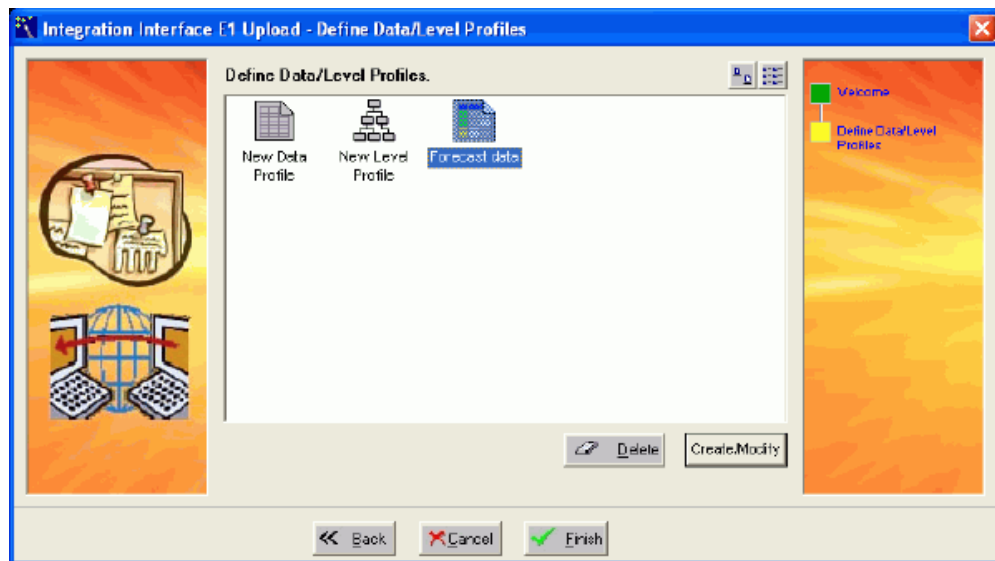
To change the EnterpriseOne Upload output path:

1. Log in to the Business Modeler.
2. From the Tools menu, choose Integration Interface.

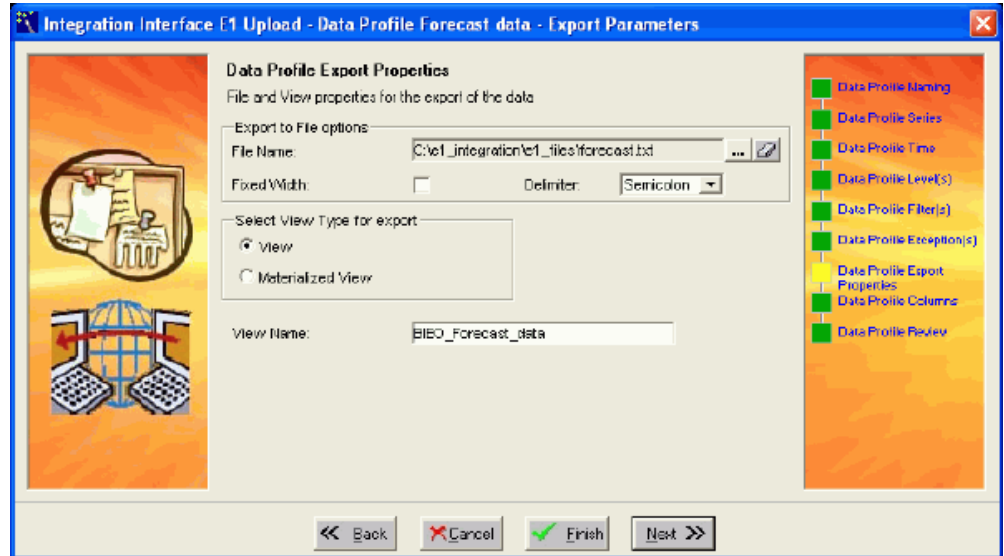
The Create/Modify Integration Interface dialog box appears.



3. Highlight the E1 Upload Integration Interface and click OK.
4. Click Next.



5. Double-click the Forecast Data profile.  
The Data Profile Interface dialog box appears.
6. Click Next until the Data Profile Export Properties dialog box appears.



7. In the File Name field, click the browse button.  
The Select File for Export dialog box appears.
8. Select the forecast that you want to export and then click Save.
9. Click the Finish button twice.

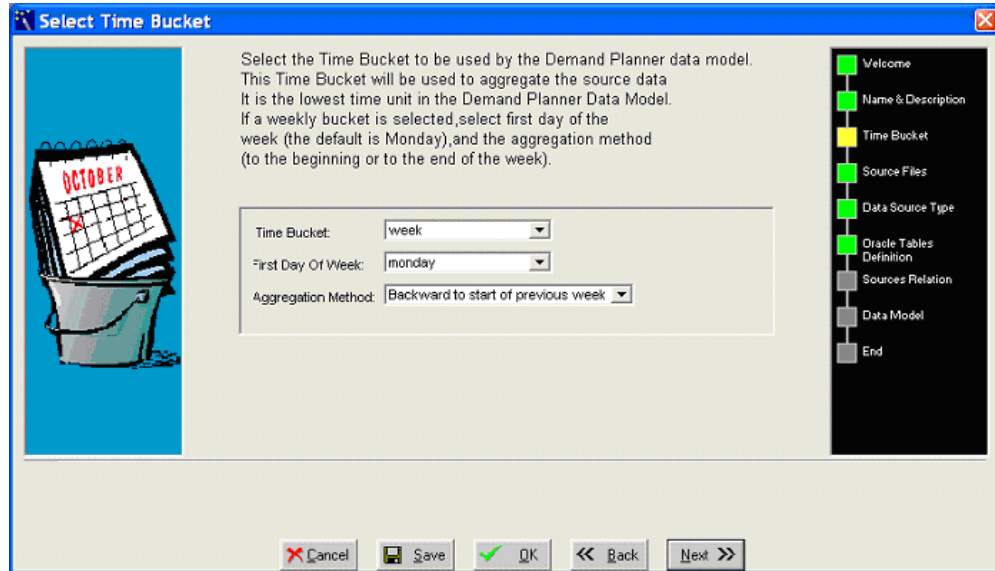
## Changing System Time

Demantra uses a base time. All other time displayed in the system is an aggregation of this base time. The default time of the Demand Management application is weekly beginning on Monday. There may be several business reasons to change this:

- Starting your week on a different day.
- Aggregating the week based on the ending day not the beginning day.
- Daily or monthly base time.

### To change the base time:

1. In the Business Modeler, open the Build Model window, and then the existing data model Integration Template.
2. Click next until the Time Bucket screen appears.

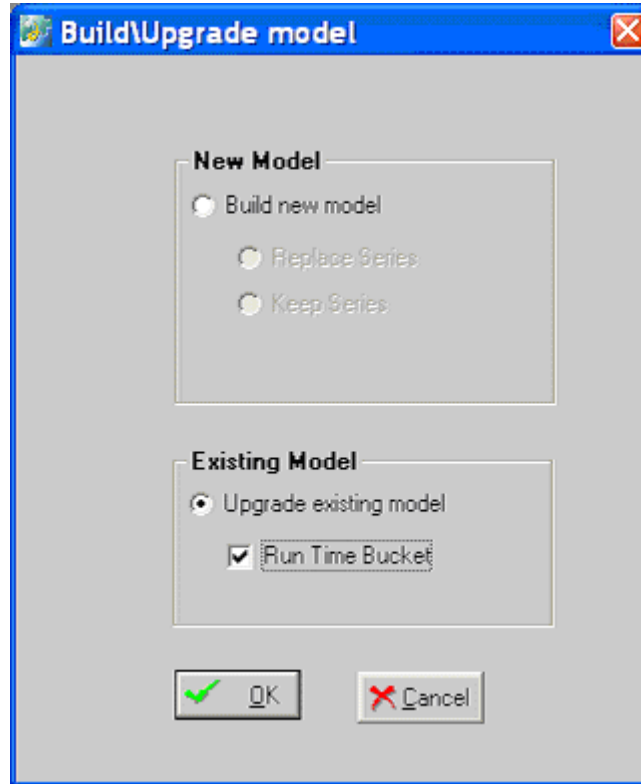


3. Complete the following fields:

- Time Bucket
- First Day of the Week
- Aggregation Method

**Note:** The day and month time unit do not designate the first day of the period. Months are assumed to begin on the first and end on the last day of the Gregorian month.

4. After your changes have been saved, the data model should be upgraded, not rebuilt using the Run Time Bucket option selected.



**Note:** If the time bucket is reconfigured, the time aggregation set for all worksheets is modified to match the new time aggregation. A review of all used and embedded worksheets is strongly recommended.

#### Changing time and engine parameters

Many engine parameters set for a weekly system do not comprise best-practice setting in a monthly and daily system. A good source of default values can be found in `init_params_0_daily` and `init_params_0_monthly` tables. It is recommended that you review engine parameters and change time relevant parameters if you change the time bucket setting.

Parameter `MetricsPeriod` defines the length of history for which accuracy is calculated as an engine output. Default for weekly system is 26. A monthly system is set to 24 while a daily system is set to 60.

#### Controlling System and Engine Max Sales Dates

When loading future dates in the `EP_LOAD` process, it is important to populate a control parameter to determine how you would like the end of history populated. The control parameter can be found in the Business Modeler and is called `MaxSalesGen`.

## Populating MaxSalesGen

1. Access the Business Modeler.
2. From the Parameters menu and choose System Parameter.
3. Click the System tab and scroll down until you find the MaxSalesGen parameter.

Name	Value	Default Value
EnableWorkSheetCaching	true	true
ImportDataMode	1	1
Integration1CalendarLoad	APPS.MSD_DEM_TIME	APPS.MSD_DEM_TIME
Integration1ETDaysLoaded	3000	40
LoadDataStop	yes	yes
mail_recipient	no send	no send
ManualRefreshAsDefault	true	true
max_fore_sales_date	12-13-2004 00:00:00	
MaxAvailableFilterMembers	1000	1000
<b>MaxSalesGen</b>	<b>99999999</b>	<b>99999999</b>
MaxSaleVal	99999999	99999999
min_fore_sales_date	12-22-2003 00:00:00	

**Description**  
Parameter used to determine last date of sales in SYS\_PARAMS and INIT\_PARAMS\_0. If NULL do nothing, leave settings from EP\_LOAD\_SALES. If 1/1/1900 find max date in Sales Data. If other date that date is used as end of sales. If SYSDATE uses DB date.

Find Sort Filter Print Save Close

4. For the MaxSalesGen parameter, enter the value you want. Some considerations:
  - Null. Leaving the parameter blank causes the system to continue to behave as it does today. The last date loaded into the system is compared to the current last system date, and the latest of the two set is the last date of history. It is recommended in cases where only historical dates are being loaded.
  - Sysdate. Entering Sysdate as the parameter causes the last date of history to be based on the period containing today's date (date in the DB server). In a weekly system with weeks beginning Monday, if run on February 16, 2007, the last date of history is set to the previous Monday February 12, 2007. For a monthly system run on the same date, the end of history is set to February 1, 2007. This option is good for a production environment where the system date should match the current date while allowing future information to be loaded.
  - 01-01-1900 00:00:00. Setting the parameter to this value sets the end of history to the last date in the sales\_data table where the actual\_quantity column>0. For very large systems, this could add time to loading availability. It is critical that the data used to drive the engine be stored in the actual\_quantity column.
  - Any date other than 01-01-1900 00:00:00. Any other date will cause the last date of history to be based on the entered date. In a weekly system with weeks

beginning Monday, if the date entered is January 16, 2007, the last date of history would be set to the previous Monday January 15, 2007. For a monthly system run with the same parameter setting, the end of history would be set to January 1, 2007. This option is ideal for testing systems where the desired end of history date does not match the executed date. This allows users full control on dates assigned as end of history and beginning of forecast.

**Note:** All dates must be entered in the MM-DD-YYY 00:00:00 format.

## Setting the Date Range for Incremental Extracts

EnterpriseOne sales order information can be extracted in full or incrementally. For incremental extracts, a parameter is set within the R34A400\_incr.xml file that defines, from today's date, how many days back and forward to go to generate the date range to be extracted. Within the Business Modeler, the Integration1E1DaysLoaded parameter must be set to match that used by the R34A400\_incr.xml file.

**To set the Integration1E1DaysLoaded parameter:**

1. Access the Business Modeler.
2. Choose System Parameters, then System. The System Parameters window is displayed.

Name	Value	Default Value
ImportDataMode	1	1
Integration1CalendarLoad	APPS.MSD_DEM_TIME	APPS.MSD_DEM_TIME
Integration1E1DaysLoaded	3000	40
LoadDataStop	yes	yes
mail_recipient	no send	no send
ManualRefreshAsDefault	true	true
max_fore_sales_date	12-13-2004 00:00:00	
MaxAvailableFilterMembers	1000	1000
MaxSalesGen		
MaxSaleVal	99999999	99999999
min_fore_sales_date	12-22-2003 00:00:00	
min_sales_date	05-07-2001 00:00:00	

**Description**  
 Number of days extracted out of E1, used to ensure round historical buckets are loaded to Demantra system, should be set to same amount as E1 XML

For example, in a weekly system with weeks beginning Monday, if the extract execution date is January 31st 2007 and the R34A400\_incr.xml parameters are set to -28 and +7, the parameter Integration1E1DaysLoaded should be set to 28. This will extract all orders with the requested ship date between January 3rd 2007 and February 7th 2007. When this information is turned into weeks beginning on Monday in Demantra, the following weeks will receive information:

- January 1st to 7th
- January 8th to 14th
- January 15th to 21st
- January 22nd to 28th
- January 29th to February 5th

Since the data extracted for the week beginning January 1st will only contain information from January 3rd, it will be an incomplete week and may cause incomplete weekly data to be loaded. The integration process will reference the parameter Integration1E1DaysLoaded and truncate the week of January 1st from the load, thereby only loading information from January 8th on.

During implementation, it is not realistic to try and modify the R34A400\_incr.xml parameters before every data load. The configuration should attempt to capture the narrowest range of dates which will likely capture 99.9% of all orders. Since there may be an occurrence when there is a large gap between an order being requested and its actual shipment, this range will greatly depend on the business practices associated with the implementation. It is strongly recommended that the parameter Integration1E1DaysLoaded is set to a number smaller or equal to the first date range

parameter in the R34A400\_incr.xml. The current default is set to 3000 in order to capture entire date range suitable for a full load as well as any testing scenarios.

Actual settings will vary greatly by business but should be driven by the following considerations:

- What is the likelihood that an order will be shipped in 1, 2, 3... periods late?
- What is the largest delay ever seen between an order placement and its shipment?
- How critical is it to capture all orders?
- How long a time interval is available for the data extract?

The answers to these questions will allow for a sensible business-oriented date range to be set. Oracle recommends the following initial settings:

- Daily system: -2 and 0, to capture a full 2 weeks.
- Weekly system: -41 and 0, to capture a full fiscal month with 5 weeks regardless of weekday run.
- Monthly system: -4 and 0, to capture a full quarter regardless of month day run.



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## EBS - Demantra Demand Management Integration

This chapter overviews integration processes that synchronize or move data between the Oracle Demantra and E-Business Suite applications.

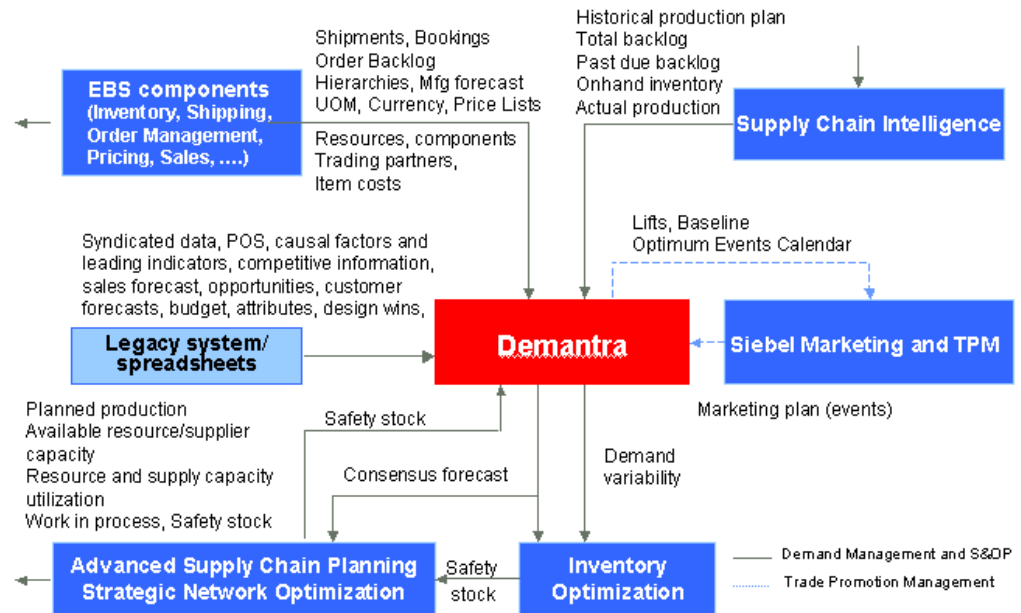
This chapter covers the following topics:

- Demand Management Business Flow
- Terms and Conventions Used in this Document
- Integration Features
- Seeded Demand Management Component
- Summary of Integration Tasks
- Initial Setup
- Download E-Business Suite Data Into Demand Management
- Download Collections
- Combined Collections of Shipment and Booking History
- Collecting Legacy Shipment and History Data
- Collecting Returns History Data
- Collecting Currency Conversion Data
- Collecting Unit of Measure Conversion Data
- Collecting Price List Data
- Downloading Calendars
- Purging Data Before Import
- Configure Series Load and Purge Options
- Download to Oracle Demantra
- Demand Management Functional Output

- Upload from Oracle Demantra
- Upload Forecast
- Line Of Business Configuration and Execution
- Configuring LOB Population
- Configuring LOB Population Level
- Configuring LOB Population Members
- Executing the LOB Process Workflow
- Troubleshooting the EBS Forecast Line of Business Workflow
- Setting Up the New Products List
- Setting Up the Calendar List
- Base Time Unit
- Creating a New Leaf Level
- Creating a New Top Level
- Creating a New Intermediate Level
- Deleting a Level
- Approval and Upload Setup Process
- Profile Options

## **Demand Management Business Flow**

The Integration Data Flow diagram shows, at a general level, the sources and destinations of data.



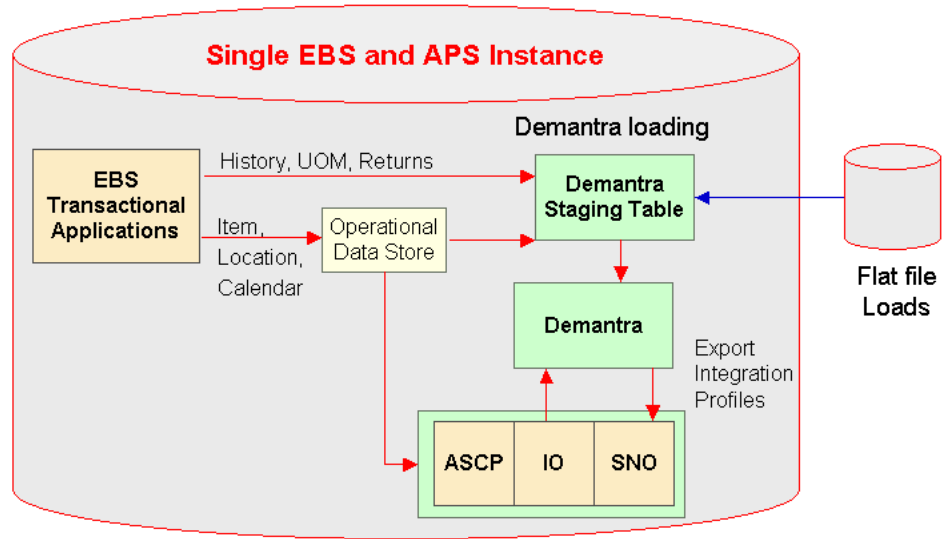
For details describing user business flow details, see the *Oracle Demantra Demand Management User's Guide*.

## Supported Integration Configurations

Integration between Oracle Demantra Demand Management and the E-Business Suite leverages Oracle Demantra Foundation functionality to the extent possible. Booking history, price list, currency, calendars, users, and items collected from the E-Business Suite applications are loaded into Oracle Demantra. Forecasts and accuracy measures return.

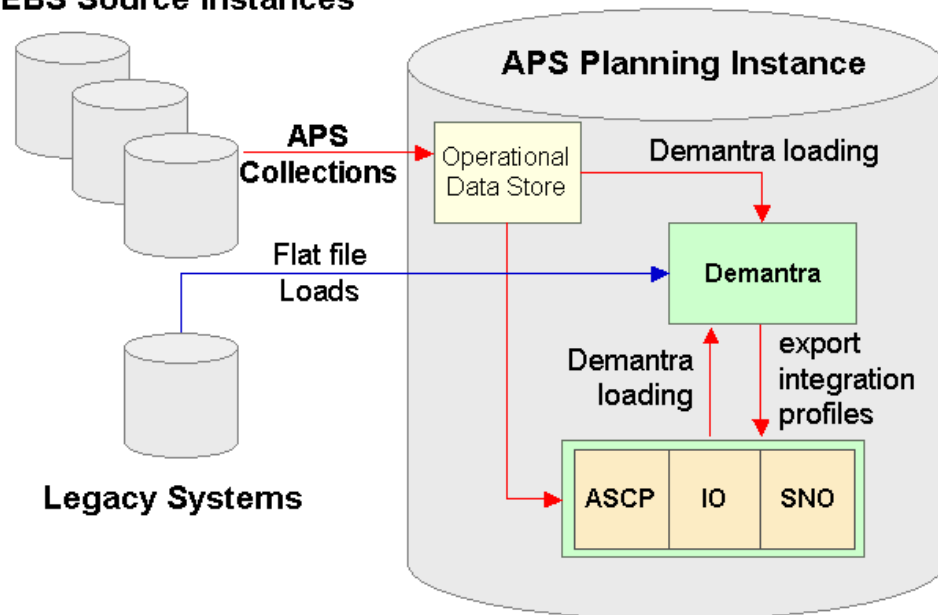
Oracle supports the following configurations:

- **Single instance.** The single instance including source, Advanced Planning and Scheduling, must be E-Business Suite Release 11.5.10, and Oracle Demantra must be v7.1.1.



- **Separate destination and non-legacy source instances.** The destination instance and the source instance must both be E-Business Suite Release 11.5.10.

### EBS Source Instances



- **Separate destination and legacy source instances.** The destination instance must be EBS 11.5.10.

## Terms and Conventions Used in this Document

*Levels* control how data is aggregated and organized. Levels are used in worksheets, in filters, in import and export, and in forecasting. A level *member* refers to a unit within a level. For example, "tollhouse" is a member of a level named "cookies". A *hierarchy* organizes levels into ranks. The top level in the hierarchy provides the most aggregate, general view of information. The bottom level provides the most disaggregate, specific view of information. Your application can include multiple, independent hierarchies. Each hierarchy can contain as many levels as needed.

Within Oracle Demantra, you generally apply a *filter* by specifying a level and the members of that level that you want to display in a worksheet.

A *worksheet*, sometimes known as a query, is the primary user interface to Oracle Demantra data. For example, within a worksheet, a user can examine and edit data as needed, view the forecast, run simulations, and save changes back to the database.

Our use of the terms *download* and *upload* here are always relative to the E-Business Suite, or a similar legacy system. In other words, *download* procedures move information *from* an E-Business Suite application, while *upload* procedures move information from Oracle Demantra *to* the E-Business Suite, or a legacy system.

When we discuss the *source* we are referring the E-Business Suite Enterprise Resource Planning applications. *Destination* refers to the Advanced Planning and Scheduling applications.

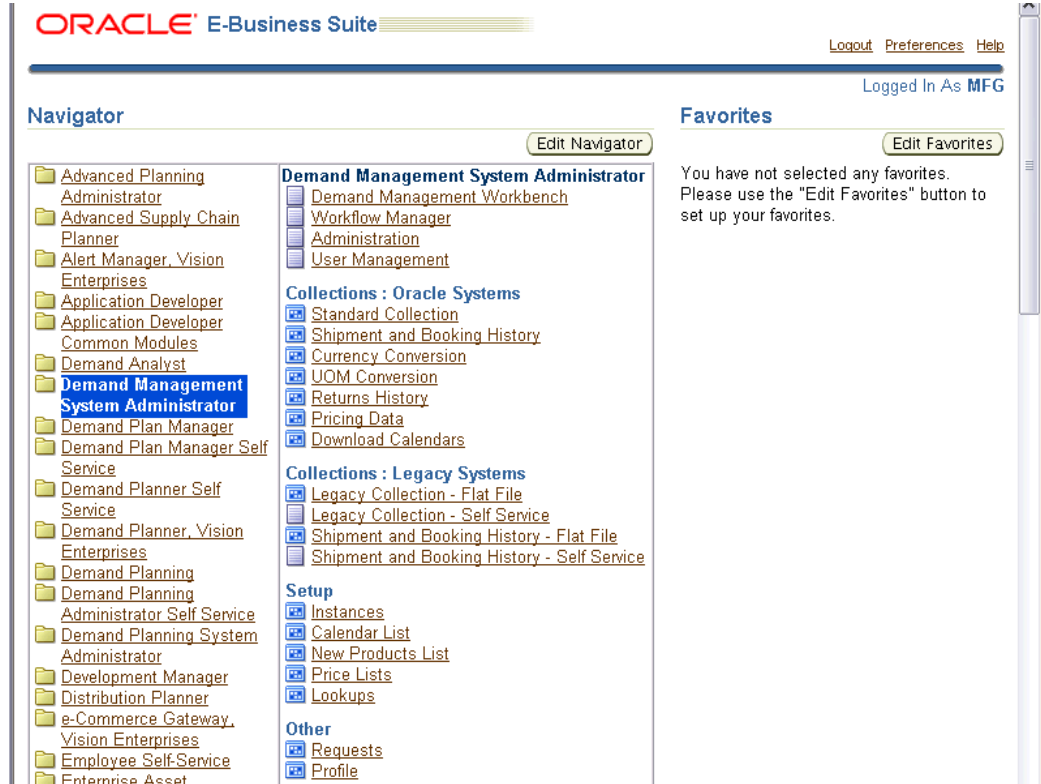
**Note:** Oracle supports legacy collections for level members and history. The user must define and apply Oracle Demantra import integration profiles.

## Integration Features

### Demand Management Navigator Menus

The Oracle E-Business Suite Navigator provides the following two responsibilities:

- Demand Management System Administrator
- Demand Analyst



The Oracle E-Business Suite Navigator menu for the Demand Management System Administrator Responsibility provides the following links to integrate with the respective Oracle Demantra functionality:

- Demand Management System Administrator > Demand Management Workbench – opens the Oracle Demantra Collaborator Workbench user interface
- Demand Management System Administrator > Workflow Manager – opens the Oracle Demantra Workflow Manager user interface
- Demand Management System Administrator > Administration – accesses the Oracle Demantra Administration page
- Demand Management System Administrator > User Management – accesses the Oracle Demantra User Management page
- Collections: Oracle Systems - accesses collections programs to obtain data entities from the E-Business Suite, Advanced Supply Chain Planning, Operational Data Store applications with an option to download data into Oracle Demantra:
  - Standard Collections
  - Shipment and Booking History

- Currency Conversion
- UOM Conversion
- Returns History
- Pricing Data
- Download Calendars
- Collections: Legacy Systems: > Shipment and Booking History - Flat File – allows access to legacy shipment and booking history flat file, if applicable
- Setup > Instances - Allows setting up multiple Instances from where collections can be run to obtain data entities.
- Setup > Calendar List - allows setting up calendars to be downloaded into Oracle Demantra
- Setup > New Products List – allows setting up new products to be downloaded into Oracle Demantra
- Setup < Price Lists

The Oracle E-Business Suite Navigator menu for the Demand Analyst Responsibility provides the following link:

- Demand Analyst > Demand Management Workbench – opens the Oracle Demantra Collaborator Workbench user interface

## User Synchronization

When an E-Business Suite user is granted any responsibility containing the Demand Management Workbench (MSD\_DEM\_DEMPLANR) function grant, an Oracle Demantra user of the same username is created in the Oracle Demantra Demand Management component.

If the E-Business Suite user additionally has the Setup > Instances (MSD\_DEM\_DEMADMIN) function grant, the corresponding Oracle Demantra user has the following Oracle Demantra function security grants:

- Business Modeler
- Run batch engine
- Run workflow that launches Oracle Demantra EP\_LOAD
- Run workflows that launch import and export integration profiles

- Run workflow that archives current Final Forecast for waterfall analysis

If the E-Business Suite user does not have the MSD\_DEM\_DEMADMIN function grant, the corresponding Oracle Demantra user has none of the previously listed Oracle Demantra function security grants.

As E-Business Suite users' function grants change over time, the corresponding Oracle Demantra users' function grants automatically change to match. For example, if at any time the E-Business Suite user loses the Demand Management (MSD\_DEM\_DEMPLANR) E-Business Suite function grant, the corresponding Oracle Demantra user is deleted.

**Important:** If the user is a customer contact, then restrict the contact's Oracle Demantra data security scope to that customer in the customer class hierarchy.

Users assigned E-Business Suite Demand Management System Administrator or Demand Analyst responsibilities are automatically assigned mirrored responsibilities in Oracle Demantra. When a user is created in the E-Business Suite and mirrored in Oracle Demantra, the default password in Oracle Demantra is 'Oracle Demantra'. The Web Server must be restarted for a new user to be available in Oracle Demantra.

## Single Sign-on (SSO)

Single Sign-on means that users who log into the E-Business Suite can access the Oracle Demantra system without requiring an additional login to Oracle Demantra. When users log out from Oracle Demantra they are also logged out from the E-Business Suite. For logout purposes, Oracle Demantra invokes E-Business Suite logout procedures. More information can be found in the *E-Business Suite SSO Developer's Guide*.

### SSO Process

The Single Sign-on process in E-Business Suite is managed via a *mod\_osso* plug-in on the HTTP server. Basically, it receives a request to access an application and makes sure that the current user is authenticated with the Oracle SSO Server. On the Oracle Demantra side, the SSO process consists of getting a user name and forwarding it to an appropriate login page.

1. From the E-Business Suite Home Page Navigator, the User clicks an Oracle Demantra responsibility:
  - Demand Management System Administrator
  - Demand Analyst
2. Oracle Demantra Login JSP obtains the user information cookie, and then initializes the session. Depending on user role, Oracle Demantra offers up to four Single Sign-on enabled pages to log the user into an appropriate application:

- Demand Management Workbench
  - Workflow Manager
  - Administration
  - User Management
3. The user selects an application, and is redirected to the single sign-on server.  
After verifying credentials in Oracle Internet Directory, the server passes these credentials on to the Oracle Demantra application.
  4. The application serves up the requested content.

### SSO Setup

There are two different setups based on whether Oracle Demantra is deployed into the same Application Server as the E-Business Suite:

- Oracle Demantra Deployed Together with E-Business Suite
- Oracle Demantra Deployed Separate from E-Business Suite

#### **Oracle Demantra Deployed Together with E-Business Suite.**

Assumptions: SSO server and Oracle Internet Directory (OID) are available with E-Business Suite and can be used by Oracle Demantra without requiring new licenses for SSO and OID.

After authenticating the user, mod\_osso transmits the header values that iAS applications require to validate the user. These include the following:

1. User name - User nickname as entered by user on Single Sign-On login page
2. User DN - Single Sign-On user's distinguished name
3. User GUID - Single Sign-On user's globally unique user ID (GUID)
4. Language and territory - User selects Language and Territory on the login page

To configure the application to use mod\_osso for SSO, the following lines need to be added in the mod\_osso.conf file in the IfModule tag:

```
<Location/MyLogin>
    require valid-user
    authType Basic
</Location>
```

where /MyLogin is the mapping URL (context root).

The Mod\_osso.conf file can be located in <Ora10iAS\_home>/Apache/Apache/conf.

There should be one configuration block per responsibility in E-Business Suite (or login

page in Oracle Demantra). Currently, there should be four similar entries pointing to Collaborator Workbench, Workflow Engine, Administrator, and User Management login pages.

These values are transmitted in HTTP request and can be extracted as following:

```
//User name as entered in EBS SSO
String userName = request.getRemoteUser();
//Osso-User-Dn
request.getHeader("Osso-User-Dn");
//Osso-User-Guid
request.getHeader("Osso-User-Guid");
```

### **Oracle Demantra Deployed Separate from E-Business Suite.**

If Oracle Demantra is deployed into a different Application Server instance from E-Business Suite, then the mod\_osso plug-in should be configured to serve Oracle Demantra via configuration files (mod\_osso.conf). If Oracle Demantra is not deployed into an iAS, then mod\_osso plug-in needs to be installed on the relevant HTTP server. This latter case requires an additional license for the plug-in.

The Oracle Demantra login URL needs to be registered with the Oracle application server (ssoreg.sh). Such registration is a one time activity.

Once this is done, the process to enable SSO is the same as described previously.

## **Seeded Demand Management Component**

The seeded Demand Management component contains the default owning user levels, organized as hierarchies; series; and workflows required for the demand management business functions. The default owning User ID / Password for the Demand Management component is 'dm' / 'dm'.

### **Seeded Levels and Hierarchies**

Oracle Demand Management provides several seeded levels organized into several seeded hierarchies:

Item levels: hierarchy roll-up sequence

- *Product Category*: Item > Category > All
- *Product Family*: Item > Product Family > All
- *Demand Class*: Demand Class > All
- *Resources*: > Resource Group > All

Location level: hierarchy roll-up sequence

- *Zone*: Site > Trading Partner Zone > Zone > All

- *Geography*: Site > Region > Country > Area > All
- *Trading Partner Class*: Site > Trading Partner > Trading Partner Class > All
- *Ship From*: Organization > Operating Unit > Legal Entity > Business Group > All
- *Business Group*: Organization > Operating Unit > Business Group > All
- *Legal Entity*: Organization > Legal Entity > All
- *Sales Channel*: Sales Channel > All
- *Customer Class*: Site > Account > Customer > Customer Class

Time:

- *Manufacturing Calendar*: Day > Week(calendar\_id) > Period(calendar\_id) > All
- *Gregorian Calendar*: Day > Month > Quarter > Year > All
- *Fiscal Calendar*: as collected from the E-Business Suite

**Note:** This set of notes applies to Manufacturing Calendars and Fiscal Calendars, but not Gregorian Calendars.

- Dynamically construct a separate hierarchy for each collected calendar. See Dynamic Creation of Calendar Hierarchies.
- If the base time unit is set to 'week', then the hierarchy is Week (calendar\_id) > Period (calendar\_id)
- If the installed base time unit is set to 'week', then only those Manufacturing Calendars with matching week definitions are collected.
- Manufacturing and Fiscal Calendars are not supported if the base time unit is set to 'month'

See the "Levels" chapter.

## Seeded Series

A *series* is a set of data that represents some value that varies over time or that varies between item-location combinations, or most commonly, that varies in both ways. A worksheet displays the series data in a table, or in a graph, or both. You can generally view data for any given series at any aggregation level. The definition of the series controls how the data is aggregated.

See the "Series" chapter.

- Booking History - Booked Items – Booked Date
- Booking History – Requested Items – Booked Date
- Booking History – Booked Items – Requested Date
- Booking History – Requested Items – Requested Date
- Shipment History – Shipped Items – Shipped Date
- \* Shipment History – Requested Items – Shipped Date
- Shipment History – Shipped Items – Requested Date
- Shipment History – Requested Items – Requested Date
- Return History

\* Shipment History - Requested Items - Shipped Date is the default series for the base forecast and historical demand.

Loaded level for all seeded series:

- Product: Item
- Demand Class: Demand Class
- Organization: Organization
- Geography: Site
- Channel: Sales Channel
- Time: Week

The seeded default values are null.

## Seeded Workflows

Oracle provides the following out-of-the-box workflows:

- Seeded workflows to run downloads using EP\_LOAD for:
  - Items
  - Locations
  - History (sales data)

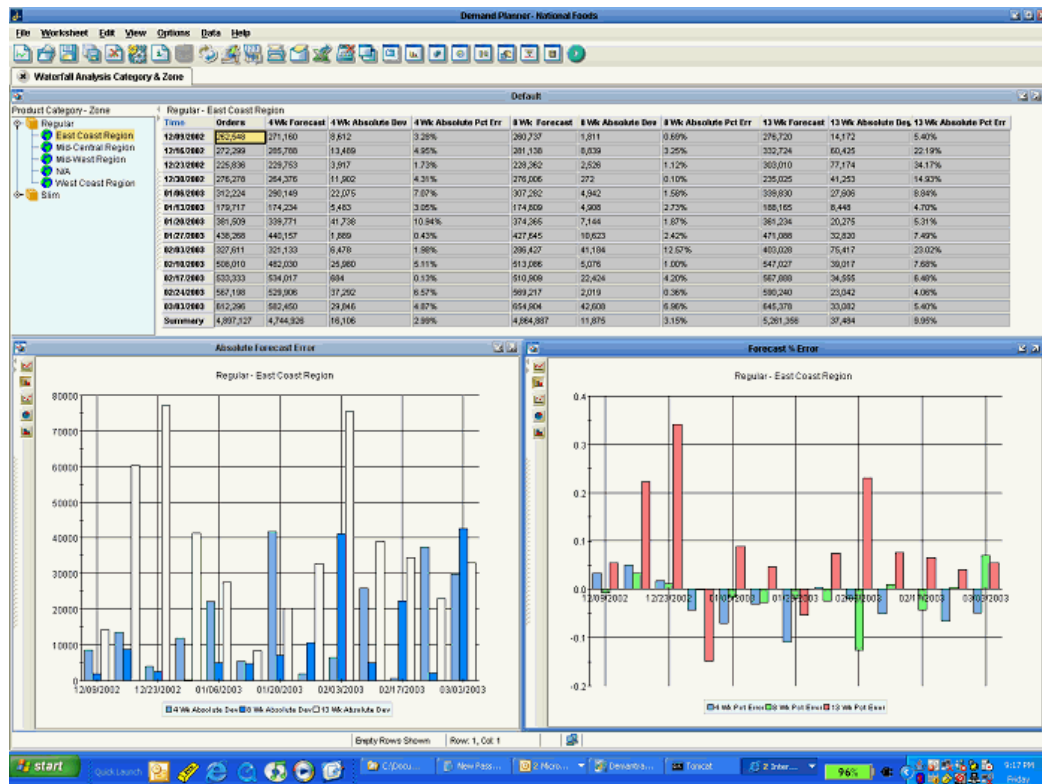
- Calendars
- Seeded workflows to run uploads to Advanced Supply Chain Planning or other sources
- Seeded workflow to download return history
- Seeded workflow to download price lists
- Seeded workflows to run the Demand forecast
- Seeded workflows to:
  1. Set the Final Approval series to NULL
  2. Run the statistical forecast, by default based on Shipment History – Requested Date, and
  3. Notify all users when the forecast is finished.
- Seeded workflows and seeded user groups used in the approval process. The default setting for the user step is: 'Check Finish Every Day'. The default setting for 'Timeout' is: after 10 days. The Planning Group Workflow should time out 5 days after the Final Approver's targeted time range has passed.
- Seeded workflow to archive forecasts for the Waterfall Analysis
- Seeded workflow to calculate forecast for Line of Business

These workflows may be changed depending on the business need. For example, the Administrator wants to ensure that the relevant user groups and users are notified of a change the timeout process. The Administrator does this by editing the relevant workflow and editing the steps.

## Predefined Worksheets

Predefined worksheets with the appropriate series for analysis and modification of the forecast are provided. For more information about predefined worksheets, see the *Oracle Demantra Demand Management User's Guide*.

A predefined waterfall worksheet with the forecast and accuracy series is available for the analyst at the beginning of each cycle. A default level is specified for every hierarchy in the Aggregation tab, although only a subset of these hierarchies will be in a Component.



To produce this worksheet, historical final forecasts must be available. For implementations with Weekly time periods, the final forecast from the current quarter must be kept on a rolling basis moving forward. The following archived forecasts are used in the worksheet:

- The forecast series for the current week minus 4, named 4 Week Lag Forecast
- The forecast series for the current week minus 8, named 8 Week Lag Forecast
- The forecast series for the current week minus 12, 12 Week Lag Forecast
- The Mean Absolute Percentage Error (MAPE) is calculated for each of the historical forecast series named appropriately, for example 4 Week Lag MAPE
- The Mean Absolute Deviation (MAD) is calculated for each of the historical forecast series named appropriately, for example 4 Week Lag MAD

For implementations with Monthly time periods, the following forecasts must be kept for the current year on a rolling basis moving forward:

- The forecast series for the previous month, named 1 Month Lag Forecast
- The forecast series for the current month minus 2, named 2 Month Lag Forecast

- The forecast series for the current month minus 6, named 6 Month Lag Forecast
- MAPE calculated for each of the historical forecast series named appropriately, for example 1 Month Lag MAPE
- MAD calculated for each of the historical forecast series named appropriately, for example 1 month Lag MAD

**MAPE calculation:**

summation ( absolute value | Actual Demand - Lagged Forecast | / (Actual Demand) /  
Number of Observations

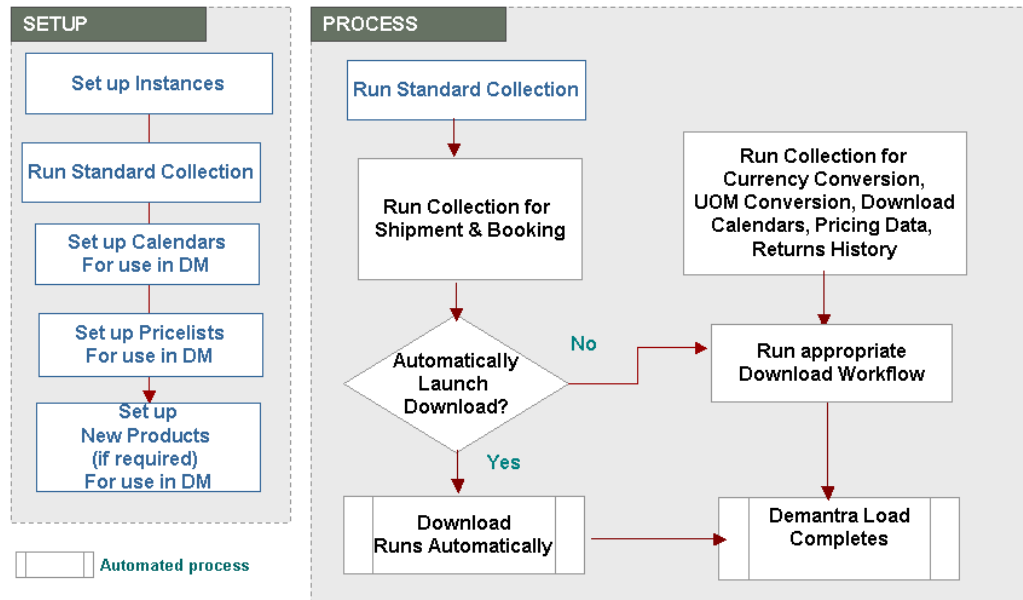
**MAD calculation:**

summation (absolute value | Actual Demand - Lagged Forecast | / Number of  
Observations )

## Summary of Integration Tasks

This section lists integration tasks in the appropriate sequence.

1. Initial Setup, page 14-16
2. Collect Data and Download to Three Staging Tables. See Download Collections, page 14-22.
3. Transfer data to Oracle Demantra schema See Download to Oracle Demantra, page 14-47.
  - EP\_LOAD
  - Import Integration Profiles
4. Generate forecasts
5. Export Output from Oracle Demantra. See Demand Management Functional Output, page 14-49.
  - Export Integration Profiles
6. Upload Forecast, page 14-51



## Initial Setup

Initial setup encompasses the following steps:

- Set up Instances
- Run Standard Collections
- Set up Calendars, Price Lists, New Products

**Important:** This script must be run after Demantra has been installed.

- Name: Initial Setup
- Script: msddemcrsyn.sql
- Parameters: None

## Setup Instances

An instance is a database and a set of applications. Setup Instances is run before running Standard Collections to specify the Instances from which Standard Collections obtains data.

Oracle Advanced Planning can plan a single instance or multiple instances. For information about setting up instances, see "Instances" in the Cross-Instance Planning chapter of *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

## Run Standard Collections

### Run Standard Collections

"Standard" Collections refer to the Advanced Supply Chain Planning (ASCP) concurrent program for collecting new or changed information from the E-Business Suite to the Oracle Data Store (ODS). For information about collections, see "Collections" in the "Cross-Instance Planning" chapter and "Running Standard Collections" in the "Running Collections" chapter of the *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

1. Sign on using the Advanced Supply Chain Planner responsibility or the Advanced Planning Administrator responsibility.
2. Navigate to the Planning Data Collection window by selecting Collections > Oracle Systems > Standard Collection.

The Planning Data Collection window appears.

The screenshot shows the 'Planning Data Collection' window with the 'Run this Request...' section. The 'Request Set' is 'Planning Data Collection'. Below this is a table with columns: Program, Stage, Parameters, and Language. The table contains two rows: 'Planning Data Pull' and 'Planning ODS Load', both with 'Planning Data Pull' and 'Planning ODS Load' as stages, and 'American English' as the language. The 'At these Times...' section shows 'As Soon As Possible'. A 'Parameters' sub-window is open, showing fields for Instance, Timeout (Minutes) (60), Number of Workers (3), Recalculate Resource Availability (No), Recalculate Sourcing History (No), and Purge Sourcing History (No). Buttons for OK, Cancel, Clear, and Help are at the bottom.

Program	Stage	Parameters	Language
Planning Data Pull	Planning Data Pull		American English
Planning ODS Load	Planning ODS Load		American English

At these Times...	
As Soon As Possible	

Parameters	
Instance	
Timeout (Minutes)	60
Number of Workers	3
Recalculate Resource Availability	No
Recalculate Sourcing History	No
Purge Sourcing History	No

3. This window shows that the collections process consists of two sequentially executed concurrent programs. The first program, *Planning Data Pull*, copies information from the source instance into the APS staging tables on the planning server. The second program, *Planning ODS Load*, copies information from the APS staging tables into the operation data store on the planning server,
4. To select the Data Pull Parameters to use during Standard Collections, select the Parameters field for the Planning Data Pull program.

The Planning Data Pull Parameters window appears.

Parameters

Instance	D9i
Collection Group	All All Enabled Organizations
Number of Workers	2
Timeout (Minutes)	180
Purge Previously Collected Data	No
Collection Method	Targeted Refresh
Analyze Staging Tables	No
Approved Supplier Lists (Supplier Capacities)	No
ATP Rules	No
Bills of Materials/Routings/Resources	No
Bills Of Resources	No
Calendars	Yes
Demand Classes	Yes
End Item Substitutions	No
Forecasts	No
Items	Yes

OK Cancel Clear Help

Parameters

Key Performance Indicator Targets	No
Master Demand Schedules	No
Master Production Schedules	No
On Hand	No
Planning Parameters	No
Planners	No
Projects/Tasks	No
Purchase Orders/Purchase Requisitions	No
Reservations	No
Resources Availability	No
Safety Stock	No
Sales Orders	No
Sourcing History	No
Sourcing Rules	No
Subinventories	No
Supplier Responses	No

OK Cancel Clear Help

Parameter	Value
Resources Availability	No
Safety Stock	No
Sales Orders	No
Sourcing History	No
Sourcing Rules	No
Subinventories	No
Supplier Responses	No
Suppliers/Customers/Orgs	Yes
Transportation Details	No
Unit Numbers	No
Units of Measure	Yes
User Company Association	No
User Supplies and Demands	No
Work in Process	No
Sales Channel	Yes
Fiscal Calendar	Yes

Buttons: OK, Cancel, Clear, Help

5. Set the parameters as shown in the previous figures.
6. Select the Parameters field for the Planning ODS Load program.  
The Parameters window appears.

Instance	
Timeout (Minutes)	60
Number of Workers	3
Recalculate Resource Availability	No
Recalculate Sourcing History	No
Purge Sourcing History	No

Buttons: OK, Cancel, Clear, Help

7. Set the parameters as shown in the previous figure.

## Set up Price Lists, Calendars, and New Products

Setup Calendar, Price Lists and New Products are run initially, and on an as needed basis in ongoing cycles.

See

Collecting Price List Data, page 14-39

Setting Up the Calendar List, page 14-58

Downloading Calendars, page 14-41

Setting Up the New Products List, page 14-57

## Ongoing Collections

After Setup is complete, the remaining Collections are run. All other Collection choices under the Oracle Systems menu are used to collect the specified data from the planning server for download to Oracle Demantra.

See:

- Combined Collections of Shipment and Booking History, page 14-22
- Collecting Currency Conversion Data, page 14-35
- Collecting UOM Conversion Data, page 14-37
- Collecting Returns History Data, page 14-32

Legacy Collection loads Shipment and History data into Oracle Demantra

See Collecting Legacy Shipment and History Data, page 14-29.

## Download E-Business Suite Data Into Demand Management

Downloading Oracle E-Business Suite data into Oracle Demantra Demand Management involves a two-stage process:

1. **Collection.** Login as Demand Management System Administrator and navigate to Collections. From there, the Administrator can collect shipment and booking history, returns history, and so on. If you select the Download Now check box option to start the download once collection successfully complete, an automated process transforms collected data into staging table structures and formats that are amenable to the following Oracle Demantra native download processes:
  - **EP\_LOAD** download procedures are used for booking history streams and level members. For example, the EP\_LOAD procedures are used to load booking history by organization-site-sales channel and item-demand class into

staging tables.

- **Data Import Integration Profiles** are used for all other data streams. A data import profile describes how to import series data aggregated to a specific aggregation level or levels, with optional filtering. For example, integration profiles are used to load returns history. See *Creating a Data Import Profile*.
2. **Transfer.** If the Download Now check box was not selected during the collections process, run EP\_LOAD and Import Integration Profiles to move data from the staging tables into the Oracle Demantra Demand Management schema.

## Download Collections

Collections use existing Oracle Demand Planning and Oracle Advanced Supply Chain Planning user interfaces, accessed from a single Navigator menu structure.

Available collections:

- Standard Collections, - designates existing ASCP collections of reference data, Items, Location, and Calendars that are collected from the Instances specified in Setup > Instance. Sales Orders, which is an entity inside Advanced Supply Chain Planning Standard Collections, provides the data stream representing future demand. For information about standard collections, see "Collections" in the "Cross-Instance Planning" chapter and "Running Standard Collections" in the "Running Collections" chapter of the *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.
- Shipment and Booking Data, - provides the data stream representing past demand. See Combined Collections of Shipment and Booking History, page 14-22, and Collecting Legacy Shipment and History Data, page 14-29
- Return History, See Collecting Returns History Data, page 14-32
- Currency Conversion, See Collecting Currency Conversion Data., page 14-35.
- Units of Measure (UOM) Conversion, See Collecting Unit of Measure Conversion Data, page 14-37
- Pricing Data, See Collecting Price List Data, page 14-39

## Combined Collections of Shipment and Booking History

The Collection Utility merges programs that collect data streams for both Shipment and Booking History.

## Prerequisites

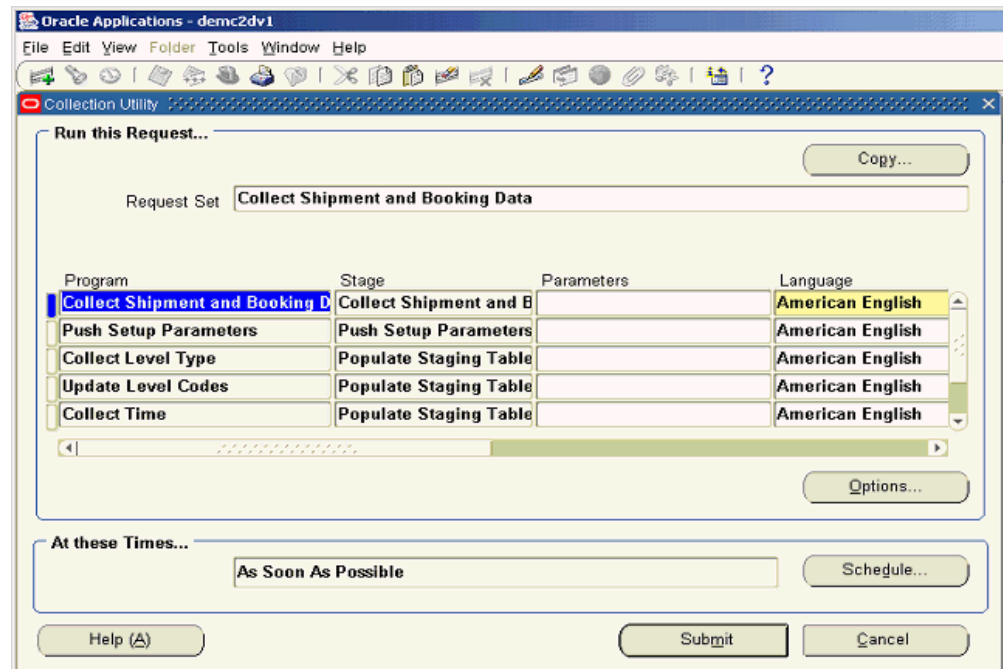
- ☐ Define database Instances.
- ☐ Set up appropriate source and destination profiles.
- ☐ Run Standard Collections.

### To run Shipment and Booking Data Collections:

1. Navigate to the Collection Utility.

Collections > Oracle Systems > Shipment and Booking History

The Collections Utility window appears, listing several collections programs.



- **Collect Shipment and Booking Data.** This program collects shipment and booking history data from the E-Business Suite Order Management source application based on the collection parameters specified, and then inserts the data into the Oracle Demantra sales staging table.
- **Push Setup Parameters.** This program pushes destination data into the E-Business Suite source, such as source profiles, organizations in the collection group, and time data from Oracle Demantra.
- **Collect Level Type.** There are two Collect Level Type programs, one for items and the other for locations. These programs generate distinct item and location

intersections, as defined in Oracle Demantra, from the shipment and booking history, and then insert the data into Oracle Demantra item and location staging tables.

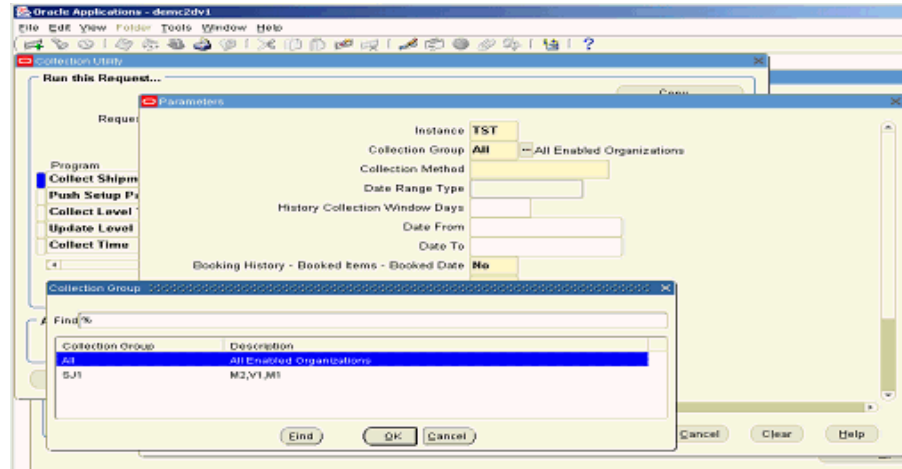
- **Update Level Codes.** This program updates the site level codes in the Oracle Demantra sales staging table as present in the Advanced Supply Chain Planning Operational Data Store.
- **Collect Time.** This program collects Manufacturing and Fiscal calendars from the Advanced Supply Chain Planning Operational Data Store, as setup in the Calendar List. See Setting Up the Calendar List, page 14-58.
- **Launch EP LOAD.**

Historical information and level data are imported into Oracle Demantra via the EP\_LOAD procedure. All other series data are imported into Oracle Demantra via Import Integration Profiles. An assumption of the EP LOAD procedure is that the series are populated into the Oracle Demantra staging tables before the load process begins. To ensure this occurs, the collection programs for all eight historical series have been merged so that these streams are always collected simultaneously. See Seeded Series, page 14-11.

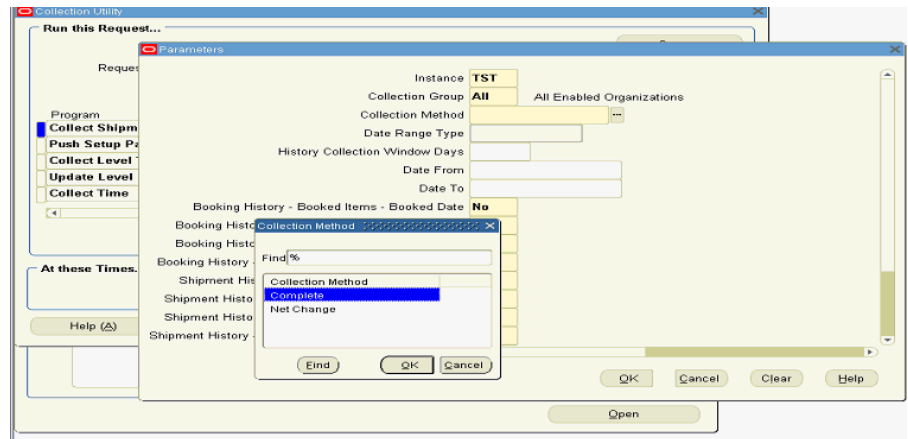
2. Highlight the Collect Shipment and Booking Data program.
3. In the row for the Collect Shipment and Booking Data program, click within the Parameters field.

The Parameters window appears. The parameters are described following the image.

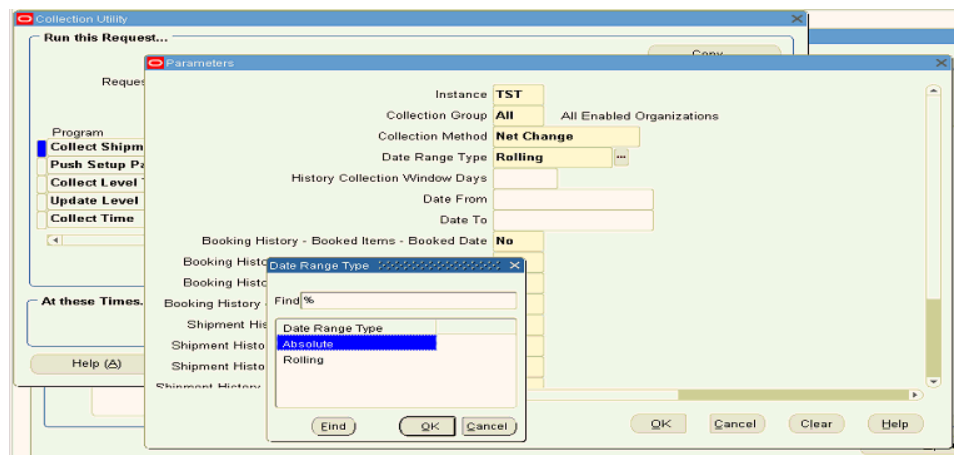
- **Instance.** Select the instance code of the E-Business Suite source instance from the list of values as defined in Instances form.
- **Collection Group.** Collection group is a group of Organizations. The parameters screens of all demand planning entities: Level Values, Manufacturing Forecast, Return History, Sales Forecast, Shipment and Booking Data, include a Collections Group parameter. This is to support line of business-specific collections.
  - Currency, Unit of Measure, and Price List do not have a Collections Group parameter. Currency is dimensioned by time only. Unit of Measure is dimensioned by item only. Price List is dimensioned by item and time.
  - The default value is 'All', which implies data for all Oracle Advanced Supply Chain Planning- and all Oracle Demand Planning-enabled organizations available for the specified instance are to be collected.
  - User-defined values can be specified if user-defined collection groups have been created in the Instances form. Only Oracle Advanced Supply Chain Planning- and Oracle Demand Planning-enabled organizations can be added to the user-defined collection groups.



- **Collection Method.** Allowed values are: 'Complete' or 'Net Change'
  - 'Complete' clears the data in the Oracle Demantra sales staging table, collects all available records from the E-Business Suite source, and inserts data into the Oracle Demantra sales staging table. No date filters apply for Complete collection. For first time collection of history data, you typically select the 'Complete' Collection Method.
  - 'Net Change' clears the data in the Oracle Demantra sales staging table, collects data by applying the specified date filters, and inserts the fetched data into the Oracle Demantra sales staging table. Net Change is typically selected for ongoing, periodic collection of history data, say on a weekly basis.
  - The Complete and Net-Change Collection Methods are mutually exclusive.



- **Date Range Type.** For Net Change collection, the allowed values for Date Range Type are 'Rolling' or 'Absolute'. Date Range type is not valid for 'Complete' collections.
- 'Rolling' implies the history data is collected from the system date up to the number of days in the past specified in the 'History Collection Window Days' field.
- 'Absolute' implies the user specifies the date range for which collection is to be done in the Date From and Date To fields.
- The Rolling and Absolute Date Range Types are mutually exclusive.



- **History Collection Windows Days.** This field specifies the number of days in the past from the system date for which history data is to be collected. This field is valid when the Date Range Type is 'Rolling'.

- **Date From and Date To.** These fields specify a date range for the collection of history data. They are valid when the Date Range Type is 'Absolute'.
- **Collected Series.** The next eight parameters are the names of the eight seeded history series. Specifying 'Yes' causes a series to be collected. Specifying 'No' will not collect it.

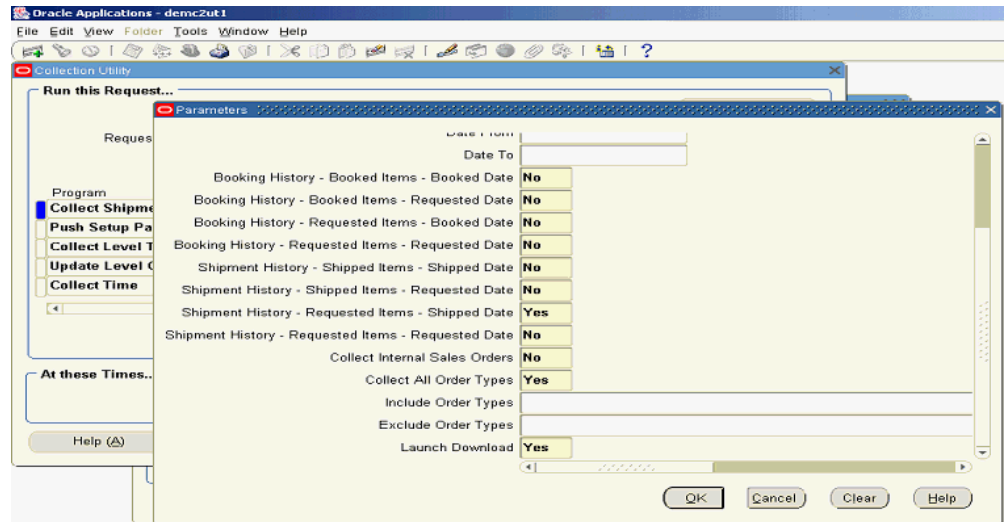
**Note:** For history collections, at least one series must be specified. The Shipment History – Requested Items – Shipped Date series is the default value.

- **Collect Internal Sales Orders.** Specifying 'Yes' collects any internal sales orders available in the source. By default, internal sales orders are not collected.
- **Collect All Order Types.** Specifying 'Yes' collects sales orders for all order types. Specifying 'No' enables the Include Order Types field.
  - **Include Order Types.** Specifying 'No' in the Collect All Order Types parameter enables entry of Order Types in the Include Order Types field, for which sales orders are collected. Enter Order Types one after another with a comma separated delimiter.
  - **Exclude Order Types.** To exclude certain order types from being collected specify the list of Order Types that are not to be collected in the Exclude Order Types field. Enter Order Types one after another with a comma separated delimiter.
  - Either 'Include Order Types' or 'Exclude Order Types' can be specified, but not both.
- **Launch Download.** Each collections Single Request Submission includes a Launch Download parameter. Valid values are 'Yes' and 'No'.

Specifying 'Yes' automatically launches the download of history data into Oracle Demantra as soon as collections have completed. Internally this invokes the Oracle Demantra EP\_LOAD procedure to download the data into Oracle Demantra. E-Business Suite Advanced Planning and Scheduling directly populates the staging tables. The Shipment and Booking history collection automatically invokes Download Calendars program if the Launch Download field is set to 'Yes'. See Downloading Calendars, page 14-41.

If Launch Download is set to 'No', then only collections will be done. Advanced Planning and Scheduling collections leave the data in the Oracle Demantra staging tables. Download does not launch automatically. To download the collected items, locations, and history data, manually launch the Download workflow from Oracle Demantra Workflow Manager.

- The Administrator launches the workflow.
- For historical series, all series are loaded.
- An integration profile for each non-history series determines which data are loaded.



4. Click Ok to close the Parameters window.
5. (Optional) On the Collection Utility window, click Schedule to open a window where you can set up the concurrent program to run collections at a future date and time, or periodically. The At these Times field default value causes the program to run "As Soon As Possible" after the program is submitted.
6. Click Submit.

## Collecting Legacy Shipment and History Data

The concurrent programs for Legacy Shipment and History collection are:

- **Flat File Loads.** This program loads the shipment and booking history data from a flat file into the Oracle Demantra sales staging table.
- **Sales Data Pre Processor.** This program updates the destination keys from Advanced Supply Chain Planning for all of the levels.
- **Collect Level Type** and **Launch EP\_LOAD** are the same programs as those used for the E-Business Suite Shipment and Booking History Data collections.

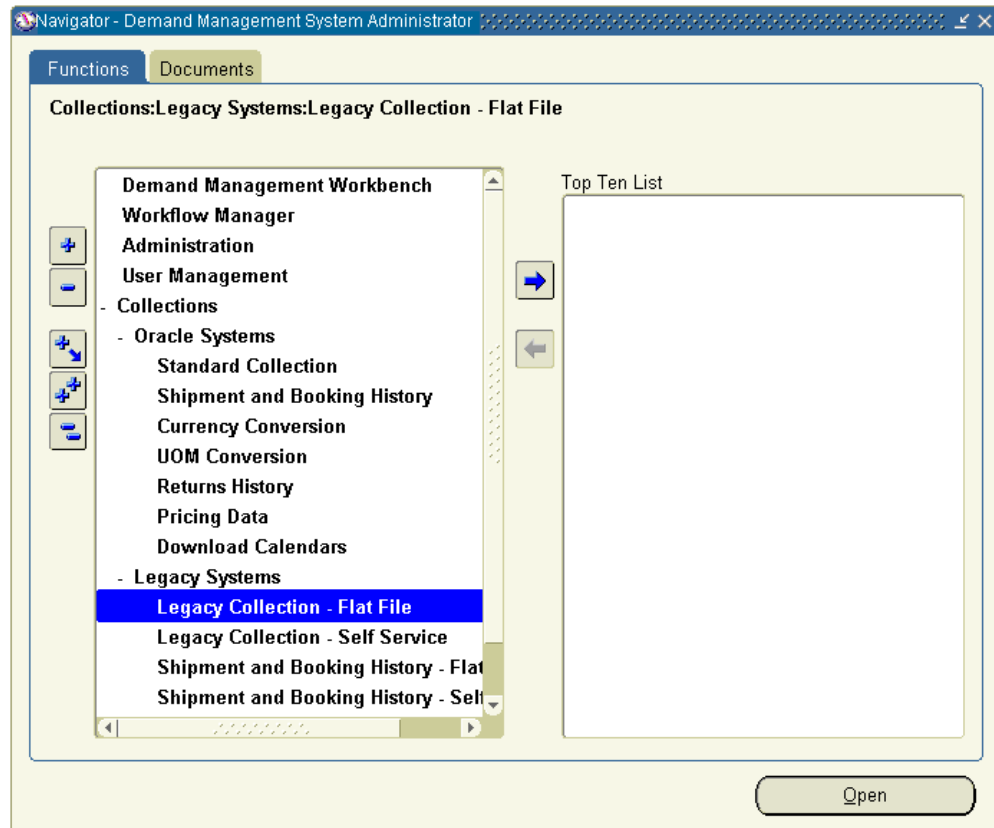
## Prerequisites

- ☐ Prior to launching this collection, complete ASCP collections for the legacy instance.

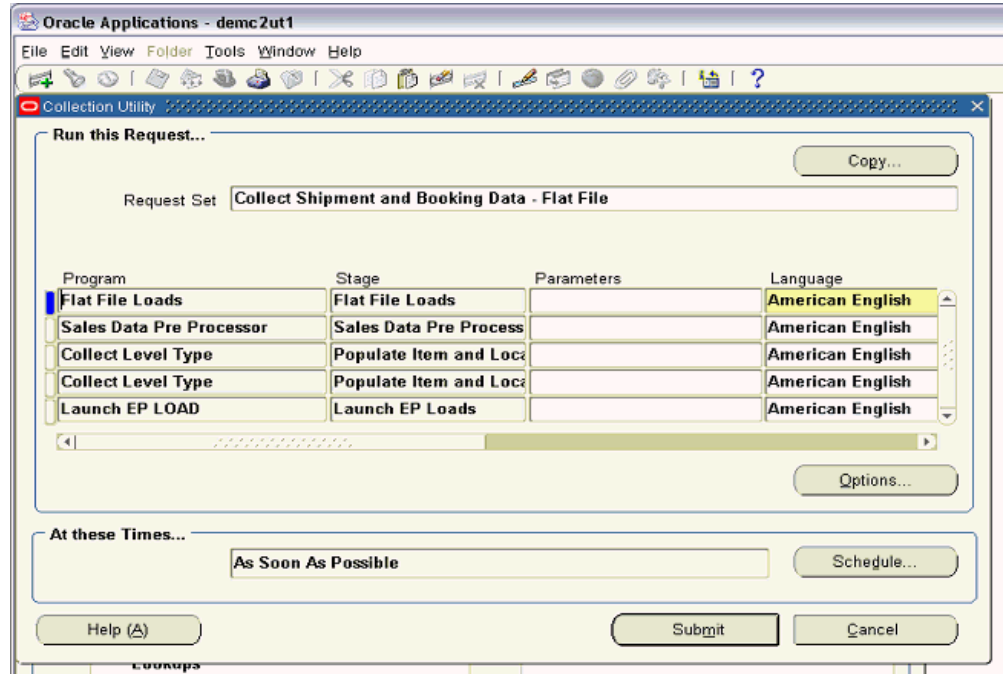
### To collect Legacy Shipment and History Data:

1. Navigate to the Legacy Collection Utility.

Collections > Oracle Systems > Collect Shipment and Booking Data - Flat File

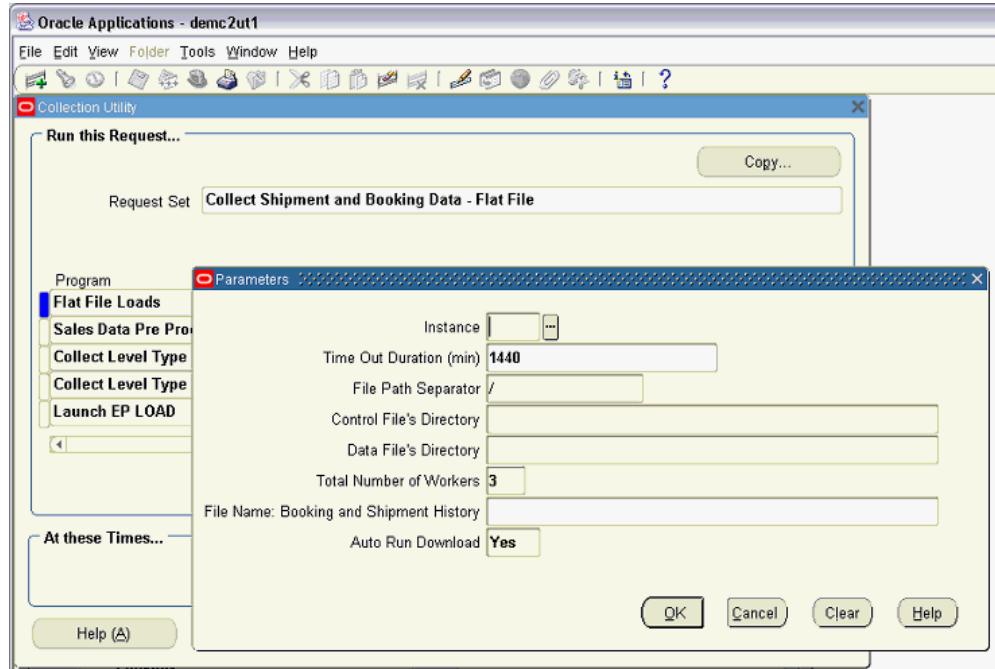


The Collections Utility window appears, listing several collections programs.



2. Highlight the Collect Shipment and Booking Data program.
3. In the row for the Collect Shipment and Booking Data program, click within the Parameters field.

The Parameters window appears. The parameters are described following the image.



The parameters for the Flat File Loads concurrent program are:

- **Instance.** The legacy instance for which data is being loaded.
- **Time Out Duration (min).** This is the maximum duration, in minutes, for which this program is allowed to run.
- **File Path Separator.** Windows and UNIX path separators are different.
- **Control File's Directory.** Specifies the location of the SQL loader control file.
- **Data File's Directory.** Specifies the location of the history data flat file.
- **Total Number of Workers.** Specifies the number of programs that can be run simultaneously.
- **File Name Booking and Shipment History.** Specifies the name of the shipment and booking history flat file.
- **Auto Run Download.** 'Yes' automatically downloads data into Oracle Demantra from the staging tables. 'No' indicates that the download into Oracle Demantra will be accomplished using a separate manual procedure.

## Collecting Returns History Data

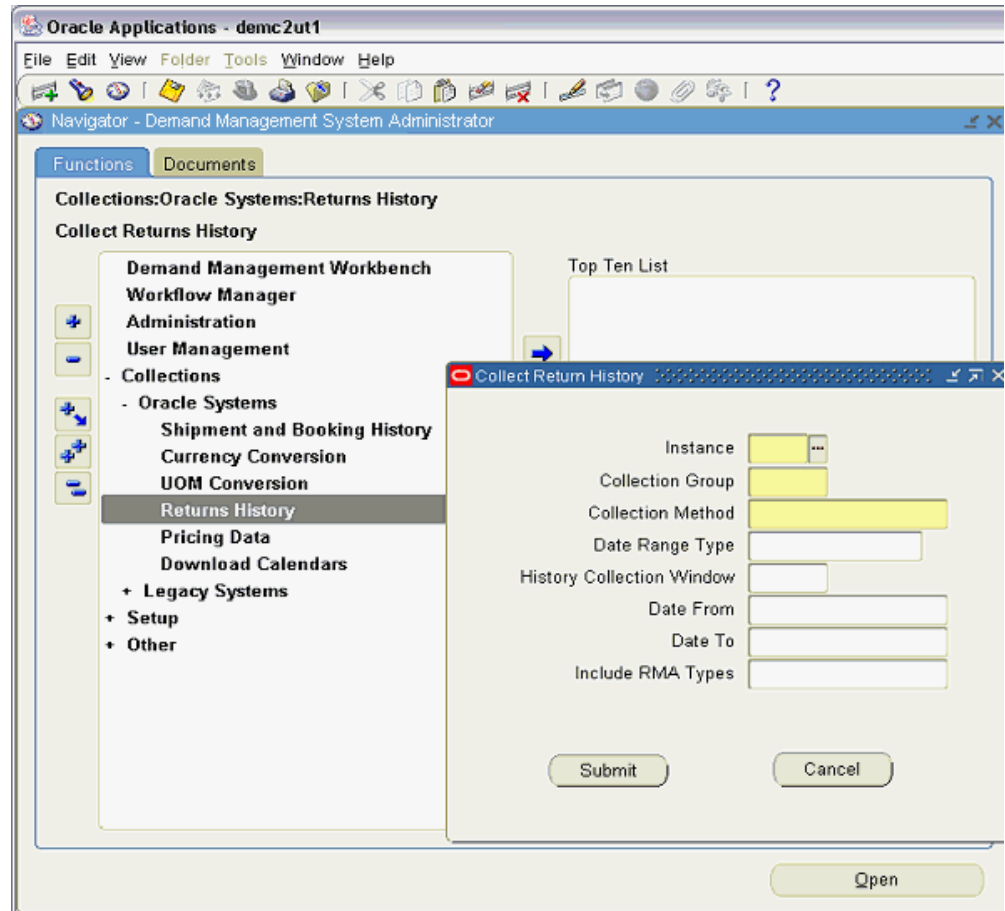
Import Integration Profiles are used to Collect Returns History.

## To collect return history data:

1. Navigate to the Collect Return History window.

Collections > Oracle Systems > Returns History

The Collect Return History window appears.



2. Specify Collect Return History parameters.

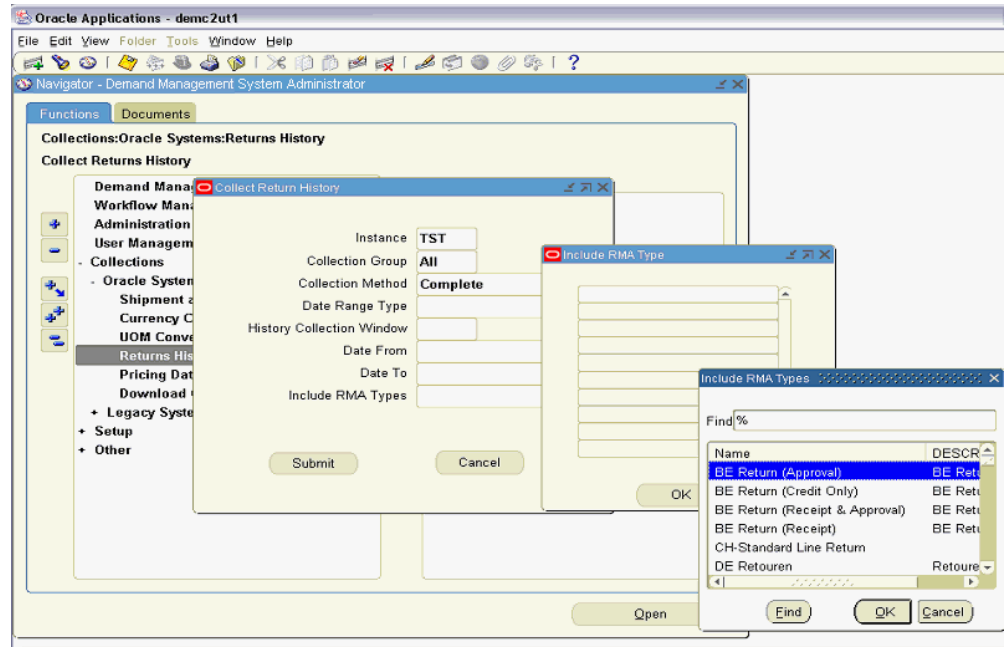
The collection parameters for Returns History are:

- **Instance.** This is the instance code of the source instance, as defined in Instances form.
- **Collection Group.** This group of organizations filters the collected data by organization.
  - The default value is 'All', which implies all Advanced Supply Chain Planning and Demand Planning enabled organizations are available for the specified instance.

- User-defined values can be specified if user-defined collection groups have been created in the Instances form.
  - Only Advanced Supply Chain Planning and Demand Planning enabled organizations can be added to the user-defined collection groups.
  - **Collection Method.** Valid options are: 'Complete' or 'Net-Change'.
    - 'Complete' clears the data in the Return History staging table, collects all available records from the source, and inserts them into the Return History staging table. No date filters are applied for Complete collection. Complete collection is typically used for the first time collection of history data.
    - 'Net-Change' clears the data in the Return History staging table, collects data by applying the specified date filters, and inserts the fetched data into the Return History staging table. Typically, select net change for regular collection of history data, say on a weekly basis.
    - Complete and Net-Change are mutually exclusive.
  - **Date Range Type.** For 'Net-Change' collection, Date Range Type can be either 'Rolling' or 'Absolute'.
    - 'Rolling' implies collection of history data from the system date up to the number of days in the past as specified in the 'History Collection Window Days' field.
    - 'Absolute' requires values in the Date From and Date To fields to specify the date range for which collection is to be done.
    - 'Rolling' and 'Absolute' Date Range Types are mutually exclusive.
    - Date Range Type is not valid for the 'Complete' Collection Method.
  - **History Collection Windows Days.** This field is valid if the 'Rolling' date range type has been chosen. Specify the number of days in the past from the system date for which history data is to be collected.
  - **Date From and Date To.** These fields are valid if the 'Absolute' date range type has been chosen. Specify a date range for the collection of history data.
  - **Include RMA Types.** Null value implies collection of all Return Material Authorization types. Specifying particular RMA types causes only those listed to be collected. Multiple RMA types can be specified.
3. (Optional) To specify particular RMA Types click the cursor within the Include

RMA Types Field.

The Include RMA Type window appears.



4. Select the RMA Type. Click OK.
5. Repeat the previous step as necessary to specify all desired RMA Types.
6. Click OK to close the Include RMA Type window.
7. On the collect Return History window, click Submit to launch the concurrent program to execute Return History collections.

## Collecting Currency Conversion Data

Currency conversion rates are dimensioned by time only.

### To run the currency conversion collections:

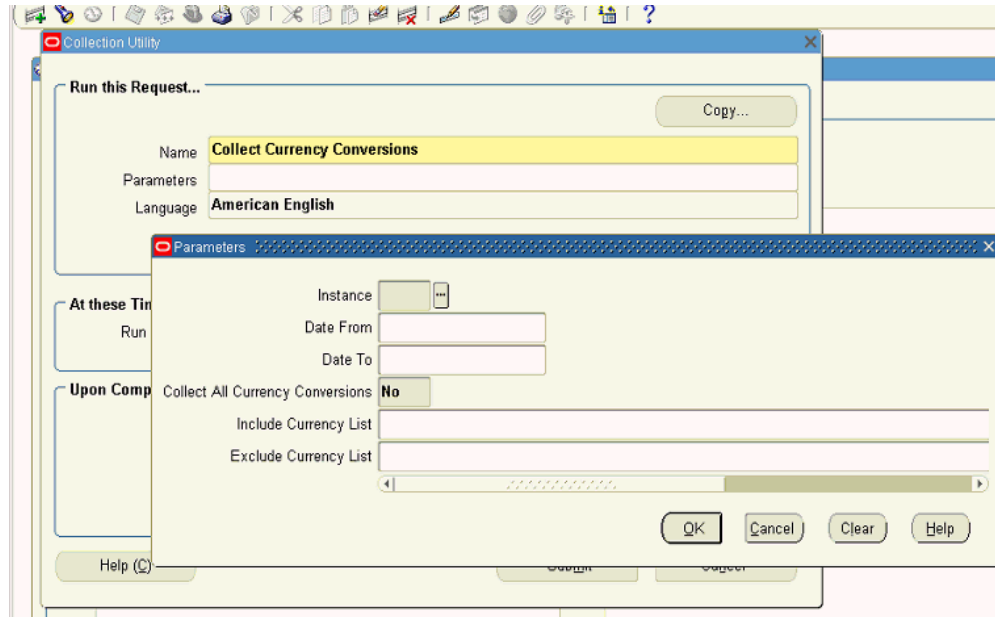
1. Navigate to the Collection Utility

Collections > Oracle Systems > Currency Conversion

The Collections Utility window appears, with the Collect Currency Conversions program name appearing in the Name field.

2. Click within the Parameters field.

The Parameters window appears.



3. Set the program parameters.

The parameter descriptions follow:

- **Instance.** This is the Instance code of the source instance, as defined in the Instances form.
- **Date From and Date To.** Specify a date range for the collection of currency conversion rates. If no dates are specified then all available records available in source are collected without applying any date filters.
- **Collect All Currency Conversions.** Specifying 'Yes' collects Currency conversion rates for all currencies for which conversion rates to the base currency exist in the source. Specifying 'No' enables entry of Currency Codes for which conversion rates can be collected, in the 'Include Currency List' field.
  - **Include Currency List.** If Collect All Currency Conversions is set to 'No', enter Currency Codes one after another with a comma separated delimiter.
  - **Exclude Currency List.** To exclude certain Currency conversion rates from being collected, specify the list of Currency Codes that are not to be collected in the 'Exclude Currency List' field. Enter Currency Codes one after another separated by a comma delimiter
  - Either 'Include Currency List' or 'Exclude Currency List' can be specified but not both.

4. Click OK to close the Parameters window.

5. Click Submit.

**Note:** The Administrator can run the following script to add more placeholder currencies to Oracle Demantra:

Name: 'Create Seed Entities in Demantra

Script:

```
declare
    retcode number;
begin
    msd_dem_create_dem_seed.create_dem_seed_data(retcode,
    <p_start_no>,
    <p_num_entities>,<p_entity_type>);
end;
/
```

Parameters to be passed to this script:

p\_start\_no. - starting number of entities to be created (Already units from 100-199 are created)

p\_num\_entities - number of entities to be created

p\_entity\_type - 1 (UOM), 2 (CURRENCY), 3 (PRICE LIST), 0 (ALL)

## Collecting Unit of Measure Conversion Data

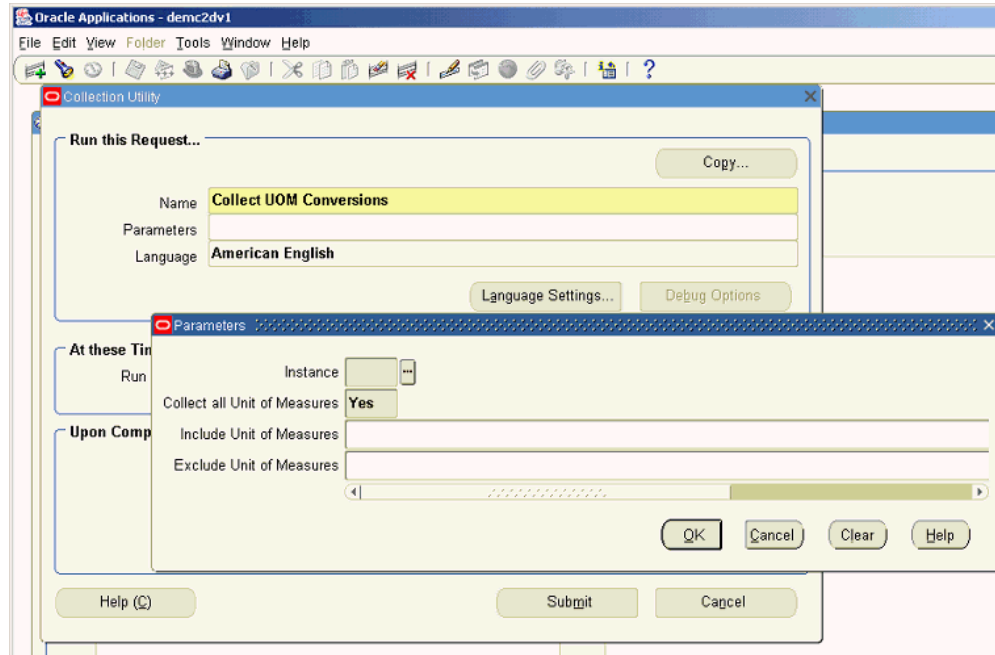
Unit of Measure conversion rates are dimensioned by time only. UOM conversion rates are always calculated with respect to each collected Item's Primary UOM; up to 100 UOM Conversions can be collected.

### To run the unit of measure conversion collections:

1. Navigate to the Collection Utility.

Collections > Oracle Systems > UOM Conversion

The Collections Utility window appears, with the Collect UOM Conversions program name appearing in the Name field.



2. Click within the Parameters field.

The Parameters window appears.

3. Set the program parameters.

The parameter descriptions follow:

- **Instance.** This is the instance code of the source instance, as defined in the Instances form.
- **Collect All Units of Measure.**  
 Specifying 'Yes' collects UOM conversion rates for all units of measure for which conversion rates exist in the source.  
 Specifying 'No' enables entry of UOM Codes for which conversion rates can be collected, in the 'Include Units of Measures' field.
  - **Include Units of Measure.** Enter a list of UOM Codes for which conversion rates can be collected. UOM Codes are entered one after another separated by a comma delimiter
  - **Exclude Units of Measure.** To exclude certain UOM conversion rates from being collected, enter the list of UOM Codes that *are not* to be collected. Enter UOM Codes one after another, separated by a comma delimiter.
  - Either 'Include Units of Measures' or 'Exclude Units of Measures' can be

specified, but not both.

4. Click OK to close the Parameters window.
5. Click Submit.

**Note:** The Administrator can run the following script to add more placeholder units of measure to Oracle Demantra:

Name: 'Create Seed Entities in Demantra

Script:

```
declare
    retcode number;
begin
    msd_dem_create_dem_seed.create_dem_seed_data(retcode,
    <p_start_no>,
    <p_num_entities>,<p_entity_type>);
end;
/
```

Parameters to be passed to this script:

p\_start\_no. - starting number of entities to be created (Already units from 100-199 are created)

p\_num\_entities - number of entities to be created

p\_entity\_type - 1 (UOM), 2 (CURRENCY), 3 (PRICE LIST), 0 (ALL)

## Collecting Price List Data

The Demand Management forecast considers historical demand and causal factors, such as seasonal demand variation, specific promotional events, and price list changes. The price list is dimensioned by item and by time.

Each time you download price list data, the price list data will be cut off at the current forecast horizon end date. As time rolls forward and the corresponding forecast end buckets roll forward, you will not be able to see pricing and revenue data for the new time buckets until you once again download price list data.

Therefore, Oracle recommends that you either:

- download price list data with each forecasting cycle, or
- if you would like to download price list data less frequently, extend the forecast horizon beyond the business standard.

### Example

For example, if the business standard forecast horizon is 12 months, extend the forecast

horizon to 15 months. Generate a forecast, then download price lists. The downloaded price list information will then be sufficient to cover the next three forecasting cycles (cycles 2 through 4). A second price list download will only be necessary after forecasting cycle 5.

Oracle also recommends that when you collect pricing data, set the "Date To" parameter to match the current end of the forecasting horizon so that you do not needlessly collect more data than can be downloaded into Oracle Demantra Demand Management.

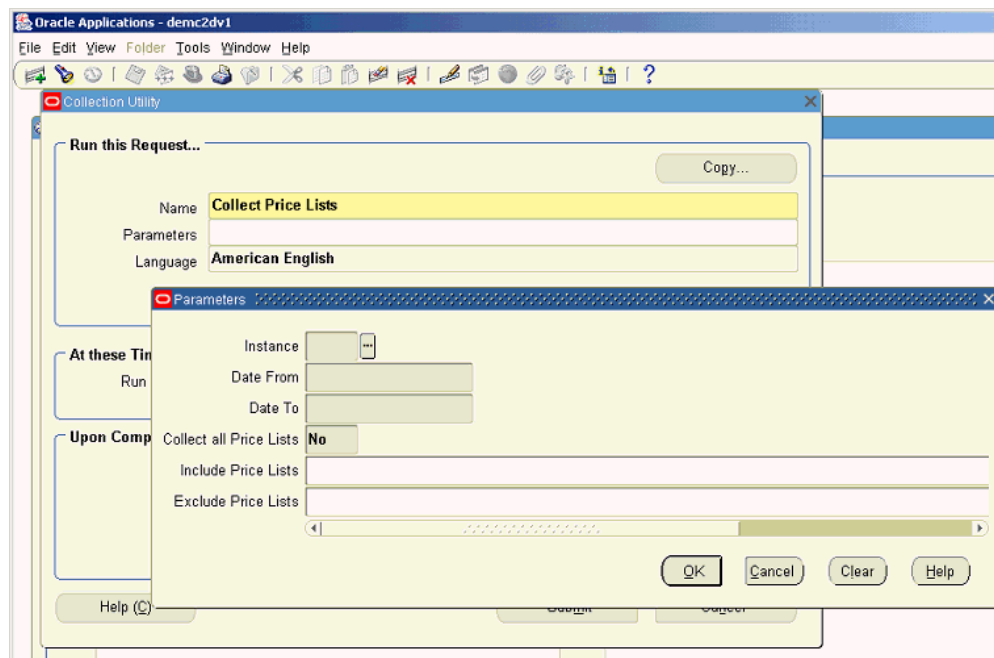
### To extend the forecasting horizon:

1. From the Business Modeler navigate Parameters > System Parameters > Engine > Lead.
2. Increase the value of 'Lead'.

### To run the price list conversion collections:

1. Navigate to the Collection Utility Collections > Oracle Systems > Price List

The Collections Utility window appears, with the Collect Price List Conversions program name appearing in the Name field.



2. Specify the Collect Price List program Parameters.

The collection parameters are:

- **Instance.** This is the instance code of the source instance, as defined in the Instances form.

- **Date From and Date To.** Used to specify a date range for the collection of Price Lists. These fields are mandatory.

- **Collect All Price Lists.**

Specifying 'Yes' collects price lists up to the number of seeded series available in Oracle Demantra. The program fails to execute if there are more than the default number of price lists.

Specifying 'No' enables entry of specific Price Lists that can be collected, in the 'Include Price Lists' field.

- **Include Price Lists.** Enter Price Lists to be collected, one after another, separated by a comma delimiter.
- **Exclude Price Lists.** To exclude certain Price Lists from being collected, specify the list of Price Lists that *are not* to be collected in the 'Exclude Price Lists' field. Enter Price Lists one after another, with a comma separated delimiter.
- Either 'Include Price Lists' or 'Exclude Price Lists' can be specified, but not both.

**Note:** The Administrator can run the following script to add more placeholder price lists to Oracle Demantra:

Name: 'Create Seed Entities in Demantra

Script:

```
declare
    retcode number;
begin
    msd_dem_create_dem_seed.create_dem_seed_data(retcode,
    <p_start_no>,
    <p_num_entities>,<p_entity_type>);
end;
/
```

Parameters to be passed to this script:

p\_start\_no. - starting number of entities to be created (Already units from 100-199 are created)

p\_num\_entities - number of entities to be created

p\_entity\_type - 1 (UOM), 2 (CURRENCY), 3 (PRICE LIST), 0 (ALL)

## Downloading Calendars

The E-Business Suite contains several types of calendars. Typical calendars include

Manufacturing, Gregorian, and Fiscal. These calendars may be changed in the source system. Such changes need to be reflected and synchronized in the Oracle Demantra system.

The Download Calendars concurrent program downloads collected manufacturing and fiscal calendars, in Advanced Supply Chain Planning collections, to Oracle Demantra. Shipment and Booking history collection automatically invokes this program if the Launch Download field is set to 'Yes'.

The following process to run this program manually can be used if there is a need to download calendars to Oracle Demantra without collecting history.

See Time Units, page 7-3.

### To download calendars:

1. Navigate to the Collection Utility user interface.

Collections > Oracle Systems > Download Calendars.

The Collection Utility window with the Download Calendars program name.

The screenshot shows the 'Collection Utility' window in the Oracle Applications environment. The window title is 'Oracle Applications - demc2dv1'. The menu bar includes File, Edit, View, Folder, Tools, Window, and Help. The toolbar contains various icons for file operations. The main area is divided into three sections: 'Run this Request...', 'At these Times...', and 'Upon Completion...'. In the 'Run this Request...' section, the 'Name' field is set to 'Download Calendars', 'Parameters' is empty, and 'Language' is set to 'American English'. There are buttons for 'Copy...', 'Language Settings...', and 'Debug Options'. In the 'At these Times...' section, 'Run the Job' is set to 'As Soon as Possible', and there is a 'Schedule...' button. In the 'Upon Completion...' section, the 'Save all Output Files' checkbox is checked, and there are fields for 'Layout', 'Notify', and 'Print to' (set to 'noprint'), along with an 'Options...' button. At the bottom, there are buttons for 'Help (C)', 'Submit', and 'Cancel'.

2. There are no program parameters. Click Submit.

The calendars specified in the Calendar List are downloaded. See Setting Up the Calendar List, page 14-58.

## Purging Data Before Import

Import Integration Profiles bring in forecasts such as manufacturing and sales forecasts, as well as data streams from Advanced Supply Chain Planning. For such data streams, setting the Purge Data Before Import profile option to 'Yes' causes the data in Oracle Demantra to be erased before importing the new version of the data stream. Thus the

desired behavior is:

**Example**

***Old Sales Forecast in Oracle Demantra***

Jan-07	Feb-07	Mar-07
500	600	700

***Collected Sales Forecast***

Feb-07	Mar-07	Apr-07
800	900	950

Run the Integration Import profile with the Purge Option set to 'Purge All Data.'

***New Sales Forecast in Oracle Demantra***

Jan-07	Feb-07	Mar-07	Apr-07
	800	900	950

In the example, the new sales forecast starts in February and not in January. Once the download takes place, Oracle Demantra shows a null value in January.

This contrasts with the following behavior, which is obtained by setting the 'Purge Data Before Import' integration profile option to 'No Purge'.

***Old Sales Forecast in Oracle Demantra***

Jan-07	Feb-07	Mar-07
500	600	700

**Collected Sales Forecast**

Feb-07	Mar-07	Apr-07
800	900	950

Run the Integration Import profile with the Purge Option set to 'No Purge.'

**New Sales Forecast in Oracle Demantra**

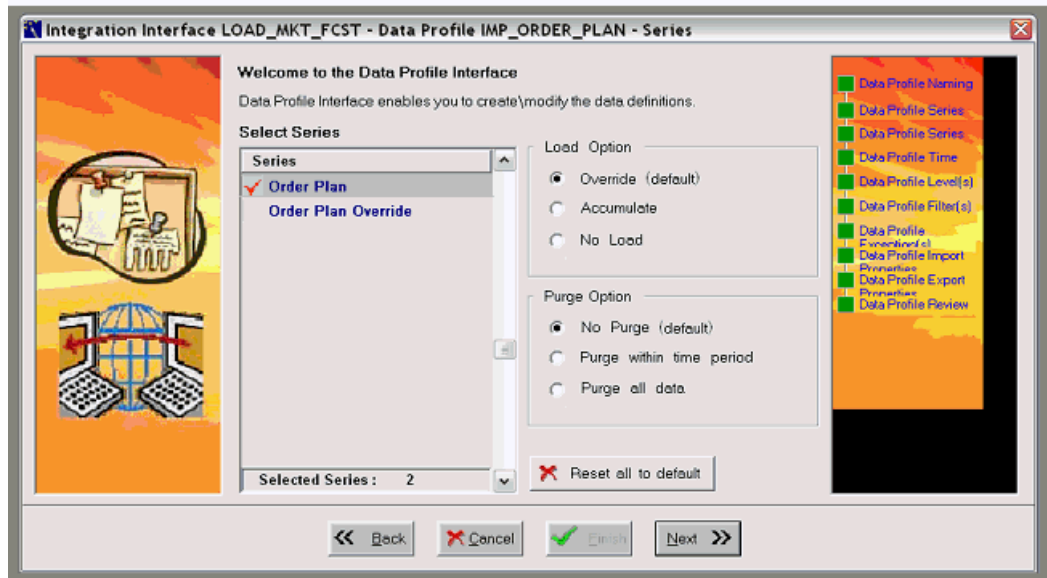
Jan-07	Feb-07	Mar-07	Apr-07
500	800	900	950

For more information about using the integration interface to set purge and load options for each series, see *Configure Series Load and Purge Options*, page 12-6.

## Configure Series Load and Purge Options

The Integration Interface provides the ability to set purge and load options for each series. This controls whether the import integration profile overrides, accumulates, or purges (nulls out) the data for the specified integration profile date range.

The location of the Purge Data Before Import profile option within the integration profile wizard, accessed from the Tools menu in the Business Modeler is shown:



**Selected Series:** This list box displays the selected series in the profile that were checked on the Data Profile Series page.

**Load Option:** The selected radio button indicates the load option for the series that is adjacent to the red check mark. The available load options are Override, Accumulate, or No Load. The default selection is Override.

**Purge Option:** The selected radio button indicates the purge option for the series that is adjacent to the red check mark. The default selection is No Purge.

**Reset All:** This button resets all series that appear in Selected Series list box to the default settings.

**Note:** To maintain backwards compatibility with old profiles, when upgrading:

- Set the Load Option to Override, and
- Set the Purge Option to No Purge.

#### Load Options

Setting	Description
Override	Override values on existing dates

Setting	Description
Accumulate	Add values from the profile data to the values on existing dates
No load	Don't load data

#### ***Purge Options***

Setting	Description
No purge	Do not purge
Purge within time period	Purge (null out) data within profile dates
Purge all data	Purge (null out ) all data on existing dates

#### ***Load and Purge Option Combinations***

Settings	Option Explanation	Results
Override, No Purge	Load data for series in the date range of the profile. Do not touch any other data.	<p>Override values on existing dates.</p> <p>Insert the dates and values that are in the profile data, but not in the system.</p> <p>Check that dates of the values are in date range of profile.</p>
Accumulate, No Purge	Load data for series in the date range of the profile. Do not touch any other data.	<p>Add the values from the profile data to the values on existing dates.</p> <p>Insert the dates and values that are not in the system.</p> <p>Check that dates of the values are in date range of profile.</p>
No Load, No Purge	Do nothing to this series	

Settings	Option Explanation	Results
Override, Purge within Time Period	Load data for series in the date range of the profile.	Override values on existing dates.
	Purge (null out) values for dates in the range of the profile that are not in the loading data.	Insert the dates and values that are in the profile data, but not in the system.  Check that dates of the values are in date range of profile.
Accumulate, Purge within Time Period	Load data for series in the date range of the profile.	Add the values from the profile data to the values on existing dates.
	Purge (null out) values for dates in the range of the profile that are not in the loading data.	Insert the dates and values that are not in the system.  Check that dates of the values are in date range of profile.
No Load, Purge within Time Period	Purge (null out) all values in the system within the time range of the profile.	
Override, Purge all data	Load data for series in the date range of the profile.	Override values on existing dates.
	Purge (null out) values for all dates that are not in the loading data.	Insert the dates and values that are in the profile data, but not in the system.  Check that dates of the values are in date range of profile.
Accumulate, Purge all data	Load data for series in the date range of the profile.	Add the values from the profile data to the values on existing dates.
	Purge (null out) values for all dates that are not in the loading data.	Insert the dates and values that are not in the system.  Check that dates of the values are in date range of profile
No Load, Purge all data	Purge (null out) all values for all dates in the system.	

## Download to Oracle Demantra

Collections and Download work together to move the newly collected series, level and reference data into the Oracle Demantra Tables. If the option to automatically launch download is not selected for Shipment and Booking History or non-history data has

been collected, EP\_LOAD and Import Integration Profiles are run to retrieve data from the staging area into Oracle Demantra Tables.

## EP\_LOAD

For members and history series, which are downloaded via the EP\_LOAD mechanism, the mode of update is:

- If there is a new member, it is added in Oracle Demantra.
- If a member has been deleted in the E-Business Suite source, it stays in Oracle Demantra along with all series data for combinations that include the member. The administrative user must manually delete the member in Oracle Demantra.
- Series data in the staging area overwrite the series data in Oracle Demantra, for the combinations that are represented in the staging area.
- Series data in Oracle Demantra for combinations that are not in the staging area are left unchanged.
- The staging area is erased after the download.
- All series data in Oracle Demantra, for all combinations, are set to null before the download actions take place.

## Import Integration Profile

For all other series, which are downloaded via the Import Integration Profile mechanism, the behavior is the same, except for those series loaded via import integration profiles with the Purge Option set to: Purge all data.

## Three EP\_LOAD Workflows

The Demand Management System Administrator executes the required download procedures, EP\_LOAD and Import Integration Profiles, from the Oracle Demantra Workflow Manager. There are a total of three EP\_LOAD workflows, one EP\_LOAD workflow for each of the following series:

- Item members
- Location members
- Shipment and Booking History

View according to Schema Groups:

EBS Workflows

New

Modify

Delete

Schema ID	Schema name	Owner	Creation Date	Last Modified	Instances	Status	Action			
631	<a href="#">EBS Full Download</a>	din	12/16/06	02/12/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
632	<a href="#">EBS Return History Download</a>	din	12/16/06	02/12/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
633	<a href="#">EBS Price List Download</a>	din	12/16/06	03/22/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
634	<a href="#">EBS Upload Local Forecast</a>	din	12/16/06	02/12/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
635	<a href="#">EBS Upload Global Zone Forecast</a>	din	12/16/06	02/12/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
636	<a href="#">EBS Upload Local Fcst, Demand Class</a>	din	12/16/06	02/19/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
637	<a href="#">EBS Upload Global Zone Fcst, Demand Class</a>	din	12/16/06	02/19/07	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>

[Process Log](#)

[New Schema](#)

[Refresh](#)

## Demand Management Functional Output

Export **Integration Profiles** upload forecast and other relevant data to Oracle Advanced Planning and Scheduling applications, or to a legacy planning system.

Oracle Demantra Demand Management functional outputs:

- Forecast and demand priority for Advanced Supply Chain Planning
- Forecast and forecast accuracy for Inventory Optimization
- Forecast for Strategic Network Optimization

There are four upload workflows:

- EBS Upload Local Forecast
- EBS Upload Global Zone Forecast
- EBS Upload Local Forecast, Demand Class
- EBS Upload Global Zone Forecast, Demand Class
  - The Upload Forecast workflow schema name: APPS is hard coded.

- The Global forecast is output at the "Customer/All Org" hierarchy level.
- Organizations may belong to multiple instances.
- Oracle Demantra calculates functional outputs for 26 weeks when the base time unit is 'Week', or for one year when the base time unit is 'Month'. See Setting and Modifying the Base Time Unit, page 7-5.

## Upload from Oracle Demantra

Oracle Demantra Demand Management provides the following redefined export integration profiles:

- EBS Upload Local Forecast
- EBS Upload Global Zone Forecast
- EBS Upload Local Forecast, Demand Class
- EBS Upload Global Zone Forecast, Demand Class

The profile parameters include:

- Horizon range and forecast output levels defined as part of integration profile
- Multiple data series tied to export integration profiles.

The data series internal names must follow the naming convention:

- Forecast: FCST\_
- Priority: PRTY\_
- Forecast accuracy MAPE: ACRY\_MAPE\_
- Forecast accuracy MAD: ACRY\_MAD\_(not Phase 1)
- Destination key: DKEY\_

User-created series that users want to expose to downstream applications, such as Oracle Inventory Optimization, Oracle Advanced Supply Chain Planning, and Oracle Strategic Network Optimization, need to respect the above naming conventions and need to be added to user-created export integration profiles.

**Note:** The Upload Forecast workflow schema name: APPS is hard

coded.

The following integration profiles are manually launched as part of a Workflow after the forecast is approved:

1. Local Forecast
  - Series: Final Forecast, Forecast Accuracy MAPE, Demand Priority
  - Output Levels: Item, Organization, Week
2. Global Zone Forecast
  - Series: Forecast, Forecast Accuracy MAPE, Demand Priority
  - Output Levels: Item, Zone, Week
3. Local Forecast with Demand Class
  - Series: Forecast, Forecast Accuracy MAPE, Demand Priority
  - Output Levels: Item, Organization, Week, Demand Class
4. Global Zone forecast with Demand Class
  - Series: Forecast, Forecast Accuracy MAPE, Demand Priority
  - Output Levels: Item, Zone, Week, Demand Class

## Upload Forecast

### Forecasting by Line of Business (LOB)

#### Import:

Existing APS and Oracle Demantra capabilities accommodate forecasting by line of business (LOB).

You can run Collections for a collections group. This restricts the uploaded forecast to the set of organizations that corresponds to a line of business.

You can download for a specific line of business by modifying the data security of the seeded import integration profiles. For data downloaded via EP\_LOAD, which does not have a mechanism to control data scope, a business process is provided to stagger the timing of collections for the different lines of business.

**Caution:** There is a risk that if multiple lines of business run collections very close in time to each other, a single EP\_LOAD run may pull in data from multiple lines of business.

See Line Of Business Configuration and Execution, page 14-53.

The Oracle Demantra forecasting engine will run forecasts only for combinations inside of a line of business by invoking the LOB process. Oracle provides user data security for LOB-specific access to data.

A predefined stored procedure called from the LOB Process workflow updates database column do\_forecast so that only combinations within the LOB are forecast and run the forecasting engine. The stored procedure also copies existing forecast numbers in the non line-of-business combinations into the new forecast version that is created by the running the forecast engine.

**Export:**

- Upload data for a line of business only by modifying the data security of seeded export integration profiles.
- An administrator user procedure creates export integration profiles with level value access filtered down to LOB scope.

See Creating a Data Export Profile.

## Forecast Tree

The forecast tree organizes data for use by the Analytical Engine. In general, forecasting is most accurate when it can be performed at the lowest possible allowed aggregation level. However, sometimes there is not enough data at that level for all combinations. For those combinations, the Analytical Engine aggregates the data to a higher level and tries to generate a forecast there. See Levels and the Forecast Tree.

- Forecast order for items:
  1. Item
  2. Category
- Forecast order for locations:
  1. Customer Zone
  2. Zone
  3. Organization

## Line Of Business Configuration and Execution

When an implementation includes multiple business units, the business units require the batch engine to be executed at different times. Since every batch engine run creates a new forecast for the entire population, this could cause issues if the batch engine runs concurrently for different lines of business. A tailored process supports generating forecasts at different intervals across different parts of the business.

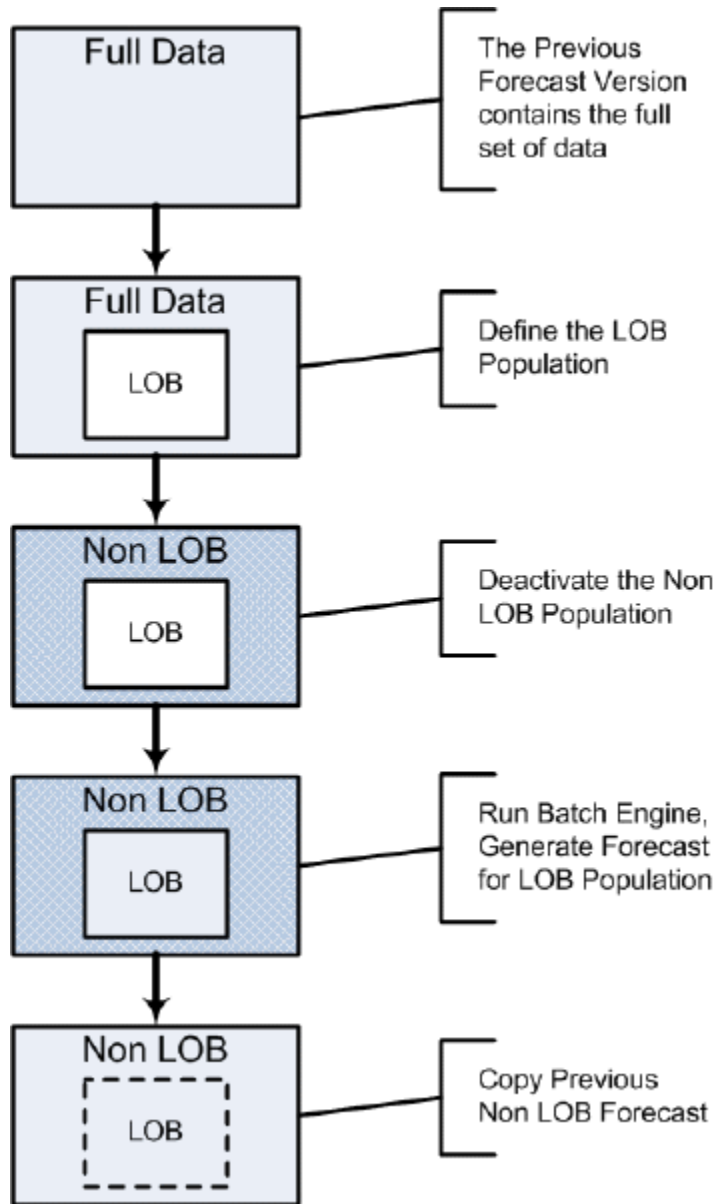
This process should be used when the following conditions apply:

- There is a need for two or more distinct forecast cycles.
- The populations requiring different forecast cycles are easily identifiable.
- The population can be defined either as a member, or as members of one aggregation level, such as Segment, Organization, or Brand.

**Important:** The LOB engine, while smaller than the batch engine, can still be resource intensive and should not be run when users are in the system. The LOB engine should be activated and scheduled during user downtime and when the simulation engine is not on.

## Line of Business Solution Engine Process

1. Define the population participating in the LOB batch run.
2. Exclude all other populations from LOB batch run.
3. Run the batch engine to generate a new forecast for the LOB population. Store the new forecast as a new forecast version.
4. Copy the previous forecast version to the new forecast version for the non LOB population



## Configuring LOB Population

You configure the LOB population by setting 2 parameters. The parameters are accessed through Business Modeler.

### To configure LOB population:

1. In Business Modeler, choose the Parameters Menu.
2. Choose System Parameters.

3. Select the Engine tab.
4. Choose the General sub-tab

**System Parameters**

Worksheet | System | Database | **Engine** | Application Server | Audit Trail

Engine Profile: Base [New] [Edit] [Delete]

**General** | Time | Outlier and Regchange | Validation | Data Manipulation | Adjustment | Shell | Proport

Name	Value	Default Value
DampPeriod	.00	0
DampStep	.00	0
EnableModifiedVariance	no	no
EnableParameterValidation	1.00	1
<b>Integration1LOBLevel</b>	<b>Organization</b>	<b>Organization</b>
Integration1LOBPopulation		
IntermitCriterion	40.00	99

**Description**  
Level on which LOB driven multi schedule engine runs are defined. Should contain level name on which LOB is conducted. Null will result in no subset engine run when LOB PROCESS workflow is called.

[Find] [Sort] [Filter] [Print] [Save] [Close]

## Configuring LOB Population Level

The aggregation level used to define the LOB is defined with the parameter Integration1LOBLevel. This parameter should be set to the level defining the LOB.

### Example

For example, the business has nine Item segments. Six segments require a monthly forecast cycle, while the remaining three require a weekly forecast cycle. The parameter would then be set to the name of the level segment. If a similar scenario occurred but the population is defined on Organization, State, or Region, then one of these levels would be configured in the parameter.

If several levels are applicable to make this distinction, Oracle recommends the most aggregate of these be used to ease configuration of the Integration1LOBPopulation parameter. See Configuring LOB Population Members, page 14-55.

For example: if LOB can be defined on 6000 Sites, or to 20 Customers or to 1 Customer Class, if the entire Customer Class is the population desired for LOB process choose Customer Class.

If the population cannot be wholly defined using one level it is recommended a level be added which can do this.

## Configuring LOB Population Members

For the level defined for parameter Integration1LOBLevel, members participating in the

LOB process must be defined. These are defined in parameter Integration1LOBPopulation. In this parameter you list the member IDs of all the members participating in the LOB run. The members must be separated by commas, but without a leading or trailing comma. The string is limited to 400 characters.

For example, three Customer Classes participate in LOB run. The IDs of the three Customer Classes must be used:

23,43,76

If 20 Customers need to participate in LOB run, the IDs of the 20 classes must be used:

25,28,32,2,34,36,38,43,125,322...and so on.

### Finding member ID values for use in LOB population definition:

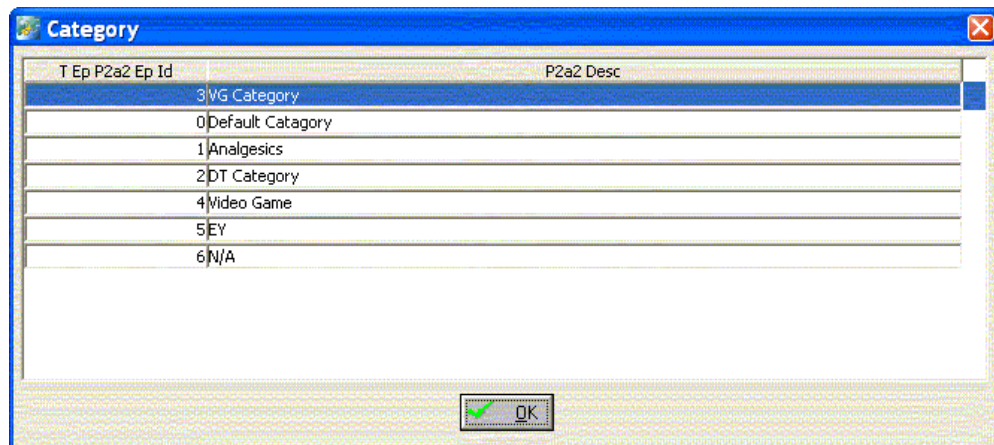
If the internal IDs of the members is not known, use this procedure to find them.

1. In Business Modeler, navigate: Configuration > Configure Levels.
2. Right click the levels for which the LOB will be defined. From the right-click menu, choose "Level Members."

The internal ID of the members and the member's description appear.

3. Locate the *members* desired for the LOB population, (not their internal IDs) and then use them to populate the parameter.

For example, the level for LOB is Category: If the LOB needs to be run on Analgesics, VG Category, and Video Game, then the Integration1LOBPopulation parameter would be set to "1,3,4".



## Executing the LOB Process Workflow

Execution of the LOB process is done by running a workflow called EBS Forecast Line of Business. The LOB Process workflow can either be executed manually or set to run at

a specific time.

### **EBS Forecast Line of Business workflow steps:**

1. Check whether the previous LOB Process had issues.
  - If issues are detected, terminate the EBS Forecast Line of Business workflow and notify the administrator. To reset, run the LOB Reset workflow.
  - If no issues are detected, deactivate all non-LOB populations.
2. Run the Batch engine.
3. For all non-LOB populations, copy the forecast from the previous forecast version.
4. Notify the administrator of LOB process completion.

## **Troubleshooting the EBS Forecast Line of Business Workflow**

If problems occur during the LOB Process, the *next* attempt to run the EBS Forecast Line of Business workflow will not proceed. Due to the LOB process deactivating the non-LOB combinations, it is not desired to have the next LOB Process begin without successfully completing the previous run.

To remedy this, run the LOB Reset workflow. This workflow computes whether combinations should be active, and resets deactivation of the non-LOB population. Since this may take some time on larger environments LOB Reset is not automatically run as part of the EBS Forecast Line of Business Process.

More information regarding the EBS Forecast Line of Business Process can be seen in the EBS Forecast Line of Business workflow and in the table `integration_lob_error`.

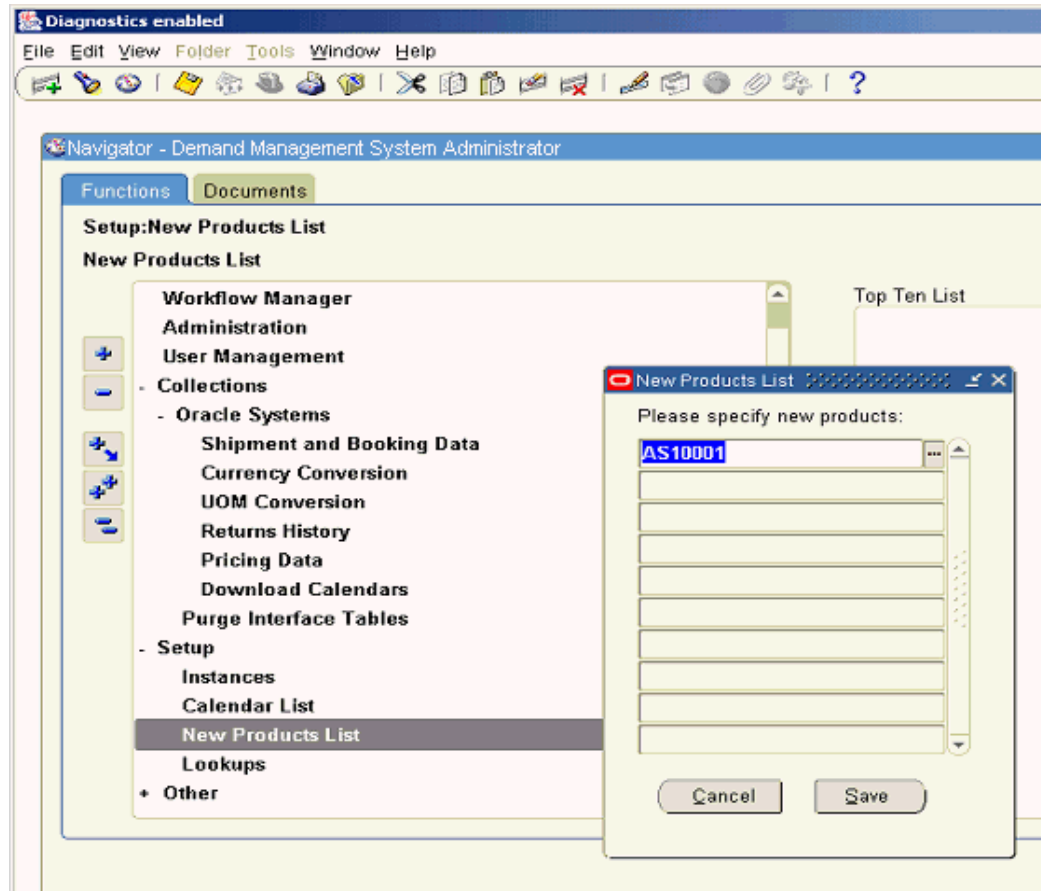
## **Setting Up the New Products List**

This setup specifies certain new items, for which there is no history data, that need to be downloaded into Oracle Demantra.

All items available in Advanced Supply Chain Planning Operational Data Store are displayed in the list of values. Items across multiple instances can be specified. Items that are downloaded into Oracle Demantra are not processed in subsequent collections.

Once a new item is added to the New Product list and downloaded, it remains in the list unless manually deleted. If a new item is downloaded into Oracle Demantra and then subsequently phased out, it remains in Oracle Demantra until manually deleted. If this item needs to be reintroduced in the future, delete the item from the item list in the New Products List user interface, and then add it back to the list. This ensures treatment as a new item that will be downloaded into Oracle Demantra.

**Note:** All Items added to the New Products list download into Oracle Demantra. No attribute checking occurs.



## Setting Up the Calendar List

This setup specifies which manufacturing and fiscal calendars need to be collected and downloaded into Oracle Demantra. A user interface accessed from the E-Business Suite Demand Management menu structure allows the Demand Management System Administrator to list the E-Business Suite calendars to be used for Demand Management analysis.

All calendars available in Advanced Supply Chain Planning Operational Data Store (ASCP ODS) display in the list of values. Calendars across multiple instances can be specified.

**Note:** If a calendar is removed from this list, it is not deleted from Oracle Demantra automatically. Subsequent collections will not collect and download that calendar.

**Example**

Take the following example of a Fiscal Calendar collected from the E-Business Suite source. Assume for this example that the Oracle Demantra base time unit is week, with each week starting on Monday.

***Vision Corporate Calendar***

		<b>Week</b>	<b>Start Monday</b>	<b>End Sunday</b>
Fiscal Quarter 2007-1	Fiscal Month 2007-1	1	1/1/2007	1/7/2007
		2	1/8/2007	1/14/2007
		3	1/15/2007	1/21/2007
		4	1/22/2007	1/28/2007
	Fiscal Month 2007-2	5	1/29/2007	2/4/2007
		6	2/5/2007	2/11/2007
		7	2/12/2007	2/18/2008
		8	2/19/2007	2/25/2007
	Fiscal Month 2007-3	9	2/26/2007	3/4/2007
		10	3/5/2007	3/11/2007
		11	3/12/2007	3/18/2007
		12	3/19/2007	3/25/2007
		13	3/26/2007	4/1/2007
Fiscal Quarter 2007-2	Fiscal Month 2007-4	14	4/2/2007	4/8/2007
		15	4/9/2007	4/15/2007

		<b>Week</b>	<b>Start Monday</b>	<b>End Sunday</b>
Fiscal Quarter 2007-3	Fiscal Month 2007-5	16	4/16/2007	4/22/2007
		17	4/23/2007	4/29/2007
		18	4/30/2007	5/6/2007
		19	5/7/2007	5/13/2007
		20	5/14/2007	5/20/2007
	Fiscal Month 2007-6	21	5/21/2007	5/27/2007
		22	5/28/2007	6/3/2007
		23	6/4/2007	6/10/2007
		24	6/11/2007	6/17/2007
		25	6/18/2007	6/24/2007
	Fiscal Month 2007-7	26	6/25/2007	7/1/2007
		27	7/2/2007	7/8/2007
		28	7/9/2007	7/15/2007
		29	7/16/2007	7/22/2007
		30	7/23/2007	7/29/2007
	Fiscal Month 2007-8	31	7/30/2007	8/5/2007
		32	8/6/2007	8/12/2007
		33	8/13/2007	8/19/2007

		<b>Week</b>	<b>Start Monday</b>	<b>End Sunday</b>
Fiscal Quarter 2007-4	Fiscal Month 2007-9	34	8/20/2007	8/26/2007
		35	8/27/2007	9/2/2007
		36	9/3/2007	9/9/2007
		37	9/10/2007	9/16/2007
		38	9/17/2007	9/23/2007
	Fiscal Month 2007-10	39	9/24/2007	9/30/2007
		40	10/1/2007	10/7/2007
		41	10/8/2007	10/14/2007
		42	10/15/2007	10/21/2007
		43	10/22/2007	10/28/2007
	Fiscal Month 2007-11	44	10/29/2007	11/4/2007
		45	11/5/2007	11/11/2007
		46	11/12/2007	11/18/2007
	Fiscal Month 2007-12	47	11/19/2007	11/25/2007
		48	11/26/2007	12/2/2007
		49	12/3/2007	12/9/2007
		50	12/10/2007	12/16/2007
		51	12/17/2007	12/23/2007

<b>Week</b>	<b>Start Monday</b>	<b>End Sunday</b>
52	12/24/2007	12/30/2007

Run the Create Calendar Hierarchy concurrent program with the calendar\_id parameter set as "Vision Corporate Calendar" to create the following levels and hierarchy:

- Week (existing level)
- > Fiscal Month (Vision Corporate Calendar) (new level)
- > Fiscal Quarter (Vision Corporate Calendar) (new level)
- > Fiscal Year (Vision Corporate Calendar) (new level)

The level members roll up to parent members (weeks to fiscal months, fiscal months to fiscal quarters, fiscal quarters to fiscal years) according to the calendar definition. The name of the generating calendar (Vision Corporate Calendar, in the above example) in the level names distinguish the newly created levels. In this way, Oracle Demantra accommodates analysis along multiple E-Business Suite calendars. See Setting and Modifying the Base Time Unit, page 7-5.

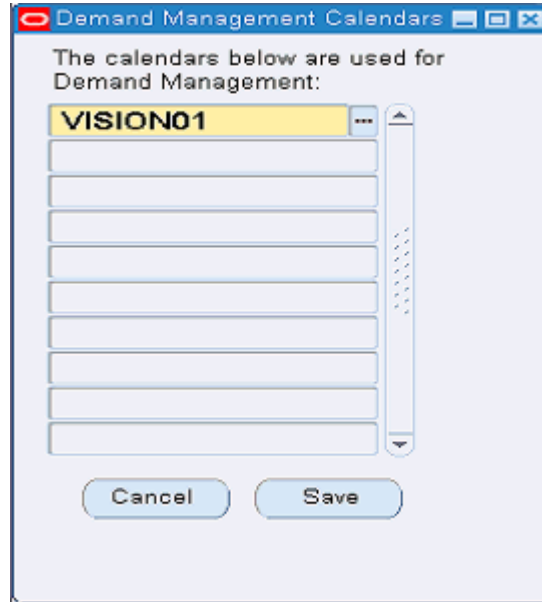
Calendars are always collected using Full Refresh of Shipment and Booking History Collections. Calendars can also be collected by launching Download Calendars from the menu. . In other words, all dates are collected. A check ensures the collected dates fall within the Oracle Demantra default dates. Only levels higher than the lowest model defined time aggregation are loaded. For example, when the base time unit is 'week', only month (period), quarter and year load. For a monthly system, only quarter and year load.

### **To set up the Calendar List:**

1. Navigate to the Demand Management Calendars user interface.

(Setup > Calendar List)

The Demand Management Calendars user interface appears.



This user interface validates that any calendar listed has a time bucket level that matches the Oracle Demantra base time unit. For all calendars defined in the Calendar List, a stored procedure, invoked via the Oracle Demantra Download Calendars workflow, creates corresponding time hierarchies in Oracle Demantra. If the time hierarchies do not already exist, the procedure adds them to the Demand Management component.

2. To add a calendar to the list, select an empty row.
3. Select a calendar from the drop-down list of values.
4. Click Save.

## Base Time Unit

The base time unit is used by the Demand Planner Data Model to aggregate the source data to the specified time bucket size. Allowed settings of the base time unit (time bucket size) are:

- day
- week
- Gregorian month

See Setting and Modifying the Base Time Unit, page 7-5.

## Creating a New Leaf Level

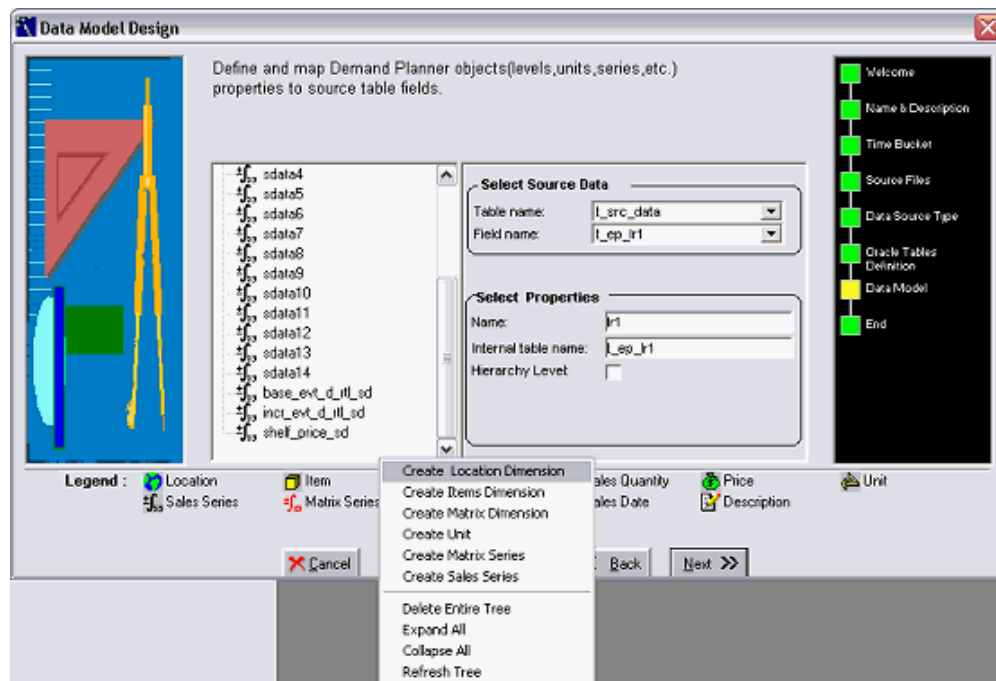
The Demand Management System Administrator can create a new leaf level for a hierarchy, such as adding a sales representative as a location new leaf level.

1. Navigate to the Open Data Model window.

Business Modeler > Data Model > Open Data Model

2. From the Open Data Model window, navigate to the Data Model Design window. In the left pane, with no node selected, select Create Location Dimension from the right-click menu.

The Data Model Design window appears.



3. Complete the table and field names that will hold level members.
4. Customize the collections code.
5. Run collections.
6. Rebuild the Oracle Demantra model. See Building the Data Model and Manipulating Existing Data Models.

## Creating a New Top Level

The Demand Management System Administrator can create a new top level for a hierarchy, such as creating a level for Product Line located above Product Family level.

### **To create a new top level:**

1. Navigate to the Configure Levels window.

Business Modeler > Configuration > Configure Levels

The Configure Levels window opens.

2. Select, and then right-click the current top level node. For example, select product category.

3. From the right-click menu, choose New level.

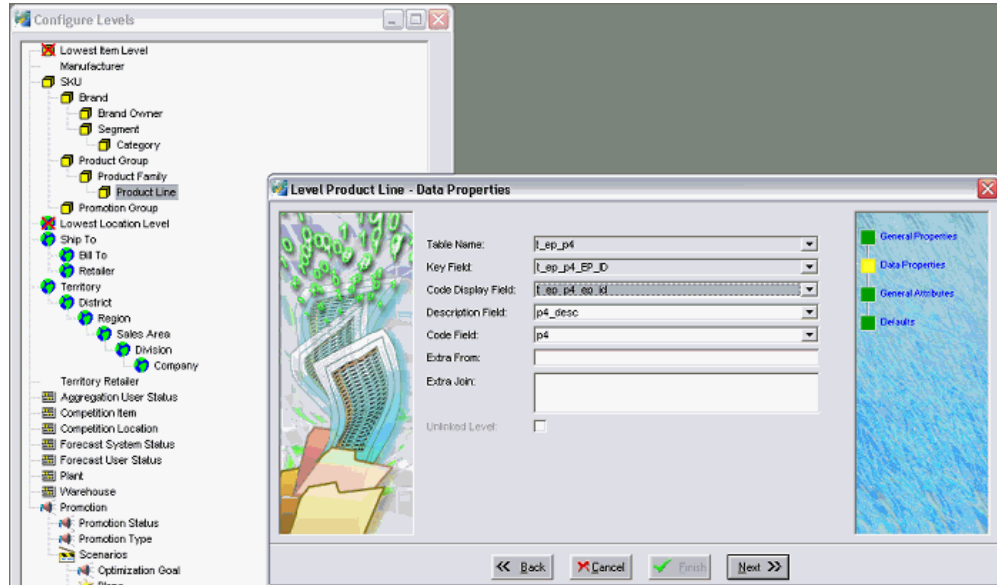
The General Properties window opens.

4. Complete the following General Properties:

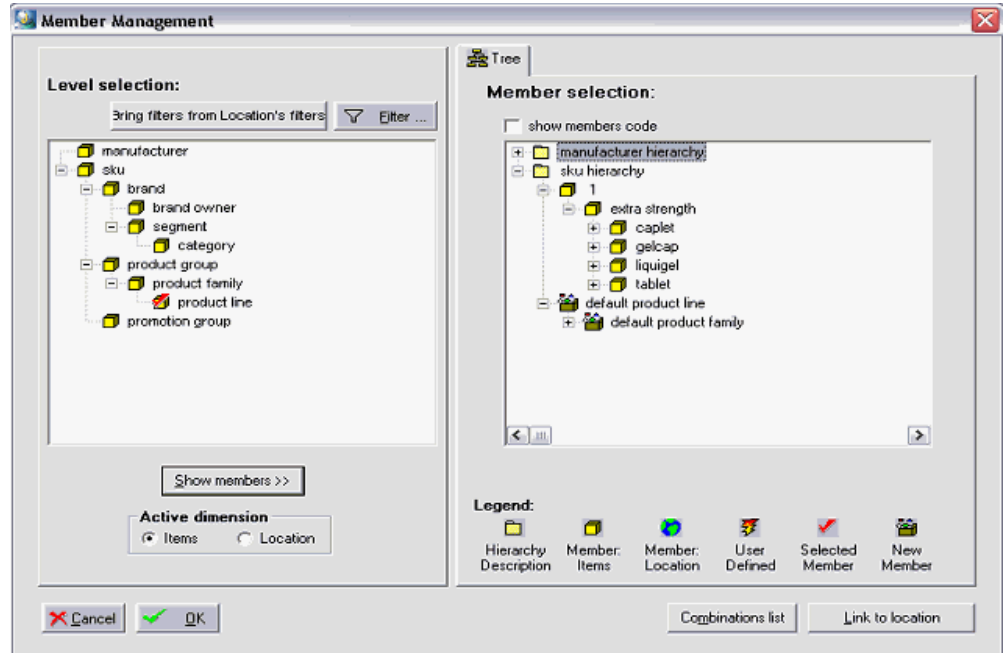
- Level Name, such as Super Category
- Type: Product Level
- Status: Enabled.

5. Click Next.

The Level <current node> Data Properties window opens.



6. Define the Table Name and Column that house members of the new level. You are selecting a field in the database table to house members of the new level.
7. Customize the collections code to populate the appropriate table and column with product line member data.
8. Click Next.
9. Run collections.
10. Next define level value associations of specific parent product lines to child product families. Navigate to Member Management.  
Demand Analyst > Tools > Member Management
11. Select the Product Line node.
12. Drag Product Families under the appropriate Product Lines.



13. Click Save.

**Note:** To Create a New Hierarchy on Top of an Existing Leaf Level, perform multiple iterations of the following procedure for Creating a New Top Level.

## Creating a New Intermediate Level

Configure Levels does not directly support the addition of intermediate levels. To accomplish the addition of an intermediate level, the process renames an existing level, and then add a new top level.

For example:

1. Existing level name: 'Category'
  2. Rename 'Category' as 'Subcategory'
  3. Create a new top level named 'Category'.
1. Navigate: Business Modeler > Configuration > Configure Levels  
The Configure Levels window opens.
  2. Select, and then right-click the current top level node.

3. Rename the current top level to the name of the new intermediate level.
4. Use the Creating a New Top Level procedure to add a new top level above the intermediate level.

## Deleting a Level

1. 1. Navigate: Business Modeler > Data Model > Open Data Model
2. Go to Data Model step
3. In the left hand pane, select the level to be deleted.
4. From the right-click menu, select Delete.
5. Rebuild the Oracle Demantra model – See Building the Data Model and Manipulating Existing Data Models.

## Approval and Upload Setup Process

During implementation, the Administrator configures the approval process by specifying a Reviewer/Business Owner who is responsible for final approval of the forecast. One Business Owner (Final Approver) has final approval responsibility for the forecast produced by their group of Analysts. Approval is accomplished by use of a Final Approval Series by User Group and by workflow notifications. The Demand Forecast Workflow manages the planning cycle and calls the Planning Group Workflow that is used in the notification process.

Oracle seeds a user group setup with dummy users. The Administrator edits this group to add the names of the Analysts whose forecasts need approval from the Final Approver. The Administrator also edits a seeded Planning Group Workflow to specify the ID of the Final Approver notified when the Analysts' forecasts are ready for review. The seeded workflow can be used as a template if additional group workflows are needed. The Time Property is set to send an alert after four days if any Analysts have not completed their review, and sends an alert and times out after five days if any Analysts still have not completed their review.

This workflow:

1. Notifies the Final Approver and Analysts that the Forecast is available
2. Polls the users to check whether they are 'Done'.
  1. After four days, if any Analysts are not done, a messages is set to the Final Approver.

2. After five days, if any Analysts are still not done, a message is again sent to the Final Approver, and the workflow times out. Processing returns to the calling workflow named: 'Demand Forecast'.
3. If all Analysts check 'Done.' before the time out occurs, the Final Approver is notified that the Analysts' forecasts are ready for review. Processing returns to the calling workflow named: 'Demand Forecast'.

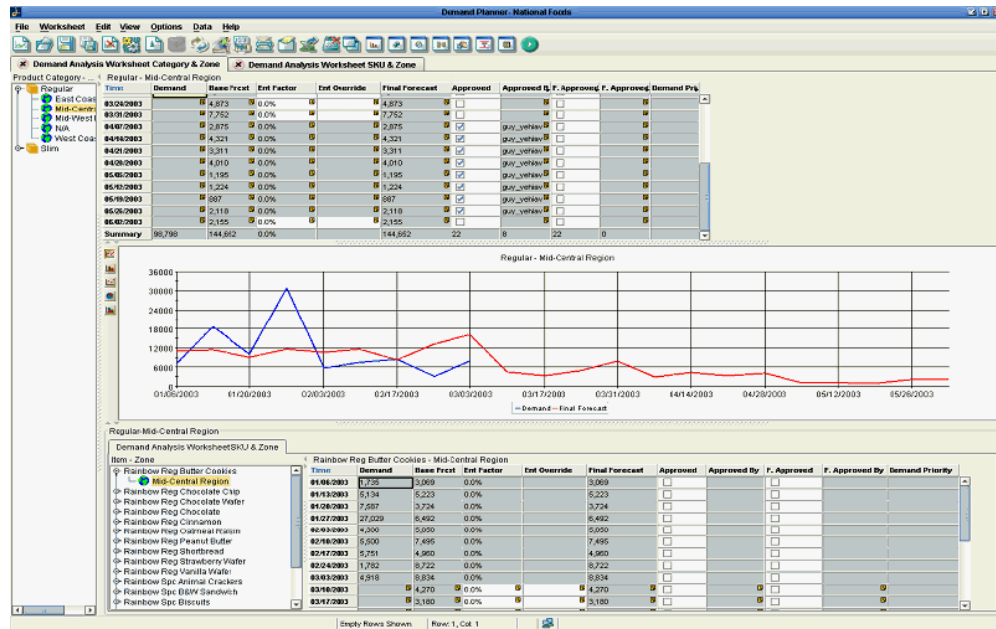
Analysts are notified when a forecast is available for review and modification. After their modifications are complete, they select 'Done' in their My Tasks notification. The Workflow polls the user's status, and then notifies the Final Approver when all Analysts are done. If one or more Analysts have not finished their approvals one day prior to the due date, a reminder is sent to the Analysts and Final Approver. On the due date, if any Analyst has not finished their approval process, an exception message is sent to the Final Approver and Analysts to the effect that one or more Analysts have not completed their forecast adjustments.

The Final Approver can lock the forecast by checking the F. Approve check box. After review, the Final Approver either approves or disapproves the forecast. If not approved, the Final Approver contacts the Analysts whose adjustments are in question. This step is not part of the Workflow. If approved, the Final Approval check box is checked and the forecast locked. A notification is sent to the Administrator and the Analysts to the effect that the forecast is available for upload. The Administrator uploads the forecast and other relevant data to the Planning Server.

1. After EP\_LOAD completes successfully, the Final Approval and Final Approve By series are set to null, the Forecast is run, and a notification is sent to the Analysts and Final Approver with a Due Date specified.
2. Analysts analyze the forecast, make modifications and, when finished, select 'Done' in MyTasks for the forecast available task.
3. The Workflow polls the status of all Analysts in the User Group. When all Analysts have completed their approvals, a notification is sent to the Final Approver.
  - If all Analysts have not completed their adjustments, on the day before the due date, a reminder message is sent to the Analysts and Final Approver.
  - On the due date, if any Analyst has not completed their approval process, an exception message stating: 'One or more Analysts have not completed their adjustments' is sent to the Final Approver.
4. The Final Approver can lock the forecast at any time by checking the 'Final Approval' column. After review, the Final Approver approves the forecast by selecting 'Done' in MyTasks for the forecast notification. For one level review:
  - If the Final Approver approves the forecast, a notification is sent to the Analysts

and to the Administrator to initiate the upload.

- If the Final Approver does not approve the forecast, s/he contacts the Analyst(s) whose adjustments are in question. This is not a Workflow step; it is a business process.
  - If the Administrator does not check the box in My Tasks within the specified time range, the Workflow times out.
5. When the notification from the Final Approver is received, the Administrator uploads the forecast and other relevant information, for example: Demand Priority, Forecast Accuracy.



## Profile Options

### Source Side Profiles

Profile Name	Description	Default Value
MSD_DEM: Master Org	This profile defines the Product Family to which an Item rolls up.	Set by the Administrator

Profile Name	Description	Default Value
MSD_DEM: Category Set Name	This profile defines the Item to Category rollups in each instance.	Inv.Items  See Note 1 following this table.
MSD_DEM: Conversion Type	This profile determines which currency conversion rates are collected from the General Ledger tables.	Corporate
MSD_DEM: Customer Attribute	This is a source profile option used to selectively bring the customer names into Demand Management to improve system performance.	Set by the Administrator

**Note 1:**

Set the MSD\_DEM: Category Set Name profile to a 'master level' category set. A master level category set does not allow multiple category roll up, such as an item rolling up to multiple categories within the same category set for the same organization.

## Destination Side Profiles

Profile Name	Description	Default Value
MSD_DEM: Currency Code	This profile designates the Demand Management base currency.	US Dollar
MSD_DEM: Two-Level Planning	This profile enables demand forecasts at the Product Family level on the basis of sales histories of member items.	Exclude family members with forecast control 'None'.  See Note 2 following this table.
MSD_DEM: Schema	Set this profile value to the database schema name where the Oracle Demantra schema has been installed.	DMTRA_TEMPLAT E
MSD_DEM: Data Profile for Price Lists	Set this profile to import integration data profile for price lists.	EBS Price List

Profile Name	Description	Default Value
MSD_DEM: Maximum seeded units available for price lists	This profile determines the number of slots available for price lists in Oracle Demantra.	30
MSD_DEM: Debug Mode	When set to 'Yes', this profile is used to print debug information to the output file of the concurrent request.	No
MSD_DEM: Host URL	Set this profile to the Oracle Demantra Application Server Host Name, Port Number and Application Name. This profile is used to invoke Oracle Demantra URLs from the E-Business Suite applications.	Set by the Administrator  See Note 3 following this table.

**Note 2:**

You can collect all the product family members and their sales histories regardless of the forecast control, as long as:

- The product family forecast control is 'Consume' or 'Consume & Derive', and
- The planning method for 'product family' and 'members' is *not* set to 'Not Planned'.

This is achieved by setting the profile value to: Collect all family members and their sales histories.

The MSD\_DEM: Two-Level Planning profile default value, Exclude family members with forecast control 'None' enforces the behavior that only 'Consume' or 'Consume & Derive' product family members are collected.

**Note 3:**

Use the format:

- http://<host name>:<port number>/<application name>, or
- http://<host IP address>:<port number>/<application name>

For example http://pc-anwroy-in:8090/Oracle Demantra

# Part 3

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## Basic Configuration



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## Getting Started with the Configuration Tools

This chapter introduces the primary tools you use to configure Demantra, namely, Business Modeler and Workflow Manager. For an introduction to Demantra concepts and an overview of the implementation process, see Part I, "Concepts and Tools".

This chapter covers the following topics:

- About Demantra Configuration Tools
- Illegal Characters in Demantra
- Desktop and Business Modeler Automatic Install
- Logging Onto the Business Modeler
- Refreshing the Data in the Business Modeler
- Working with Lists
- Configuring Parameters
- Making Changes Available to Users
- Quitting Business Modeler
- Quitting the Workflow Manager

### About Demantra Configuration Tools

In an implementation, you typically perform the following tasks.

Task	Tool used...	For details, see...
Define the basic levels and create a load script to load the data for them.*	Business Modeler	"Using the Data Model Wizard"

<b>Task</b>	<b>Tool used...</b>	<b>For details, see...</b>
Add more levels if needed.	Business Modeler	"Configuring Levels"
Define series and series groups.	Business Modeler	"Configuring Series and Series Groups"
Configure units of measure, financial indexes, and conversion rates for use in series and worksheets.	Business Modeler	"Configuring Units, Indexes, and Update-Lock Expressions"
Define integration.	Business Modeler	"Series and Level Integration"
Load supplementary data.	Business Modeler	"Importing Supplementary"
Create workflows.	Workflow Manager	"Creating Workflows"
Define methods.	Business Modeler	"Configuring Methods"
Define components to subdivide the data.	Business Modeler (In previous releases, you used a separate utility, the Business Application Modeler.)	"Creating or Modifying a Component"
Configure the engine: <ul style="list-style-type: none"> <li>• Set up causal factors.</li> <li>• Set up the forecast tree.</li> <li>• For Promotion Effectiveness: Configure the influence groups and influence ranges that affect how the engine works.</li> <li>• Tune the Analytical Engine.</li> </ul>	Business Modeler	"Configuring and Running the Analytical Engine"
Run the Analytical Engine and check the results.	Engine Administrator	

Task	Tool used...	For details, see...
Write database procedures to maintain data as needed.	Text editor	Outside the scope of this documentation
Create additional users for the components, as needed.	Business Modeler (In previous releases, you used a separate utility, the Security Manager.)	"Managing Security"
Create user groups for collaboration.		
Define security for menu options.	Collaborator Workbench Administrator	
Define worksheets.	Worksheet designer	Oracle Demantra Demand Management User's Guide
Optionally customize Collaborator Workbench.	Text editor, graphics editor	"Customizing Demantra Web Pages"
<p>* In some cases, you use database setup scripts instead of the Business Modeler. See the following chapters:</p> <ul style="list-style-type: none"> <li>• "Configuring Promotion Effectiveness"</li> <li>• "Configuring DSM"</li> <li>• "Configuring Promotion Optimization for PTP"</li> </ul>		

## Illegal Characters in Demantra

Within Demantra, do not use the following special characters:

- Single quote (')
- Double quote (")
- Ampersand (&)

If you use these characters, unexpected results may occur.

## Desktop and Business Modeler Automatic Install

When a user accesses the Power Builder Desktop and Business Modeler tools for the

first time, or when the version has changed, the Application Initiator installs or updates these tools automatically from a common location provided by the Demantra Application server.

This topic describes:

- Automatic (also called silent) install of the Power Builder Desktop (Desktop) and the Business Modeler
- Automatic login to the Desktop and the Business Modeler

## Automated Process

1. The User logs into the Collaborator Workbench, and then selects Business Modeler, Member Management, or Chaining Management from the Tools and Applications Menu.



2. The Application Initiator checks the user roll. If the user roll matches one of the following system rolls, then the process moves on to the next step.
  - **System Manager**
  - **Supervisor**

If the user roll does not match one of the listed system rolls, the user is notified with the message: "You don't have the correct permissions to execute this program." The process terminates.

3. The Application Initiator compares the Application Server Version with the version of the tools installed on the client. If needed, based on the user roll, the Application Initiator downloads and installs the appropriate files:
  - **System Manager**  
Desktop, Business Modeler, required DLL's, and Oracle Instant Client.
  - **Supervisor**  
Desktop, required DLL's, and Oracle Instant Client.
4. The Application Initiator stores the installed tools version in the client's

environment to be used again whenever needed for version validation.

5. Depending on the selection made in step 1, the Application Initiator executes the Desktop or Business Modeler with the URL to the application server:
  - Business Modeler. The Business Modeler application is started and the user is logged in automatically.
  - Member Management. The Desktop starts and the user is logged in automatically. The Member Management window opens.
  - Chaining Management. The Desktop starts and the user is logged in automatically. The Chaining Management window opens.

## Supported Platforms

Oracle Client environments on Windows 2000 Professional, Windows XP Pro, Windows Server 2000 (Standard and Enterprise) and Windows Server 2003 (Standard and Enterprise) are supported.

## Automatic or Silent Install Requirements

The automatic or silent install installs the following tools:

- Business Modeler and Supporting DLL's
- Desktop for Chaining and Members Management
- Security Management (for DS.INI and DLL's)
- Oracle 10g Instant Client
- Dependencies, such as DLL's and environment variables

All the above applications should be packed into an Install Anywhere package, and then placed on the server. The install package should reside in a folder called "tools" under the context of the Demantra Web-Application. This location should be accessible using a URL:

`http://{host}:{port}/{context}/tools/{installer-name}`

This URL should be used for the automatic install, and be available to users who need to install the tools manually.

## TNS Configuration

A TNS configuration is required for the proper function of web initiation of Desktop applications (Business Modeler, Chaining, Members Management). This configuration

involves creating an appropriate TNS entry in the TNSNAMES.ORA file. This file usually resides under the default HOME of an "oracle" installation folder (for example C:\oracle\ora9\network\ADMIN).

The new entry should be like (this is only a sample):

```
MY.SERVER.NAME =
(DESCRIPTION=(ADDRESS=( PROTOCOL=TCP ) ( HOST= MY.SERVER.NAME ) (
PORT=1234 ))
  ( CONNECT_DATA=
    ( SID=orcl10 )
  )
)
```

MY.SERVER.NAME should be the same as the value of the parameter "ServerName" in the "AppServer.properties" file, which resides under the installation of the web application virtual directory.

For example:

```
C:\Program Files\Oracle Demantra
Spectrum\V711\Collaborator\demantara\WEB-INF\classes\com\demantara\applica
tionServer\services\ AppServer.properties)
```

#### **Troubleshooting tip:**

If, after install, the desktop applications do not initiate when the menu items are selected, please add to the PATH parameter (My Computer -> properties (right click menu) -> Advanced (tab) -> Environment Variables -> PATH) the path to the folder where Oracle Demantra applications are installed (C:\Program Files\Oracle Demantra Spectrum\Desktop).

## **Logging Onto the Business Modeler**

### **Prerequisites**

- ☐ Before starting the Business Modeler, make sure that the database is running.

#### **To log onto the Business Modeler:**

1. On the Start menu, click Programs.
2. Click Demantra > Demantra Spectrum release > Business Modeler.  
A login window appears.
3. Enter your user name and password.
4. Click Login.

**Access to Business Modeler functions:**

Depending on your user name, you may not have access to all the functions of the Business Modeler.

## Refreshing the Data in the Business Modeler

**To refresh the display of data in the Business Modeler:**

1. Click the Refresh button in the tool bar. Or click File > Refresh.

## Working with Lists

Within the Business Modeler, you use screens that present two lists of elements, where you specify your selections. To make selections, you move elements from the left list to the right list.

**To move elements from one list to the other:**

1. To move a single element, double-click it. Or click it and drag it to the other list.
2. To move all elements, right-click and then choose Select All Rows. Then hold down the Shift key and drag from one list to the other.
3. To move several adjacent elements, click the first element, press Shift and click the last element. Then hold down the Shift key and drag from one list to the other.
4. To move several elements that are not adjacent, press Ctrl and click each element you want. Then hold down the Shift key and drag from one list to the other.

## Configuring Parameters

During the implementation process, you often have to set values for parameters. You use the Business Modeler to configure almost all parameters, and the changes are recorded in the audit trail.

See also: Non-Engine Parameters.

**To view and edit parameters in the Business Modeler:**

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."  
"
2. Click Parameters > System Parameters.

The System Parameters dialog box appears. This dialog box includes the following

tabs:

Tab	Typical parameters on this tab
Worksheet	Maximum number of members on which a user can work at the same time  Flag that switches on debug mode
System	Base time unit
Database	Database version  Initial sizes of tablespaces
Engine	Maximum number of forecasts that are kept  Parameters that control the proportion mechanism
Application Server	Date format  Server name

3. Find the parameter of interest. The dialog box provides find, sort, and filter capabilities to help you with this.
4. To change the value of the parameter, click the Value field for that parameter.
5. Type the new value or select an allowed value from the drop-down menu.
6. Click Save to save your changes.
7. Click Close.

See also

## Making Changes Available to Users

When you make changes in the Business Modeler, those changes are not necessarily available to users immediately.

### To make changes available to users:

1. Save your changes within Business Modeler. To do so, click File > Save.

2. Make sure that the changes are included in the components in which the users work. See "Creating or Modifying a Component" .
3. Load the changes into the system. How you do this depends on which user interfaces the users are working with:
  - For the Web-based products, stop and restart the Web server. Information on this is beyond the scope of the Oracle documentation.
  - For Demand Planner or Demand Replenisher, either restart the user interface or use the System menu to reload the configuration.
4. If you have created a new series, make sure this series is included in the appropriate worksheets. See the Oracle Demantra Demand Management User's Guide or other user guides.

**Note:** These steps are necessary when you make changes to series, levels, level attributes, units, indexes, level methods, integration interfaces, components, or users.

## Quitting Business Modeler

### To quit Business Modeler:

1. Click File > Exit. Or click the Exit button.

### Logging into the Workflow Manager:

1. Before logging onto the Workflow Manager, make sure that the database and the Web server are both running.

## Quitting the Workflow Manager

### To Quit the Workflow Manager:

1. Click Logout in the upper right of the screen.



---

## Database Tools

The Business Modeler provides a simple user interface for creating and modifying database tables that is useful during implementation.

This chapter covers the following topics:

- Creating a Table
- Modifying a Table
- Recompiling the Database Functions and Procedures
- Viewing the Procedure Error Log
- Wrapping Database Procedures
- Cleaning Up Temporary Tables
- Monitoring Oracle Sessions

### Creating a Table

**To create a table:**

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler".
2. Click Tools > Database > Create Table.
3. In the Table Name field, type a name for the new table.
4. In the Column Name field, enter the name of a column in the new table.
5. In the Column Type field, enter the column type (one of the standard data types supported by the database).
6. If the selected column type contains a string of characters, select a width in the

Width field.

7. In the Decimal field (if field is numeric), specify the number of positions that should appear after the decimal point.
8. In the Nulls field, specify whether this field is allowed to contain a null value.
9. If this field should be a primary key for this table, select the Primary Key check box.
10. When you have completed creating the field, click Add or press Tab to move to the next field. Repeat this process for any field you want to create for the table.

**Note:** To delete a field, select it and then click Delete. The field cannot be deleted after the table has been created.

11. When you have completed creating all the fields for the new table, click Create to create the table, and then click Close.

## Modifying a Table

### To modify a table:

1. Click Tools > Database > Alter Table.  
The Select Table dialog box appears
2. Double-click the name of the table you want to modify.  
The Alter Table dialog box appears. Here, each row displays information about a field (column) of the table.  
You can modify the white columns: Width; Dec (number of decimal points), and Primary Key.
3. To add a column, click Add and enter the required information, as described in "To create a table".
4. To save modifications to the table, click Alter.
5. To close the dialog box, click Close.

### To delete a column:

1. Select the column.
2. Click Delete.

**Note:** A column cannot be deleted if you have modified it.

## Recompiling the Database Functions and Procedures

### To recompile the database functions and procedures:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Tools > Recompile.  
The database procedures and functions compilation dialog box appears.
3. Click Compile to compile the SQL procedures.
4. (Optional) Click Show Error to view possible expression errors. Click Print to print the errors.
5. Click Close to close the dialog box.

## Viewing the Procedure Error Log

The procedure error log enables you to see error messages produced by procedures. For each error message, it displays the date and time of the message, the procedure name, and the text content of the message.

### To display the procedure error log:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Tools > Procedure Error Log.  
The Procedure Error Log screen appears. The most recent errors are displayed first.

### To display an error message:

1. Select an error from the procedure name and date list.  
The error message appears in the error message pane.

### To sort the list:

1. Right-click the list and then select Sort.

The sort screen appears.

2. To determine how the items will be sorted, click one or more required boxes in Columns Available for Sorting, and drag them to Sort Columns, or double-click the required boxes in Columns Available for Sorting.

To reverse this process drag a box in the opposite direction, or double-click a box in Sort Columns.

3. To specify an ascending sort order, make sure Ascending is checked. For a descending order, clear the box.
4. Click OK.

#### **To find an item in the list:**

1. Right-click the list and then select Find.
2. In the Find where box, select the type of element to find.
3. In the Find what box, type the text you want to find.
4. In the Search box, select Up or Down to specify the direction of the search.
5. (Optional) Select one or more of the check boxes:
  - Whole Word: Search for the exact match of a word.
  - Match Case: Search for the exact match of a word (case sensitive).
  - On Line Search: For immediate search results (even if only part of a word has been entered in the Find what box).
6. Click Find Next to begin (or continue) searching.

#### **To filter the list:**

1. Right-click the list and then select Filter.

The filter screen appears.

2. Select the required Column, Operator and Value.
3. (Optional) To add additional criteria, select the required Logical operator and click Add.
4. Click OK.

**To copy the error message to the clipboard:**

1. Click Copy.

**To clear (truncate) the list:**

1. Click Truncate.

A warning message appears.

**Caution:** The truncate action cannot be reversed.

2. Click Yes to confirm the action.

**To refresh the list from the database:**

1. Click Refresh.

**To close the Procedure Error Log screen:**

1. Click Close.

## Wrapping Database Procedures

So that you can more easily locate and resolve problems, the database procedures are provided in unwrapped form. When you go live, it is required that you wrap the procedures and compile them in wrap mode into the database.

**To wrap the database procedures:**

1. Search the Demantra installation directory for a file called wrap30.bat. The location depends on which database you are using.
2. Create a directory, for example, wrap.
3. Inside this folder, create two subdirectories called, for example, source and target.
4. Copy this file into the folder:
5. Copy the database procedures into the source folder.
6. From the command line, execute the following command:

`wrap30 source_dir target_dir`

For example: `wrap30 source target`

After the execution is finished, the wrapped file will be in the target folder.

7. In the database, replace the unwrapped procedures with the new wrapped ones.

## Cleaning Up Temporary Tables

Demantra provides an option for deleting its temporary tables.

### To clean up tables:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."  
"
2. Click Tools > Maintain > Tables Cleanup.  
The Tables Clean Up dialog box appears, listing the Demantra temporary tables.
3. Click the appropriate check boxes for the tables you want to delete, and then click Delete.

## Monitoring Oracle Sessions

The Oracle Sessions Monitor enables you to monitor Oracle sessions and their status.

**Note:** This applies only to Oracle. There is no equivalent feature for SQL Server.

### To monitor the Oracle sessions:

1. Log into the Business Modeler.
2. Click Tools > Oracle Sessions Monitor.  
The Oracle Sessions Monitor window appears.
3. Here, do any of the following:
  - To sort or filter sessions, right-click and then select the appropriate command from the pop-up menu.
  - To select all sessions, right-click and then click Select All.
  - To delete a session, right-click the session and then click Delete.
  - To terminate a session, select a session, and then click Kill a Session.

---

## Using the Data Model Wizard

This chapter describes how to use the Data Model Wizard.

This chapter covers the following topics:

- About the Data Model Wizard
- Before Using the Data Model Wizard
- Getting Started with the Data Model Wizard
- Describing the Staging Tables
- Specifying the Structure of the Staging Tables
- Joining Multiple Source Files or Tables
- Defining the Minimal Required Data Model
- Declaring the Sales Date
- Declaring the Sales Quantity
- Defining an Item Level and a Location Level
- Saving the Data Model
- Defining Additional Elements
- Declaring the Unit Price
- Defining a Unit of Measure
- Adding Higher Levels
- Adding Level Attributes
- Defining Other Values
- Impacts of Changing Levels, Series, and Units
- Navigating the Data Model
- Building the Data Model
- Loading the Data into the Data Model

- Manipulating Existing Data Models

## About the Data Model Wizard

The Data Model Wizard helps you perform the following related tasks:

- Describe the lowest item level and lowest location level in the system
- Specify which data fields to use as the sales date and quantity
- Specify the base time bucket in the system
- Define additional levels of type item, location, or combination
- Define series
- Define units of measure and other elements of the data model
- Create the EP\_LOAD\_MAIN procedure, which loads data into the data model from staging tables or from files, according to your choice.

**Note:** Some of these tasks can be performed elsewhere in the Business Modeler. The Data Model Wizard, however, is the only tool that lets you specify certain basics such as the sales date, and quantity, and base time bucket.

## Before Using the Data Model Wizard

Before you use the Data Model Wizard, be sure to do the following:

- Read the "Levels" Chapter and make sure you understand the basic data requirements of Demantra.
- Obtain some sample data for items, locations, and sales. Make sure that this data contains all the codes needed to define the desired item and location levels. This data can be in the form of either text files or database tables:
  - If you use text files, the files must be either comma-delimited or tab-delimited.
  - If you use database tables, create these tables before you start the wizard. These tables must be in the same database user as the Oracle database.
- Carefully plan the levels you will configure.

**Caution:** Because the Data Model Wizard automatically removes

any levels that are not defined within the wizard, you generally use the wizard only at the start of the implementation process.

In some cases, you use database setup scripts instead of the Business Modeler. See "Configuring Promotion Effectiveness", "Configuring DSM", and "Configuring Promotion Optimization for PTP".

## Getting Started with the Data Model Wizard

A new data model can be based on an existing template or on an empty template. Note that a data model cannot be converted into a template.

### To start to build the data model:

1. Click Data Model > New Data Model.

The Create Data Model/Template screen appears.

2. Click the Data Model or Template button radio button.

3. Click OK.

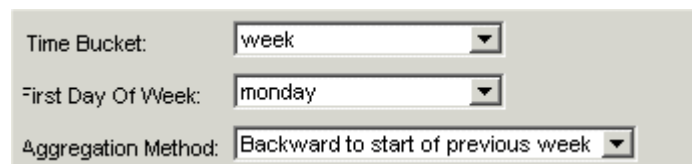
4. Click Next.

The wizard prompts you for basic information about this data model.

5. Specify a unique name and an optional description.

6. Click Next.

The wizard prompts you to specify the time unit for this data model.



The screenshot shows a configuration window with three rows of dropdown menus. The first row is labeled 'Time Bucket:' and has 'week' selected. The second row is labeled 'First Day Of Week:' and has 'monday' selected. The third row is labeled 'Aggregation Method:' and has 'Backward to start of previous week' selected.

Time Bucket:	week
First Day Of Week:	monday
Aggregation Method:	Backward to start of previous week

7. For Time Bucket, select one of the following base time units: Day, Week, or Month.
8. If you selected Weekly, fill in the other fields as follows:

---

First Day of Week	<p>Select the day of the week to use as the first day of any week. For example, if you select Monday, then all weekly data will be aggregated and displayed on the Monday of each week.</p> <p>(Monthly time units are always aggregated on the first day of the month).</p>
Aggregation Method	<p>Select how to aggregate data in time, either backward or forward. Oracle recommends that you select Backward to start of previous week, so that the data will be aggregated to the beginning of the previous week. For example, all the sales records of the week June 07 to June 13 will be aggregated to June 07.</p> <p>Monthly time units are always aggregated backwards to the first of every month. For example, sales for June will be aggregated to June 01.</p>

---

**Note:** The settings you choose here also apply to integration. See "Series and Level Integration". Note that the Data Model Wizard is the only place where you can specify these settings.

9. Click Next.

The wizard next prompts you for information about the source data. See "Describing the Staging Tables".

## Describing the Staging Tables

If your sources are text files, the Data Model Wizard helps you map them into staging tables. If your sources are database tables, your tables are the staging tables. In either case, the wizard helps you describe the contents of the staging tables so that you can build a model on them.

### To describe the staging tables:

1. In the Select Source Combination dialog box, you specify the number of source tables or files that you will use, as follows:

Single Table	Contains sales, items, and locations in a single file.
Two Tables	Contains sales and locations in the first file and items in the second file.
Three Tables	Contains sales, locations, and items in three separate files.

2. Click Next.

The Data Model Wizard now displays the Tables or Text Files as Sources dialog box.

3. Specify whether the source data is in tables or text files:

Oracle Tables	Click if the data is in database tables.
Text Files	Click if the data is in text files.

4. Click Next.

5. The next step depends on whether the data is in the database or in text files:

- If the source data is in the database, the wizard now displays the Choose User Defined Source Tables dialog box. This dialog box varies, depending on the number of source tables you specified. The tables shown in dropdown lists depend on what you have previously loaded into the Demantra database.

Sales file definition:	src_rainbow_sales
Location file definition:	src_rainbow_loc
Item file definition:	src_rainbow_item

For example, if your source is in three tables, fill in the fields as follows and then click Next:

Sales file definition	Select the file where the sales history data is stored.
-----------------------	---

Location file definition	Select the file where the location data is stored.
Item file name	Select the table where the item data is stored.

- If the source data is in files, the wizard now prompts you for information about the format of those files, and how to map the data into database staging tables. See "Specifying the Structure of the Staging Tables".
6. The next step depends on whether you specified multiple sources:
- If you specified multiple tables or files, you must specify how to join them. See "Joining Multiple Source Files or Tables".
  - If you specified only a single table or file, you are ready to define the data model. See "Defining the Minimal Required Data Model".

## Specifying the Structure of the Staging Tables

If you specified two or three tables or files, the wizard displays the Text File dialog box. Here, you describe each text file you are going to import, as well as the staging table that corresponds to that file. If you are using multiple source files, the wizard prompts you for information for each one, in a specific order.

### To specify the structure of the staging tables:

1. Read the title bar of the dialog box to make sure you know which data you are mapping. For example, if the wizard is expecting item data, the title includes "item."
2. In the upper part of the dialog box, describe the source file that you are using for this data, as follows:

File Directory	The location of the files.
Log Path	Path and filename of the log file that will store any load errors.
Delimiter Type	Select the delimiter type from the dropdown box.

---

Date Format	Select the date format from the dropdown box. If this source file does not contain dates, this is optional.
File Name Format	Select more than one file through the use of a wildcard (*). For example, dcl_his*. * selects every file with the prefix dcl_his.
Load Option	Insert is the only option currently available.
Column Delimiter	Select the character used in this source file to delimit fields.
No of lines to skip from begin	If there is a header, this gives the number of lines to miss at the top of the table.

---

3. In the lower part of the screen, define the table structure of the table you are defining in the staging area. To add a new entry to this information, right-click and then click Add. Fill in the details of the table structure as follows:

---

Name	Field name
Type	Data type for this field; specify one of the data types supported by the database.
Width	Maximum width of field
Dec	Decimal point
Default	The default value of the field if it is null in the source data.
Null	Click yes to allow field value to be null.
From Position	Use if Fixed was selected as the Delimiter Type. This is the position in the source text file where the field starts.
To Position	Use if Fixed was selected as the Delimiter Type. This is the position in the source text file where the field ends.

---

Const	Constant column width. If selected, the From Position and To Position fields are disabled for editing.
-------	--

4. When you are done describing this source file and its corresponding staging table, click Next. If you are using multiple source files, Business Modeler displays a similar dialog box where you specify the next source file.
5. The next step depends on whether you specified multiple sources:
  - If you specified multiple tables or files, you must specify how to join them. See "Joining Multiple Source Files or Tables".
  - If you specified only a single table or file, you are ready to define the data model. See "Defining the Minimal Required Data Model".

**Note:** This dialog box provides the following additional options:

- The Create Load Batch button creates a batch file that will load the table. This button is only present in certain installations of the Business Modeler.
- The Table Syntax button displays the SQL syntax used by the database and the Business Modeler to create the table in the staging area. Only experienced consultants should use this feature.
- If you are using an Oracle database, Demantra uses the SQL\*Loader tool (from Oracle) to load data. The Click CTL Syntax button displays the control file used by SQL\*Loader. Only experienced consultants should use this feature.

## Joining Multiple Source Files or Tables

If you specified two or three tables or files, the wizard displays the Join Sources dialog box. By defining the joins, you implicitly specify the primary keys in the data.

### To join the source data:

1. For the first table or file to be joined, drag a field name from that table or file (on the left) to a blank space in the empty join structure on the right.
2. For the other field or file to be joined, drag a field name from the other table or file

(on the left) to the remaining blank space in the join structure.

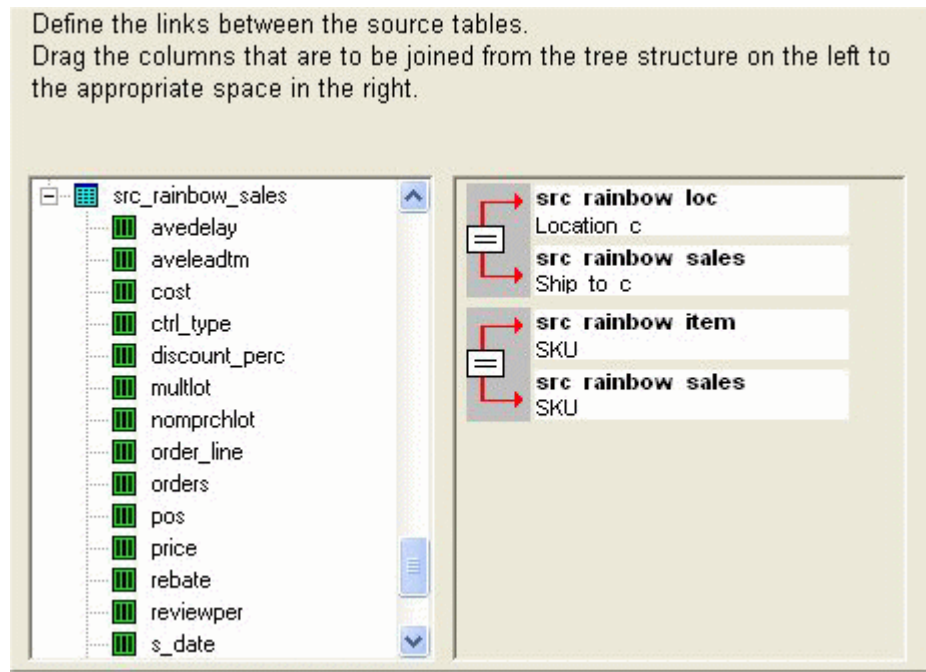
3. If you specified three tables or files as the source, you must create an additional join. To do so, right-click the right side of the dialog box and click New.

A new, empty join appears in the right side.

In the same way that you defined the previous join, create a join between the sales table and the remaining, unjoined table.

**Note:** While you are defining these joins, it may be helpful to toggle between the table descriptions and the table names. To do so, click the toggle button Show Table Description or Show Table Name.

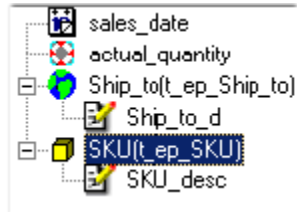
The result might look like this:



4. Click Next. The wizard now helps you define the data model. See "Defining the Minimal Required Data Model".

## Defining the Minimal Required Data Model

This section describes how to define enough of the data model so that you can save it for future work. Here you will declare the sales date and actual quantity, and you will define an item level and a location level; you can define these four things in any order. The following shows an example.



In this stage, you specify how to use the fields in the staging tables, generally using each field in a level definition or in a series definition.

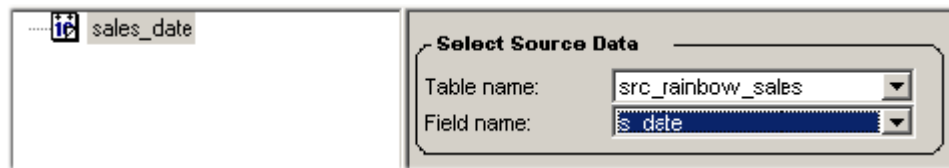
**Note:** Demantra imports only the fields that you specify how to use.

## Declaring the Sales Date

### To declare the sales date:

1. In the left box, right-click and then click Create Sales Date.
2. Select the table and field that contains the sales date for any given sale.

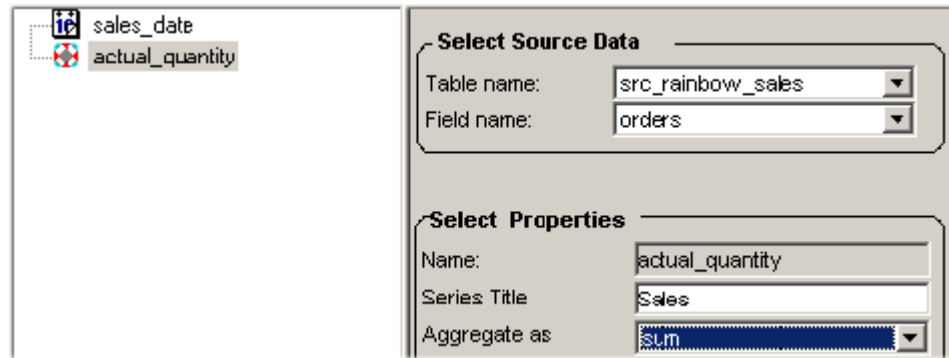
For example, in `src_rainbow_sales`, the `s_date` field might contain the sales date for each sales record.



## Declaring the Sales Quantity

### To declare the sales quantity:

1. In the left box, right-click and then click Create Sales Quantity.
2. Select the table and field that contains the item quantity for any given sale. For example, in `src_rainbow_sales`, the `orders` field might contain the sales quantity for each sales record.
3. In Series Title, specify a user-friendly name for this series.
4. For Aggregate as, select the function to use when aggregating multiple records.

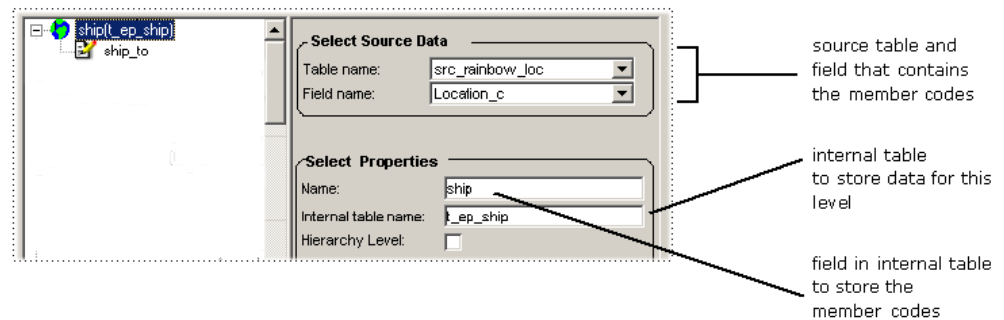


## Defining an Item Level and a Location Level

The data model must include at least one item level and one location level. The first levels you define should be at the lowest desired level of aggregation. The lowest item level usually corresponds to specific SKUs, and the lowest location level usually corresponds to specific stores or ship-to locations.

### To define an item or location level:

1. In the left box, right-click and then click Create Location Dimension or Create Item Dimension.
2. Then specify the level as follows:



1. In the Table Name field, click a source table from the dropdown list.
2. In the Field Name field, click the field within that source table that stores the unique codes that distinguish the members of this level.
3. In the Name field (in the Select Properties area), type a unique name of this level, for internal use.

Demantra automatically uses this as the basis for the Internal table name, which is the table in which Demantra will store information for each member of this

level. Within this table, the member codes will be stored in a field whose name is the Name that you specified.

3. In the left box, right-click the level and then click Create Description.
4. Specify the level description as follows:

The screenshot shows the 'Data Model Wizard' interface. On the left, a tree view shows a level named 'ship\_to'. The main panel is divided into two sections: 'Select Source Data' and 'Select Properties'. In 'Select Source Data', 'Table name' is set to 'src\_rainbow\_lbc' and 'Field name' is set to 'Location\_d'. In 'Select Properties', 'Name' is 'ship\_to', 'Level Title' is 'Ship to', 'Enable Level' is set to 'Enabled', and the checkbox 'Use autogenerated ID as a code for filter' is unchecked. Annotations with arrows point to these fields: 'Table name' and 'Field name' are grouped by one annotation as 'source table and field that contains the member descriptions'; 'Name' is annotated as 'field in internal table to store the member descriptions'; and 'Level Title' is annotated as 'user-friendly level name'.

1. For Table Name, select the same table.
2. In Field Name, select the field that stores the descriptions of the members of this level.  
  
If the source data does not include a specific field that you can use as the member descriptions, then just use the field that stores the member identifiers.
3. In Level Title, type the name of this level, as it should be shown in the user interfaces.
4. In Enabled Level, specify whether you want the level to be disabled. If the level is disabled, it is effectively removed from the data model. However, it can be reactivated if required later.
5. To use the internal, autogenerated ID as the code display field, click the check box Use auto generated ID as code for filter. Otherwise, Demantra uses the code field as the code display field.au

## Saving the Data Model

After defining the minimum required data model, you can save all the work that you have done within the Data Model Wizard. You can return and continue work later.

### To save the data model:

1. Click Save.
2. To exit the Data Model Wizard now, click OK. You can return later and continue your work.

## Defining Additional Elements

This section describes how to define additional elements of the data model.

### Declaring the Unit Price

The price per item is generally different at different locations and over time.

#### To declare the unit price:

1. In the left box, right-click and then click Create Item Price.
2. For Table Name and Field name, select the table and field that contains the unit price for an item, at a given location and time. For example, in `src_rainbow_sales`, the `orders` field might contain the sales quantity for each sales record.
3. For Unit Title, optionally modify the title, whose default is Price.
4. For Aggregate as, select the function to use when aggregating the price of multiple items.
5. If you selected `wavg` (weighted average), then specify a weight to use. For Dependent Field, select a field within the same table that Demantra should use as the weights.

The screenshot shows a software interface with two panels. The left panel displays a tree view with three items: 'sales\_date' (with a calendar icon), 'actual\_quantity' (with a bar chart icon), and 'item\_price' (with a price tag icon). The right panel is divided into two sections. The top section, titled 'Select Source Data', contains two dropdown menus: 'Table name:' set to 'src\_rainbow\_sales' and 'Field name:' set to 'price'. The bottom section, titled 'Select Properties', contains four fields: 'Name:' set to 'item\_price', 'Unit Title' set to 'Price', 'Aggregate as' set to 'wavg' (with a dropdown arrow), and 'Dependant Field' set to 'orders' (with a dropdown arrow).

### Defining a Unit of Measure

When you define a unit, you specify a set of conversion factors for that unit. The conversion factors can be different for different items.

**Note:** There must be a one-to-one relationship between the unit values

and the members in the level where the unit is configured.

### To define a unit:

1. In the left box, right-click and then click Create Unit.
2. For Table Name and Field name, select the table and field that contains the conversion factor for this unit, for each item. For example, in `src_rainbow_item`, the `pallet` field might contain the conversion factor for each item.

The conversion factor for a unit X should give the number of Xs per base unit. For example, for a given SKU if a pallet consists of 100 items, then `src_rainbow_item.pallet` should be 0.01 for that SKU.

3. For Aggregate as, select the function to use when aggregating the unit count of multiple sales. You usually use Sum.

The screenshot shows a software interface for defining a unit. On the left, a tree view contains the following items: `sales_date` (with a calendar icon), `actual_quantity` (with a box plot icon), `item_price` (with a coin icon), and `Pallet` (with a pallet icon). On the right, a dialog box titled 'Create Unit' is open. It has two main sections. The first section, 'Select Source Data', contains two dropdown menus: 'Table name' is set to 'src\_rainbow\_item' and 'Field name' is set to 'pallet'. The second section, 'Select Properties', contains three text boxes and one dropdown menu: 'Name' is 'Pallet', 'Unit Title' is 'Pallet', and 'Aggregate as' is set to 'sum' in a dropdown menu.

See also

"Configuring Units"

## Adding Higher Levels

**Note:** As you define levels, it is important to consider what sort of forecast tree you will need, as described in "Configuring the Forecast Tree"

### To create a higher level:

1. Right-click the level to which you want to add a higher level. Note that any level can have multiple parent levels.
2. Click Create Relation.

3. Specify the following items:

---

Table Name	Select a source table from the dropdown list
Field Name	Select the field within that source table that stores the unique identifiers for members of this level.
Name	Specify a unique name of this level, for internal use.

---

As before, Demantra automatically creates a name for the internal table associated with this level.

4. Create a description for this dimension.

See also

"Creating a Level"

## Adding Level Attributes

You can store additional level-specific information as attributes. Any number of attributes can be added to a level. Each attribute name must be unique within a given level. To view attributes of a member, the user can right-click the member within the Members Browser of a worksheet or in the Collaborator Workbench.

**To create level attributes:**

1. In the left box, right-click a level and select Create Attributes.
2. Complete the fields as follows:

---

Table name	Table in which attribute data is stored. This should be the source table for this level.
Field name	Field in table that stores this attribute.
Name	Unique internal name for this attribute.
Attribute Title	User-friendly name for this attribute.

---

See also

## Defining Other Values

A value can be a causal factor or a data series.

### To define a value:

1. In the left box, right-click and then click Create Value.
2. Select the value item, and then give the value a field name, a name, and a series title.

## Impacts of Changing Levels, Series, and Units

This section describes the impact of adding, removing, or modifying levels, series, and units.

For more information about building or updating a model, see *Building the Data Model*, page 17-22.

## Adding a Level

Consultants can add a 'Parentless' level only, in other words, they can add a parent level to an existing level or new branch only. Adding mid-tier levels is not an explicitly supported scenario. Levels can be renamed accordingly to reflect the insertion of a new level between existing levels. See "Creating a New Intermediate Level".

When a new level is created, the upgrade process:

- Creates default methods for this level including New, Edit, Delete, View
- Add this level to loading procedures
- Adds a line to the upgrade log file: 'Level XXX added to model'.

For more information about upgrading a model by adding parent levels, see *Creating a New Top Level*, page 14-65.

## Removing a Level

When a level is removed, any parent levels are also removed. The upgrade script:

- Adds a line to the upgrade log file: 'Level XXX removed from model'
- Regarding series on a removed level:

- If the upgrade mechanism leaves the series in the model, in other words, the series is not deleted, the series is listed in the log file as needing reconfiguration. The upgrade log states:

```
Series YYY refers to level XXX. Please reconfigure.
```

This message appears after and indented from the 'Level XXX removed from model' message.

All worksheets, workflows, integration profiles, and methods referring to this series on the removed level remain intact. Any worksheet that refers to this series will open with all other data intact. The series on the removed level shows no data.
- If the current upgrade mechanism deletes this series, the upgrade log states:

```
Series YYY referred to level XXX and was deleted.
```

This message appears after and indented from the 'Level XXX removed from model' message. References to this series on the removed level are deleted for all worksheets, workflows, integration profiles, and methods that refer to the series.
- All worksheets, workflows, integration profiles, user-created methods, 'Open With' and Embedded worksheets that contain this level remain intact. Users may need to manually reconfigure these objects. For example, a worksheet may need to refer to a different level. Worksheets open for editing purposes.

The level reference is replaced by the child level. For example, if we have an Item > Brand hierarchy and remove the Brand level, worksheet references to 'Brand' are replaced with references to the 'Item' level. The upgrade log lists all objects affected by removing this level.
- Log entries:**

```
Worksheet ZZZ referred to level XXX. It now refers to child level  
YYY.  
Please reconfigure as necessary.  
  
Integration interface ZZZ referred to level XXX. It now refers to  
child level YYY.  
Please reconfigure as necessary.
```
- All methods on this level are deleted, including default methods such as 'New' and 'Edit', and user-created methods. Any underlying workflows referenced in these methods are not deleted.
- Level table:**

  - If the upgrade mechanism deletes the table for the level, the Upgrade log states:

```
Table XXX for level YYY has been deleted.
```

- If the current upgrade mechanism does not delete the table for the level, the Upgrade log states:

```
Table XXX for level YYY has not been deleted. Please delete manually if not required.
```

- If the level was referenced in the forecast tree, a user warning appears in the Upgrade log file at the end of the upgrade:

```
Level XXX was referenced in the forecast tree. Please reconfigure forecast tree.
```

User security references to that level are removed and logged:

```
User/Group XXX reference to level YYY has been removed.
```

## Modifying a Level

When a level is modified, the upgrade script:

- When adding an attribute – loading scripts are updated to include the new attribute. An attribute column is added to the level table. The consultant or user is responsible for manually modifying the source table to include the attribute column and values.
- When Deleting an attribute – loading scripts are updated to remove this attribute. An attribute column is deleted from the level table.
- Table references – specify what source column the level pulls data from. This has no impact on the existing model. The loading scripts are updated to reflect the new source column.

## Adding a Series

All series that need to be part of the loading mechanism must be defined in the data model first in order to be reflected in the loading scripts. They can then be configured more fully by the consultant or user in 'Configure Series.'

Consultants can add a series to the data model. The series should be added to the loading procedure and related internal tables (sales\_data, or mdp\_matrix).

## Removing a Series

The upgrade process does not remove an existing series from tables, for example, the computed\_fields, table. Upgrade only removes the series from the data model, and then removes the series from the loading procedure. Therefore, removing a series will not invalidate objects because the series is still present. However, no data will be loaded to the removed series, so it becomes meaningless over time. Removing a series from the data model accomplishes the following:

- Add a message to the upgrade log:

```
Series XXX was removed from model. Please delete this series from
the series list using the 'Configure Series' option.
```

Oracle provides a reference list of objects affected by this deletion, such as worksheets, dependent series, and integration profiles that reference the series. Providing this output allows the user to go back and manually fix issues such as server expression references.

- Remove the series from the loading procedures.

The series is removed from internal tables, such as `sales_data`, `computed_fields`, and `mdp_matrix`, when the user deletes the series using the 'Configure Series' option. Deleting the series in this way removes references to the series in worksheets, workflows, integration profiles, and rolling profiles but *does not* remove or invalidate these objects. Some of these objects, such as worksheets, may require user re-configuration, but the worksheets will still open.

- If this series is a causal factor, display a warning message in the upgrade log:

```
Series XXX was a causal factor. Please reconfigure causal factors.
```

- Remove user security references to this series.

- Add the log message:

```
Series XXX is used in components A, B, C. Please reconfigure these
components.
```

## Modifying a Series

If a series is modified, the upgrade process does the following:

- Modifications of the source field are reflected in the loading procedure.
- If the series aggregation has been modified, the loading procedure is updated. The new aggregation is not updated in computed fields, in case a custom client expression was configured.

- Add a log entry:

```
Series XXX has been modified. Please review its configuration in
'Configure Series' after completing the upgrade.
```

## Adding a Unit

Adding a unit has the following impacts:

- Create reference in the level table
- Log message to state the need to add the Unit to the component and link the Unit to

the desired level.

## Removing a Unit

Removing a unit has the following impacts:

- Remove the Unit from the model
- Delete the Unit from the model and the loading procedures
- Log message to state the need to delete the Unit in the Business Modeler

## Modifying Time Aggregation

If the time aggregation is modified, this process typically occurs early in an implementation, prior to loading substantial data.

**Caution:** Any modification to the granularity of the model , whether more granular or less granular, will clear out all data. Reset all worksheets to the new model granularity.

See Setting and Modifying the Base Time Unit, page 7-5.

If a time granularity is modified, the upgrade process reflects the following changes:

- Modify loading procedure to respect new time aggregation
- Modify inputs table to respect new time buckets
- Add log message:  
`Time aggregation has changed. Please review all worksheets and modify time definitions appropriately.`
- Set Integration profiles and worksheets to new model granularity, and leave start and end date time range as is.

**Note:** Consultant needs to review and re-configure worksheets, workflows, and integration profiles to fully respect the new granularity. The default settings are intended to ensure the worksheets open after the upgrade.

## Modifying the First Day of Week

If the First Day of Week is modified, this process typically occurs early in an implementation, prior to loading substantial data.

**Caution:** Any modification to the First Day of the Week for a model will clear out all data.

- Loading procedures change to reflect new start of week
- Inputs table changes to reflect new start of week
- Leave start and end dates of the worksheet and integration profiles.

**Note:** The default settings are intended to ensure the worksheets open after the upgrade.

**Moving Weekly Bucket Aggregation Forward or Backward**

- Loading process changes to reflect new start of week
- Change parameter in sys\_params table
- Data in the database is not cleared.

**Navigating the Data Model**

**To navigate the data model:**

1. Right-click the white background and then select one of the following options:

Expand All	Open the branches of a data model structure.
Collapse All	Collapse the branches of data model structure to its root level.
Refresh Tree	Update the tree display, with changes since previous refresh.

See also  
"Configuring Levels"

# Building the Data Model

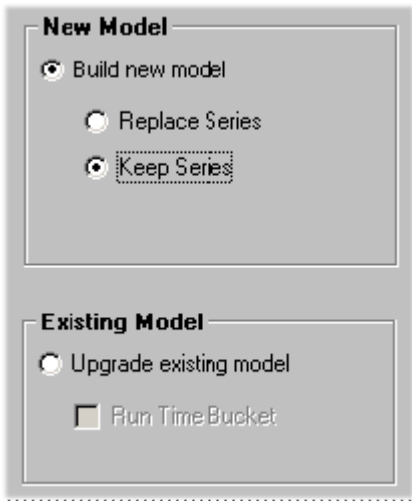
In the Finish Wizard dialog box, you build (or upgrade) the model itself. Here the Data Model Wizard creates all the internal structures that it needs for the data model you have specified.

**To build the data model:**

- 1. To Remove Illegal Characters, click Yes to check the source data and remove unwanted characters.
- 2. Click Finish or click Build Model.

If you click Finish, the Data Model Wizard closes.

If you click Build Model, the Build/Upgrade dialog box appears.



- 3. Now you can select whether to completely replace the existing data model or just modify it:
  - If you want to completely replace the existing data model, select one of the following options:

---

Replace Series

Click this to completely replace the existing series definitions.

---

---

Keep Series

Click this if you do not want to make any changes to the existing series. This option is suitable if you are in the process of working on the data model but do not want to spend the time updating the series definitions right now.

---

**Caution:** In either case, any previously existing levels are completely removed, and the new levels are initialized.

- Alternatively, if you are just modifying an existing data model, select Upgrade Existing Model. In this case, if you have made changes to the base time unit, select Run Time Bucket.

Upgrade Model does not modify the source tables in any way. Any additions, modifications and deletions to these tables would be done manually by consultants. Any level extensions that must be reflected in the loading procedures are managed by the Data Model. Changes made in Series and Level configuration screens are not supported or synchronized.

**Note:** There should be no conflicts with the data model definitions (file structures, file locations, and so on). Make sure that the customer's files include all the series and levels that you have configured.

If there are series or levels that appear in the Business Modeler but that are not included in the components structure, a warning will recommend that you manually remove these objects. A log file is created with a list of the objects. Otherwise, the system will automatically identify the series and levels of the selected components and truncate (make empty) the objects that do not participate in the selected components. Only then can the Upgrade Model work.

4. Click OK.

The process of building the data model begins. This may take a few minutes.

Business Modeler also creates the file load\_data.bat. See Loading the Data into the Data Model, page 17-24.

## Loading the Data into the Data Model

After completing the data model, you must load the data into it.

### To load the data:

1. Run the file `load_data.bat`, which is in the Demantra/Desktop directory.

When the file is run, the script imports data from the source files into the staging area, and from there into the Demantra data model.

The `load_data.bat` file contains several procedures to help you to load data into the data model. The `prepare_data` procedure is empty by default, and can be edited to carry out procedures which precede the data loading

**Caution:** This should only be carried out by an experienced consultant. It is not recommended to edit the other procedures.

### To check for errors:

1. After loading the files, check the following files for error messages:
  - For a single source table (Item+Location+Sales): `SRC_sales_err`
  - For two source tables (Item, Location + Sales): `SRC_loc_err`
  - For three source tables (Item, Location, Sales): `SRC_item_err`

## Manipulating Existing Data Models

### To open an existing data model or template:

1. Click Data Model > Open Data Model.

The Open Existing Data Model/Template screen appears.

2. Select Data Model or Template.
3. Select the button corresponding to the data model or template you want to modify and click OK.

The Start Wizard window appears. See "Getting Started with the Data Model Wizard".

**To save a data model or template under a different name:**

1. Click Save As (on the Data Model/Template window).

The Save As dialog box appears.

2. Type in the name of the data model or template.
3. Type in an optional description.
4. Click OK.

**To delete a data model or template:**

1. Select the Data Model/Template button.

2. Click Delete.

A warning window appears.

3. Click Yes to confirm the action.

**To import or export a data model or template:**

The import and export functions enable you to store a data model or template and share it with other users. Data models and templates are saved as database files with the suffix .dmw.

1. Select the Data Model/Template radio button.

2. Click Export.

A database file is saved in the current directory.

**To import a data model or template:**

1. Click Import.

A browser window appears.

2. Navigate to the required .dmw file, and then click OK.



---

## Configuring Levels

This chapter describes how to configure levels with the Configure > Levels option.

This chapter covers the following topics:

- Before Configuring Levels
- Creating a Level
- Filtering a Level
- Configuring an Existing Level
- Adding Attributes to a Level
- Filtering an Attribute Drop-down List
- Specifying Default Parents for a New Member
- Adding a Population Attribute to a General Level
- Creating a Time Level
- Viewing the Members of a Level
- Removing Levels

### Before Configuring Levels

Before you use Configure > Levels option, be sure to do the following:

- Read the "Levels" Chapter and make sure you understand the basic data requirements of Demantra.
- If you are using Promotion Effectiveness, DSM, or Promotion Optimization, use the Demantra database procedures to set up an initial set of levels for those products; see "Configuring Promotion Effectiveness", "Configuring DSM", and "Configuring Promotion Optimization for PTP".
- Load some sample data for items, locations, and sales, by using the batch script

created by the Data Model Wizard. Make sure that this data contains all the codes needed to define the desired item and location levels.

- Carefully plan the levels you will configure.
- Use the Data Model Wizard as much as possible before using Configure > Levels.

## Creating a Level

**To create a new level:**

1. Click Configuration > Configure Levels. Or click the Configure Levels button.  
The system displays a screen showing the levels. The disabled levels are indicated by an X symbol.
2. Right-click the level button and then select New.  
The first screen is General Properties.
3. Complete the fields in this screen as follows:

---

Title	Level name.
Type	Type of level. Note that Product is an item level.
Child Level	Select the level that should be the child of the one you are creating.
Create as attribute	Check this if you want to create a lookup level attribute for the child level of the current level. For example: the current level is level B that has a child level A. In this case, if you check Create as attribute, the wizard will create a lookup level attribute for level A.  This field is disabled at the lowest level.

---

4. If you are creating a general level, the following fields are also required:

---

Icon Path	Path and filename for the GIF file that contains a graphic to represent this level in the desktop user interfaces. The path must be relative to the Demand Planner\Desktop directory, for example: bitmaps/location.bmp
Icon URL	Web address for the GIF file that contains a graphic to represent this level in the Web-based user interfaces.
Indicator URL	Web address for the GIF file that contains an indicator for this level.  This option applies only to general levels that have no children. Worksheet tables use this graphic to indicate the combinations and times with which a member of this level is associated.

---

**Note:** For other kinds of levels, Demantra has default icons.

5. Click Next.

The Data Properties screen appears.

The screenshot shows a 'Data Properties' dialog box with the following fields and values:

- Table Name: t\_ep\_SKU
- Key Field: t\_ep\_SKU\_EP\_ID
- Code Display Field: SKU
- Description Field: SKU\_D
- Code Field: SKU
- Extra From: (empty text box)
- Extra Join: (empty text box)
- Unlinked Level: ☐

6. In Table Name, specify the name of the table in which Demantra should store information related to this level. As soon as you enter this name, Business Modeler automatically populates the following four fields.

Key Field	Primary key of the table you have just created.
Code Display Field	Field containing the code display label for level members, as displayed in the filter window in the worksheet designer. This field accepts string values. Typically, you use one of the following:  Field that stores the autogenerated ID for this level (same value as used in the Key Field)  Field that stores the code for this level (same value used in the Code Field)  Field that stores the description for this level (same value used in the Description Field).
Description Field	Field containing the description or pretty name for level members, as displayed in worksheets.
Code Field	Field containing the code for the level members.

7. If the level is to be unlinked, click Unlinked Level.

Unlinked levels are used only for a special kind of series aggregation within worksheets.

8. Click Next.

The General Attributes screen appears. If needed, add attributes as described in "Adding Attributes to a Level".

9. Click Next.

The Defaults screen appears. If needed, specify the default parents of any manually created member of this level. See "Specifying Default Parents for a New Member".

## Filtering a Level

Most levels span all the sales data; any sales record is associated with exactly one member of each level. You can, however, create filtered levels. A filtered level contains a filtered subset of the sales data.

To create a filtered level, you add an SQL WHERE clause to filter the data. You can also join the underlying data to another table of your choice. Each level internally has an SQL query. Normally this query can refer only to fields in the following tables:

Level type	Table where code field is found
Item	Items
Location	Location
Combination	mdp_matrix
Time	Inputs

## Specifying the "Extra From" Field for a Level

In rare cases, you may need to refer to data in other tables. In such a case, use the Extra From field. In this field, specify an optional list of additional tables (separated by commas) that contain data relevant to this level.

## Specifying the "Extra Join" Field for a Level

If you need to filter the level, use the Extra Join field. Internally, the Extra Join field is added to the WHERE clause in the SQL query that retrieves data for this level.

The syntax of this field is as follows:

*table.column operator other\_table.other\_column*

Where, *operator* is a comparison operator that is one of the following:

---

=  
<>  
>  
>=  
<  
<=

---

And *table.column* and *other\_table.other\_column* are key columns in the database.

## Configuring an Existing Level

### To configure an existing level:

1. Click Configuration > Configure Levels. Or click the Configure Levels button.

The system displays a screen showing the levels. The disabled levels are indicated by an X symbol.

2. Double-click the level or right-click the level and then select Open > General Properties.

The General Properties screen appears.

The screenshot shows the 'General Properties' dialog box for configuring a level. The fields are as follows:

- Title:** A text box containing 'SKU'.
- Type:** A dropdown menu set to 'Product Level'.
- Icon Path:** A text box with a browse button (three dots) to its right. Below it, a note says: '(An example for a relative path: .\bitmaps\item.gif)'
- Icon Uri:** A text box.
- Indicator Uri:** A text box. Below it, a note says: '(An example for url: http://servername:8080/plan\_ICO.gif)'
- Status:** A dropdown menu set to 'Enabled'.
- Child Level:** A dropdown menu set to '<None>'. To its right is a checkbox labeled 'Create as Attribute' which is unchecked.
- Order:** A spinner box.
- Hint Message:** A large text area.
- Display Width on Worksheet Table Axis:** A spinner box set to '20'.

3. Make edits as needed to the following fields:

---

Title	Level name.
Icon Path	Path and filename for the GIF file that contains a graphic to represent this level in the desktop user interfaces. The path must be relative to the Demand Planner\Desktop directory, for example: bitmaps/location.bmp

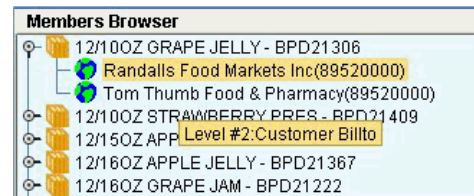
---

---

Icon URL	Web address for the GIF file that contains a graphic to represent this level in the Web-based user interfaces.
Indicator URL	<p>Web address for the GIF file that contains an indicator for this level.</p> <p>This option applies only to general levels that have no children. Worksheet tables use this graphic to indicate the combinations and times with which a member of this level is associated.</p>
Status	<p>Level status: Enabled or Disabled.</p> <p>Determines if the level is available to end users.</p>
Create as attribute	<p>Check this if you want to create a lookup level attribute for the child level of the current level. For example: the current level is level B that has a child level A. In this case, if you check Create as attribute, the wizard will create a lookup level attribute for level A.</p> <p>The new level is added immediately.</p> <p>This option is disabled at the lowest level.</p>
Order	This number determines where this level will be listed in filter and selection windows. (The lower the number, the closer the level appears to the top.)

---

Hint Message	Add or modify a message for the level. Demantra will display this message when the pointer hovers in the Members Browser in a worksheet, as follows:
--------------	--



Display Width on Worksheet Table Axis	Specify the default display width for this level when this level is included in a worksheet table.
---------------------------------------	--

Is Analytical	<b>Applies only to general levels.</b> Check this if you are creating a general level for use with Promotion Effectiveness. Enable this option only at the lowest level in the promotions hierarchy; Demantra can contain only one analytical level.
---------------	--

4. Click Next.  
The Data Properties screen appears.
5. Make edits as needed to the following fields:

Code Display Field	Field containing the code display label to use in filters. Typically, you use one of the following: <ul style="list-style-type: none"> <li>• Field that stores the autogenerated ID for this level (the value given in the Key Field)</li> <li>• Field that stores the code for this level (the value given in the Code Field)</li> <li>• Field that stores the description for this level (the value given in the Description Field).</li> </ul>
--------------------	---

Extra From	See "Specifying Extra From for a Level".
------------	--

---

Extra Join	See "Specifying Extra Where (Extra Join) for a Level".
Unlinked Level	Select if the level is to be unlinked. Unlinked levels are used only for a special kind of series aggregation, not documented here.

---

6. Click Next.

The General Attributes screen appears. If needed, add attributes as described in "To add a new attribute to a level".

7. Click Finish.

Or, if you are configuring a general level, click Next. The Population Attributes screen appears; see "Adding a Population Attribute to a General Level".

## Adding Attributes to a Level

Attributes provide additional information about a level. When you add an attribute to a level, Demantra automatically adds a new column to the internal table that it uses for that level.

To view attributes of a member, the user can right-click the member within the Members Browser of a worksheet.

### To add a new attribute to a level:

1. Click Configuration > Configure Levels. Or click the Configure Levels button.

Business Modeler displays the Configure Levels screen.

2. Right-click the level and select Open > General Attributes.

Business Modeler displays the attributes associated with this level.

The screenshot shows the Business Modeler interface. On the left is a list titled 'Attribute Name' with items: ABC, **Brand**, Control Type, Integration, Item Type, Launch Date, Life Cycle, Make or Buy, Measurement Unit, Name, Origin, Product Family, Product Family, Revenue Class, Service Class, Service Class, Shelf Life, and Tools Item Type. The 'Brand' attribute is selected. On the right are two panels. The 'General Properties' panel contains: Attribute Name: Brand, Column Name: t\_ep\_Brand\_EP\_ID, Column Type: Number, Default Value: (empty), Column Format: (empty), Create as Level: ☒, and Paste attribute values: ☐. The 'Lookup Properties' panel contains: Lookup Type: Level, Level Name: Brand, Table Name: (empty), Display Column: (empty), Data Column: (empty), Extra From: (empty), and Extra Where: (empty).

3. Right-click the empty space in the Attribute Name list and then select Add.  
A new row is added to the list.
4. In Attribute Name, enter the name for the attribute.
5. Specify the following general information for the attribute

---

Column Name	<p>When you enter an attribute name, Business Modeler automatically generates a name to use for the column that it will add to the level table. You can enter a different column name, up to 30 characters long. The column name cannot include spaces.</p> <p>If you create a method on this level, this column name also serves as the name of a variable that can be passed to the method.</p>
Column Type	Select the data type of this attribute from the dropdown list.
Default Value	<p>Specify the default value for this attribute, to be used when users manually create a new member of this level.</p> <p>If you click Create as level, do not use this setting, because it is ignored. Instead, see "Specifying Default Parents for a New Member".</p>

---

---

Column Format	Select the display format for this attribute from the dropdown list.
Create as level	Check this box if you want Business Modeler to automatically create a parent level that uses this attribute to distinguish different members. (The new level is added immediately.)
Paste attribute values	Check this box if you want Demantra to copy and paste the value of this attribute when a user copies and pastes and level member.

---

6. If this attribute should have a dropdown list, then do the following:

- Select one of the following options for Lookup Type:
  - Select *Table* if the attribute values are in a table.
  - Select *Level* if the attribute values are members of a level.
- If you selected *Table*, then complete values for this attribute as follows:

---

Table Name	Select a table containing the reference values from the dropdown list.
Display Column	Select the column that has the user-friendly attribute descriptions.
Data Column	Select the column that has the corresponding numeric code values for the attribute.

---

- If you selected *Level*, then for *Level Name*, select the level that contains the attribute values.
- For either *Table* or *Level*, optionally specify additional criteria to control the dropdown list

---

Extra From	Comma-separated list of additional tables to include in the query that retrieves the drop-down list. See "Using Extra From for an Attribute"
Extra Where	True/false SQL expression that filters this list further. See "Using Extra Where for an Attribute".

---

7. Click Next.

The Defaults screen appears. If needed, specify the default parents of any manually created member of this level. See "Specifying Default Parents for a New Member".

#### **To delete an attribute from a level:**

1. In the Attribute Name list, right-click the attribute.
2. Click Delete.

See also

"Before Configuring Levels"

## **Filtering an Attribute Drop-down List**

Sometimes it is useful to filter the dropdown list of an attribute, and to filter this list in a context-specific way. For example, the value of one attribute sometimes should restrict the list of choices for another attribute. Demantra provides options to enable you to filter the dropdown list.

**Note:** The `MaxAvailableFilterMembers` parameter specifies the maximum number of entries that a filtered dropdown list can display.

#### **Using Extra From for an Attribute**

For a dropdown attribute, the values are taken either from a table or from a level (which of course is also in a table). You can provide a comma-separated list of other tables that should be included in the query that returns the dropdown list.

#### **Using Extra Where for an Attribute**

For a drop-down attribute, you can specify a SQL expression that filters the drop-down list. The syntax of this expression is generally as follows:

- *table.column operator other\_table.other\_column*

Here *operator* is a comparison operator, one of the following:

- =
- <>
- >
- >=
- <
- <=

And *table.column* and *other\_table.other\_column* are key columns in the database.

A user sees the dropdown list for an attribute within the member properties window (right-click > Edit) of the Web client. Your Extra Where clause may need to refer to the value of an attribute (or population attribute) that is present in that window. To do so, you can include either of the following syntax elements in your Extra Where clause:

**#att.null-warning.attribute-name#**

**#pop.null-warning.attribute-name.level-name#**

Here:

---

<i>att or pop</i>	Indicates the type of attribute that you are referring to: <ul style="list-style-type: none"><li>• <b>pop</b> (indicates a population attribute)</li><li>• <b>att</b> (indicates a regular attribute)</li></ul>
<i>null-warning</i>	Indicates what to do if the attribute has a null value. Use one of the following keywords: <ul style="list-style-type: none"><li>• <b>oknull</b> (a null value is permitted for the attribute; the Extra Where clause will not throw an error)</li><li>• <b>nonnull</b> (if the attribute has a null value, do not execute the SQL of the Extra Where clause)</li></ul> <p>Set this appropriately so that users do not see an error.</p>
<i>attribute-name</i>	Name of the attribute to consider. Specifically: <ul style="list-style-type: none"><li>• For a population attribute, this should be the ATTRIBUTE_LABEL value in the GROUP_ATTRIBUTES_POPULATION table.</li><li>• For a regular attribute, this should be the ATTRIBUTE_LABEL value in the GROUP_ATTRIBUTES table.</li></ul>
<i>level-name</i>	Name of the level (from the population attribute) whose member IDs will be accessed in this expression.

---

For example, the syntax **#pop.oknull.population.Selling Entity#** refers to the Selling Entity member of a population attribute.

## Specifying Default Parents for a New Member

When a user manually creates a new member of a given level, the user must specify the

parents of that member. You can optionally specify the default parent members to be used in this case.

For each level, Demantra provides a predefined default member, which is initially named Default level name. You can choose whether to display this member and you can rename it. This predefined default member is not normally associated with any data, however. If you have data loaded in the system, you can instead choose an existing member to use as the default member. So, for example, you could use any of the following as the default member of the Brand level:

- The predefined default member: Default Brand
- The predefined default member, renamed by you: Unspecified Brand
- An existing member: Acme

Remember that a given level can have multiple parent levels. This means that you can specify a default within each of those parent levels. For example, in the demo, the Promotion level has three parents: Promotion Status, Promotion Type, and Scenario. When a user creates a new promotion, you may want the user to have a default value for each of these.

#### **To specify default parents:**

1. Click Configuration > Configure Levels. Or click the Configure Levels button.

Business Modeler displays the Configure Levels screen.

2. Right-click the level and select Open > Defaults.

Business Modeler displays information about the parents of this level. For example, if you view the defaults for the Promotion level (in the demo), you will see the following:

**Default Parent Level:** Promotion Status

**Default Member**

☐ Hide Predefined Default Member

Rename Predefined Default To:  Update

3. For each parent level of this level, optionally do the following:

1. Select the parent level from Default Parent Level.

The Default Member area then lists all the members of this parent level.

**Default Parent Level:** Promotion Status

**Default Member**

- ☐ Default Promotion Status (Predefined Default)
- ☐ Committed
- ☐ Exposed
- ☐ Matched
- ☐ Planned
- ☐ Unmatched
- ☒ Unplanned

Total available members: 7

☒ Hide Predefined Default Member

Rename Predefined Default To:  Update

2. To indicate which member should be the default parent within this level, select

the check box next to that member.

3. If you are not using the predefined default member (shown in blue) as the default, you might want to hide this member. To do so, select Hide Predefined Default.
4. To rename the predefined default member, type a new name in Rename Predefined Default To and then click Update. You cannot rename this member if you have chosen to hide it.
5. When you are done specifying the default for this parent level, select another parent level from Default Parent Level, and then repeat the preceding steps.

## Adding a Population Attribute to a General Level

A general level can have population attributes in addition to general attributes. A *population attribute* specifies a set of item-location combinations and consecutive time buckets with which the general level is associated.

**Note:** General levels are not supported in Demand Planner and Demand Replenisher.

### To add a population attribute to a general level:

1. Click Configuration > Configure Levels. Or click the Configure Levels button. Business Modeler displays the Configure Levels screen.
2. Right-click a general level and select Open > Population Attributes. Business Modeler displays the population attributes associated with this level.
3. Right-click the Attribute Name list and then select Add. A new row is added to the list.
4. In Attribute Name, enter the name for the attribute.  
As soon as you move the cursor out of this field, the Business Modeler automatically generates names for the tables associated with this level.
5. If you want the attribute to be visible, select the Visible check box.  
If an attribute is visible, its properties are available for editing by the user in Demantra. It is recommended that an attribute be configured as non-visible when you do not wish the user to have the ability to edit the attributes. If the attribute is non-visible, it can be edited only in the database.

6. On the right side of the screen, complete the fields as follows:

Attribute Name	Visible
Population	<input checked="" type="checkbox"/>

**General Properties**  
Attribute Name:   
Population Type:

**Population Tables Structure**  
Levels Table Name:   
Members Table Name:   
Dates Table Name:   
Data Table Name:   
Matrix Table Name:   
Indicator: ☒

---

Population Type

Select Searchable or Descriptive. A general level can have only one searchable population attribute and any number of descriptive population attributes.

If a population attribute is searchable, then each member of the general level is directly linked with the associated item-location combinations and time buckets. Internally, Demantra automatically joins the data for use by the Analytical Engine.

If a population attribute is descriptive, it is available to the users but is not available to the Analytical Engine.

Indicator

Specifies whether the cells in a worksheet table should display an indicator if a general level is associated with them. It is useful to enable this indicator for the benefit of users of the worksheet. This option is enabled only for the searchable population attribute.

- 
7. When you are done adding population attributes, click Finish.

Or, if you are configuring a general level at the lowest level, click Next. See "Configuring the Activity Browser".

### To delete a population attribute from a general level:

1. In the Attribute Name list, right-click the attribute and then select Delete.

See also

"Before Configuring Levels"

## Creating a Time Level

A time level aggregates data by time, and time levels are often used for custom calendars. Your solution can use time levels, custom time units, or a combination of both. Use the following guidelines to determine which you need:

	Names	Uses in worksheet
time level	Each member can have a user-friendly name that you create.	You can use a time level like any other level, such as placing it on a worksheet axis.
time unit	Each time bucket in the worksheet is automatically labeled with the start date of that bucket.	You can use time units only on the x-axis (the time axis) of the worksheet.

### To create a time level:

1. Within the database, either add either a column to the Inputs table or add an entire table to store the data.
2. Follow the procedure in "Creating a Level".

**Note:** Time levels are supported only in the Web products. For the equivalent functionality in the desktop products, create a group expression; see "Configuring Desktop Group Expressions".

See also

- "Configuring Time Units"

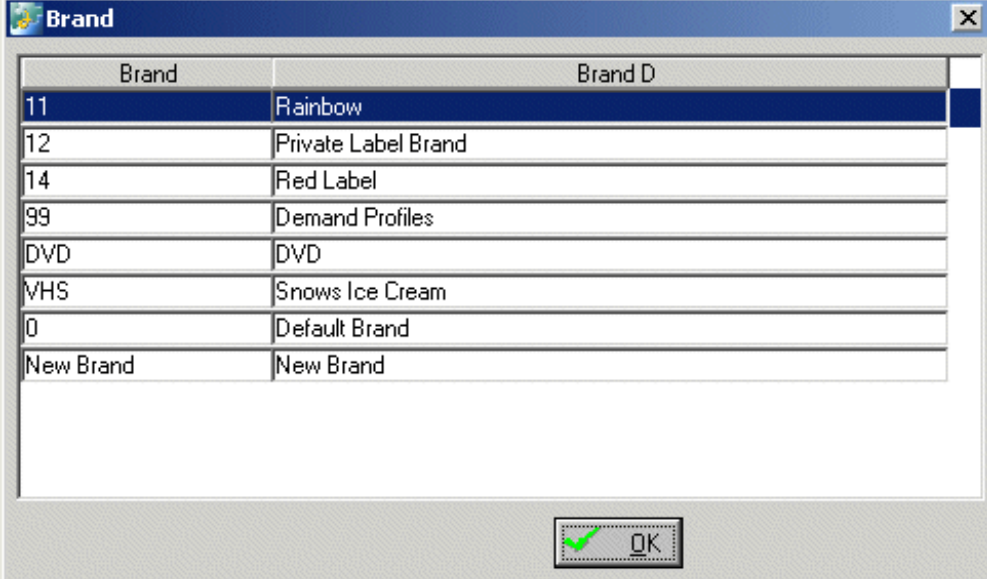
## Viewing the Members of a Level

You can view the members of any level.

**To view the members of a level:**

1. Click Configuration > Configure Levels. Or click the Configure Levels button.
2. Right-click the level and select Level's Members.

Business Modeler displays a screen like the following:



Brand	Brand D
11	Rainbow
12	Private Label Brand
14	Red Label
99	Demand Profiles
DVD	DVD
VHS	Snows Ice Cream
0	Default Brand
New Brand	New Brand

Each row shows the code display field and description for one member of this level. The column headers show the name of the table fields that store these two labels.

The same data is displayed in the standard filter user interface in Demand Management and other Demantra products.

## Removing Levels

You can disable a level, removing it from visibility in the user interfaces. You can also delete levels.

**To disable a level:**

1. Click Configuration > Configure Levels. Or click the Configure Levels button.

The system displays a screen showing the levels. The disabled levels are indicated by an X symbol.

2. Double-click the level or right-click the level and then select Open > General Properties.

The General Properties screen appears.

3. Change the Status field to Disabled.
4. Click Next repeatedly until the Finish button is no longer grayed out.
5. Click Finish.

You can enable the level later in much the same way.

**To delete a level:**

1. Click Configuration > Configure Levels. Or click the Configure Levels button.  
The system displays a screen showing the levels.
2. Right-click the general level and then select Delete. This task applies to the Business Modeler. See "Logging onto the Business Modeler".

---

## Configuring Series and Series Groups

This chapter describes how to configure series and series groups.

This chapter covers the following topics:

- Before Configuring Series
- Creating a Series
- Creating a New Series Based on an Existing Series
- Specifying General Properties of a Series
- Specifying How to Display a Series
- Configuring a Dropdown Style Series
- Filtering a Series Dropdown List
- Specifying Data Properties of a Series
- Using the Expression Editors
- Syntax of Server Expressions
- Syntax of Client Expressions
- Specifying Server and Client Expressions
- Creating an Edit-Lock Expression
- Creating a Color Expression
- Controlling Access to Series
- Configuring Desktop Group Expressions
- Deleting a Series
- Enabling Series Caching By Item
- Specifying the Order of Series in Dynamic Open Link
- Creating or Modifying a Series Group
- Deleting a Series Group

- Viewing Dependencies Among Series

## Before Configuring Series

Before you use Configure > Series option, be sure to do the following:

- Read the "Series" Chapter and make sure you understand how series are calculated and stored.
- Load some sample data for items, locations, and sales, by using the batch script created by the Data Model Wizard.
- If you are using DSM, use the Demantra database procedures to set up an initial set of series for that product; see "Configuring DSM".

## Creating a Series

The following procedure describes the minimal set of steps needed to create a new series.

### To create a series:

1. Click Configuration > Configure Series or click the Configure Series button.
2. Click the New button.

The series editor displays the General Properties screen, with a new series that has a default name and internal name.

3. Edit the Series name field as needed. This should be a user-friendly name, because it is displayed in the components.
4. Edit the Internal Name field as needed. Use a name that is easy to remember. The internal name cannot have spaces or special characters.

**Note:** Business Modeler uses this name as the name of the column in which it stores the series data. When you create server expressions, you refer to those column names.

5. Click Next repeatedly until the Data Properties screen appears.
6. In the Data Table field, select the table in which data for this series should be stored, if you choose to store the data. The choice depends on how you want to use the series, as follows:

---

sales_data	Use for data that varies by item, location, and time. In this case, you are creating a sales series.
mdp_matrix	Use for data that varies by item and location, but does not vary by time. In this case, you are creating a combination or matrix series.
promotion	Use for data that varies by item, location, promotion ID, and time. In this case, you are creating a promotion series, which is supported only in Promotion Effectiveness. (Note that the series is added to the promotion_data table, rather than the Promotion table as stated in the Business Modeler.)
Level name	Use for data associated with a specific level; all levels that you have defined are listed here; see "Configuring Levels". In this case, you are creating a level series, which is supported only in Demand Management and Promotion Effectiveness.

---

**Caution:** If you change the selection in the Data Table field, Business Modeler automatically removes the existing data from the table where it had been originally stored. Business Modeler then creates a new, empty column in the newly selected table.

7. What happens next depends on the table you chose.

- If you selected sales\_data, mdp\_matrix, or promotion, Business Modeler asks you to confirm whether you want to create this series within that table.  
  
If you want to store this series directly in the database, click Yes. Business Modeler automatically populates Update Field with the value you used for the internal name. Otherwise, click No.
- If you selected the name of a level, then in Update Field, select the field that you want to use as this series.

**Note:** If you are familiar with database terminology, note that this option determines the primary key of the series.

8. At this point, you have entered enough information to save your work.

#### About the series editor

The series editor consists of a set of screens with different purposes. To move from screen to screen, click Next and Previous.

Screen	Purpose	For details, see...
General Properties	Specify the series name and other basic information.	"Specifying General Properties of a Series".
Display Properties	Specify how to display this series in tables and graphs; also specify numeric precision of series (number of decimal places).	"Specifying How to Display a Series".
Dropdown Properties	Optionally configure the series elements as dropdown lists.	"Configuring a Dropdown-Style Series".
Data Properties	Specify how this series will be stored in the database.	"Specifying Data Properties of a Series".
Expressions Properties	Specify either a server expression, a client expression, or both, that calculate values for this series.	"Specifying Server and Client Expressions".
	Optionally specify special-purpose expressions.	"Creating an Edit-Lock Expression" "Creating a Color Expression" .
Security	Specify which users can access this series	"Controlling Access to Series " .

## Creating a New Series Based on an Existing Series

You can easily create a new series that has most of the properties of an existing series. This is useful when you need to define multiple series to use for multiple forecast versions or for use in rolling data sessions.

**To create a series based on an existing series:**

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click the series and click Create As.  
Business Modeler prompts you for the name and internal name of the new series.
3. For Series Name, specify a user-friendly name. This name is displayed in the worksheets.
4. For Internal Name, specify a unique name that has no spaces or special characters.
5. Click OK.
  - A new series is created, with everything copied from the original series, except for Update Field, on the Data Properties screen.
6. In the series list on the left side of the screen, right-click the series and then select Open > Data Properties.
7. For Update Field, select the field in which you want to store this series, if any.  
See also
  - "Creating a Series" "Configuring Rolling Data"

## Specifying General Properties of a Series

**To edit general properties of a series:**

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click a series and then select Open > General Properties.

Series Id:	160
Series Name:	Market Plan \$
Internal Name:	rev_target
Show as Default in New Query:	<input type="checkbox"/>
Period Association:	Forecast
Editable:	Yes
Hint Message:	Revenue Target in Dollars
<p>Note - you can use the #FDATE@&lt;forecast version number&gt;# token in the Hint Message. When displaying the Hint Message, This Token will be replaced with the creation date of the appropriate forecast version.</p>	
Aggregated by Unlinked Level:	

3. Specify the following information about the series:

Series Name	User-friendly name for the series. This is displayed in the worksheets and is used as a reference when configuring spreadsheet expressions.
Internal Name	Internal name that Demantra uses to refer to the series.  <b>Important:</b> By default, Business Modeler uses this name as the name of the column in which it stores the series data. When you create server expressions, you refer to those column names.
Show as Default in New Query	Check if you want this series to appear by default as an option for a new worksheet.

---

Period Association

Select one of the following choices, to specify the time periods during which the series can be edited, if at all:

History

Forecast

History and Forecast

For an editable series:

If the series is configured as history, then it is editable only in the current time bucket and previous time buckets.

If the series is configured as forecast, then it is editable only in the current time bucket and future time buckets.

If an edit-lock expression has been applied to this series, that can further restrict editing. See "Creating an Edit-Lock Expression" .

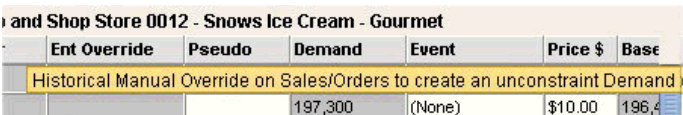
Editable

Specify whether the series will be editable.

If the series has a client expression, it must be read-only.

Hint Message

Short description of the series and its purpose. Demantra will display this message when the pointer hovers over a series name in a worksheet table.



and Shop Store 0012 - Snows Ice Cream - Gourmet					
Ent Override	Pseudo	Demand	Event	Price \$	Base
Historical Manual Override on Sales/Orders to create an unconstrained Demand					
		197,300	(None)	\$10.00	196,4

You can include the token #FDATE@<Version># to refer to the date on which a forecast version was generated. This is particularly useful if the server expression refers to multiple forecast versions.

Aggregated by  
Unlinked Level

Optionally specifies an unlinked level that aggregates data for this series when displayed in a worksheet that contains that unlinked level.

An unlinked level is a level that is flagged for use in this way.

---

# Specifying How to Display a Series

**To specify the display properties:**

- 1. Click Configuration > Configure Series or click the Configure Series button.
- 2. Right-click a series and then select Open > Display Properties.

Display Type: 

Table Only

Graph Properties

Display

Print

Color:

Style: 

Line

Symbol: 

Plus

Line

No Symbol

Display Format: 

###,###,###,###

Summary Line

Function:

Client Expression:

Total

Editable Summary:

Dp Series Width:

250

Dp Web Series Width:

10

- 3. Specify the following information about the series:

Display Type	Specify where the series will be displayed in worksheets: Table and Graph Table only Graph only
Color	Colors to use in the graph, both online and printed.
Style	Styles to use for lines in the graph, both online and printed.
Symbol	Symbols to use for data points in the graph, both online and printed.

---

Display Format	<p>Format in which the series will be displayed in worksheet tables. This can be configured for commas, percentage sign, decimal point and so on. For example, ##,###.## and ##.##%</p> <p>Select a format and modify it if necessary. For example, you can more decimal places to the series by adding pound signs (#) after the decimal.</p> <p>For information on the date formats, see "Display Formats for Dates)".</p>
----------------	--

---

4. For Summary Function, specify how to summarize data for this series within the Summary row in any worksheet table that includes this series.

**Note:** The Summary Function is used in all rows of the worksheet table if a level is hidden in the worksheet view.

Either choose a function or specify a client expression:

- Total gives the numeric total of the non-null series entries that worksheet currently displays. (If all entries are null, the total is given as 0.)
- Average gives the numeric average of the non-null series entries that worksheet currently displays. (If all entries are null, the average is given as 0.)
- Count gives the number of series entries that worksheet currently displays, including any null entries.
- Min gives the smallest of the non-null entries.
- Max gives the largest of the non-null entries.
- Common gives the most common non-null entry. If multiple values appear the most times, an arbitrary one of them is displayed.
- Uncommon gives the least common non-null entry. If multiple values are the least common, an arbitrary one of them is displayed.
- Latest gives the last non-null entry in the column.
- If you enter a client expression, that expression calculates the summary for this series. To enter a client expression, click the Client Expression option and then click the ellipses (...) button. The system displays a dialog box where you can create a client expression; see "Using the Expression Editors".

**Note:** If you use a client expression, the series is supported only

in Web-based products, not in the desktop.

- You can also create a weighted average. To do so, enter an expression in the `sum_func` column in the `computed_fields` table in the database. For example, to create a weighted sum for two series called `batch_for` and `final_for`, use the following expression in the `sum_func` column:

```
sum(cbatch_for for all) * sum(cfina1_for for all)
```

The series names are given the prefix `c`. Also note that "for" and "all" are protected names.

5. Specify the width of the columns in which to display this series in worksheet tables:

DP Series Width	Width of the column in the desktop. Each increment of 25 can display approximately one character, depending on the formatting. If the field width is 250, it can display about 9 characters.
DP Web Series Width	Width of the column in the Web-based products. Each increment of 2 can display approximately one character, depending on the formatting. If the field width is 25, it can display about 11 characters. See "Series Widths on the Web".

### Series Widths on the Web

For Web worksheets, the following table provides common useful settings for DP Web Series Width:

DP Web Series Width	Sample Data of Maximum Displayable Width
5	\$ 99
	-\$ 99
	99%
	-99%

DP Web Series Width	Sample Data of Maximum Displayable Width
6	\$0.99 \$123 (\$123) -\$123
7	\$99.99 -\$99.99
8	\$ 999.00
9	\$99,999.00 10/10/2005
10	\$ 999,999.00
11	\$ 9,999,999.00

You should also consider the width needed to display the series title.

### Display Formats for Dates

For a series that contains date values, you can use any of the following display formats. The date used in the examples is 28 January 1971.

Format	Example	Name of format
MM/dd/yyyy	01/28/1971	American slash
MM/dd/yy	01/28/71	American slash 2-digit year
MM-dd-yyyy	01-28-1971	American dash
MM-dd-yy	01-28-1971	American dash 2-digit year
dd.MM.yyyy	28.01.1971	European dot
dd.MM.yy	28.01.71	European dot 2-digit year

Format	Example	Name of format
dd/MM/yyyy	28/01/1971	European slash
dd/MM/yy	28/01/71	European slash 2-digit year
E, MMM. dd yyyy	Thu, Jan. 28 1971	American text long
E MM/dd/yyyy	Thu 01/28/1971	American number slash long
E MM-dd-yyyy	Thu 01-28-1971	American number dash long
E dd/MM/yyyy	Thu 28/01/1971	European number slash long
E dd.MM.yyyy	Thu 28.01.1971	European number dot long

## Configuring a Dropdown Style Series

You can configure the elements in a series as drop-down lists. When a user includes the series in a worksheet, he or she can set the value of a series element by selecting from the list, if the series is editable.

### To specify a series as a dropdown-style series:

1. If you have not yet created the table or level that you want to use for series values, create the table or level. (A level is stored as a table, of course.)

To create a table, use a database tool or an SQL script.

For information on creating a level, see "Configuring Levels".

2. Click Configuration > Configure Series or click the Configure Series button.
3. Right-click a series and then select Open > Dropdown Properties.

Dropdown Type: Level

**Lookup Properties**

Level Name: aggri\_level

Display Field: aggri\_desc

Data Field: code

Extra From:

Extra Where:

Filter Expression:

Show Syntax

4. Specify the dropdown style, one of the following:

---

List	Use this option if the list of choices is not available in the database as a level or as a regular table.
Table	Use this option if the database includes a <i>table</i> that contains the choices you want to present in the user interface.
Level	Use this option if the database includes a <i>level</i> that contains the choices you want to present in the user interface.

---

All three styles look the same to end users.

5. If you specified list style, click the Edit Dropdown List button. Then specify the list elements as follows:
1. Click Add.
  2. For Code, type a numeric value. This is an actual possible value of the series.
  3. For Description, type the string value to display when the corresponding numeric code is selected.

4. Repeat as needed. When you are done, click OK.
6. If you specified table or level style, specify the following information:

---

Table Name or Level Name	Select the name of a table or a level, depending on the style you specified.
Display Field	Field that contains the values to display in the series dropdown list.
Data Field	Field that contains the values associated with the selected display field. <b>The data field must contain numeric data.</b> When the user selects a given display field, Demantra sets the series entry equal to the corresponding data field.  Note that the Data Type for this series must also be numeric; see "Specifying Data Properties of a Series".
Extra From	Comma-separated list of additional tables to include in the query that retrieves the dropdown list. See "Using Extra From for a Series Dropdown".
Extra Where	True/false SQL expression that filters this list further. See "Using Extra Where for a Series Dropdown".

---

7. (Optional) To see the syntax of the series, click the Show Syntax button, which appears after you have specified the required information.  
  
Then, to copy the syntax to the Windows clipboard, click Copy. This button appears after you click the Show Syntax button.

## Filtering a Series Dropdown List

Sometimes it is useful to filter the dropdown list of a series, and to filter this list in a context-specific way. For example, the value of one series sometimes should restrict the list of choices for another series. Demantra provides options to enable you to filter the dropdown list.

**Note:** The MaxAvailableFilterMembers parameter specifies the maximum number of entries that a filtered dropdown list can display.

## Using Extra From for a Series Dropdown

For a dropdown-type series, the values are taken either from a table or from a level

(which of course is also in a table). You can provide a comma-separated list of other tables that should be included in the query that returns the dropdown list.

### Using Extra Where for a Series Dropdown

For a dropdown-type series, you can specify a SQL expression that filters the dropdown list. The syntax of this expression is generally as follows:

*table.column operator other\_table.other\_column*

Here *operator* is a comparison operator, one of the following:

=

<>

>

>=

<

<=

And *table.column* and *other\_table.other\_column* are key columns in the database.

A user sees the dropdown list for a series within a worksheet table in the Web client. Your Extra Where clause may need to refer to the value of a series or a level member that is present in that window. To do so, you can include either of the following syntax elements in your Extra Where clause:

*#series.null-warning.series-name#*

*#level.null-warninglevel-name#*

Where:

---

series or level	Indicates the type of object that you are referring to:
	<ul style="list-style-type: none"><li>• <b>series</b> (indicates a series)</li><li>• <b>level</b> (indicates a level)</li></ul>

---

---

<i>null-warning</i>	<p>Indicates what to do if the attribute has a null value. Use one of the following keywords:</p> <ul style="list-style-type: none"> <li>• <b>oknull</b> (a null value is permitted for the attribute; the Extra Where clause will not throw an error)</li> <li>• <b>nonnull</b> (if the attribute has a null value, do not execute the SQL of the Extra Where clause)</li> </ul> <p>Set this appropriately so that users do not see an error.</p>
<i>series-name or level-name</i>	<p>Name of the series or level to consider. Specifically:</p> <p>For a series, this should be the COMPUTED_NAME value in the COMPUTED_FIELDS table.</p> <p>For a level, this should be the TABLE_LABEL value in the GROUP_TABLES table.</p>

---

For example, the syntax #pop.oknull.population.Selling Entity# refers to the Selling Entity member of a population attribute.

## Specifying Data Properties of a Series

### To specify the data properties of a series:

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click a series and then select Open > Data Properties.

Data Table:   
 Update Field:   
 Data Type:   
 Update Field based on business rule Series:   
 Branch Data Syncro Field:   
 Available for Exceptions: ☐  
 Ignore Scale: ☒  
 Same Value Update: ☒  
 Proportional: ☐  
 Proportion Calculation Series:   
 Aggregated Base Level:   
 Aggregation Function:   
 WAVG By:   
 Copy/Paste preservation Type:   
 Save Zero as Null: ☐  
 Move preservation Type:

3. In the Data Table field, select the table with which this series should be associated. (If you are familiar with database terminology, note that this option determines the primary key of the series.) The choices are as follows:

---

sales_data	Use for data that varies by item, location, and time. In this case, you are creating a sales series.
mdp_matrix	Use for data that varies by item and location, but does not vary by time. In this case, you are creating a combination or matrix series.
promotion	Use for data that varies by item, location, promotion ID, and time. In this case, you are creating a promotion series, which is supported only in the Web client.
Level name	Use for data associated with a specific level; all levels that you have defined are listed here; see "Configuring Levels". In this case, you are creating a level series, which is supported only in the Web client.

---

**Note:** If you change the selection in the Data Table field, Business Modeler automatically removes the existing data from the table where it had been originally stored. Business Modeler then creates

a new, empty column in the newly selected table.

4. For Update Field:

- If you selected sales\_data, mdp\_matrix, or promotion, Business Modeler asks you to confirm whether you want to create this series within that table.

If you want to store this series in the database, click Yes. Business Modeler automatically populates Update Field with the value you used for the internal name; see "Specifying General Properties of a Series". Otherwise, click No.

- If you selected the name of a level, then in Update Field, select the field that you want to use as this series.

5. Enter the rest of the information as follows:

---

Data Type	<p>Specify the type of data that this series will display, one of the following:</p> <p>Numeric</p> <p>Date</p> <p>String</p> <p>If this is a level-style or table-style dropdown series, the data type must be numeric.</p>
Branch_data Synchro Field	<p>Select the field from branch_data in which Demantra should cache data for this series (branch_data is a synonym for the sales_data or the promotion_data table, as needed).</p> <p>In almost all cases, you select the field with the same name as the Update Field.</p> <p>Make sure not to create two series that have the same synchronization field. Such series will result in an engine error.</p>
Available for Exceptions	<p>If this option is checked, you can use this series in an exceptions filter in a worksheet.</p>

---

---

Same Value Update

The default value "0" (zero) means that if the value for a cell has been modified and then returned to the original value, do not send an update. If set to "1", (one) then send an update even if the cell's value has been returned to its original value.

Ignore Scale

Specifies whether the series is divided by the scaling factor in a worksheet.

Demantra automatically divides all numbers in the worksheet by that factor, except for any series that are marked as unscaled. Most series are scaled. A series that calculates a fraction, however, should be unscaled.

Proportional

Specifies whether to split a series value, in cases where data is edited or imported at an aggregate level.

A series should be proportional only if the server expression is of the following form:

`sum (table_name.update_column_name)`

Where *table\_name.update\_column\_name* is the update field for this series.

If a series is proportional, data for a given combination is divided among the child combinations according to the proportions given by the Proportion Calculation Series.

Save Zero as Null

If this option is checked, zero values are treated as null. That is, when a series value is set equal to zero and then saved, the value is automatically set equal to null.

---

Proportion Calculation Series	<p>Select a reference series that you will use to calculate the proportions when splitting aggregated data for this series.</p> <p>The default series depends on whether the series is a historical series or a forecast series.</p> <p>In general, use a series that is stored in the same table as the series you are defining. For example, if you are defining a sales series, the Proportional Calculation Series should also be a sales series. See "Specifying a Proportions Reference Series".</p>
Aggregated Base Level	<p>Applies only to sales series. This option lets you specify how this series is aggregated in a worksheet that includes a promotion level. See "Using the Aggregated Base Level Option". For most series, use sales_data.</p>
Aggregation Function	<p>Specifies how to aggregate data for this series during the following operations: import, export, copy and paste of a promotion, editing of the duration of a promotion.</p> <p>Choose one of the following functions:</p> <p>Sum</p> <p>Max</p> <p>Min</p> <p>Avg</p> <p>Wavg</p>
WAVG By	<p>Specify the series to use as the weights if you use Wavg for the preceding option.</p>
Copy/Paste preservation type	<p>This option applies only to promotional series, which store time-varying data associated with promotions. It specifies how to handle the series data if a user copies and pastes a promotion. For examples, see "Series".</p>

---

Move preservation Type

This option applies only to promotional series, which store time-varying data associated with promotions. It specifies how to handle the series data if a user moves a promotion, changing its dates. For examples, see "Series".

---

### Using the Same Value Update Option

Sometimes a user changes a worksheet cell value, and then changes the cell back to the original value without saving or rerunning the worksheet. This option lets you specify whether this series should send all modified cell values when updated, or send only the cells with changed values.

### Using the Aggregated Base Level Option

This option lets you specify how this series is aggregated in a worksheet that includes a promotion level:

- If you choose `sales_data`, this series is aggregated by the items, locations, and dates selected in the worksheet. Most series are aggregated this way in a typical implementation.
- If you choose `promotion`, this series is aggregated by the items, locations, dates, and promotions selected in the worksheet. That is, when the series is aggregated, any data that is not associated with a promotion is ignored.

Within a worksheet that does not include a promotion, the series is aggregated in the same way with either setting: that is, it is aggregated by the items, locations, and dates selected in the worksheet.

### Specifying a Proportions Reference Series

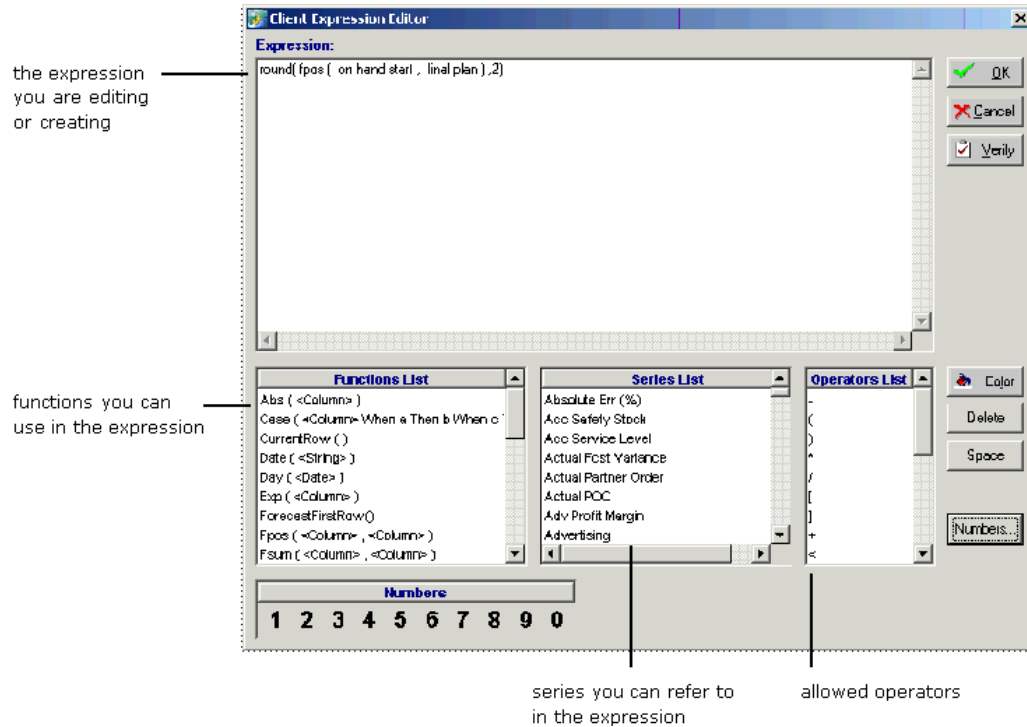
For best performance, Oracle recommends the following:

- Proportions from the same table are better than proportions from a different table.
- If the proportions are not in the same table that stores the series that uses those proportions, consider caching the proportions into the same table that stores the series. For example: create a cache of `GLOB_PROP` in `sales_data` and `promotion_data`.
- Use `PROPORTION_COLUMN` when the proportions are from the same table and do not require a server expression.
- Use a series that is not empty (most of the time) for the proportion reference.

## Using the Expression Editors

For server and client expressions, you use the Business Modeler expression editors, which are similar for these two types of expressions.

For example, the Client Expression Editor looks like this:



This editor has been designed so that you can create expressions without using the keyboard, so that you can avoid introducing errors. The number buttons at the bottom of the screen, the Space button, and the Delete button support this.

**Note:** You use the Color button only if you are creating a color expression; see "Creating a Color Expression".

The Server Expression Editor is similar, with the following main differences:

- The set of allowed functions is different.
- Rather than a list of series, the editor provides a list of the allowed database columns.
- The Server Expression Editor includes two extra fields, Extra From and Extra Where. For details, see "Specifying a Server Expression".

### To edit or create an expression:

1. To insert an element at the position of the cursor, click that element. For example, to insert a function, scroll to that function and then click it.
2. To replace an element (such as a placeholder like <Column>), highlight that element and then click the element you want to replace it with.
3. When you are done, click either OK or Verify.

If the expression is not valid, you will receive the message "Expression is not valid." In that case, close the message box and correct the expression.

See also

"Syntax of Server Expressions" "Syntax of Client Expressions" "Specifying Server and Client Expressions" "Creating an Edit-Lock Expression" "Creating a Color Expression"

## Syntax of Server Expressions

This section summarizes the allowed syntax for server expressions. For a more detailed discussion, see "Series".

A server expression must be an aggregating SQL expression that returns to a value with length greater than zero for each element. (If you never plan to use the series within a cached worksheet, it can return null or a zero-length value; but you may not be able to prevent the series from being misused.)

A server expression must have one of the following forms:

*aggregate\_function* (branch\_data.database\_column \* #UNIT#)

*aggregate\_function* (branch\_data.database\_column)

*aggregate\_function* (mdp\_matrix.database\_column \* #UNIT#)

*aggregate\_function* (mdp\_matrix.database\_column)

*aggregate\_function* (other\_expression)

Here:

- *aggregate\_function* is one of the SQL aggregating functions, most commonly sum.
- *database\_column* is a column of the branch\_data or mdp\_matrix table, most often the update field that corresponds to this series. That is, if SeriesA is associated with branch\_data.SeriesA, then the server expression for SeriesA could be sum(branch\_data.SeriesA)

**Note:** branch\_data is a synonym for the sales\_data table or the

promotion\_data table.

- #UNIT# represents the unit conversion factor. Within a worksheet, this token is automatically replaced by the conversion factor that corresponds to the unit that the worksheet is currently using.

In turn, *other\_expression* can be made up of some or all of the following components:

- Other SQL functions.
- Constants and expressions that have numeric, string, date, and true/false values.

**Note:** Enclose any literal negative value within parentheses, as in this example: (-0.33)

- Operators such as +, -, \*, /.
- Demantra tokens such as #UNIT#.
- Columns of the branch\_data and mdp\_matrix tables.

You can use parentheses to control the precedence of calculations, according to standard algebraic rules.

**Note:** SQL expressions have a limit of 3000 characters. To avoid reaching this limit, use small field names.

For information on the supported operators, tokens, and SQL functions, see "Server Expression Functions and Operators".

## Syntax of Client Expressions

This section summarizes the allowed syntax for client expressions. For a more detailed discussion, see "Series".

A client expression uses Demantra functions. The client expression can be made up of some or all of the following components:

- Constants and expressions that have numeric, date, true/false or null values.

**Note:** Enclose any literal negative constant within parentheses, as in this example: (-0.33)

- Demantra functions.

- Operators such as +, -, \*, /.
- References to other series. To refer to a series, you use the name of the series.
- References to series at other time periods. Here, you use the following syntax:  
`series_name[relative-time-bucket]`

An expression like this is sometimes called a vertical formula. For example: Sales [-1] refers to the Sales series for the previous period. Sales [1] refers to the Sales series for the next period. [0] is not allowed.

Here relative-time-bucket must be any of the following:

- An integer
- A series name
- A simple expression using integers, series names, and the basic mathematical operators.

For information on the supported operators and functions, see "Client Expression Functions and Operators."

## Specifying Server and Client Expressions

### Specifying a Server Expression:

To edit a server expression

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click a series and then select Open > Expression Properties.

Server	
Expression:	<code>sum(nvl(branch_data.orders_override,branch_data.orders)*#UNIT#)</code>
Extra From:	
Extra Where:	
Client Expression:	<code>if ( mod check =2, if ( supply &lt;= minimum order [ - lbytimebuck ], minimum order [ - lbytimebuck ], if ( supply &gt;= maximum order [ - lbytimebuck ], maximum order [ - lbytimebuck ], if ( truncate ( supply / lot size ,0 ) = ( supply / lot size ), supply , (truncate ( supply / lot size ,0 ) + 1)* lot size ) ) , int order plan )</code>
Edit Lock Expression:	
Color Expression:	

3. Click the button to the right of the Server Expression field.  
The Server Expression Editor is displayed.
4. In the Expression field, create an expression as described in "Using the Expression Editors". For information on the syntax to use, see "Syntax of Server Expressions".
  - Enclose any literal negative value within parentheses, as in this example: (-0.33)
  - If this series is going to be used within cached worksheets, it cannot return null or zero-length values. Use the expression `to_number(null,0)` to express null values that can be cached.
  - `branch_data` is a synonym for the `sales_data` table.
5. When you are done, click either OK or Verify.  
If the expression is not valid, you will receive the message "Expression is not valid." In that case, close the message box and correct the expression.

See also

"Server Expression Functions and Operators"

### Specifying Extra From for a Server Expression

Normally the server expression can refer only to fields in the following tables:

---

For sales and matrix series	branch_data and mdp_matrix tables. Note that branch_data is a synonym for the sales_data table or the promotion_data table.
For promotion series	branch_data table.
For level series	Table associated with the level.

---

In rare cases, you may need to refer to data in other tables. In such a case, use the Extra From field. In this field, specify an optional list of additional tables (separated by commas) that contain data relevant to this series.

If you include a table here, the server expression can refer to columns in that table.

**Note:** Internally, these tables are added to the From clause in the SQL query that retrieves data for this series.

### Specifying Extra Where for a Server Expression

If you need to filter the data further, use the Extra Where field. The syntax of this field is as follows:

*table.column operator other\_table.other\_column*

Here *operator* is a comparison operator, one of the following:

=

<>

>

>=

<

<=

And *table.column* and *other\_table.other\_column* are key columns in the database.

**Note:** Internally, the Extra Where field is added to the WHERE clause in the SQL query that retrieves data for this series.

### Specifying a Client Expression:

To edit a client expression

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click a series and then select Open > Expression Properties.
3. Click the button to the right of the Client Expression field.
4. In the Expression field, create an expression as described in "Using the Expression Editors". For information on the syntax to use, see "Syntax of Client Expressions".
  - Enclose any literal negative value within parentheses, as in this example: (-0.33)
  - To include a null value within a client expression, do the following:
    - Create a series named, for example, Null Value and give this series a server expression that evaluates to null.
    - Within the client expression, refer to the Null Value series.
5. When you are done, click either OK or Verify.

If the expression is not valid, you will receive the message "Expression is not valid." In that case, close the message box and correct the expression.

### Verifying All Expressions:

To verify all server and client expressions

1. Click the Verify Expressions button in the toolbar. Or click File > Verify All Expressions.

See also

"Client Expression Functions and Operators"

## Creating an Edit-Lock Expression

An editable series can have an optional edit-lock expression, which can make series cells uneditable based on a condition. For each editable cell in a series, an edit-lock expression evaluates to true or false.

- If the expression evaluates to true, the cell is automatically made uneditable.

- If it evaluates to false, the cell is left in its original state, which can be either editable or not.

### **To create an edit-lock expression:**

1. Click Configuration > Configure Series or click the Configure Series button.
2. Right-click a series and then select Open > Expression Properties.
3. Click the button to the right of the Edit Lock Expression field.

The Client Expression Editor appears.

4. Create an expression that evaluates to true or false; see "Syntax of Client Expressions".

See also

"Client Expression Functions and Operators"

## **Creating a Color Expression**

Any series can have a color expression, which controls only the appearance of the series. For each editable cell in a series, a color expression evaluates to either a numeric color value or null. This expression must have one of the following forms:

*If condition, numeric-color-value*

*If condition, expression-with-numeric-value*

Then for each cell in the series:

- If the expression evaluates to a number, the cell is displayed in the corresponding color.
- If the expression evaluates to null, the color of the cell is left unchanged.
  - In its basic form, a color expression returns one numeric color value based on one condition. To return different color values for multiple conditions, use the second form, and use an If-Then-Else expression for the *expression-with-numeric-value*.
  - A color expression cannot include time-shift expressions such as [ - 1 ], Fpos, and Fsum.

### **To create a color expression:**

1. Click Configuration > Configure Series or click the Configure Series button.

2. Right-click a series and then select Open > Expression Properties.

3. Click the button to the right of the Color Expression field.

The Client Expression Editor appears.

4. Construct an expression (using the If function) that evaluates to a numeric color value. For example, the following color expression makes the cell background red (red=255) if the absolute value of the order variance is greater than the order tolerance:

if ( -order variance > order tolerance , 255)

To insert a numeric color value, do the following:

1. Place the cursor where the numeric color value should appear in the expression.
2. Click Color to display the Color dialog box.
3. Select an existing color. Or click Define Custom Colors and define a color. See "To define a custom color".
4. Click OK.

Demantra finds the numeric value that corresponds to the color you selected, and places that number into the expression.

### Standard Colors

For reference, the following table lists the standard colors in numeric order. You can use this table to look up a color without having to use the Business Modeler user interface. This may be useful when you are working with unfamiliar client expressions.

Color	Description	Color	Description	Color	Description
0	black	4210816	brown	8454143	yellow
64	dark brown	4227072	green	10485760	dark blue
128	brown	4227200	olive green	12615680	steel blue
255	red	4227327	orange	12615808	blue
16384	dark green	4259584	bright green	12615935	pink
16512	brown	8388608	dark blue	12632256	gray

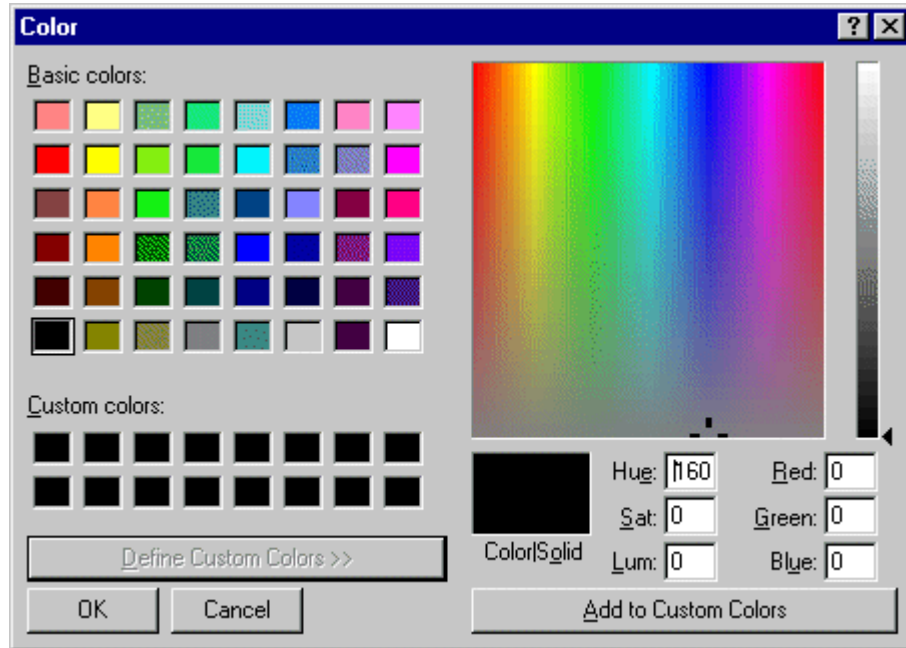
Color	Description	Color	Description	Color	Description
32768	green	8388672	purple	16711680	royal blue
32896	olive green	8388736	purple	16711808	purple
33023	orange	8388863	pink	16711935	pink
65280	bright green	8404992	dark blue	16744448	blue
65408	bright green	8421376	blue green	16744576	blue
65535	yellow	8421440	blue green	16744703	pink
4194304	very dark blue	8421504	gray	16776960	aqua
4194368	very dark purple	8421631	pink	16777088	aqua
4194432	brown	8453888	aqua	16777215	white
4210688	very dark green	8454016	light green		

### Defining Custom Colors:

To define a custom color

1. Click Define Custom Color in the Color dialog box.

The Color dialog box expands to display a color palette.



2. Click the color palette to select a color.
3. Drag the luminance pointer (on the right of the dialog box) up to the required luminance (according to the color/solid display).
4. Click Add to Custom Colors to add the color to the Custom Colors list.
5. Click OK.

## Controlling Access to Series

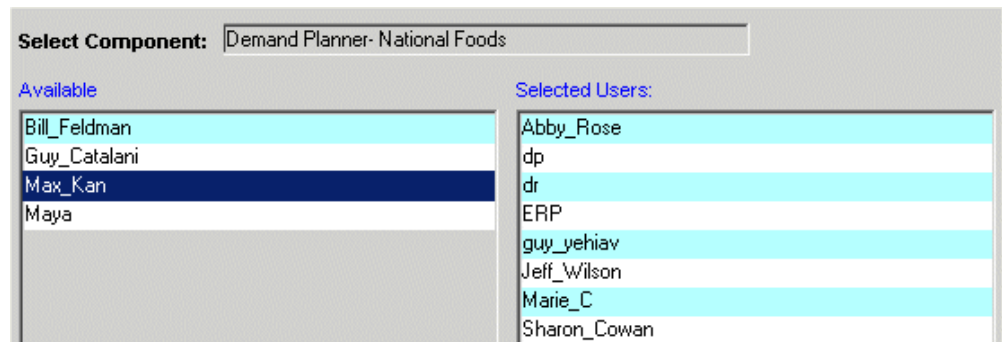
When you create a series in the Business Modeler, Demantra automatically adds that series to your component. You can give access to this series to other users of your component.

### To control access to a series:

1. Click Configuration > Configure Series or click the Configure Series button.
2. To see which components include a specific series, click the plus sign (+) to the left of the series name. The display expands to list all the components that include this series:



3. To make changes, right-click the series and then select Open > Expression Properties.
4. Click Next to access the Security page.



5. If you logged into Business Modeler with one of the internal Demantra passwords, you can select any component. Otherwise, you can make changes only within the component with which your ID is associated.
6. For each user of this component who needs access to this series, double-click the user name to move the user name from the Available list to the Selected Users list.

## Configuring Desktop Group Expressions

Group expressions specify how to group data for display purposes, into different blocks of time such as quarters, months, or half years, when the user chooses to group data in that way.

**Note:** Group expressions are supported only in Demand Planner and Demand Replenisher. For the equivalent functionality in the Web products, create a time level; see "Creating a Time Level".

The following figure shows an example of a worksheet when it is ungrouped and also when it is grouped by month.

ungrouped					grouped by month				
	Date	Demand	Base Fcst	Base Fcst 1		Date	Demand	Base Fcst	Base Fcst 1
→	12/31/2001	29,580	30,769	30,785		12/31/2001	29,580	30,769	30,785
	1/7/2002	35,400	33,825	38,999		1/7/2002	35,400	33,825	38,999
	1/14/2002	49,300	39,253	45,116		1/14/2002	49,300	39,253	45,116
	1/21/2002	93,700	35,696	40,734		1/21/2002	93,700	35,696	40,734
	1/28/2002	69,980	40,057	42,489		1/28/2002	69,980	40,057	42,489
	2/4/2002	101,140	44,765	52,014		2/4/2002	101,140	44,765	52,014
	2/11/2002	70,752	49,605	58,038		2/11/2002	70,752	49,605	58,038
	2/18/2002	85,000	47,785	53,153		2/18/2002	85,000	47,785	53,153
	2/25/2002	62,520	39,957	47,972		2/25/2002	62,520	39,957	47,972
	3/4/2002	78,930	34,562	52,965		3/4/2002	78,930	34,562	52,965
	3/11/2002	141,720	72,742	74,567		3/11/2002	141,720	72,742	74,567
	3/18/2002	397,680	212,143	68,424		3/18/2002	397,680	212,143	68,424
	3/25/2002	139,130	48,630	57,793		3/25/2002	139,130	48,630	57,793
	4/1/2002	501,680	238,580	59,210		4/1/2002	501,680	238,580	59,210
	4/8/2002	139,020	69,144	57,194		4/8/2002	139,020	69,144	57,194
	4/15/2002	397,900	207,601	61,982		4/15/2002	397,900	207,601	61,982
	Summary	2,393,432	1,245,114	841,436		Summary	2,393,432	1,245,114	841,436
	Min	29,580	30,769	30,785		Min	29,580	30,769	30,785
	Max	501,680	238,580	74,567		Max	501,680	238,580	74,567

A group expression specifies the group (in time) to which each row belongs. It does not specify how the subtotals are calculated. The subtotals are calculated as specified by the summary function; see "Specifying How to Display a Series".

Demantra provides a set of possible group expressions, which are all pre-configured. You can reconfigure these as needed.

### To configure a group expression:

1. Click Configuration > Configure Group Expressions.  
The Edit Group Expression screen appears.
2. Select an expression name from the list at the left.
3. In the Expression Description field, edit the name of this expression.  
This name appears in the list of choices when the user clicks Data > Define Group... (in Demand Planner or Demand Replenisher).
4. In the Expression field, edit the expression itself.
5. Click File > Save to save this change.
6. Click the close button at the top right of the window to close the dialog box.

## Deleting a Series

### To delete a series:

1. Right-click the series and click Delete.  
Business Modeler prompts you to confirm that you want to delete this series.
2. Click Yes.  
Deleting a series may take a couple of minutes, depending on the size of the database.
3. Click File > Save to save this change.

## Enabling Series Caching By Item

You can cache series data that is aggregated by item, in the `branch_data_items` table; this improves performance. This technique can be used only in worksheets that meet certain conditions.

### To make sure cached data can be accessed from a worksheet:

1. Make sure that the `DYNAMIC_SYNC` procedure is scheduled to run. See "Database Procedures".  
This procedure updates `branch_data_items` based on changes elsewhere in the database.
2. Make sure that the worksheet is defined as follows:
  - It does not include filters of the location or matrix types.
  - It does not include levels of the location or matrix types.
  - It does not include contain any matrix series.
3. For the user who is running the worksheet, make sure that no security filters have been defined. see "Creating or Modifying a User".
4. Make sure that the `UseItemsAggri` parameter is set to Yes. For information on this parameter, see "Non-Engine Parameters".

## Specifying the Order of Series in Dynamic Open Link

You can control the order in which series are displayed when linked into a third-party

tool through Dynamic Open Link (DOL).

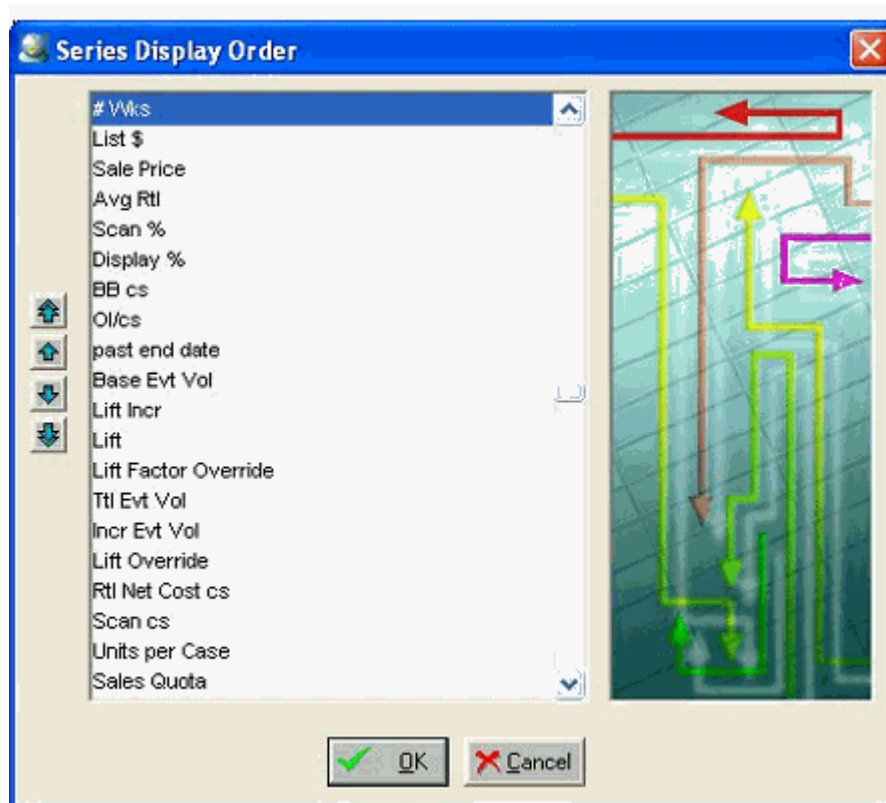
**Note:** This option controls the order of series in the worksheet wizard used by the following:

- Default display order in the Desktop
- Order of series exported via Demantra Dynamic Open Link
- Default display order of Web client Worksheets

### To specify the order of series in the desktop:

1. Click File > Define Series Display Order.

The Business Modeler displays the following screen:



2. To move a series, click it and then click the arrows to move the series to the beginning of the list, up one, down one, or to the end of the list.
3. Click OK.

## Creating or Modifying a Series Group

### To create or modify a series group:

1. Click Configuration > Configure Series Groups.
2. Next:
  - To create a new series group, double-click the New Group icon. Or click the icon and then click OK.
  - To edit a series group, double-click the icon corresponding to the series group. Or click the icon and then click OK.

The Business Modeler displays the General Properties screen.

3. In Group Name, type a unique name for the new series group.
4. In Group Description, type an optional description for the new series group.
5. Click Next.

The Business Modeler displays the Series screen.

6. To select the series to include in this series group, move series from the left list to the right list.
7. When you are done specifying series, click Finish.

## Deleting a Series Group

### To delete a series group:

1. Click Configuration > Configure Series Groups.
2. Click the icon corresponding to the series group.
3. Click Delete.
4. Click Yes to confirm the deletion.

## Viewing Dependencies Among Series

The Business Modeler provides a simple tool you can use to check the dependencies among the series in your system. The results for a given series depend on whether that

series is editable.

**To view series dependencies:**

1. Click Tools > Series Dependencies.

The Business Modeler displays the Series Dependencies screen.

2. In Select Series, select a series.

**If the series is not editable**, the Business Modeler updates the screen, as follows:

The screenshot shows the 'Series Dependencies' window. At the top, the title bar reads 'Series Dependencies'. Below it, on the left, is a 'Select Series:' dropdown menu with 'CY MDF Avail' selected. To the right of this dropdown is a button labeled 'Export All Dependencies'. Below the dropdown menu, there are four distinct panels arranged in a 2x2 grid. The top-left panel is titled 'CY MDF Avail depends On:' and contains a list of series: 'Bill Back', 'CY MDF Actual Spent', 'CY MDF Auth', 'Off Invoice', and 'Promo Cost'. The top-right panel is titled 'Color Expression:' and contains the text 'CY MDF Avail'. The bottom-left panel is titled 'Lock Expression:' and is currently empty. The bottom-right panel is titled 'Summary Line Expression:' and is also empty.

These fields have the following meanings:

---

*Selected series* depends on

All the series on which the selected uneditable series depends, directly or indirectly, through its client expression.

If this series does not have a client expression, this field is blank.

Color Expression

Series whose color expressions refer to the series you selected.

Lock Expression

Series whose edit-lock expressions refer to the series you selected.

---

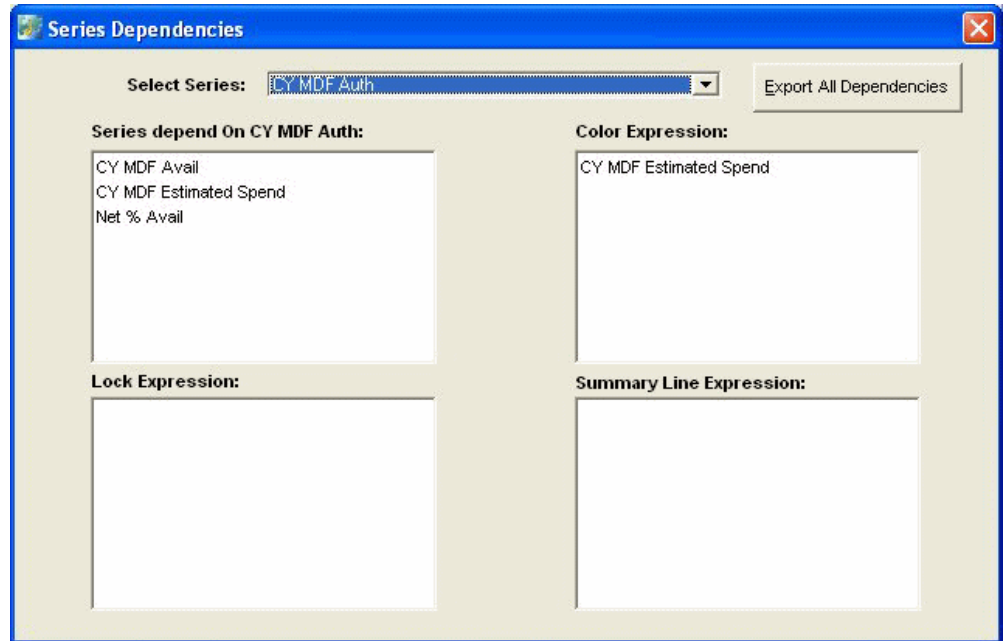
---

Summary Line Expression

Series whose summary row expressions refer to the series you selected.

---

However, if the series is **editable**, the screen is slightly different:



Notice that the first field has a different label and meaning:

---

Series depend on *selected series*

All the series that depend on the selected editable series, directly or indirectly, through their client expressions.

---

The other fields have the same meanings as in the other case.

### To export dependencies of all series:

1. Click Export All Dependencies.

The Business Modeler generates the file Demantra\_root/Demand Planner/Desktop/Dependencies.xls.



---

## Configuring Units, Indexes, and Update-Lock Expressions

This chapter describes how to perform miscellaneous configuration tasks.

This chapter covers the following topics:

- Before Configuring Units and Indexes
- Configuring Indexes and Exchange Rates
- Editing Values for Indexes and Exchange Rates
- Configuring Units
- Associating Units with Levels
- Configuring Time Units
- Configuring Update-Lock Expressions

### Before Configuring Units and Indexes

Before you configure units and indexes, be sure to do the following:

- Read the "Units, Indexes, and Exchange Rates" Chapter and make sure you understand how unit conversion data and the #UNIT# token are used.
- Load unit version data.

### Configuring Indexes and Exchange Rates

Monetary units of measure can use financial indexes and exchange rates. Each index and exchange rate is stored in a different table, except for the placeholder index (constant, equals one for all dates).

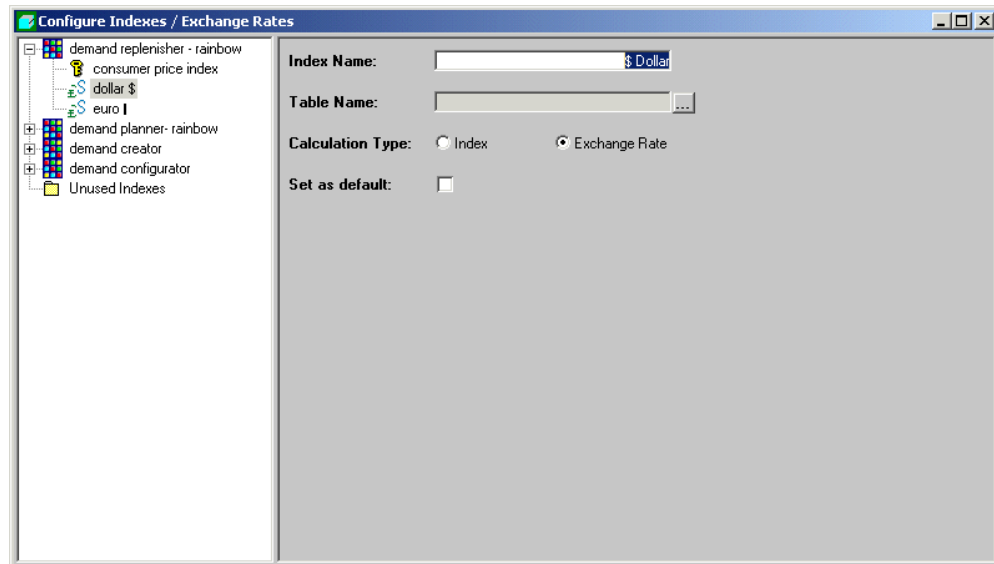
The placeholder index is used to switch a worksheet back to the same monetary units that are used in the imported data. By default this is called **dollar \$**, because monetary

values are usually imported in dollars.

**To create an index or exchange rate:**

1. Click Configuration > Configure Indexes.

The Configure Indexes and Exchange Rates dialog box appears.

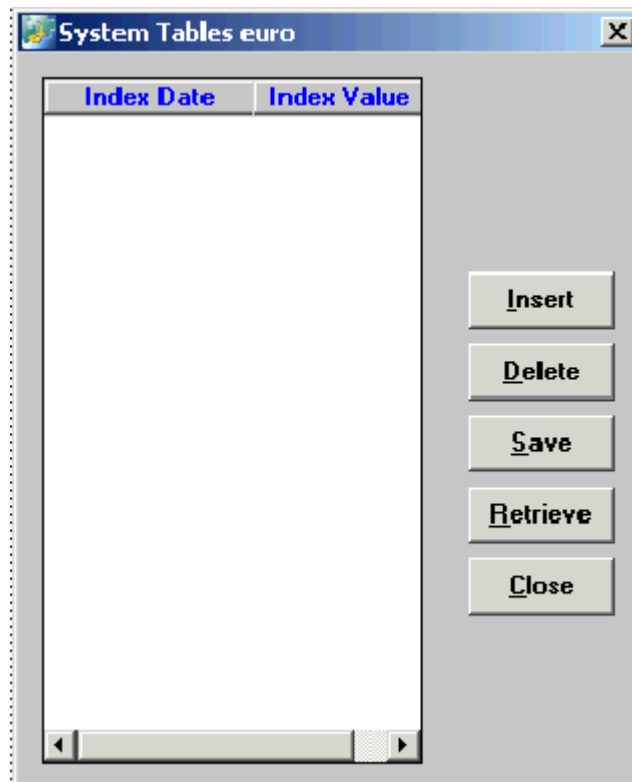


2. Click File > New. Or click the New button.
3. In Index Name, type the name of the index or exchange rate, as it should appear in worksheets.
4. In Table Name, type the name of the table in which Demantra should store information for this index or exchange rate. Demantra will automatically create this table.

**Note:** For simplicity, use the same name as you used for the index or exchange rate.

5. For Calculation Type, click one of the radio buttons to indicate whether this is an index or an exchange rate.
6. If this should be a default option, click Set as default.
7. Click File > Save.
8. To enter data for this index or exchange rate:
  1. Click the ellipsis (...) button next to the Table Name field.

Business Modeler displays the following window:



2. To add an entry, click Insert.
  3. For Index Date, specify a date, using the date format required by the database.
  4. For Index Value, specify the value that takes effect on the specified date. This value is multiplied by the base unit price.
  5. Repeat as needed. When you are done, click Save.
  6. Click Close.
9. The new index or exchange rate is not associated with any component. See "Creating or Modifying a Component".

**To edit an index or exchange rate:**

1. In the left side of the dialog box, click the name of any component that includes the index or exchange rate. This expands the display so that you can see the indexes and exchange rates in that component.
2. Click the index or exchange rate.

3. Modify as needed.
4. Click File > Save.

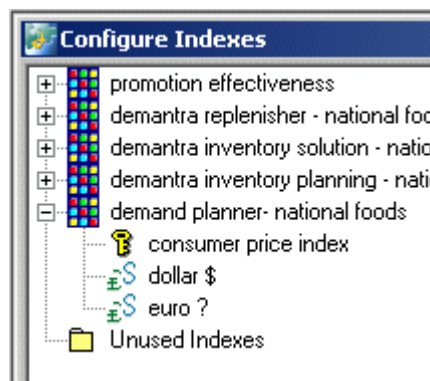
**To delete an index or exchange rate:**

1. Select an index or exchange rate.
2. Click Delete.
3. Business Modeler prompts for confirmation.
4. Click OK.

**To see which indexes a component uses:**

1. In the left side of the dialog box, click the plus sign (+) to the left of the component name.

The hierarchy expands to display all the indexes and exchange rates that are used in this component.



To assign indexes and exchange rates to a component, see "Creating or Modifying a Component".

## Editing Values for Indexes and Exchange Rates

**To edit values for the indexes:**

1. Click System > Maintain > Edit Installed Indexes.  
The Installed Indexes List dialog box appears.
2. Click a table and then click OK.

A dialog box appears for the selected table.

3. To insert new values, click Insert and then type values in the new row that appears.
4. To update the list after inserting new values, click Update. Or, to reset the list to the original values, click Reset.

## Configuring Units

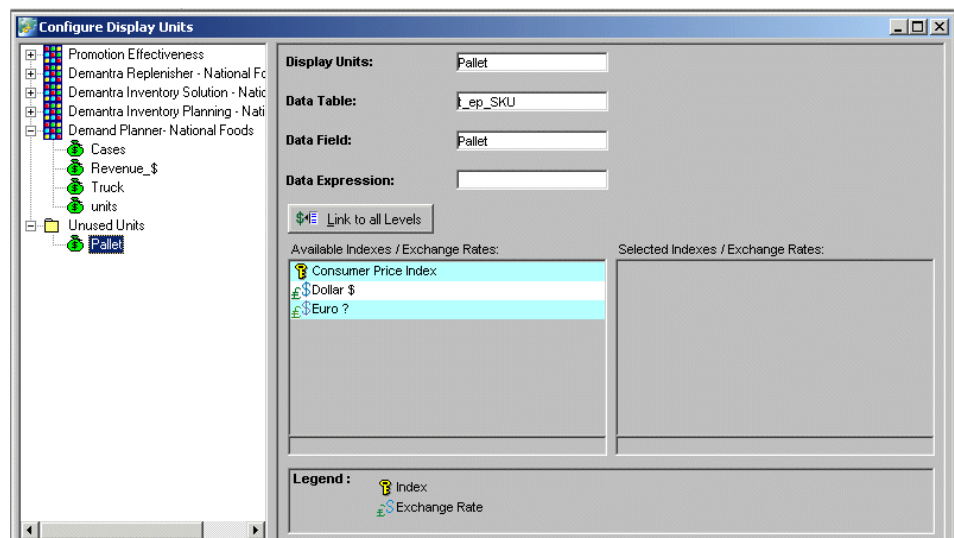
If the database contains the appropriate unit conversion data, you can define two general kinds of units of measure to use in Demantra:

- Size units, which measure the size of a sale: cases, truckloads, and so on.
- Monetary units, which measure the value of a sale. You can also specify indexes and exchange rates associated with the unit.

The procedure is slightly different for these two kinds of units.

### To create a size unit:

1. Click Configuration > Configure Display Units.
  - The Configure Display Units dialog box appears.



2. Click File > New. Or click the New button.
3. In Display Units, type the name of this unit of measure, as it should appear in worksheets.

4. In Data Table, type the name of the table (such as t\_ep\_sku) in which Demantra contains conversion factors for this unit.  
  
**Note:** The conversion factors must be imported, because these factors are generally different for each SKU and may vary over time.
5. In Data Field, type the name of the field in this table that contains the conversion factors for this unit.
6. In Data Expression, type an expression that retrieves the conversion factors for this unit.
7. Click File > Save.
8. The new unit is not associated with any component. To make this unit available to users, see "Creating or Modifying a Component".

**To create a monetary unit:**

1. Click Configuration > Configure Display Units.  
The Configure Display Units dialog box appears.
2. Click File > New. Or click the New button.
3. In Display Units, type the name of this unit of measure, as it should appear in worksheets.
4. In Data Table, type the name of the table in which Demantra contains conversion factors for this unit.
5. In Data Field, type the name of the field in this table that contains the conversion factors for this unit.
6. In Data Expression, type an expression that retrieves the conversion factors for this unit.
7. For each index and exchange rates by which this unit could potentially be multiplied, drag the index/exchange rate from the left list to the right list. Within a worksheet, the user will be able to select one of these at a time.
8. Click File > Save.
9. The new unit is not associated with any component. To make this unit available to users, see "Creating or Modifying a Component".

**To edit a unit:**

1. Click Configuration > Configure System Units.

The Configure Display Units dialog box appears.

2. In the left side of the dialog box, click the name of any component that includes the unit. This expands the display so that you can see the units in that component.
3. Select a unit.
4. Modify as needed.
5. Click File > Save.

**To delete a unit:**

1. Click Configuration > Configure System Units.

The Configure Display Units dialog box appears.

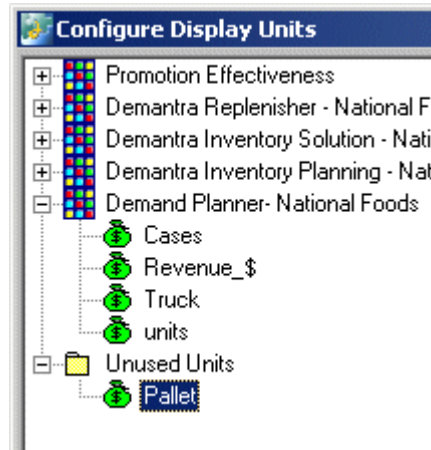
2. In the left side of the dialog box, click the name of any component that includes the unit. This expands the display so that you can see the units in that component.
3. Select a unit.
4. Click File > Delete.
  - Business Modeler prompts for confirmation.
5. Click OK.

**To see which units a component uses:**

1. Click Configuration > Configure System Units.

The Configure Display Units dialog box appears.

2. In the left side of the dialog box, click the plus sign (+) to the left of the component name. The hierarchy expands to display all the units that are used in this component.



To assign units to a component, see "Creating or Modifying a Component".

## Associating Units with Levels

Before users can access a unit of measure, you must associate that unit of measure with each aggregation level with which it could conceivably be used. Within a worksheet, the user will be able to select any unit associated with any aggregation level that the worksheet uses.

There are two equivalent approaches you can use:

- You can use an option that associates a unit with all existing levels, and then you can make further changes for any levels that should not use this unit.
- You can associate the unit with each level one at a time.

The approach you choose depends on how many levels you have and how many of them should use a given unit.

### To associate a unit with all levels:

1. Click Configuration > Configure System Units.

The Configure Display Units dialog box appears.

2. In the left side of the dialog box, click the name of any component that includes the unit. This expands the display so that you can see the units in that component.
3. Select a unit.
4. Click Link Unit to All Levels.
5. Optionally remove this unit from specific levels, if needed, as described below.

### To associate a unit with a level:

1. Click Configuration > Configure Units for Levels.

The system then displays the following list, which includes one line for each existing level-unit association.

Level Name	Level Unit
Lowest Location Level	units
Lowest Location Level	Revenue
Lowest Location Level	Revenue \$
Lowest Location Level	Cases
Lowest Item Level	units
Lowest Item Level	Revenue
Lowest Item Level	Revenue \$
Lowest Item Level	Cases
Forecast User Status	units
Forecast User Status	Revenue
Forecast User Status	Revenue \$
Forecast User Status	Cases
Aggregation User Stat	units
Aggregation User Stat	Revenue
Aggregation User Stat	Revenue \$
Aggregation User Stat	Cases
Forecast System Statu	units

2. Click Add.
3. In the Group column, select the level.
4. Do one of the following:
  - Click the corresponding cell in the Group Unit column and select a unit value.
  - Click the appropriate cell in the Group Unit column and modify its value.
5. Click Save to save the configuration.
6. Click Close to close the dialog box.

### To remove a unit from a level:

1. Click Configuration > Configure Units for Levels.

The system then lists all the existing level-unit associations.

2. Click the line that corresponds to the association you want to remove.
3. Click Delete.
4. Click Save to save the configuration.
5. Click Close to close the dialog box.

## Configuring Time Units

Any Demantra solution has a base time unit (often weeks or months). Demantra provides some larger predefined time units, and you can add others. In general, there are two types of time units:

- Simple time units (such as quarters) are simple multiples of the base time unit. For these, you just provide a scaling factor. For example, for a weekly system, a quarter consists of 13 time units. These time units are assumed to divide evenly into one year, and Demantra automatically figures out which base time bucket each date belongs to.
- Data-dependent time units (such as 4-4-5 time units) require explicit data. That is, they must be assigned explicitly to each date in the system, within the Inputs table. For an example, see "Units, Indexes, and Exchange Rates".

### To configure a simple time unit:

1. Click System > Maintain > Edit Time Resolution.
2. Click Insert.
3. In the description column, type a name for the time unit.
4. In the Time Scale column, type the number of base time units in this new time unit. Ignore the Inputs Column field.
5. To save changes, click Save. Or to exit without saving changes, click Cancel.

### To configure a data-dependent time unit:

1. Using a database tool, add a column to the Inputs table that indicates how to group the base time buckets.
2. Within the Business Modeler, click System > Maintain > Edit Time Resolution.
3. Click Insert.

4. In the Description column, type a name for the time unit.
5. In the Inputs Column field, select the column from Inputs that contains the data for this time unit. Ignore the Time Scale column.
6. To save changes, click Save. Or to exit without saving changes, click Cancel.

**To delete a time unit:**

1. Click System > Maintain > Edit Time Resolution.
2. Click a row in the Time Resolution screen.
3. Click Delete.
4. To save changes, click Save. Or to exit without saving changes, click Cancel.

See also

"Creating a Time Level"

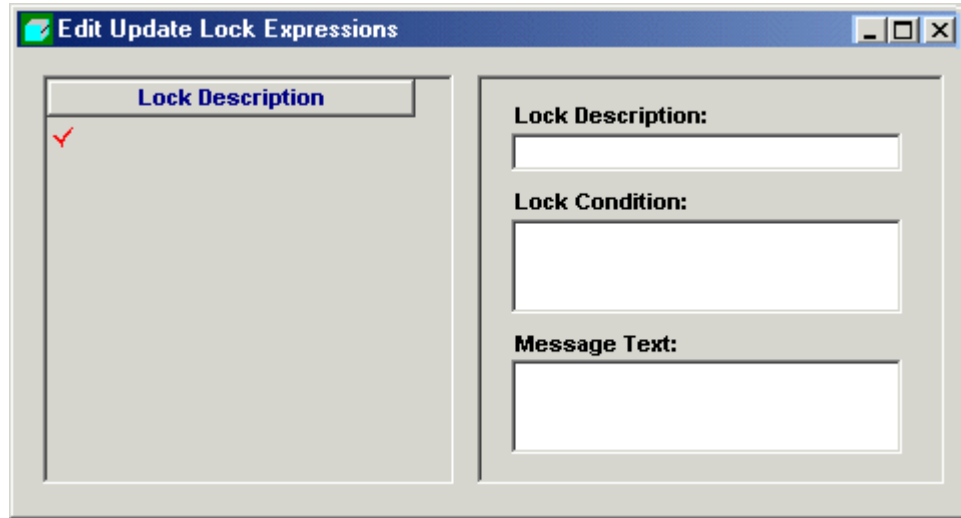
## Configuring Update-Lock Expressions

An update-lock expression checks to see if a condition is met for each combination and if so, and prevents users from updating the database (saving the changes to the combination). This expression evaluates to either true or false. If the expression evaluates to true, then when the user tries to save the combination, a message is displayed and the worksheet data is not saved. The user must correct the data before the worksheet can be saved.

**To configure an update-lock expression:**

1. Click Configuration > Configure Update Locks.

The Edit Update-Lock Expressions dialog box appears.



2. Click the New button.
3. In the Lock Description field, add or edit the title of the expression.
4. Click the Lock Condition field.  
The Client Expression Editor appears.
5. Create or edit an expression that evaluates to either true or false. See "Specifying Server and Client Expressions".

**Note:** Be sure that any constant values are expressed as the correct type of data (numeric, string, or date) for the expression you use. For example, be sure to use double quotes around constant string values if your expression uses a string-type series.

6. In the Message Text field, create or edit the message to be displayed when the update-lock expression returns true. This message should be as informative as possible so that the user knows which of his or her edits is responsible for the update-lock condition.
7. Click the Save button.

#### **To delete the contents of a field:**

1. Click the Delete button.

#### **To refresh data from the database:**

1. Click the Retrieve button.

---

## Series and Level Integration

This chapter describes how to use the Integration Interface Wizard, which you use to import or export series data and level members.

This chapter covers the following topics:

- Before Using the Integration Interface Wizard
- Creating or Modifying an Integration Interface
- Creating a Data Import Profile
- Creating a Data Export Profile
- Specifying Series Data to Import or Export
- Creating an Export Profile for Any Level
- Creating an Import Profile for a General Level
- Deleting an Integration Interface
- Details of the Staging Tables
- Executing an Integration Interface
- Checking the Integration Queue

### Before Using the Integration Interface Wizard

Before you use the Integration Interface Wizard, be sure to do the following:

- Read the "Integration" Chapter and make sure you understand the different options for importing and exporting data.
- Define the series and levels that you plan to import or export.
- If you are importing data, make sure you know what database procedures to run in order to keep the Demantra tables synchronized.

- Consider the following option provided by the Business Modeler: When you create an integration interface, the Business Modeler can automatically create a database user/schema that is pre-filtered to display only the data selected in that integration interface. This database user is provided for convenience and can be used within the Demantra solution or elsewhere. Demantra does not use this database user directly.

If you choose to create this user; the Business Modeler automatically uses the user name and password that you used to log into the Business Modeler. This means that you must use the following overall process for each integration interface you want to create:

1. Decide what database user name and password you want to associate with that integration interface.

**Note:** Make sure that the database does not yet 'contain a user with this name. The Business Modeler will not change an existing user.

2. Log onto the Business Modeler as a component owner. Create the user.
3. Log into the Business Modeler as that user.
4. Within the Business Modeler, create the integration interface. Be sure to enable the option Create DB User for Interface Objects.

**Note:** Whenever the Demantra user's password is changed, the database user's password must also be changed (if the user is an interface database user).

## Creating or Modifying an Integration Interface

Before you perform data import or export, you define a reusable integration interface. This will contain any number of data profiles and level profiles. The profiles define the details of the integration.

### To create or modify an integration interface:

1. Click Tools > Integration Interface.

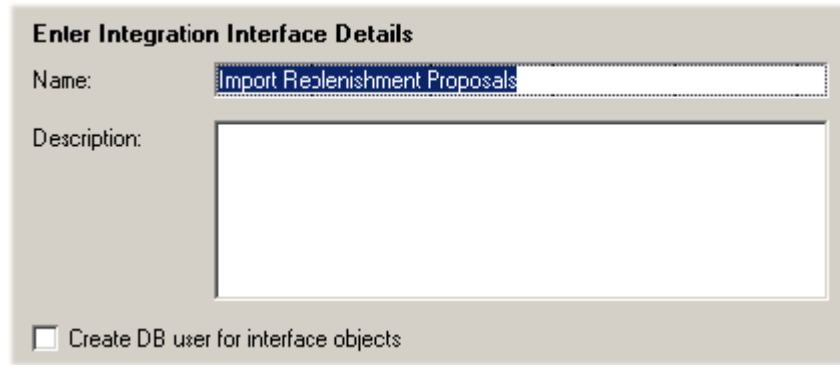
The Create/Modify Integration Interface screen appears.

2. Do one of the following:
  - Click New Integration Interface and then click OK. Or double-click New

Integration Interface.

- Click the button corresponding to the integration interface that you want to edit.

The Integration Interface Details screen appears.



**Enter Integration Interface Details**

Name:

Description:

☐ Create DB user for interface objects

1. Specify or edit the name and description for this integration interface.
2. Select or clear the Create DB User for Interface Objects check box.

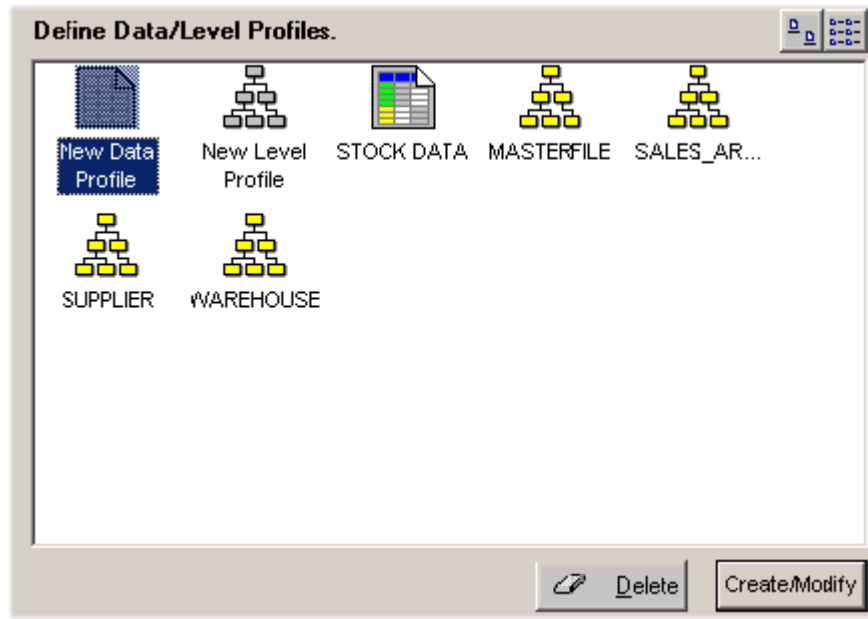
If selected, you will create a database user who can view only the data as configured in this integration interface.

**Note:** The new database user will receive the username and password with which you logged into the Business Modeler.

If the database user already exists, it is not changed.

3. Click Next. Or click Cancel and proceed to the next stage without saving changes.

The Integration Interface Selection screen appears. Here you define data profiles and level profiles within this integration interface.



4. To display the profiles in list format instead, click the list format icon on the upper right.
5. Do at least one of the following:
  - Define a data profile, as described in "Creating a Data Import Profile" or "Creating a Data Export Profile".
  - Define a level profile, as described in "Creating an Import Profile for a General Level".
6. Click Finish.

See also

Making Changes Available to Users

## Creating a Data Import Profile

A data import profile describes how to import series data aggregated to a specific aggregation level or levels, with optional filtering. You can include sales series or promotion series, but not matrix series.

**Important:** Create import integration profiles using the Business Modeler installed *on the server* where Oracle Demantra is installed, and not using Business Modeler installed on the client personal computer.

In the case where the E-Business Suite Administrator navigates to the Demand Management Workbench > Planning Applications > Business Modeler, this deploys the silent install of the Business Modeler locally on C:\Program Files\Oracle Demantra Spectrum.

See Desktop and Business Modeler Automatic Install, page 15-3.

When the user creates an Integration Profile, the system creates a batch file on the machine from which Business Modeler is initiated. An executable step of the corresponding workflow references the batch file location on the server. In order for the workflow to process the batch file, the path to the batch file in the executable step of the workflow needs to reference the correct location (on the server). In the case where the user launches Business Modeler from the client PC, the workflow errors, because it looks for the batch file on the server, while it exists on the client PC.

### To create a data import profile:

1. Open the integration interface, as described in "Creating or Modifying an Integration Interface".
2. Click Next to display the Define Data/Levels Profile screen.
3. Click New Data Profile and then click Create/Modify. Or double-click New Data Profile.

The Integration Interface Wizard displays the following screen.

**Enter Data Profile Details**

Data Profile Name: REPLENISH\_REQMT\_PWS

Description:

Presentation Type: Code

Integration Type: Import Export Data:

Create Worksheet: ☒

Import From File: ☒

Create Workflow: ☒ Workflow Group: Integration

4. Specify the following details for the data profile.

---

Name	Unique name for the data profile.
Description	Optional description.
Presentation Type	<p>Specifies how level members are identified in the profile:</p> <p>If you select Description, each member is identified by its description field.</p> <p>If you select Code, each member is identified by its code display field.</p>
Integration Type	<p>Import.</p> <p>For information on export profiles, see "Creating a Data Export Profile".</p>
Create Worksheet	Select this check box if you want Demantra to create a worksheet that you can use to view the data.
Import from file	Select this check box if you are importing data from a file. Or leave this check box unselected if you are importing data from a table that is in the Demantra database.
Create Workflow	Select this check box to automatically create a workflow schema that uses this data profile. This option is available only if your system includes the Workflow module.
Workflow Group	Specify the schema group that this workflow should belong to. This option is available only if your system includes the Workflow module.

---

5. If your system does not include the Workflow module, then the preceding screen includes the following field:

---

Create Process Batch	Select this check box to automatically create a batch file that uses this data profile. The name of the batch file is given in the final step of the wizard.
----------------------	--

---

6. Click Next.
7. In the next set of screens, the Integration Interface Wizard prompts you for information about the data to import. This process is similar to creating worksheets. If you are not familiar with that process, see "Specifying Series Data to Import or

Export".

8. After you specify the data to import, the Integration Interface Wizard prompts you for additional import details.

Import to Forecast

Insert New Combinations: ☐

Populate Forecast Horizon: ☐

Split Proportions

☐ Matrix Proportions

☒ Actual Proportions

Table Name:

9. Specify the following information:

---

Insert New Combinations	If selected, all new combinations will be imported into Demantra.
Populate Forecast Horizon	Inserts new forecast records into the sales_data table for the entire forecast horizon data for the new combinations. This option is available only if you selected Insert New Combinations.
Split Proportions (ignored if you import at the lowest level)	<p>This option is relevant only if you are importing data at an aggregated level. Select one of the following:</p> <p>Matrix Proportions - Uses the precalculated proportions that are stored in the mdp_matrix table. This means that if your aggregate data is imported at a weekly granularity, the split at the lowest level will be based on the corresponding monthly proportions.</p> <p>This option shortens the calculation process before any split action. Also, if you use this option, you will not need to run the MANUALS_INS_INTEGRATION procedure.</p> <p>Actual Proportions - Calculates proportions based on historical data. This option splits the aggregate data down to the lowest level based on sales or forecast values at the lowest level in the time bucket of interest. If no sales or forecast data exists, matrix proportions will be used.</p>

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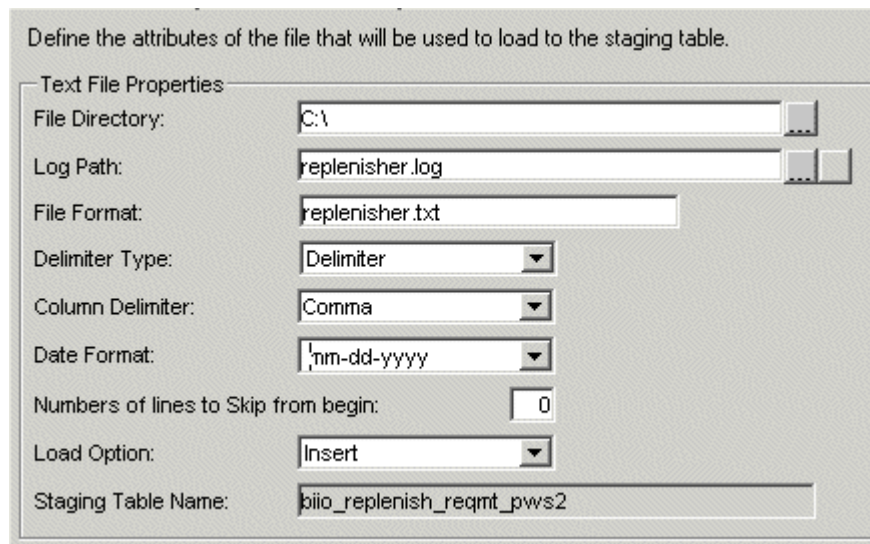
---

Table Name	<p>The meaning of this field depends on whether you are importing data from a file:</p> <p>If you are importing data from a file, this field specifies the name of the internal staging table into which Demantra will import this data.</p> <p>If you are instead importing data from a table in the database, this field specifies the name of that table.</p> <p>In either case, Demantra creates the table for you.</p> <p>If you change this name, it must not include spaces.</p>
------------	---

---

**Note:** Make a note of the name of the staging table. For an introduction, see "Details of the Staging Tables".

10. Click Next.
11. If you are importing data from a staging table rather than a file, skip ahead to Step 17.
12. If you are importing data from a file, the Integration Interface Wizard prompts you for details about that file.



Define the attributes of the file that will be used to load to the staging table.

Text File Properties

File Directory: C:\

Log Path: replenisher.log

File Format: replenisher.txt

Delimiter Type: Delimiter

Column Delimiter: Comma

Date Format: mm-dd-yyyy

Numbers of lines to Skip from begin: 0

Load Option: Insert

Staging Table Name: pio\_replenish\_reqmt\_pws2

13. Specify the following information:

---

File Directory	Directory that contains the source file.
Log Path	Directory and filename of the log file into which Demantra will write any messages when you execute this integration profile.
File Format	The name of the file from which you want to import data.
Delimiter Type	Choose either Fixed Width or Delimiter.
Column Delimiter	Choose the delimiter that separates columns of data. This option is enabled only if Delimiter Type is Delimiter.
Number of Lines to Skip	Specify the number of lines at the top of this file that Demantra should ignore. For example, if the file contains a single header line, specify 1.
Load Option	Choose one of the following:  Insert—use this to add new rows to the staging table  Replace—use this to replace existing rows in the staging table

---

14. Click Next.

15. If you are importing from a file, the Integration Interface Wizard displays a screen that shows additional details of the imported data.

Name	Type	From Pos	To Pos	Active
sdate	date			<input checked="" type="checkbox"/>
level1	varchar2			<input checked="" type="checkbox"/>
aggri_98	varchar2			<input checked="" type="checkbox"/>

This screen shows one row for each field that the imported data contains.

1. Specify which columns to import. By default, all columns are imported; to prevent a column from being imported, select the Active check box.
2. Specify the order of the fields. To move a field, click the field and then click the up or down arrows until the field has reached the appropriate location.
3. If you chose the fixed width option earlier, you must now specify the widths of each of these fields. To do so, enter the starting and ending column position.

16. Click Next.
17. The Integration Interface Wizard displays a screen that reviews your selections.
18. Review the displayed information and do one of the following:
  - To make further edits, click Back.
  - To finish the data profile, click Finish.

The Integration Interface Selection screen appears (see "Creating or Modifying an Integration Interface").

## Creating a Data Export Profile

A data import profile describes how to export series data aggregated to a specific aggregation level or levels, with optional filtering. You can include sales series or promotion series, but not matrix series.

If you want to export a series that uses a client expression, you must first run the Business Logic Engine to evaluate the expression, split the resulting data to the lowest level, and save it to the database. If you are exporting data within a workflow, you use the BLE step type for this purpose.

### **To create a data export profile:**

1. Open the integration interface, as described in "Creating or Modifying an Integration Interface".
2. Click Next to display the Define Data/Levels Profile screen.
3. Click New Data Profile and then click Create/Modify. Or double-click New Data Profile.

The Integration Interface Wizard displays a screen where you name the new data profile.

**Enter Data Profile Details**

Data Profile Name:

Description:

Presentation Type:

Integration Type:  Export Data:

Create Worksheet: ☒

Import From File: ☐

Create Workflow: ☒ Workflow Group:

4. Specify the following details for the data profile.

Name	Unique name for the data profile.
Description	Optional description.
Presentation Type	Specifies how level members are identified in the profile:  If you select Description, each member is identified by its description field.  If you select Code, each member is identified by its code display field.
Integration Type	Export.  For information on import profiles, see a "Creating a Data Import Profile".
Export Data	Select one of the following options:  Full - use this to export all data  Incremental - use this to export only changed data
Create Worksheet	Select this check box if you want Demantra to create a worksheet that you can use to view the data.

Create Workflow	Select this check box to automatically create a workflow schema that uses this data profile. This option is available only if your system includes the Workflow module.
Workflow Group	Specify the schema group that this workflow should belong to. This option is available only if your system includes the Workflow module.

- If your system does not include the Workflow module, then the preceding screen includes the following field:

Create Process Batch	Select this check box to automatically create an external batch file that uses this data profile. The name of the batch file is given in the final step of the wizard.
----------------------	--

- Click Next.
- In the next set of screens, the Integration Interface Wizard prompts you for information about the data to export. See "Specifying Series Data to Import or Export".
- After you specify the data to export, the Integration Interface Wizard prompts you for additional export details..

**Data Profile Export Properties**  
File and View properties for the export of the data

Export to File options

File Name: F:\CW-export.txt

Fixed Width: ☒ Delimiter: [Dropdown]

Select View Type for export

☒ View  
☐ Materialized View

View Name: BEO\_REPLENISH\_REQMT\_CW

- Specify the following information:

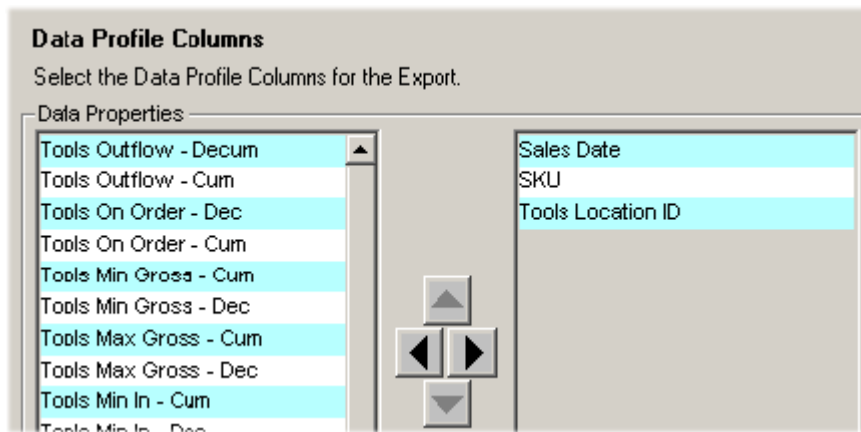
---

File Name	Full directory path and filename of the file to which you are exporting data. Note that Demantra appends a unique time stamp to the end of the file so that you can export multiple times and see each result.
Fixed Width	Select if you want to export data in fixed width format. Leave this option unselected if you want to specify a field delimiter instead.
Column Delimiter	Choose the delimiter that Demantra should use between fields when it exports the data. This option is enabled only if Fixed Width is not selected.
Select Type of View for Export	<p>Choose one of the following:</p> <p>View - Retrieves data from the database.</p> <p>Materialized view - Saves data as a cube allowing quick and flexible analysis. (This option is enabled only for Oracle.)</p>
View Name	<p>Name of internal table into which Demantra will export this data. If you change this name, it must not include spaces.</p> <p>Also, the view is created only after you run the export process. The columns in the view are not necessarily in the same order as in the exported file.</p>

---

10. Click Next.

The Integration Interface Wizard prompts you to specify the fields to export.



- For each field that you want to export, click that field in the left list and then click the right-pointing arrow.

2. To change the order of the fields, click a field and then click the up or down arrow.
  3. Click Next.
11. If you chose the fixed width option earlier, you must now specify the widths of each of these fields. The Integration Interface Wizard displays the following screen.

**Data Profile Column's Width**  
Populate the Data Profile Column's Width to Export.

Field Name	Field Type	Field Width
Sales Date	Date	10
SKU	Char	10
Tools Location ID	Char	3

1. For each field, specify a numeric field width.
  2. Click Next.
12. The Integration Interface Wizard displays a screen that reviews your selections.
13. Review the displayed information and do one of the following:
- To make further edits, click Back.
  - To finish the data profile, click Finish.

The Integration Interface Selection screen appears. See "Creating or Modifying an Integration Interface".

## Specifying Series Data to Import or Export

When you define a data profile for import or export (or both), a series of screens prompt you for information about the data.

**Tip:** It is generally good to import data at the lowest level possible.

If you need to load both sales series and promotion series, you probably should define separate data profiles for the two sets. You would likely want to import the promotion series at the promotion level, while you would import the sales series at some other level.

### To specify series data for import or export:

1. The Integration Interface Wizard prompts you for the series to import or export in this data profile.

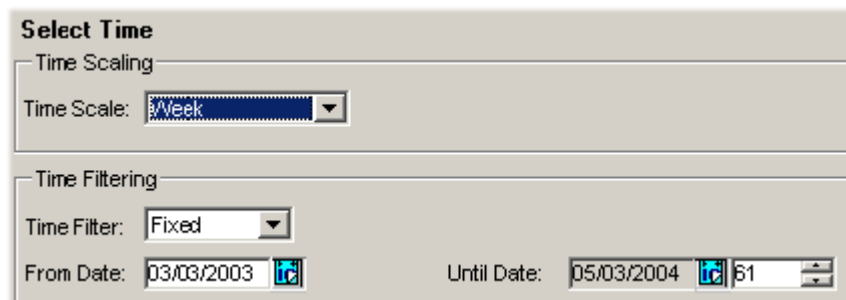


2. Click each series you want to include so that it appears with a check mark.

**Note:** Be sure to select only series that have an update field.

3. Click Next.

The Integration Interface Wizard prompts you for information about the time resolution and span of time to include in this data profile.



4. In the **Time Scale** box, specify the time resolution of the data to import or export.
5. In the **Time Filter** box, choose one of the following:
  - Choose **Relative** if you always want the import or export to use a time range

relative to the date when you run the integration profile.

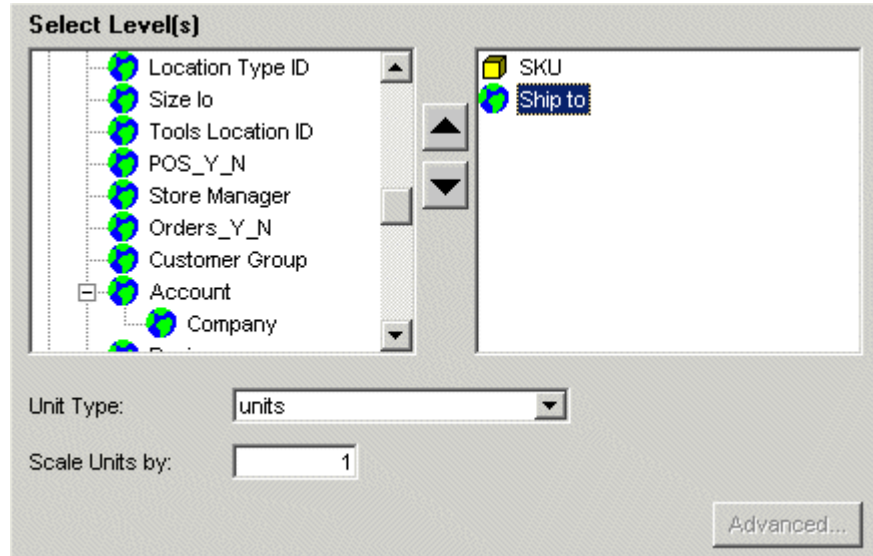
- Choose **Fixed** if you always want the import or export to use a specific time range, regardless of when you run the integration profile.

6. In the **From Date** and **To Date** boxes, enter values depending on the time filter you have chosen, as follows:

Time Filter	Box	Action
Relative	From Date/ To Date	<p>Specify periods in both From and To with the current (computer) date as the reference point.</p> <p>For example: If the Time Scale is <i>Month</i>, and you want data starting from six months before today until six months after, enter -6 (negative) in From Date, and 6 in To Date.</p>
Fixed	From Date	<p>Enter a specific date as a starting point. This is enabled only from the calendar.</p>
	To Date	<p>Specify the number of periods you want to include, starting from the From date. The unit period is what you selected in Time Scale.</p> <p>For example: If the Time Scale is <i>Year</i>, From Date is 01/01/96, and you want data from then until 12/31/98, enter 3 in To Date.</p>

7. Click Next.

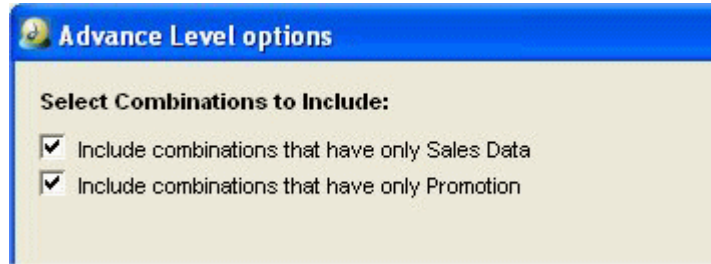
The Integration Interface Wizard prompts you for the levels at which the imported or exported data should be aggregated. For example, in the data profile shown here, data is imported for SKU-Ship to combinations.



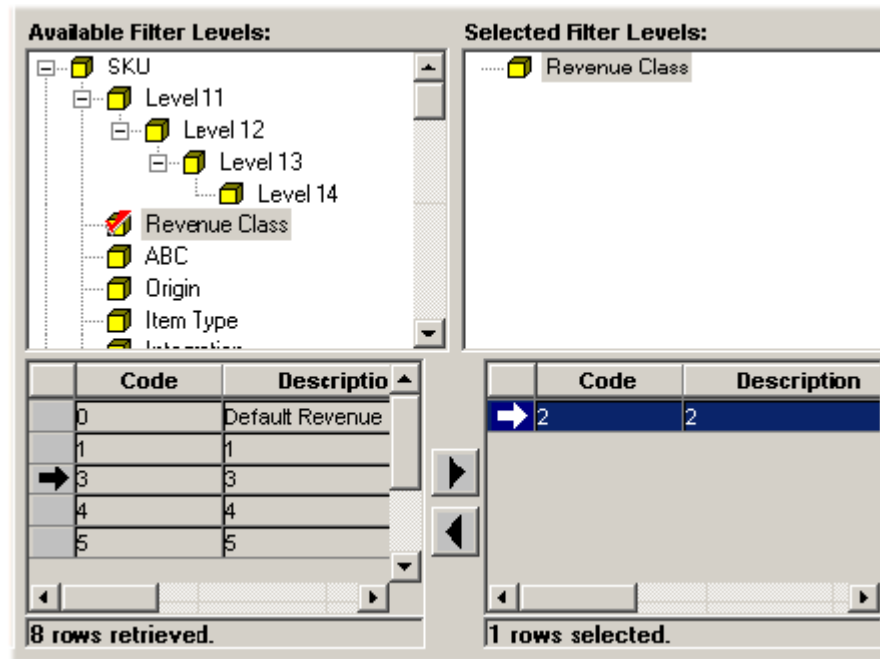
8. Double-click each level you want to use, so that it appears in the right column.
9. Optionally move a selected level to an earlier or later position in the right column.

**Note:** The order in which the levels are listed in the right column controls the order of the fields in the staging table that Demantra creates for this data profile.

1. In the Scale Units by box, specify the factor by which all data in the import or export is to be divided.
2. In the Unit Type box, select the unit of measure to use in the imported or exported data.
3. If the Index box is displayed, choose an index from the dropdown list.
4. The Index menu lists all the time-dependent indexes and exchange rates that are associated with this unit.
5. Optionally click the Advanced button in the lower right. Oracle displays a dialog box with additional options.



6. Select or deselect these check boxes as needed, and then click OK.
7. Click Next.
10. Now you can optionally filter the imported or exported data.



1. Find the aggregation level at which you want to filter data and move it from the Available Filter Levels list into the Selected Filter Levels list,
2. In the Available Members list, find a member that you want to include in the imported or exported data and move it into the Selected Members list.
3. Continue to move members from the Available Members list into the Selected Members list, until the latter list includes all the members you want.
4. Click Next.

11. Now you can optionally define exceptions in this data profile. If you attach an exception to a profile, Demantra checks the values of the profile data and imports or exports only the combinations that meet the exception criteria.)

Exceptions		
Demand	<=	10000.0

Buttons: Add, Delete, Verify

Use :  
☒ AND  
☐ OR

1. Click Add.
  2. In the new row, click the arrow to the right of the series box and select a series from the dropdown list.  

**Note:** Not all series are necessarily available for exceptions, depending upon the series definition. See "Available for Exceptions".
  3. Click the arrow to the right of the operator box and select an operator from the dropdown list.
  4. In the number box, type the required number.
  5. You can apply additional exceptions. Select the AND or the OR radio button to specify that the relationship between the exceptions.
  6. Click Next.
12. Continue to define the data profile as in the following topics.
    - Creating a Data Import Profile: Step 8
    - Creating a Data Export Profile: Step 8

## Creating an Export Profile for Any Level

You can define a profile that describes how to export the members and attributes of any

level.

**Note:** An export profile creates a database view, and the data in that view is then exported to the specified export file. The view is created only after you run the export process.

### To create a level export profile for any level:

1. In the Integration Interface Selection screen, double-click the New Level button.
2. Specify a name and description for the level profile.

**Enter Level Profile Details**

Level Profile Name:

Description:

Presentation Type:

Integration Type:  Export Data:

Create Workflow: ☐ Workflow Group:

---

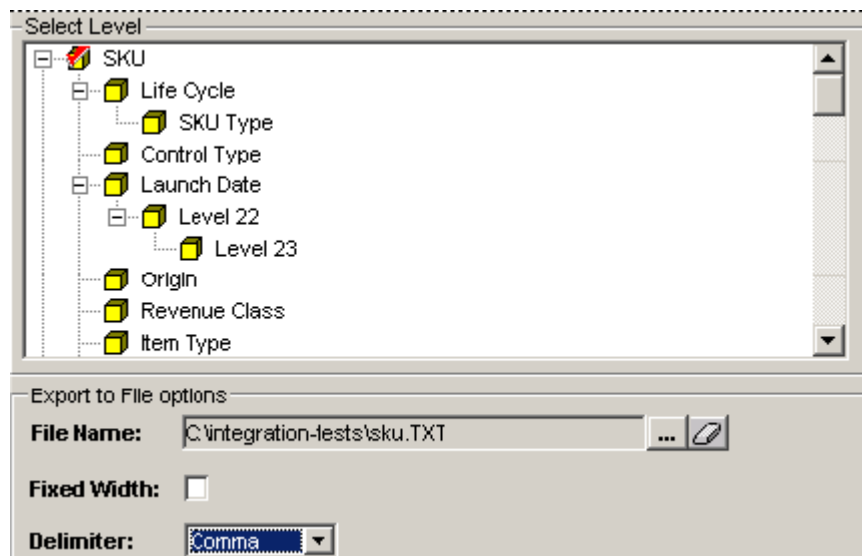
Name	Unique name for the level profile.
Description	Optional description.
Presentation Type	<p>Specifies how level members are identified in the profile:</p> <p>If you select Description, each member is identified by its description field.</p> <p>If you select Code, each member is identified by its code display field.</p>
Integration Type	<p>Export.</p> <p>For information on level import.export profiles, see "Creating an Import Profile for a General Level".</p>

---

Export Data	<p>Select one of the following options:</p> <p>Full—use this to export all data</p> <p>Incremental—use this to export only changed data</p>
Create Workflow	<p>Select this check box to automatically create a workflow schema that uses this data profile. This option is available only if your system includes the Workflow module.</p>
Workflow Group	<p>Specify the schema group that this workflow should belong to. This option is available only if your system includes the Workflow module.</p>

3. Click Next.

- The Integration Interface Wizard displays a screen like the following.

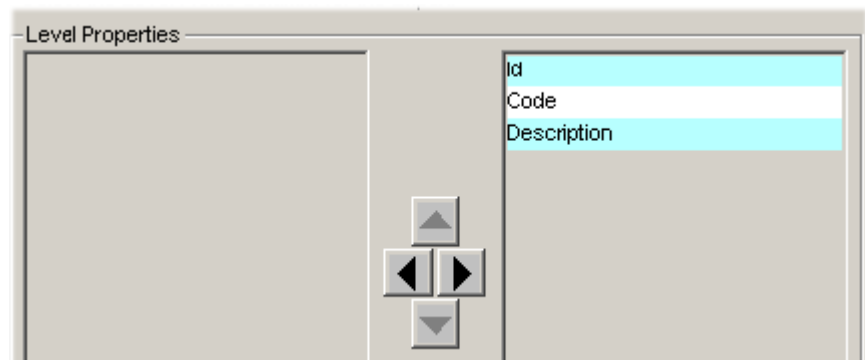


- Click the level to import or export.
- Specify information about the file to export to, as follows. This file does not have to exist beforehand:

File Name	Specify the path and filename of the export file.
Fixed Width	If selected, each data item will be trimmed or filled to a specific field width, as specified later.
Delimiter	A symbol used to separate the data elements in the file. Use this option only if you do not check Fixed Width.

6. Click Next.

The Integration Interface Wizard displays a screen that lists the columns you can export for this level. In general, these columns correspond to identifiers and attributes of members of this level.



1. For each field that you want to export or import, click that field in the left list and then click the right-pointing arrow.
  2. To change the order of the fields, click a field and then click the up or down arrow.
  3. Click Next.
7. If you chose the fixed width option earlier, you must now specify the widths of each field of the export file.

The Integration Interface Wizard displays the following screen.

Field Name	Field Type	Field Width
Id	Num	10
Code	Char	10
Description	Char	200

8. In the Field Width box, enter the required width of each field, in characters.
9. Click Preview Structure.

The Integration Interface Wizard displays a screen that reviews your selections.

10. Review the displayed information, and then do one of the following:
  - To make further edits, click Back.
  - To finish the data profile, click Finish.

The Integration Interface Selection screen appears.

See "Creating or Modifying an Integration Interface".

## Creating an Import Profile for a General Level

For a general level, you can define a profile that you can use to import or export the members and attributes of the level.

- You can export members and attributes of a general level, but you cannot export the population attributes of the members. (The population attributes specify the item-location combinations to which each promotion applies.)
- An export profile creates a database view, and the data in that view is then exported to the specified export file. The view is created only after you run the export process.
- This import/export profile addresses only the members and attributes of the level. In the case of promotions, you generally also need to import or export the associated promotion series. To do so, create a data profile that includes the promotion series; see "Creating a Data Import Profile".
- When you import a member that already exists, Demantra updates the member with the new attribute values.

### To create a level profile for an integration interface:

1. In the Integration Interface Selection screen, double-click the New Level button.
2. Specify a name and description for the level profile.

Level Profile Name: Import Promotions

Description:

Presentation Type: Code

Integration Type: Import Export Data:

Create Workflow: ☐ Workflow Group:

Insert Matrix Combination: ☒ Create fictive combinations: ☐

---

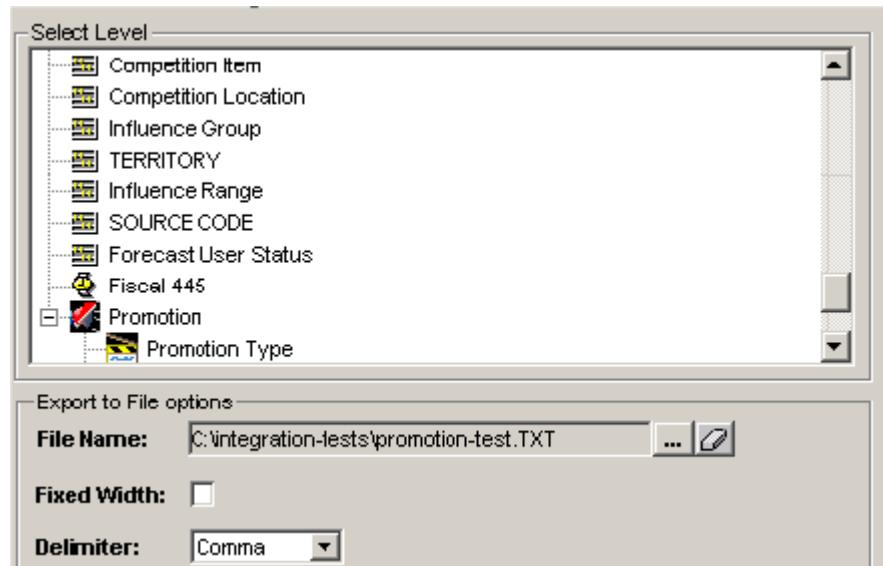
Name	Unique name for the level profile
Description	Optional description
Presentation Type	<p>Specifies how level members are identified in the profile:</p> <p>If you select Description, each member is identified by its description field.</p> <p>If you select Code, each member is identified by its code display field.</p>
Integration Type	<p>Import.</p> <p>For information on level export profiles, see "Creating an Import Profile for a General Level".</p>
Create Workflow	Select this check box to automatically create a workflow schema that uses this data profile. This option is available only if your system includes the Workflow module.
Workflow Group	Specify the schema group that this workflow should belong to. This option is available only if your system includes the Workflow module.

---

Insert Matrix Combinations	This option specifies whether to create the combinations of the associated population attribute, if those combinations do not already exist.
----------------------------	--

3. Click Next.

- The Integration Interface Wizard displays a screen like the following.

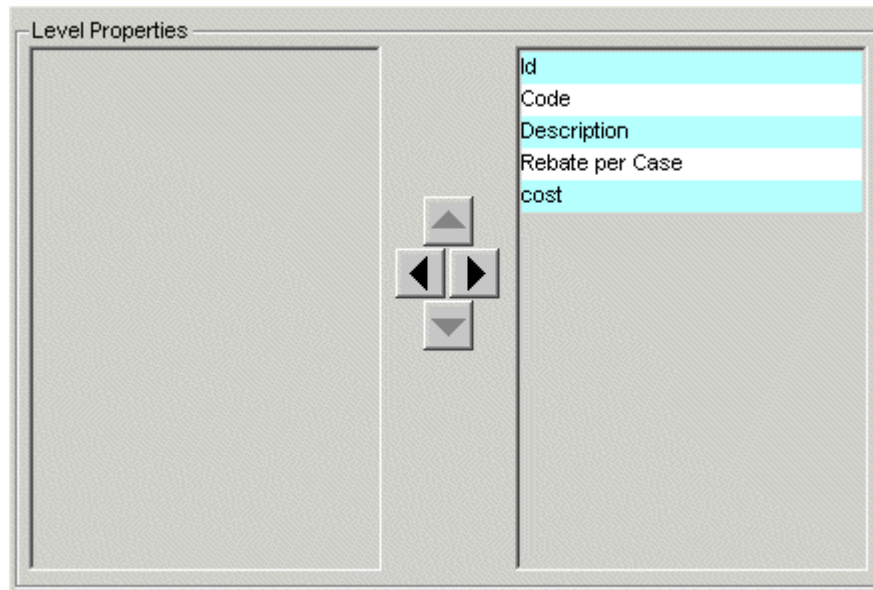


4. Click a general level.

5. If you want to export this general level, specify the following:

File Name	Specify the path and filename of the export file. This is the file to which the members and attributes of the general level will be exported. The associated population attributes are not exported.
Fixed Width	If selected, each data item will be trimmed or filled to a specific field width, as specified later.
Delimiter	A symbol used to separate the data elements in the file. Use this option only if you do not check Fixed Width.

6. Click Next.
7. If you specified an export file, the Integration Interface Wizard displays a screen where you specify the columns in the file. In general, these columns correspond to identifiers and general attributes of members of this general level. Population attributes are not shown.



For each field that you want to export or import, click that field in the left list and then click the right-pointing arrow.

8. To change the order of the fields, click a field and then click the up or down arrow. Click Next.

If you chose the fixed width option earlier, the Integration Interface Wizard displays the following screen.

Field Name	Field Type	Field Width
Id	Num	10
Code	Char	10
Description	Char	200

9. In the Field Width box, enter the required width of each field, in characters. Click Next.

The Integration Interface Wizard displays a screen where you specify the staging table or tables for this level.

Members Table:

Attribute Table:

You will import data into or export data from these tables. These tables have the following meaning:

Members Table	Table that contains the members of this general level
Attribute Table	Typically applies only at the lowest general level. This table contains the population attributes for each member. This table is used only for import and is ignored for export.

**Note:** Make a note of the names of the staging tables. For an introduction, see "Details of the Staging Tables".

10. Click Preview Structure.

The Integration Interface Wizard displays a screen that reviews your selections.

11. If you are importing data from a staging table rather than a file, click Create to create that staging table.
12. Review the displayed information and do one of the following:
  - To make further edits, click Back.
  - To finish the data profile, click Finish.

The Integration Interface Selection screen appears.

See "Creating or Modifying an Integration Interface".

## Deleting an Integration Interface

### To delete an integration interface:

1. Click Tools > Integration Interface.

The Create/Modify Integration Interface screen appears.

2. Click the button corresponding to the integration interface that you want to delete.

3. Click Delete.

## Details of the Staging Tables

It is critical to understand the structure and purpose of the staging tables generated by this tool, especially as you will have to share this information with other groups or organizations who will provide the data to load. Demantra generates three kinds of staging tables, each with its own structure. This section describes the general rules that Demantra uses to create these tables.

**Note:** It is outside the scope of this documentation to describe how to load data into the staging tables.

## Introduction

Oracle Demantra automatically creates staging tables as follows:

- For a data import profile, Oracle Demantra creates a staging table to contain the series data aggregated to the specified level or levels.
- For a general level import profile, Oracle Demantra creates a staging table to contain the level members that will be added. If the general level also includes a population attribute (as in the case of promotions), then Oracle Demantra creates an additional staging table to contain the population associated with each level member.

The Integration Interface Wizard initializes the names of these staging tables, but you can rename the tables within the wizard if needed. The default names start with `biio_`, but you should make a note of the names of your tables, as displayed within the Integration Interface Wizard.

You will also have to examine the structure of your staging tables, to ensure that the correct data is loaded into them. The SQL command `desc tablename` is useful for this task; see your database documentation. The following sections provide guidelines for understanding the fields in these tables.

For each staging table, the Integration Interface Wizard also creates an error table. The error table has the same structure as the corresponding staging table, with the addition of a new column that is meant to contain any error message associated with that record. The error table has the same name as the corresponding staging table, with `_err` appended to the end.

## Staging Table for a Data Profile

The staging table associated with a data profile is intended to contain one row for a given date and combination. For that date and combination, this row contains data for

each series that is being loaded. The staging table has the following fields:

1. The first field (Sdate) is meant to contain the date for the data you are loading. This can be any bucket date that lies within the span of time specified by the data profile; see Step 2.

A bucket date is the calendar date of the first day within a given bucket. For example, if you are using a weekly system starting on Monday, all dates must fall on Mondays.

2. The next fields (Level1, Level2, and so on) are meant to contain either the codes or the descriptions for each member to which this data applies. These are character fields and are required.

- Pay attention to the Presentation Type used in the data profile. If the Presentation Type is Code, then these fields should contain the codes of the parent members. Likewise, if the Presentation Type is Description, then these fields should contain the descriptions.
- As you can see, these fields are not labeled to indicate the level to which they refer. Demantra considers the order in which you listed the levels within the integration wizard; see Step 3. The Level1 field contains the first level, Level2 contains the second level, and so on.

3. The rest of the fields are meant to contain the values for each series for the selected member(s) and date. The following rules apply:

- These fields are not required.
- The name of each field is the same as the **update field name** that you specified for the series. (See "Specifying Data Properties of a Series".) This can be confusing if your series names and update field names are not the similar.
- Except in the case of dropdown series, each of these fields has the same data type as the series itself.
- For a dropdown series, the import field is expecting to contain the value that is shown within the drop down list in the worksheet (rather than the internal value that is instead stored). Oracle Demantra automatically converts the imported value to the appropriate internal value.

For example, consider a drop down series that uses the Promotion Type Level as a lookup:

Promotion Type	
Promotion Type Id	Promotion Type Desc
42	DISPLAY
43	F. SHOPPER
45	FEATURE
44	F&D
46	TPR
0	default Promotion Type
47	NATIONAL TV

This series stores the values shown in the left column but displays the values shown in the right. When loading data for this series, you would provide values as shown in the right column.

Oracle Demantra looks up the value that you provide, finds the corresponding internal value, and imports the internal value into the database. If Oracle Demantra cannot find the value that you provide, this record is not imported and Oracle Demantra writes an error to the corresponding error table.

## Main Staging Table for a Level Profile

The main staging table associated with a level profile is intended to contain one row for each member. That staging table has the following fields. For all these fields, field names depend on the level you are loading.

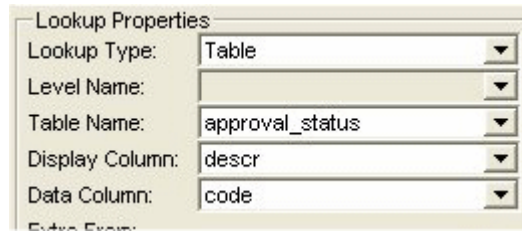
1. The first field is meant to contain the codes of the members that you are loading. This is a character field and is required.
2. The second field is meant to contain the descriptions of the members that you are loading. This is a longer character field and is required.
3. The next fields are meant to contain the **codes** for each immediate parent. These are character fields and are required.
4. The rest of the fields are meant to contain the attribute values for each member that you are loading. The following rules apply:
  - None of these fields are required.

**Note:** If you omit values for these fields, Demantra leaves the corresponding attributes as null. Oracle Demantra does not use any level or attribute defaults during import.

- The name of each field is the same as the **column name** that you specified for

the attribute. This can be confusing if your attribute names and column names are not the same.

- Except in the case of lookup attributes, each of these fields has the same data type as the attribute itself.
- For a lookup attribute, the import field is always a character field.
- For a lookup attribute of type table, the import field is meant to contain the same data as used in the display column of the table, as specified in the level editor here:



Lookup Properties

Lookup Type: Table

Level Name:

Table Name: approval\_status

Display Column: descr

Data Column: code

For example, suppose that the approval\_status table is as follows:

Code	DESCR
1	Submit
2	Submitted
3	Approved
4	Re-Review

In this case, the staging table is expecting to receive the description fields (such as "Submit"). Oracle Demantra uses the lookup table, finds the corresponding codes, and inserts those into the level table. If Oracle Demantra cannot find the given field in the lookup table, the promotion is not imported and Oracle Demantra writes an error to the corresponding error table.

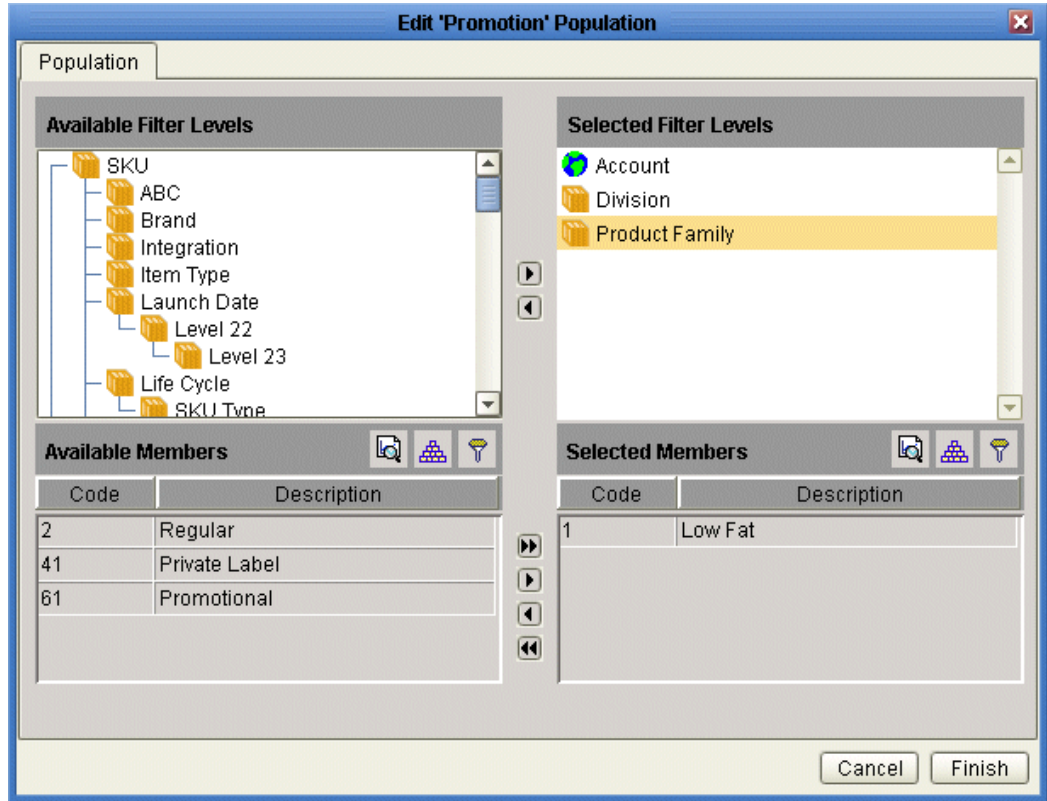
- For a lookup attribute of type level, the import field is meant to contain the description field of the member, as displayed in the right side of the Level Members screen:

Promotion Type	
Promotion Type Id	Promotion Type Desc
42	DISPLAY
43	F. SHOPPER
45	FEATURE
44	F&D
46	TPR
0	default Promotion Type
47	NATIONAL TV

For example, you would load the data "Feature" into the field for this level-type attribute. Oracle Demantra looks up this description in the level table, finds the corresponding code, and inserts that into the level table for the member that you are importing. If Oracle Demantra cannot find the given description, the promotion is not imported and Oracle Demantra writes an error to the corresponding error table.

## Population Staging Table for a Level Profile

If you define an import profile for a promotion or other general level, Oracle Demantra also creates a staging table (for example, `biio_population`) to hold the population of the promotions that you are loading. This staging table describes the population of each promotion. Specifically, it contains the same information as this window:



For each promotion, the table can contain multiple rows. Each row specifies a level and a member of that level, just as the preceding screen does (the previous screen shows that this promotion is associated with the Low Fat member of the Product Family). This table has the following structure:

Field	Data Type	Purpose
LEVEL_MEMBER	varchar2(40)	Code of the promotion (or other general level) member that you are loading.
FROM_date	date	Start date for this promotion member.
UNTIL_date	date	End date for this promotion member.
FILTER_LEVEL	varchar2(50)	Name of a level, for example "Product Family" or "SKU".

Field	Data Type	Purpose
LEVEL_ORDER	number(15)	Use 1 for a location-type level or 2 for an item-type level.
FILTER_MEMBER	varchar2(50)	Description of a member of this level, for example "Low Fat".

## Executing an Integration Interface

Once you have created an integration interface, you can use it in either of two ways:

- You can incorporate the integration interface in a workflow controlled by the Workflow Manager.

To automate import or export, you add the appropriate integration interface to the workflow or workflows that you have defined for the users. You use the workflow step Transfer Step to initiate the import/export process. Internally, in this case, the APS layer performs the integration.

- You can use the separate Stand-Alone Integration Tool, which is `Demantra_root/Demand Planner/Integration/aps.exe`. (This tool consists of a subset of the APS, packaged as an executable file.) To use this tool, open a shell, change to the directory in which the tool resides, and enter the following command:

```
aps.exe option "integration interface name" "profile name"
```

Here, option must be one of the following options, to specify what to import or export:

- EXPORT\_DATA
- IMPORT\_DATA
- EXPORT\_LEVEL
- IMPORT\_LEVEL

Also, integration interface name must be the name of an integration interface that has already been defined, and profile name is the name of a data profile or level profile within that interface

The double quotes are needed only if there are spaces within the interface name or the profile name.

**Note:** If you are importing data, and if the data profile specifies actual proportions (rather than matrix proportions), be sure to run the MANUALS\_INS\_INTEGRATION procedure after you run the integration interface.

## Checking the Integration Queue

You can check the status of the integration tasks.

**To view the integration queue:**

- 1. Start Demand Planner or Demand Replenisher.
- 2. Click Window > Integration Queue Monitor.

The Integration Queue Monitor window appears. The window shows the Oracle Demantra tasks initiated for the integrated application. You can see the following information:

Timestamp	Date where the task was created.
ACTCODE	Codes specifying tasks to be performed in the integrating application.
PARAMSTRING	Parameter that is connected to the task.
Status	Status of the task, indicating the phase that the task is in.
Last Refresh	Time when this point of the process was reached.



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## Importing Supplementary Data

This chapter describes how to import data into the Demantra database by using Tools > Import File. You use this tool to import supplementary data such as lookup tables.

This chapter covers the following topics:

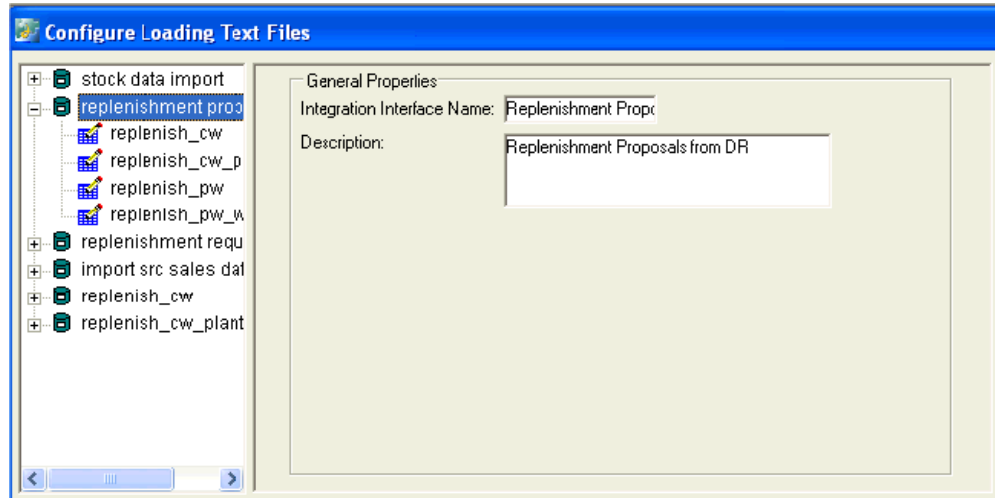
- Creating or Modifying a File Load Interface
- Deleting a File Load Interface
- Creating an Import Profile
- Creating the Import Batch File

### Creating or Modifying a File Load Interface

An import interfaces consists of one or more profiles. Each profile corresponds to one table; note that multiple files can be loaded into a single table.

**To create or modify a file load interface:**

1. Click Tools > Import File.
2. The Configure Loading Text Files screen appears.



3. Next:

- To create a new interface, click File > New. Or click the New button in the toolbar.

A new file load interface is displayed in the left side of the dialog box.

- To edit an existing interface, click the interface.

4. Specify a name and description.

5. Make sure the interface includes at least one import profile. See "Creating an Import Profile".

## Deleting a File Load Interface

### To delete a file load interface:

1. In the tree pane, right-click the interface and then select Delete Import Interface.

## Creating an Import Profile

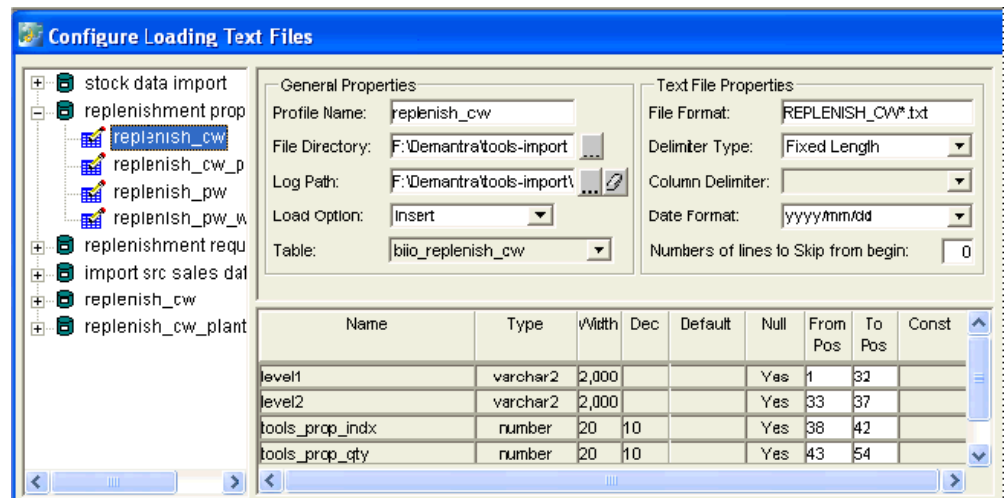
Each file load interface must include at least one import profile, which describes how to import data into a single table.

### To create an import profile:

1. In the tree pane, right-click the interface and then select Create Import Profile.

A new import profile is added to the tree. The right side of the dialog box prompts

you for details on this profile.



## 2. Complete the fields as follows:

Profile Name	Specify a unique name for this import profile.
File Directory	The location of the files.
Log Path	Path and filename of the log file that will store any load errors.
Load Option	Select Insert to add the imported data after the last row in the table.  Or select Replace to replace all the data in the table.
Table	The name of the existing table into which you want to load the text file data.
File Format	The file name, which can include wild cards.
Delimiter Type	Select either fixed length or delimiter.
Column Delimiter	Select the character used in this source file to delimit fields.

---

Date Format	Select the date format from the drop-down box. If this source file does not contain dates, this is optional.
File Name Format	Select more than one file through the use of a wildcard (*). For example, dcl_his*. * selects every file with the prefix dcl_his.
Number of lines to skip from begin	If there is a header, this gives the number of lines to miss at the top of the table.

---

If fixed length was selected as the delimiter type, the table column pane is activated.

Name	Type	Width	Dec	Default	Null	From Pos	To Pos	Const
application_id	number	10	0		No			
series_id	number	10	0		No			

- To specify table columns (where fixed length columns have been selected), complete the fields as follows:

---

From Pos	Position in the source text file where the field starts.
To Pos	Position in the source text file where the field ends.
Const	Constant column width. If selected, the From Pos and To Pos fields are disabled for editing.

---

- Click File > Save. Or click the Save button.

## Creating the Import Batch File

To use a file load interface, you create and run a batch file that imports the data as described in the interface.

**To create an import batch file:**

1. Select a file load interface in the tree pane.
2. Click Create Load Batch.

The system displays a message is displayed when it creates the batch file.

The batch file is named `load_text_file_model_name.bat`

**Note:** You can also view the CTL syntax, which is the control file that SQL\*Loader uses to map data into the database. Only experienced consultants should use this feature. To view the CTL syntax, click Show CTL Syntax.



---

## Creating Workflows

This chapter describes how to create Demantra workflows, which are automated or semi-automated processes that you can use for a wide variety of purposes.

This chapter covers the following topics:

- Creating or Editing Workflow Schemas
- Parameters Used as Arguments for a Workflow
- Deleting Workflow Schemas

### Creating or Editing Workflow Schemas

You can edit any workflow schema that you created, but you cannot edit schemas created by other users. When you edit a schema, the changes will be used in any new instances of the workflow schema. Any instances of the schema that are currently running are unaffected.

**Note:** If you are configuring a method that changes attribute values, the workflow must include an Edit Member Step as its first step. Otherwise, the changed values will not be saved to the database.

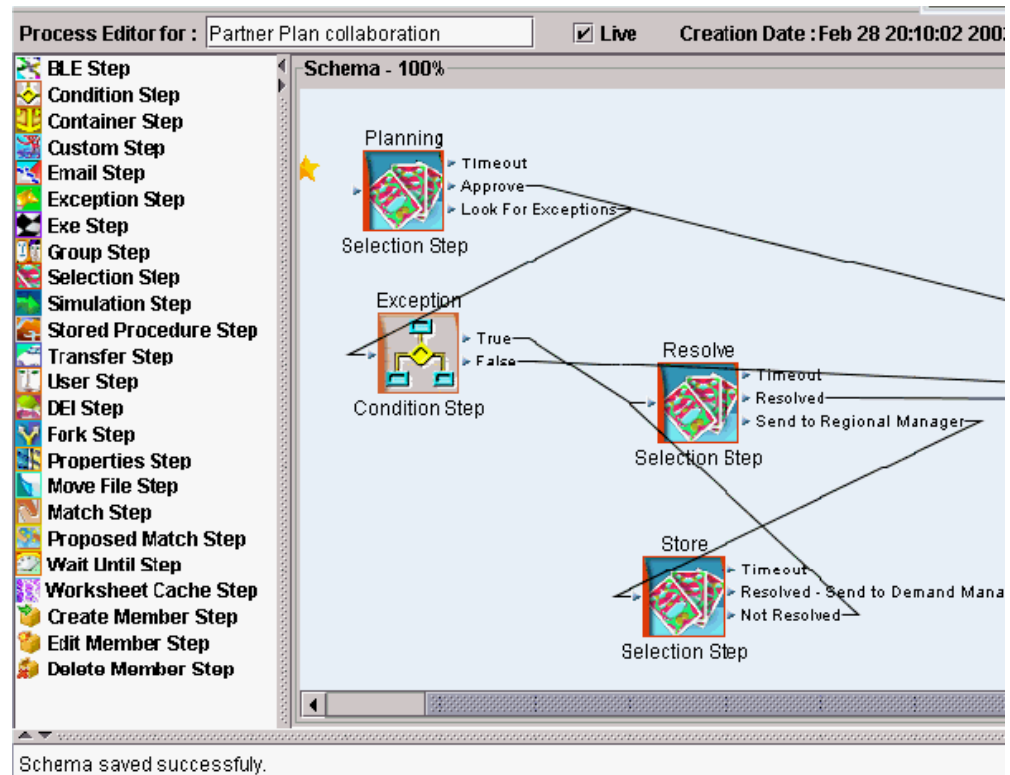
**Note:** You do not have to create the whole schema in one editing session. You can save your changes and then return to edit the schema.

**Note:** You can mark a schema as archived, which prevents it from being used. It is good practice to archive any schema that is not yet finalized, to prevent it from being used before it is ready.

### To create or edit a workflow schema:

1. Log onto the Workflow Editor as described in "Logging into the Workflow Manager."
2. Do one of the following:
  - To create a new schema, click New Schema at the bottom of the page.
  - To edit a schema, click Edit in the row corresponding to that schema. Or click the schema name.

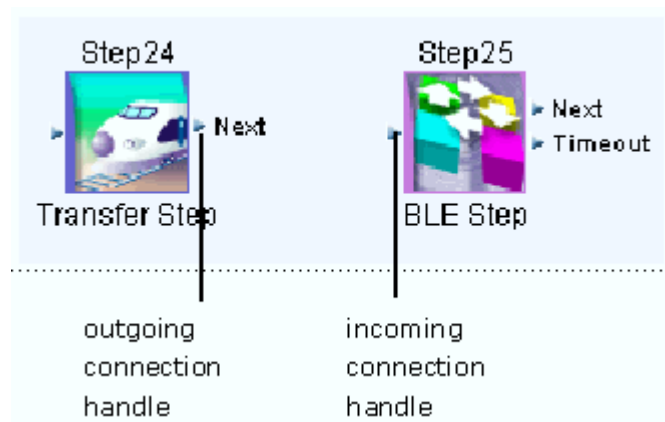
The Workflow Editor appears.



This screen has three panes:

- The left pane lists all the available steps that you can include in the workflow.
  - The right pane shows the definition of the workflow itself.
  - The message pane at the bottom of the window contains information, such as a warning of a failed validation or confirmation of a successful save.
3. Do one of the following:

- To make the schema to be available for use, select the Live check box.
  - To make the schema unavailable, clear the Live check box.
4. Add the required steps to the workflow. To add a step to the workflow:
    1. In the left pane, double-click the icon corresponding to the step.  
The Workflow Editor displays a popup window that prompts you for information about the step.
    2. Specify the step properties. The properties depend on the kind of step you are adding. For details, see "Workflow Steps".
    3. Click OK.  
The step is added to the right pane.
    4. Within the right pane, optionally reposition the step icon to improve readability.
  5. Connect the steps in the required order. To link two steps, click the outgoing connection handle of the first step and drag to the incoming connection handle of the next steps.



Note the following rules:

- An outgoing connection handle can be linked to only one following step. The Container Step is the exception.
- A step that is contained within a Container Step cannot have any of its outgoing connection handles connected to other steps.
- The Selection Step has multiple outgoing steps. To define the outgoing connection handles and to add the links, you use the properties dialog box. See

"Defining and Linking to Selections".

6. To specify which step starts the workflow, right-click the step and then select Set as Start step.

This step is labelled with a yellow star. If a different step had previously been marked as the starting step, that mark is cleared automatically.

Each schema must specify a step from which the execution starts.

7. To save your workflow to the database, click Save. Or click Back to cancel your changes.

**Note:** When you save a schema, it is automatically checked for validity. You cannot save an invalid schema. Click Verify to verify before saving.

8. Click Back to return to the main screen.

#### **To edit an existing step:**

1. Right-click the step and then click Properties.

2. To delete a step

Click the step and press Delete.

3. To delete a link

Click the link and press Delete.

See also

"Managing Workflows"

## **Parameters Used as Arguments for a Workflow**

When you configure a workflow as a method, Demantra can pass arguments in memory to the method. Considered as a group, these arguments are the context dictionary. For each argument, Demantra passes a variable name and its associated value.

In order to make these arguments available to a workflow step, you must explicitly configure the variables that each workflow step should receive. To do so, you type each variable name in the Name column of the Parameters list for that step, as follows:

**Parameters**

Description	Name	Value
	level_id	
	member_id	
Product Family	t_ep_Fam_EP_ID	
Brand	t_ep_Brand_EP_ID	
Name	SKU_D	

Add
Remove

In this example, the first two arguments are standard member variables, from the table in "Available Arguments". These arguments can be used in any method.

The remaining three arguments are input variables; these variables refer to attributes of the member. Specifically these are the names of the columns in which these attributes are stored (Product Family, Brand, and Name).

**Note:** In the Parameters list:

- The parameter names are case-sensitive.
- The descriptions are not used by the method.
- If a value is null in this table, then the value is taken from the member from which the method was launched.
- If the value is not null, then it is used instead of the value taken from that member.

## Relative Path Requirements

Some workflows contain executable (.exe) steps that point to specific batch files to be executed. Since those paths are absolute, there is a need to correct paths to the executable files for each installation. In order to remedy the use of an absolute path in workflow steps, Oracle Demantra provides support for a *relative* path to files or applications referenced by workflow steps in the Demantra Workflow Manager.

This parameter is automatically assigned to every launched workflow dictionary. It can be used to define a *physical root* path to a folder containing key files or executables leveraged by Workflow schemas in the Workflow Manager.

Relative path requirements fall under two cases:

- Case 1: Relative to web application folder structure, in other words, one folder above the WEB-INF folder
- Case 2: Relative to the Demantra application folder, in other words, the folders in

which the engine, Demand Planner desktop, Business Modeler and the integration standalone aps.exe are installed.

To accommodate these two relative path requirements, two new path tokens are provided. Every running workflow schema will have these parameters in their dictionary. They will be automatically assigned by the Workflow process creator. Using these parameters eliminates the need to change workflow steps that run external files. In most cases, the reference to these files can now be relative to the install folder.

## Case 1: Using the appserver\_root Parameter for Web Application

The appserver\_root parameter, located within the sys\_params table, provides support for a *relative* path to files or applications referenced by workflow steps in the Demantra Workflow Manager. If the appserver\_root parameter is null, or empty, then its default value is one folder above the WEB-INF folder of the Demantra application install.

**Note:** Typically the folder located directly above WEB-INF is labeled as the 'b2b' folder, but this name can be changed during installation.

Workflow token #appserver\_root#

1. By default, this token is calculated dynamically from the context of the Demantra WEB APPLICATION, in other words, one folder above the WEB-INF folder. When the Oracle Demantra application server starts, a servlet is executed that calculates the physical path to the root of the virtual folder where Demantra is installed, and then assigns it to a global variable that is visible in the application scope.
2. Parameter value: The parameter appserver\_root exists by default in SYS\_PARAMS with a null value. If its value is non null, it will take precedence over the previously calculated value.
3. Parameter description: The directory where the Demantra Web Application is deployed. If it is NULL, the default is one folder above WEB-INF
4. Security: Regular users can read the parameter values in the Business Modeler, but only consultants can modify them.

For example, the relative path: #appserver\_root#\optimization,

where #appserver\_root# is defined as C:\Demantra 7.1.1\b2b

results in the physical path: C:\Demantra 7.1.1\b2b\optimization.

In this way, workflows can be preconfigured in an application independently of where the application is eventually installed. In other words, C: drive versus D: drive, b2b folder versus demantra folder, and so on.

The appserver\_root parameter can then be used by the executable step in a workflow schema to run an executable file independently of where the application is eventually

installed, thus achieving functionality that is outside the prepackaged scope of the Demantra platform.

For example: `appserver_root='F:\Program Files\Demantra 7.1.1\Custom'`. This takes precedence and every path that references the `#appserver_root#` token is calculated relative to this parameter.

**Note:** This functionality works "out-of-the-box" on all Windows or LINUX or UNIX files systems, provided Demantra is installed cohesively, in other words, under one root folder. Any arrangement deviating from that will require custom configuration.

## Case 2: Using the `application_root` Parameter for Demantra Application

1. By default, this token takes its value from the existing installer-populated parameter "AppServerLocation".
2. Parameter value: An additional parameter `application_root` in `SYS_PARAMS`. Its default value is null. If its value is non null, it will take precedence over AppServerLocation..
3. Parameter description: The directory where the Demantra Application is deployed. If it is NULL, the value is taken from the AppServerLocation parameter setting.
4. Security: Regular users can read the parameter values in the Business Modeler, but only consultants can modify them.

For example: `application_root='F:\Program Files\Demantra 7.1.1\Custom'`. This takes precedence and every path that references the `#application_root#` token is calculated relative to this parameter.

### Example

#### Example 1:

Assuming you have following path to Demantra WEB-INF:

`F:\Demantra Spectrum 7.1.1\Collaborator\b2b\WEB-INF,`

`#appserver_root#` will be dynamically assigned a value of:

`F:\Demantra Spectrum 7.1.1\Collaborator\b2b`

### Example

#### Example 2:

In order to run the Engine from an ExeStep, the following command line would be leveraged:

```
#application_root#\..\..\Demand Planner\Analytical  
Engines\bin\EngineManager.exe
```

- The \..\..\ path segment 'backs out' of the b2b folder, and then navigates to the appropriate Engine folder.
- Note that the workflow parameter is referenced as a token, #application\_root#.

**Important:** The selection of the value for the application\_root parameter must be such that all files referred to by the Workflow are in folders below the common application\_root.

## Relative Path to Promotion Optimizer

To run Promotion Optimization in a new install, configure the parameters in the OPLStep of the Call Promotion Optimizer workflow schema to leverage the #application\_root# parameter.

For example, the following parameters are passed to the OPLStep:

- Parameter: MODEL\_PATH
- Value: #application\_root#\optimization\OPL\promoopt.opl

By default, the #application\_root# parameter is left blank, or null. Therefore, if Demantra is installed as C:\Demantra 7.1.1\ with a virtual directory of 'b2b', this example parameter value results in the physical path: C:\Demantra 7.1.1\Collaborator\b2b\optimization\OPL\promoopt.opl

For more information about Promotion Optimization, see Methods, page 37-33.

## Deleting Workflow Schemas

You can delete any workflow schema that you created, as long as no instances of that schema are currently running. You cannot delete schemas created by other users.

### To delete a workflow schema:

1. Log onto the Workflow Editor as described in "Logging into the Workflow Manager".
2. On the Workflow Management page, click Delete next to the schema.
3. Click OK to confirm the deletion.

---

## Configuring Methods

This chapter describes how to configure methods that the users can run within worksheets or within a Members Browser content pane.bp

This chapter covers the following topics:

- Configuring a New Level Method
- Passing Arguments to a Method
- Modifying a Level Method
- Deleting a Level Method

### Configuring a New Level Method

placeholder

#### To configure a level method:

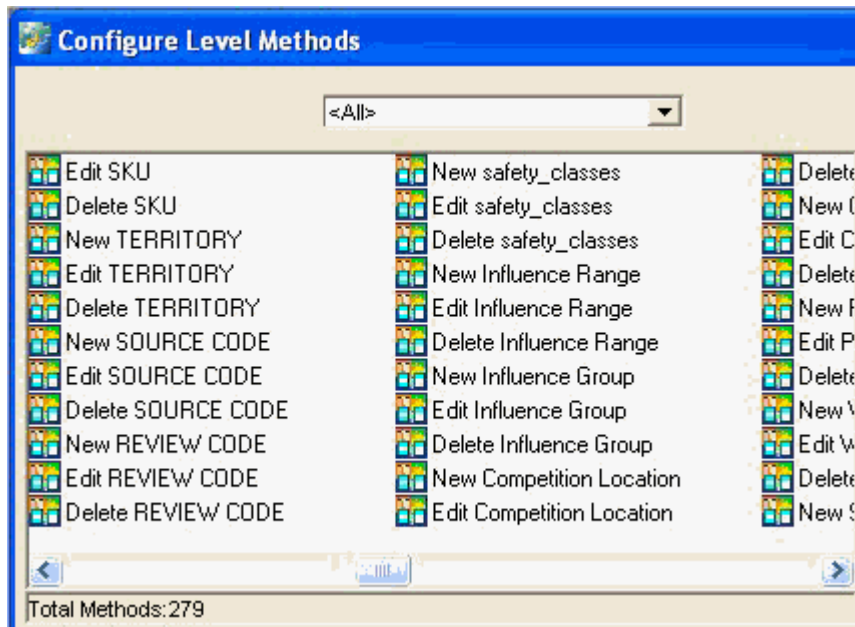
1. Define a workflow schema to use as the method. See "Creating or Editing Workflow Schemas."

**Note:** If you are configuring a method that changes attribute values, the workflow must include an Edit Member Step as its first step. Otherwise, the changed values will not be saved to the database.

2. If the workflow includes a Custom Step, create the Java class that the step should invoke.
3. If this method should be available only within a specific worksheet, define that worksheet. See the Oracle Demantra Demand Management User's Guide or other user manual.

If the method applies to all worksheets, this step is not necessary.

4. Log into the Business Modeler.
5. Click Configuration > Configure Methods.  
The system displays a screen showing the existing methods, including all the predefined methods.
6. Optionally click the Detail Style icon to re-display this screen with the full method names:



7. Optionally click a level name in the drop down list at the top of the screen. The screen is re-displayed with only the methods associated with that level.
8. Click the New Method icon and then click OK. Or double-click New Method.  
The first screen is General Properties.

**Welcome to the Level Method Wizard**

This wizard lets you configure workflow schemas as level methods that the user can execute from within worksheets.

Name:

Level:

Enabled at:

Worksheet:

Workflow:

Display in menu: ☒

Synchronous WF: ☒ Refresh Cache: ☐

Dialog invoke button label:

Action when initiated:

Action when complete:

Method type:

Destructor type:

Execute client class:

9. Complete the fields in this screen as follows:

---

Name	Name of this method, to display in the right-click menu of the worksheet. The method will be visible only in the Web-based worksheets.
Level	Level at which this method will be available.
Enabled at	Specifies where this method will be available.  All to make this method available in all worksheets.  Worksheet to make this method available in a single worksheet.  No to make this method unavailable.
Worksheet	Worksheet where this method will be available.
Workflow	The workflow that will be executed when users run this method. This field is required for methods of type Custom.
Display in menu	Deselect this check box if you want to hide this method or leave it selected to have it displayed in the right-click menu, as specified.

---

---

Synchronous WF	<p>Specifies whether this workflow should be run synchronously or asynchronously.</p> <p>If the workflow runs synchronously, that means that before doing anything else, the user must wait until the workflow has completed.</p>
Refresh Cache	<p>Specifies whether this method should refresh the local members cache.</p>
Dialog invoke button label	<p>When the user selects this method from the right-click menu, the worksheet displays a dialog box that asks the user to confirm whether to proceed or not.</p> <p>This option specifies the text on the "OK" option.</p>
Action when initiated	<p>Specifies what Demantra will do when the method is initiated. The choices are as follows:</p> <p>Do nothing (typically setting)</p> <p>Save Data (immediately saves the worksheet data, automatically)</p> <p>Ask to Save (displays a dialog box to ask if the user wants to save the worksheet data immediately)</p> <p><b>Explanation:</b> Level methods operate on the server. If you create a level method that does something based on client expressions in the worksheet, it is necessary to save the worksheet data before launching that method. The Save Data setting is useful in such a case.</p> <p>In other cases, you may want to give users the option of saving data before running the method. For these cases, use the Ask to Save setting.</p>
Action when complete	<p>Specifies what Demantra will do when the method has completed its execution. The choices are as follows:</p> <p>Reload (reruns the worksheet)</p> <p>Reload and Message (reruns the worksheet and displays the output dialog box)</p> <p>Message and Ask (displays the output dialog box and asks if the user wants to rerun the worksheet)</p> <p>None (displays the output dialog box)</p> <p>The output dialog box is not displayed unless you have specified a message or at least one attribute to display on it.</p>

---

---

Method type	<p>Demantra provides the following method types:</p> <p>Constructor—Prompts the user for values of the attributes of the new member and then adds the member in the database.</p> <p>Destructor—Removes the member from the database.</p> <p>Edit—Prompts the user for new values of the attributes for this member and then saves the changes.</p> <p>View —Displays the values of the attributes for this member.</p> <p>Custom—Optionally prompts the user for new values of the attributes for this member and then runs a workflow.</p> <p>Constructor, Destructor, and Edit type methods can also run workflows. The workflow is run after the level member is created, removed, or edited.</p>
Destructor type	<p>Applies to destructor methods. This option specifies the type of deletion:</p> <p>Delete member only (deletes the member from the level table but does not delete any other records)</p> <p>Delete member and data (deletes member from the level table and deletes all related data)</p>
Execute client class	Indicates the Java class that Demantra runs when a user executes this method.
Display population	Controls the style of user interface to use for the population attribute, if the member has a population attribute. See "Presentation Styles for Population Attributes".

---

**10. Click Next.**

The next screen is Input.

**Select Input Arguments.**

Message:

Available Attributes:

Selected Attributes: Editable: Mandatory:

Name ☒ ☐

Total Available Attributes: 0 Total Selected Attributes: 1

Here you specify the appearance of the input screen of the method.

1. Optionally specify a message to display at the top of the input screen.
2. For each attribute that the user should be able to edit, double-click that attribute to move it from the \Available Attributes column to the \Selected Attributes column.
3. If the attribute should be editable, make sure the Editable check box is selected.

**Note:** If you are configuring a method that changes attribute values, the workflow must include an Edit Member Step as its first step. Otherwise, the changed values will not be saved to the database.

4. If the attribute should also be mandatory, make sure the Mandatory check box is selected.
5. To change the order in which these attributes are displayed, use the up and down buttons on the right of the screen.
6. Click Next.

**Note:** If you do not specify a message or at least one attribute, the method input dialog box is not displayed when the user

runs the method.

11. The next screen is Output.

**Select Output Arguments.**

Message:

Available Attributes:

Selected Attributes:

Name

Total Available Attributes: 0

Total Selected Attributes: 1

Here you specify the appearance of the output screen of the method.

1. Optionally specify a message to display at the top of the output screen.
2. For each attribute to display, double-click that attribute to move it from the Available Attributes column to the Selected Attributes column.
3. To change the order in which these attributes are displayed, use the up and down buttons on the right of the screen.

**Note:** If you do not specify a message or at least one attribute, the method output dialog box is not displayed when the user runs the method.

12. Click Finish.

See also

"Making Changes Available to Users"

## Presentation Styles for Population Attributes

You can choose the presentation style for the population attribute of any level that has this kind of attribute. A population attribute is a set of item-location combinations and a range of dates. Promotions, for example, have population attributes. Other general levels could also have population attributes.

### Detail Style

With this style, part of the method input dialog box summarizes the item-location combinations and shows the range of dates, as follows:

The screenshot shows a dialog box titled "New Promotion - Input". Inside, there is a section labeled "Population" which contains two lines of text: "Brand:Rainbow" and "Account:Rainbow Company". To the right of this text is a vertical scrollbar. Below the "Population" section is an "Edit" button. At the bottom of the dialog, there is a "Dates:" label followed by "Start:" and a date field containing "03/10/2003" with a dropdown arrow, and "End:" and a date field containing "03/06/2006" with a dropdown arrow.

Here, when the user clicks Edit, Demantra displays a screen where the user can select the levels and the members of those levels.

### Simple Style

With this style, the method input dialog box does not summarize the population attribute; instead it displays just the Define (or Edit) button:

The screenshot shows a dialog box titled "New Promotion - Input". Inside, there is a section labeled "Population" followed by a "Define" button.

When the user clicks this button, Demantra displays a screen with two tabs. On one tab, the user can select the levels and the members of those levels. On the other tab, the user can specify the range of dates.

## Passing Arguments to a Method

Demantra can pass arguments in memory to the method. Considered as a group, these arguments are the context dictionary. For each argument, Demantra passes a variable name and its associated value.

### Available Arguments

The available arguments are as follows.

Variable*	Value	Data Type
ws_id	Identifier of the worksheet from which the method was launched.	Java.util.String
_filter	The filter population of the worksheet from which the method was launched. Represented as a list of pairs of level_id and member_id.	java.util.String level_id,member_id;  pairs separated by comas and semi-colons.
view_name	The name of the active view from which the method was called.	java.util.String
level_id	Identifier of the level from which the method was launched.	java.util.String
member_id	Identifier of the member from which the method was launched.	java.util.String
Combination_path	The context of the selected member for themethod. Will be represented as a list of pairs of level_id and member_id.	java.util.String level_id,member_id
population.filters (example)	Applies only to promotion levels. The population attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name</i> .filters	Array of: com.demantra.applicationServer.metaDataObjects.level.levelFilters.LevelFilterGetters

Variable*	Value	Data Type
population.from_date (example)	Applies only to promotion levels. The from_date attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name</i> .from_date	java.util.Date
population.to_date (example)	Applies only to promotion levels. The to_date attribute of the selected member. The name of this variable is based on the name of the population attribute as follows:  <i>population_attribute_name</i> .to_date	java.util.Date
Attribute_column_name	Values of the attributes of the selected member that are specified as inputs to the method (all attributes on the Select Input Arguments screen). The name of each variable is the same as the name of the column in which the attribute is stored.	java.util.Object

### Passing Arguments

In order to pass arguments to the method, you must explicitly configure the variables that each workflow step should receive. To do so, you type the parameter names on the Parameters list for that step; see "Properties Used as Arguments for a Method".

**Note:** The parameter names are case-sensitive.

For the input variables, you also specify which variables to pass when you configure the method. Specifically you select the desired attributes on the Select Input Arguments screen.

## Modifying a Level Method

### To modify a level method:

1. If necessary, redefine the workflow schema that you are using within the method. See "Creating or Editing Workflow Schemas".
2. Log into the Business Modeler.
3. Click Configuration > Configure Methods.  
The system displays a screen showing the existing methods, including all the predefined methods.
4. Optionally click a level name in the dropdown list at the top of the screen. The screen is redisplayed with only the methods associated with that level.
5. Click the method icon and then click OK. Or double-click the method name.
6. Make changes as needed and click Finish.

## Deleting a Level Method

### To delete a level method:

1. Click Configuration > Configure Methods.  
The system displays a screen showing the existing methods, including all the predefined methods.
2. Optionally click a level name in the dropdown list at the top of the screen. The screen is re-displayed with only the methods associated with that level.
3. Click the method icon and then click Delete.
4. Click OK.
5. If the workflow schema is not used elsewhere, delete it. See "Deleting Workflow Schemas".



---

## Demantra URLs

This chapter covers the following topics:

- Demantra URLs

### Demantra URLs

You can log into any Web-based Demantra product if you have the URL and if you have the appropriate access. These URLs are based upon information provided during installation. Make sure all users know the URLs that they will need.

Item	Example URL
Collaborator Workbench	<a href="http://frodo/demantra/portal/loginpage.jsp">http://frodo/demantra/portal/loginpage.jsp</a>
Web client	<a href="http://frodo/demantra/portal/partnerLogin.jsp">http://frodo/demantra/portal/partnerLogin.jsp</a>
Demantra Anywhere version of Collaborator Workbench)	<a href="http://frodo/demantra/portal/remoteloginpage.jsp">http://frodo/demantra/portal/remoteloginpage.jsp</a>
Demantra Anywhere version of Web client	<a href="http://frodo/demantra/portal/anywhereLogin.jsp">http://frodo/demantra/portal/anywhereLogin.jsp</a>
Offline access to Demantra worksheets ( <b>new for 7.0</b> )	<a href="http://frodo/demantra/portal/launchDPWeb.jsp">http://frodo/demantra/portal/launchDPWeb.jsp</a>
Dynamic Open Link (DOL) access for third-party reporting tools	<a href="http://frodo/demantra/portal/DOL_HTML.htm">http://frodo/demantra/portal/DOL_HTML.htm</a>
User Management	<a href="http://frodo/demantra/portal/userManagement.jsp">http://frodo/demantra/portal/userManagement.jsp</a>

Item	Example URL
Collaborator Workbench Administration	<a href="http://frodo/demantra/portal/adminLogin.jsp">http://frodo/demantra/portal/adminLogin.jsp</a>
Workflow Manager	<a href="http://frodo/demantra/workflow/login.jsp">http://frodo/demantra/workflow/login.jsp</a>
Technical administration	<a href="http://frodo/demantra/admin">http://frodo/demantra/admin</a>
<ul style="list-style-type: none"> <li>• Here, <b>frodo</b> is an example server name. Substitute the name of the server that is running the Oracle Demantra Web software.</li> <li>• Also, demantra is an example virtual directory. Substitute the name of the virtual directory that is the root of the Oracle Demantra Web software.</li> </ul>	

# Non-Engine Parameters

This chapter describes parameters unrelated to the Analytical Engine and lists their default values, if any. As indicated, most parameters are visible to all users; a few are visible only if you log in as the owner of the component.

This chapter covers the following topics:

- About These Parameters
- System Parameters

## About These Parameters

To access these parameters within Business Modeler, click Parameters > System Parameters.

The parameters listed on the Database, System, and Worksheet tabs are in the sys\_params table in the database.

The parameters listed on the App Server tabs are in the AppServer.properties file, which is in the directory Demantra\_root/Collaborator/demantra/WEB-INF/classes/com/virtual\_directory/applicationServer/services. These parameters are not actually stored in the database.

## System Parameters

Parameter	Location	Default	Details
A			

Parameter	Location	Default	Details
accumulatedOrUpdate	System	update	<p>For integration, this parameter specifies how to handle existing data. Use one of the following values:</p> <p>accumulate: Add the new data to the existing data.</p> <p>update: Overwrite the existing data.</p>
active_forecasts_versions	System	5	Specifies how many forecast versions the Demantra database should store. Use a positive integer.
align_sales_data_level_in_loading	Database	no	<p><b>Visible only to owner.</b> Specifies whether to maintain matrix information (combination information that is time-independent) within the sales_data table. If the matrix information is within the sales_data table, then the Analytical Engine can use that table directly instead of internally creating the sales_data_engine table.</p> <p>Use one of the following values:</p> <p>\no: Do not adjust the sales_data table for direct use by the engine.</p> <p>yes: Adjust the sales_data table for direct use by the engine, so that the engine can run more quickly. This adjustment is made when data is added through loading, integration, or other mechanisms. If you set this parameter to yes, it is also necessary to rewrite some database procedures. For configuration steps, see "Reconfiguring the sales_data_engine Table" .</p>
applicationDateFormat	Application Server> App. Server	MM-dd-yyyy	The system date format.

Parameter	Location	Default	Details
applicationDateTime Format	Application Server> App. Server	MM-dd-yyyy HH:mm:ss	The system date/time format, used where both a date and time are displayed.
application_root			Provides support for a relative path to files or applications referenced by workflow steps in Workflow Manager. See Parameters Used as Arguments for a Method, page 23-4.
AppServerLocation	System		<b>Visible only to owner.</b> Path of the directory that contains the Web Platform Server; this is the directory that contains the Web_inf subdirectory.
AppServerSupport	System		Do not change this parameter; this is for internal use only.
AppServerURL	System	http://localhost:8080/b2b	<p><b>Visible only to owner.</b> URL of the Web Platform Server.</p> <p>In some cases, external notifications, such as simulation and security changes, are missed because the Web server is overloaded. If you are using IIS and JRun, you can work around this by pointing all the external notifications to the internal JRun web server rather than to the IIS and JRun connector. To do so, set the AppServerURL parameter to use the default JRun port (8100). For example:</p> <p>http://frodo:8100/demantra</p> <p>See the Oracle Demantra Installation Guide.</p>
audit_history_length	System	12	Number of months of audit data to keep. Used by the CLEAN_LOG_TABLES procedure.
AuditMailAddress	Application Server> DP Web		<b>Visible only to owner.</b> Mail address of the BCC (blind carbon copy) recipient of Demantra email messages.

Parameter	Location	Default	Details
AutoRunMode	Worksheet	false	<p>Specifies whether Demantra automatically runs and reruns worksheets. This applies to all worksheets, in Demand Planner Web, Promotion Effectiveness, and Settlement Management as well as Demand Planner and Demand Replenisher. Use one of the following values:</p> <p>true: Demantra automatically runs any worksheet as soon as it is opened. Demantra also automatically reruns any worksheet after any change in its definition.</p> <p>false: Demantra does not automatically run or rerun worksheets.</p>
B			
bce_log_parm	Database	100	Ignore this parameter.
BLEThreadPoolSize	Application Server> App. Server	4	<b>Visible only to owner.</b> Number of threads that the Business Logic Engine can use.
BLETimeOut	Application Server> App. Server	5000	<b>Visible only to owner.</b> Length of time, in milliseconds, before an idle thread (of the Business Logic Engine) times out.
buildNumber	Application Server> Collaborator		<b>Read-only.</b> Current build number of Demantra.
C			
charsetEncoding	Application Server> DP Web	UTF-8	The encoding character set for the XML.

Parameter	Location	Default	Details
check_validity_installation	Database	yes	<b>Visible only to owner.</b> Specifies whether to check the validity of the installation.
cli ent.activationMethod	Application Server> DP Web		<p><b>Renamed in 7.0.2. Added in 7.0; visible only to owner.</b> Specifies how the Web client (Demand Planner Web, Promotion Effectiveness, or Settlement Management) will be started. Use one of the following values:</p> <p>0 = use Sun Java Plug-in</p> <p>1 = use Java Web Start (recommended)</p> <p>With Java Web Start, you can log into different Demantra versions, and Java correctly manages the Demantra jar files so that you do not have collisions.</p>
client.enableOpenNoteWithDoubleClick			<p>Double-click within the worksheet table to specify whether users can access the notes dialog box by . Use one of the following values:</p> <p>0 = false (users cannot use double-click to access this dialog box)</p> <p>1 = true</p> <p>In any case, it is always possible to access this dialog box by using the right-click menu, as in Microsoft Excel.</p>

Parameter	Location	Default	Details
client.javaPlugin.version	Application Server> DP Web	1.4.2_10	<p>. Specifies the version of the Java plugin to use for all the client machines. Use one of the following values:</p> <p>empty string (which means 1.4.2_10, the default version)</p> <p>1.4.2_09</p> <p>1.4.2_10</p> <p>1.5.0_02</p> <p>1.5.0_05</p> <p>If you change this version, also place the installer for the appropriate JRE into the Demantra_root/Collaborator/virtual_directory/plugin directory on the server machine.</p>
client.JREMaxMemory	Application Server> DP Web		<p><b>Visible only to owner.</b> Maximum amount of memory (in MB) that JRE can use. The Web worksheets (Demand Planner Web, Promotion Effectiveness, and Settlement Management) use JRE.</p>
client.lookAndFeel	Application Server> DP Web	com.demantra.common.ui.Inf.DemantraLookAndFeel	<p><b>Renamed in 7.0.2.</b> Specifies the user interface style. Do not change this.</p>
client.MaximumCombsLoadChunkSize	Application Server> DP Web	20	<p><b>Visible only to owner.</b> Maximum number of combinations to load each time the user clicks the green "load now" button in a worksheet</p>

Parameter	Location	Default	Details
client. MaxWorksheetMemoryUse	Application Server> DP Web	100	<p><b>Visible only to owner.</b> Maximum percentage of memory that the Web client can use. If this limit is exceeded, Demantra displays a message, stops building the worksheet, and clears out the memory. (This message allows you to continue, unlike the message that Java displays when it is out of memory.)</p> <p>In most cases, you set this parameter to 100, which disables Demantra's detection of memory use. If users do experience Java memory problems, it is useful to increase the amount of memory allowed to Java (through the Java control panel). It is also useful to reduce the amount of memory needed by adding filtering to the worksheets and by having fewer worksheets open at the same time.</p>
client.worksheet.privateAccessType	Application Server> DP Web		<p><b>Visible only to owner.</b> Specifies the default setting of the public/private option in the worksheet designer (used by the Web products).</p>
ClientDDCacheCapacity		10	<p>Specifies the maximum number of distinct dropdown lists per worksheet that any client should cache. These caches are cleared when the worksheet is closed.</p>
collaborator.supportURL	AppServer. properties		<p>URL of the Support link, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench.</p>
collaborator.searchURL	AppServer. properties		<p>URL of the Search link, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench.</p>
company.name	Application Server> Workflow	Demantra	<p>Name of your company; the Workflow Engine uses this string when it sends email messages when a workflow step fails.</p>

Parameter	Location	Default	Details
ColorCodingLevel	Worksheet		<b>PE only; visible only to owner.</b> Specifies the ID of the level that will be used to color code promotions.
CopiedMembersPerProcess	Database		Specifies the maximum number of members that can be copied in a single copy/paste process.
D			
DatabaseEncoding	Application Server> DP Web		<b>Visible only to owner.</b> Encoding style for Oracle Web products. For a list of possible encoding sets, see <a href="http://java.sun.com/j2se/1.4.1/docs/guide/intl/encoding.doc.html">http://java.sun.com/j2se/1.4.1/docs/guide/intl/encoding.doc.html</a> . Use the "Canonical Name for java.io and java.lang API."
DBConnectionTimeout	Application Server> App. Server	5000	The database connection timeout period, in milliseconds.
DBDateFormat	Application Server> App. Server	{call pre_logon()}	The date format used in the database.
DBIdleTimeOut	Application Server> App. Server	1800000	The connection idle timeout period, in milliseconds.
DBName	Application Server> App. Server		<p>The meaning of this parameter depends on the database used:</p> <p>For Oracle, this is the Oracle SID.</p> <p>For SQL Server, this is the name of the database.</p> <p>See the Oracle Demantra Installation Guide.</p>

Parameter	Location	Default	Details
DBPassword	Application Server> App. Server		Password of the database user in which the Demantra data schema resides. See the Oracle Demantra Installation Guide.
DBPort	Application Server> App. Server		The port number of the database server. See the Oracle Demantra Installation Guide.
DBType	Application Server> App. Server	oracle	Indicates the type of database that Demantra is using.
DBUser	Application Server> App. Server	.	Database user in which the Demantra data schema resides. See the Oracle Demantra Installation Guide.

Parameter	Location	Default	Details
Debug	Worksheet	false	<p>Applies to the desktop product <b>Removed in 7.0.2 Visible only to owner</b>. Specifies the debug mode, if any, in which the Demantra application server should run. In debug mode, the application server writes debug messages to the console. Use one of the following values: false (0): Do not write any debug messages at all. true (1): Write debug messages from all possible causes. Use this setting sparingly, because it generates a large number of messages. sql (2): Write SQL syntax from all database interactions. You can then copy and execute the SQL statements outside of the application to verify that desired results are achieved by the statements. mem (3): Write messages related to memory usage. Specifically it provides information about memory consumption at various stages of the application. You can use this information to find memory leaks. init (4): Write messages related to object initialization. This information helps you see which objects come into being as the application is working on various tasks. synch (5): Write notifications related to synchronization. Use this information to see if the various parts of the application are in synch with one another. It is often useful to eliminate the issue of synchronicity as the source of whatever problem is being investigated. update (6): Write messages related to data updates, so that you can see what updates are passing through the system. If you are updating but do not see expected results, use this debug setting to verify first that the update has passed through in the correct way through the internal libraries. ts; visible only to owner. Specifies whether Demand Planner or Demand Replenisher runs in debug mode. In debug mode, these products pop up debug windows when errors occur.</p>

Parameter	Location	Default	Details
DebugMode	Application Server> App. Server	off	.
DefaultContentSecurityAccess	System		<p>Specifies the default security access per member, as seen in the Security menu options. Use one of the following values:</p> <p>1 (no access)</p> <p>2 (read access)</p> <p>3(read/write access)</p> <p>4 (full control; includes delete access)</p>
DefaultLevelSecurityAccess	System		<p>Specifies the default security access per member, as seen in the Component menu options. Use any of the values listed for DefaultContentSecurityAccess.</p>
DeskTopNotification	System	http notification	<p><b>Applies to the desktop products; visible only to owner.</b> Use one of the following values:</p> <p>http notification</p> <p>db notification</p>
dir.onlineHelp	Application Server> Collaborator		<p>URL of the Help link, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench.</p>
DSMAllShipDateDifference	System		<p><b>DSM only.</b> Specifies the window of time that Demantra uses to search for a promotion that matches a given settlement. Express this as the number of time buckets between the promotion end date and the deduction date. The promotion end date is given by the series specified by the DSMPEShipDateSeries parameter.</p>
DSMOICheckProduct	System		Not used.

Parameter	Location	Default	Details
DSMOIPercentDifference	System		<b>DSM only.</b> The maximum percent difference (of monetary amount) permitted when matching an off-invoice settlement to possible promotions.
DSMOIShipDateDifference	System		<b>DSM only.</b> Specifies the window of time that Demantra uses to search for a promotion that matches a given off-invoice settlement. Express this as the number of time buckets between the promotion end date and the settlement date. The promotion end date is given by the series specified by the DSMPEShipDateSeries parameter.
DSMPEOIAmountSeries	System		<b>DSM only.</b> Specifies the ID of the series that stores the monetary off-invoice amounts for the promotions. This series must have an aggregating server expression.
DSMPEShipDateSeries	System		<b>DSM only.</b> Specifies the ID of the series that stores the ship dates of the promotions. This series must have an aggregating server expression.
DSMPromotionBudgetSeries	System		<b>DSM only; parameter is visible only to owner.</b> Specifies the ID of the promotion budget series to which adjustments will be made when settlements are matched to a promotion.
DSMWriteOffThreshold	System		<b>DSM only.</b> Specifies the monetary amount below which Demantra automatically writes off a settlement. See "Configuring DSM" for information on configuring the writeoff process.
EnableIncrementalLoading	System	true	Enables the Demantra incremental loading feature, for faster worksheet reruns. There is no user impact apart from performance.

Parameter	Location	Default	Details
EnableWorksheetCaching	System	true	Specifies whether Demantra can cache the Web worksheets.
execution.shell	Application Server> Workflow		Applies to the Executable Step. This parameter specifies any prefix that is needed in order to run executable steps. For example, you may need to specify the following for Unix:
F			
FIRSTDAYINWEEK	Database	monday	First day of week to use when binning sales data into base time buckets.
format.dates.longFormat	Application Server> Collaborator	MM/dd/yy hh:mm:ss a	Long date format.
format.dates.shortFormat	Application Server> Collaborator	MM/dd/yy	Short date format.
G			
GatherStatisticsThreshold	Worksheet	2000	For a temporary table, minimum number of rows needed in order to automatically run Analyze Table. Used by the ANALYZE_TABLE_TMP procedure.
general.copyright	Application Server> Collaborator	Copyright Demantra &copy; 2005	<b>Visible only to owner.</b> Copyright notice displayed in lower left of the Collaborator Workbench window.
general.homepage.title	Application Server> Collaborator	My Demand Collaborator	Title of the Collaborator Workbench home page, as used within the Collaborator Workbench title bar.

Parameter	Location	Default	Details
general.title.text	Application Server> Collaborator	Demand Collaborator	Title of the browser window when it displays Collaborator Workbench.
general.userList.tasks	Application Server> Collaborator	true	Not used.
general.userList.whoisonline	Application Server> Collaborator	true	Specifies whether the Who's Online module is displayed.
general.userList.worksheets	Application Server> Collaborator	true	Not used.
Graph.MaxLabelWidth	Application Server> Collaborator	20	Maximum width of labels in graphs in Collaborator Workbench, Demand Management, and Promotion Effectiveness. If a label is longer than this width, the last characters of the label are represented by three periods (...).
I			
ImportBlockSize	Application Server> App. Server	5000	The number of rows for each commit, used during import.
indexspace	Database	TS_FORECAST_X	Database table space that stores the forecast table indexes, as specified during installation.
indicator.synchronizeSalesData	Application Server> Collaborator	yes	Controls the synchronization of the general level indicators in the sales_data table.

Parameter	Location	Default	Details
initial_param	Database	20M	Default initial size of system table spaces. See also next_param.
InsertDateTimeFormat	Application Server> App. Server	MM-dd-yyyy 00:00:00	The date-time format that Demantra uses when writing to the database. When you enter dates in a worksheet, Demantra converts them to this format before writing them to the database.
Insertmissingvalues	Worksheet	yes	Not used.
J			
javaPlugin.downloadUrl	AppServer. properties	See details.	<p>URL of the folder from which the Java plugin is downloaded. This parameter specified during the installation. For example:</p> <p><a href="http://localhost:8080/demantra/plugin/">http://localhost:8080/demantra/plugin/</a></p> <p>The relevant executable name is concatenated at runtime.</p> <p>For example, suppose that the application runs under SSL and uses https protocol. In order to configure plugin download using http protocol, specify the exact plugin URL with http protocol, for example, <a href="http://localhost/demantra/plugin">http://localhost/demantra/plugin</a>.</p> <p>The property allows you to direct the plugin download to other locations outside the application folder, if necessary. This approach, however, is not recommended.</p> <p>The default is an empty string, which means that the plugin will be downloaded from the relative location under web application (/plugin directory) using the same protocol that the application uses.</p>
L			

Parameter	Location	Default	Details
Legend.MaxLegendItemWidth	Application Server> Collaborator	30	Maximum width (in characters) of the legend in a graph-type content pane in Collaborator Workbench. If any lines of the legend are too longer, the last characters of those lines are represented by three periods (...).
License.ExpirationMessage	Application Server> App. Server	Your Security License File has expired. Please contact support.	<b>Visible only to owner.</b> Message shown when the system license has expired.
LoadDataStop	System	yes	Specifies whether Demantra should stop loading data when it finds an error in the data.
LockTimeout	Database	10	Specifies the period (in seconds) between killing a database session and releasing the lock for that session.
log.history	Application Server> Workflow	1	The number of days for which workflow history is kept.
M			
mail	Application Server> DP Web	on	Specifies whether Demantra is enabled to automatically send email, as specified within a workflow. Use one of the following values:  yes:  no:  You can set this parameter during installation or later. See the Oracle Demantra Installation Guide.
mail.outgoing.server	AppServer.properties		

Parameter	Location	Default	Details
mail.server	Application Server> Collaborator		<p>Name or IP address of the SMTP mail server that Demantra should use when it sends email.</p> <p>For example: mayflower.demantra.net</p> <p>You can set this parameter during installation or later. For details, see the Oracle Demantra Installation Guide.</p>
mail.strings.from.system	Application Server> Workflow	See details.	<p><b>Visible only to owner.</b> Specifies the title of the sender of Demantra email messages, for example "Demantra Solution Manager". Default:</p> <p>Demantra Solution</p>
mail.strings.internalerror.message	Application Server> Workflow	See details.	<p>Text of email message sent in case of internal error. Default:</p> <p>Internal error: please check database and network connections</p>
mail.strings.internalerror.subject	Application Server> Workflow	See details.	<p>Subject of email message sent in case of internal error. Default:</p> <p>Workflow internal error</p>
mail.strings.processfailuresubject	Application Server> Workflow	See details.	<p>Text of email message sent by a Fail-To-Execute Step. Default:</p> <p>Error in Process Execution</p>
mail.strings.processes terminated	Application Server> Workflow	See details.	<p>Message sent when a process is terminated. Default:</p> <p>The following process is terminated</p>
mail.strings.recovery	Application Server> Workflow	See details.	<p>String included in recovery email message. Default:</p> <p>Please handle recovery for the following process:</p>

Parameter	Location	Default	Details
mail.strings.taskfailuresubject	Application Server> Workflow	See details.	Subject of email message sent by a Fail-To-Execute Step. Default:  Workflow process has failed
mail.strings.tasktimeoutssubject	Application Server> Workflow	See details.	Message sent when a task is timed out. Default:  Task(s) timed out in workflow
mail.strings.timeout.group	Application Server> Workflow	See details.	Message sent when a task is timed out in a group step. Default:  Treatment period for this task(s) was finished and one or more of the group members haven't respond. \n\nThe process moved to alternative treatment.
mail.strings.timeout.user	Application Server> Workflow	See details.	Message sent when a task is timed out in a user step. Default:  Treatment period for this task(s) was finished and the process moved to alternative treatment
mail-password	AppServer. properties		<b>Visible only to owner.</b> Password of the administrator account; this is also usually the network username of the administrator.  You can set this parameter during installation or later. For details, see the Oracle Demantra Installation Guide.
mail_recipient	System	no send	Specifies where to send a message when error is found during data load. Use one of the following values:  no send  send to administrator and changer  send to administrator

Parameter	Location	Default	Details
mail-username	AppServer. properties		<p><b>Visible only to owner.</b> Username of the administrator account from which Demantra sends email; this is usually the network username of the administrator.</p> <p>For example: admin</p> <p>You can set this parameter during installation or later. For details, see the Oracle Demantra Installation Guide.</p>
mailAddress	Application Server> DP Web.		<p>The email address of the administrator email account. For example:</p> <p>demantra-admin@acme.com</p> <p>You can set this parameter during installation or later. For details, see the Oracle Demantra Installation Guide.</p>
mailProtocol	Application Server> DP Web	mail.smtp.h ost	<p>Server for sending email. Demantra supports only SMTP servers.</p>
ManualRefreshAsDefault	System	true	<p><b>Visible only to owner.</b> Specifies the default setting of the Refresh Type caching option in the worksheet designer.</p> <p>This parameter has an effect only if worksheet caching is enabled (through EnableWorksheetCaching). Also see WorksheetCachingAsDefault.</p>
MatrixCombs			<p><b>Read-only.</b> Indicates the number of lowest-level combinations in the mdp_matrix table. For use in helping you set SimMaxSize and SimWarnSize.</p>
MaxAvailableFilterMembers			<p>Specifies the maximum number of members that can be retrieved in the worksheet filter screen. If the user selects more members than allowed, a message asks the user to add further filtering.</p> <p>This limit is also applied to dropdown lists for series and attributes.</p>

Parameter	Location	Default	Details
MaxBackgroundLoad	Application Server> DP Web	20	Maximum number of worksheets that can be loaded in the background.
MaxDBConnections	Application Server> App. Server	50	<p>The maximum number of database connections for the Demantra database user.</p> <p>Recommended: the number of concurrent users multiplied by 2.</p>
max_fore_sales_date	System		<b>Visible only to owner; read-only.</b> The latest possible forecast sales date.
max_initial_members	Worksheet	100	Applies to Member Management in Demand Planner. Specifies how many members to display immediately when clicking on a parent member.
max_records_for_commit	Database	10000	The number of records that Demantra will insert into the database before performing a COMMIT operation. If you increase this number, the insertion will run more quickly, but you risk losing all uncommitted records in case of a crash.
max_sales_date	Worksheet		The latest sales date loaded as history in the system.
MaxSaleVal	System	999999999	Maximum allowed sale value within Demantra, for any possible unit of measure.
MaxUpdateThreads	Application Server> App. Server	2	The maximum number of threads to use for the update mechanism. Must be an integer and should equal the number of database CPUs plus one.
MinDBConnections	Application Server> App. Server	4	The minimum number of database connections for the Demantra database user.

Parameter	Location	Default	Details
min_fore_sales_date	System		<b>Visible only to owner; read-only.</b> The earliest possible forecast sales date.
min_sales_date	System		Earliest possible sales date.
mix_max_members	Worksheet	50	The maximum number of members that a user will be allowed to work on.
N			
navBarContentProvider.addNewContentLink.Text	Application Server> Collaborator	New	Text of the New link, which is shown at the top of the Contents menu in Collaborator Workbench.
navBarContentProvider.interpriseContentText	Application Server> Collaborator	EnterpriseContent	Not used.
next_param	Database	20M	Incremental amount of storage that is added to a table space when more space is needed. See also initial_param.
O			
OpenWithContext	Worksheet	Selected member	<p>Specifies the default setting of the Open With Context setting of the worksheet designer. Choose one of the following values:</p> <p>Selected member (filters only to the selected member)</p> <p>Selected context (filters to the selected member and any additional context where the user clicks within the Members Browser)</p>
P			
parts_factor_source	System	bom_factor.factor	<b>Visible only to owner.</b> Table and column of BOM factor.

Parameter	Location	Default	Details
pct_increase_for_analyze	Database	10	<b>Visible only to owner.</b> Percentage of data increase for a given table, beyond which Demantra automatically increases the table size.
phase_in_out	System	1	<b>Visible only to owner.</b>
portalVersion	Application Server> Collaborator		<b>Read-only.</b> Current version number of Demantra.
PromoDefaultSpan	Worksheet		<b>PE only; parameter is visible only to owner.</b> Specifies the default length of time for promotions created within a worksheet.
PromoDefaultStart	Worksheet	start date of the worksheet	<p><b>PE only; parameter is visible only to owner.</b> Specifies the default start date for promotions created within a worksheet. Use one of the following values:</p> <p>today (0)</p> <p>last loaded sales date (1)</p> <p>start date of the worksheet (2)</p>
Q			
Query.MaxCombinations	Application Server> Collaborator	10	Maximum number of combinations that can be displayed in a graph-type content pane in Collaborator Workbench, when you display a single series plotted for multiple combinations. The user receives an error if a content pane contains more than this number of combinations.
Query.MaxSeries	Application Server> Collaborator	10	Maximum number of series that can be displayed in a graph-type content pane in Collaborator Workbench. The user receives an error if a content pane contains more than this number of series.

Parameter	Location	Default	Details
Query.TopBottom.MaximumCombinations	Application Server> Collaborator	30	Maximum number of combinations that can be displayed in a Collaborator Workbench content pane that contains a stacked bar chart or pie chart. The user receives an error if a content pane contains more than this number of combinations.
QueryMechanismTimeout	Application Server> App. Server	5000	<b>Visible only to owner.</b> The timeout period for the query notification listener, in milliseconds. The APS uses this parameter.
QueryRunMaximumThreadUser	ds.ini		
R			
Rebuild_Sales_Table	Database	yes	<p><b>Oracle only; visible only to owner.</b> Controls the REBUILD_TABLES procedure. Use one of the following values:</p> <p>yes: The REBUILD_TABLES procedure rebuilds the sales_data table.</p> <p>no: The procedure ignores this table.</p>
ReceiveCollaborationMessages	Worksheet	true	<p><b>Applies to the desktop products.</b> Specifies whether desktop users should receive messages when data is changed. Use one of the following values:</p> <p>yes: Users receive messages when the currently displayed data has been changed by another user (who is logged onto either the desktop or the Web products).</p> <p>no: Users do not receive these messages.</p> <p>This parameter has no effect on the Web products.</p>
RefreshTimer	Worksheet	10	<b>Applies to the desktop products.</b> Idle event interval in seconds.

Parameter	Location	Default	Details
RestartOnFailureInterval	System	20	<b>Ignore this parameter.</b>
Run_full_matrix_proport	Database	no	<p><b>Visible only to owner.</b> Specifies whether to run the proport mechanism on all the item-location combinations. Use one of the following values:</p> <p>all combinations: Run proport on all combinations in mdp_matrix.</p> <p>only flagged combinations: Run proport only on the combinations that have prop_changes=1.</p> <p>all new combinations (2), run proport on all combinations that have new_member=1.</p>
RunProportInMdp_add	Database	yes	<p><b>Visible only to owner.</b> Specifies whether to call the proport mechanism from the MDP_ADD procedure. Use one of the following values:</p> <p>yes: The MDP_ADD procedure runs the proport mechanism.</p> <p>no</p>
S			
sales_data_engine_index_space	Database	TS_FORECAST_X	Database table space that stores indexes for the sales_data_engine table, as specified during installation.
sales_data_engine_space	Database	TS_FORECAST_	Database table space that stores the sales_data_engine table, as specified during installation.
SecurityFromSystem	Worksheet	false	When starting the system it will try to log as the O.S user with password "system"
server.generalurl	Application Server> Workflow		URL for the workflow server, not including the portal/workflow directory.

Parameter	Location	Default	Details
server.httpPort	Application Server> Collaborator	8080	Port to use for Java plugin download. This is ignored if you have used client.activationMethod to configure the system to use Java Web Start instead of Sun Java Plug-in.If you use a non-default port and you are using JRun or Websphere, the download does not work correctly.
Server.SessionExpiration	Application Server> Collaborator	1200	Specifies how long (in seconds) before an idle Collaborator Workbench session expires. Does not affect Demand Planner Web, Promotion Effectiveness, or Settlement Management.
ServerName	Application Server> App. Server		Database server name (host machine or IP address on which database resides). For example: @wysiwyg  See the Oracle Demantra Installation Guide.
SettlementLocationExtension			<b>DSM only.</b> Specifies the internal identifier of the location-type level with which settlements should be associated. This generally represents the entity that is being billed or refunded.  To set this parameter, use the installer. See the Oracle Demantra Installation Guide.
SettlementProductExtension			<b>DSM only.</b> Specifies the internal identifier of the item-type level with which settlements should be associated. This generally represents a promoted product or a product group.  To set this parameter, use the installer. See the Oracle Demantra Installation Guide.

Parameter	Location	Default	Details
SimMaxSize			<p>Specifies the threshold size of a simulation that is too large to run. If a user tries to perform a simulation of this size, Demantra displays a message and does not attempt the simulation. Specify this as a percentage of the total number of combinations in the mdp_matrix table. Also see SimWarnSize.</p> <p>The MatrixCombs parameter displays the number of combinations currently contained in this table.</p>
SimWarnSize			<p>Specifies the threshold size of a simulation that is large enough to trigger a warning message to the user. Specify this as a percentage of the total number of combinations in the mdp_matrix table. Also see SimMaxSize.</p> <p>Note that the MatrixCombs parameter displays the number of combinations currently contained in this table.</p>
show_legend	Worksheet	no	<p><b>Applies to the desktop products.</b></p> <p>Specifies whether to display the display the legend in new worksheets.</p>
simulationindexspace	Database	TS_FOREC AST_X	Database table space that stores indexes for the simulation tables, as specified during installation.
simulationspace	Database	TS_FOREC AST	Database table space that stores the simulation tables, as specified during installation.
SortMemberbyCodeinFilter	Application Server> App. Server	1	Controls the order in which the Worksheet Manager displays the level members on the filter screen.

Parameter	Location	Default	Details
sortSeriesByDisplayOrder	Application Server>App. Server	1	Controls the order in which Worksheet Designer displays series  If sortSeriesByDisplayOrder is 1, display the series by display_order.  If sortSeriesByDisplayOrder is 0, we should display the series alphabetically.
START_OR_END_WEEK			<b>Visible only to owner.</b> Specifies whether data is aggregated forward or backward in time, when loaded into Demantra through any Demantra loading mechanism.
StartUpdateQueue	Application Server>App. Server	yes	<b>Visible only to owner.</b> Specifies whether to start the manual update listener. The APS uses this parameter.
sysadmin_email_address	System		Not used.
sysadmin_password	System		Not used.
sysadmin_username	System		Not used.
SystemStatus	Database	enabled	<b>Read-only.</b> Indicates the status of the system, according to the sessions monitor:  enabled  read-only mode  disabled
T	.	.	.
tablespace	Database	TS_FORECAST	Database table space that stores the system tables, as specified during installation.

Parameter	Location	Default	Details
task.default.option	Application Server> Collaborator	Select Option	The default option for a selection task.
task.message.length	Application Server> Collaborator	254	Maximum length of task description field in characters.
task.message.taskadded	Application Server> Collaborator	A task has been added to your tasklist	Do not change.
tasklist.showTimeout Tasks	Application Server> Collaborator	yes	Specifies whether Collaborator Workbench should show tasks that are past their due date. Possible values are 1 (show tasks that are overdue) and 0 (don't show such tasks). Default value is 1.
threadpool.attributes Update.per_comb			Maximum number of threads that a single thread can use.
threadpool.attributes Update.size			Maximum number of allowed threads for this thread pool. This should be less than MaxDBConnections.
threadpool.attributes Update.timeout			Idle timeout period. This specifies how long (in milliseconds) a thread is left unused before it is ended automatically.
threadpool.copy_paste.per_process	Application Server> App. Server		<b>Visible only to owner.</b> Maximum number of allowed threads for the copy/paste mechanism in any given process. Must be an integer and should be less than MaxDBConnections.
threadpool.copy_paste.size	Application Server> App. Server		<b>Visible only to owner.</b> Maximum number of allowed threads for the copy/paste mechanism. Must be an integer and should be less than MaxDBConnections. Also be sure to leave room for system processes.

Parameter	Location	Default	Details
threadpool.copy_paste.timeout	Application Server> App. Server		<b>Visible only to owner.</b> Idle time out period. This specifies how long (in milliseconds) a copy/paste thread is left unused before it is ended automatically.
threadpool.default.size	Application Server> App. Server	10	<b>Visible only to owner.</b> Not used.
threadpool.default.timeout	Application Server> App. Server	10000	<b>Visible only to owner.</b> Not used
threadpool.level_method.block	Application Server> App. Server	wait	<b>Visible only to owner.</b> Specifies how the level methods should access this thread pool. Use one of the following values:  wait: Wait for a free thread.  abort: Do not wait for a free thread.
threadpool.level_method.size	Application Server> App. Server		<b>Visible only to owner.</b> Maximum number of allowed threads for the level method mechanism. Must be an integer and should be less than MaxDBConnections. Also be sure to leave room for system processes.
threadpool.level_method.timeout	Application Server> App. Server		<b>Visible only to owner.</b> Idle time out period. This specifies how long (in milliseconds) a level method thread is left unused before it is ended automatically.  Recommended setting: 300000 (5 minutes)

Parameter	Location	Default	Details
threadpool.query_run .size	Application Server> App. Server		<p><b>Visible only to owner.</b> Maximum number of allowed threads that Demantra can use to run a worksheet. If this number is missing or negative, the worksheet run mechanism does not use threads. Must be an integer.</p> <p>Should be less than MaxDBConnections. Also be sure to leave room for system processes.</p>
threadpool.query_run .timeout	Application Server> App. Server	180000	<p><b>Visible only to owner.</b> Idle time out period. This specifies how long (in milliseconds) a worksheet thread is left unused before it is ended automatically.</p> <p>This parameter is ignored if threadpool.query_run.size is negative or missing.</p>
threadpool.update.size	Application Server> App. Server	10	<p><b>Visible only to owner.</b> Maximum number of allowed threads for the update mechanism. Must be an integer and should be less than MaxDBConnections. Also be sure to leave room for system processes.</p>
threadpool.update.timeout	Application Server> App. Server	10000	<p><b>Visible only to owner.</b> Idle time out period. This specifies how long (in milliseconds) an update thread is left unused before it is ended automatically.</p>
Timeresolution	System	week	<p><b>Read-only.</b> The base time unit. That is, the smallest possible unit of time visible in Demantra: day, week, month</p> <p><b>Read-only.</b> The base time unit. That is, the smallest possible unit of time visible in Demantra: day, week, month</p>

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Parameter	Location	Default	Details
update_units_by_items	Database	by items	<p>Specifies how to update units for the INSERT_UNITS procedure. Use one of the following values:</p> <p>by items: The procedure operates item by item. This is faster but less accurate.</p> <p>by combinations: The procedure operates on individual combinations. This is slower but accurate.</p>
UpdateAudit	Database	no	<p><b>Visible only to owner.</b> Specifies whether the MANUALS_INS_INTEGRATION procedure updates the audit tables. This procedure is used when data is imported at an aggregated level.</p>
UpdateQueueTimeout	Application Server> App. Server	5000	<p><b>Visible only to owner.</b> The timeout period for the manual update listener, in milliseconds. The APS uses this parameter.</p>
UpdateThreadTimeout	Application Server> App. Server	5000	<p>The timeout period for the update threads, in milliseconds. The APS uses this parameter.</p>
UseDateRangeMatrix			<p>This parameter controls whether the worksheet mechanism uses internal data structures can improve the performance of worksheets that include promotions. You can control whether worksheets use these structures; the system uses them automatically for other purposes. If you enable this option, the largest benefit occurs in cases where promotions are long (and have many rows of data).</p> <p>This affects only worksheets that include general levels that have population attributes.</p>

Parameter	Location	Default	Details
useGLEExceptions	Application Server> Collaborator	true	<p><b>Visible only to owner.</b> Specifies whether Demantra respects worksheet exceptions that refer to promotion series. Use one of the following values:</p> <p>true: Demantra does consider worksheet exceptions that refer to promotion series. This affects the behavior of the worksheet and of the BLE Step. The worksheet behavior, however, is not intuitive; the Members Browser displays all the combinations. When the user clicks on a combination that does not meet the criteria, the worksheet then displays a message saying that the combination is empty.</p> <p>false: Demantra ignores worksheet exceptions that refer to promotion series. This means that such exceptions are useless, but the worksheets behave more intuitively.</p>
UseItemsAggri	Worksheet	no	<p>Specifies whether to use data from the branch_data_items rather than the usual table. The branch_data_items table aggregates data by item, for improved performance in worksheets or within the Business Logic Engine. You can use this table only when you do not need to view specific locations or filter by location.</p> <p>Use one of the following values:</p> <p>yes: Whenever possible, Demantra uses data from the branch_data_items. In this case, the first time the engine runs, there will be a long update of all rows in sales_data. Also make sure that the DYNAMIC_SYNC procedure runs periodically to keep the branch_data_items table current.</p> <p>no: Demantra uses the usual tables.</p>

Parameter	Location	Default	Details
UserListContentProvider.commonTitle	Application Server> Collaborator	Who's Online	The title of the Who's Online pane in Collaborator Workbench.
UserTitleContentProvider.TimeToSleep	Application Server> Collaborator	10000	To update the Who's Online pane in Collaborator Workbench, Demantra polls at regular intervals to see which users are online. This parameter specifies the length of time (in milliseconds) between successive polls.
W			
workflow.group	Application Server> Workflow		<p>Comma-separated list of groups whose users are authorized to log into the Workflow Editor. Use the group names as specified in the Business Modeler.</p> <p>In order to log into the Workflow Editor, these users also must have System Manager permission level. See "Providing Access to the Workflow Editor".</p>
worksheet.full.load	Application Server> App. Server	no	<b>Visible only to owner.</b> Do not change this parameter.
WorksheetBeanContentProvider.memberCombinationsLimit	Application Server> Collaborator	4	Maximum number of combinations in a worksheet.
WorksheetCachingAsDefault	System		Specifies the default setting for the Cache Worksheet Data check box in the worksheet designer. This parameter has an effect only if worksheet caching is enabled (through EnableWorksheetCaching). Also see ManualRefreshAsDefault.

Parameter	Location	Default	Details
WorksheetDefaultDateChoiceMethod	Worksheet	relative to today	<p><b>Visible only to owner.</b> Controls the default start date for Web worksheets, as seen in the worksheet designer. Use one of the following values:</p> <p>relative to today (0)</p> <p>relative to last loaded sales date (1)</p>
WorksheetDefaultSpan	Worksheet	104 (for a weekly system)	<p><b>Visible only to owner.</b> Specifies the default length of time for a Web worksheet, in base time units. Must be an even number, 2 or greater.</p>

The message that a user receives when he or she receives a task. Title of the "enterprise" content link. Specifies whether the My Tasks module is displayed. If you disable this module, Collaborator Workbench also removes related options such as the Send as Task button. Specifies whether Collaborator Workbench displays worksheet content panes. If implemented, specifies whether to check whether the product matches between a settlement and the possible promotions. This parameter controls matching for all kinds of settlements, not just off-invoice settlements.

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## Database Procedures

This chapter lists the most commonly needed database procedures.

This chapter covers the following topics:

- Recommended Procedure Scheduling
- ANALYZE\_SCHEMA
- CHAINING
- CLEAN\_LOG\_TABLES
- COMPUTE\_STD\_ERR
- CREATE\_OPT\_STRUCT
- CREATE\_PE\_STRUCT
- DELETE\_FORE\_COL
- DELETE\_INVALID\_GL\_POPULATION
- DYNAMIC\_SYNC
- EP\_LOAD\_MAIN
- EXECUTE\_PROFILES
- EXPOSE\_PROMOTIONS
- INSERT\_UNITS
- MANUALS\_INS
- MANUALS\_INS\_INTEGRATION
- MANUALS\_INS\_RECOVERY
- MANUALS\_POPULATE\_INS
- MDP\_ADD
- POP\_ALL\_MATCH\_PROPOSAL
- POP\_OI\_MATCH\_PROPOSAL

- PRE\_LOGON
- REBUILD\_INDEXES
- REBUILD\_SCHEMA
- REBUILD\_TABLES
- REPLACE\_APOSTROPHE\_LEVELS
- UPGRADE\_TO\_DSM
- UPGRADE\_TO\_SHAPE\_MODELLING

## Recommended Procedure Scheduling

The following table lists the most important predefined procedures provided by Demantra. You should schedule all these procedures to run periodically from workflows.

Procedure	Recommended to run...
ANALYZE_SCHEMA	once a week, after running REBUILD_INDEXES and REBUILD_TABLES
CHAINING	every 10 seconds
COMPUTE_STD_ERR	once a week, if you are performing safety stock calculations*
DYNAMIC_SYNC	every 10 seconds
EXEC_MANUALS_INS_INTEGRATION	every 10 seconds
MANUALS_INS	every 10 seconds, if you are using the desktop products (Demand Planner and Demand Replenisher)
MANUALS_POPULATE_INS	every 10 seconds
REBUILD_INDEXES**	once a week, on a weekend day*
REBUILD_TABLES**	once a week, on a weekend day*
*It is recommended that you run each of these procedures at off hours and at staggered times to avoid deadlock issues. **These procedures require tablespace equal in size to the current tablespace.	

## **ANALYZE\_SCHEMA**

**Oracle only.** Analyzes all the tables in the schema.

## **CHAINING**

Checks the chaining queue for any pending chaining operations; performs those operations.

## **CLEAN\_LOG\_TABLES**

Removes old data from the db\_exception\_log and audit\_trail tables. To determine which data to keep, this procedure checks the value of the audit\_history\_length parameter, which you can access in the Business Modeler.

## **COMPUTE\_STD\_ERR**

Performs any pending safety stock calculations.

## **CREATE\_OPT\_STRUCT**

Creates the default database structures needed for the Promotion Optimization module. The installer runs this procedure, if you choose to set up a default Promotion Optimization environment.

For details, see "Other Configuration for PTP".

## **CREATE\_PE\_STRUCT**

Creates the default database structures needed for Promotion Effectiveness. The installer runs this procedure, if you choose to set up a default Promotion Effectiveness environment.

For details, see "Configuring Promotion Effectiveness".

## **DELETE\_FORE\_COL**

Deletes all the history data from the current forecast column, for all combinations for which prediction\_status equals 1. The procedure deletes history, starting at the date given by max\_sales\_date - ForecastGenerationHorizon.

ForecastGenerationHorizon is an engine parameter; see "Engine Parameters".

## DELETE\_INVALID\_GL\_POPULATION

Checks the promotion\_data table for invalid records and deletes them.

## DYNAMIC\_SYNC

Aggregates data by item into the branch\_data\_items table, for use in worksheets or within the Business Logic Engine. You can use this table for improved performance in cases where you do not need to view specific locations or filter by location.

Run this procedure only if you plan to use the branch\_data\_items table.

## EP\_LOAD\_MAIN

Performs the data loading described in the Data Model Wizard. Specifically, this procedure loads data from the staging tables specified within the Data Model Wizard and writes records in sales\_data and other internal tables as needed.

This procedure is created by the Data Model Wizard and thus is different in different implementations.

## EXECUTE\_PROFILES

Executes all the active rolling data profiles in the system. These are defined through the Business Modeler and are stored in the rolling\_profiles table. A profile is active if it is selected in the Configure Rolling Session dialog box.

For each active profile, Business Modeler copies the source data into the target series. Data for any given time bucket is copied into the same time bucket in the target series.

The profiles are executed in the order in which they are listed in the Configure Rolling Session dialog box.

## EXPOSE\_PROMOTIONS

Iterates through the promotions listed in the promotion table, checks the status of each (the status field), and does the following:

- If the current status is 3 (planned) and if the current date is after the from\_date of the promotion, change the status to 4 (committed).
- If the current status is 4 (committed) and if the current date is after the until\_date of the promotion, change the status to 5 (executed).

For details, see "Configuring Promotion Effectiveness".

## INSERT\_UNITS

The Analytical Engine calls this procedure at the start of an engine run. This procedure is controlled by the RunInsertUnits parameter and can do several things, depending on the value of that parameter:

Makes sure the engine has rows to write into when generating the forecast. In particular, for *all non-dead* combinations, this procedure does the following:

- Checks to see if the database contains records for this combination for all dates in the span of time from max\_sales\_date to max\_sales\_date + lead.
  - For any dates when the combination does not have records, this procedure inserts records with zero sales, into which the Analytical Engine can then write the forecast.

Records with dates in the past are ignored.

- Runs the EXECUTE\_PROFILES procedure, which executes the active rolling data profiles.

RunInsertUnits and lead are engine parameters; see "Engine Parameters".

## MANUALS\_INS

Updates all the appropriate database tables after a user makes a change in a worksheet.

Note that the update\_dead\_comb parameter controls whether this procedure considers dead combinations.

You use this procedure only if you are using the desktop product (Demand Planner and Demand Replenisher) rather than the Web products. The Web products (Demand Planner Web, Promotion Effectiveness, and Settlement Management) use a Java-based mechanism to update the same tables.

update\_dead\_comb is an engine parameter; "Engine Parameters".

## MANUALS\_INS\_INTEGRATION

Updates all the appropriate database tables after data has been imported. Make sure you run this procedure after running an import integration interface.

## MANUALS\_INS\_RECOVERY

Performs a recovery if MANUALS\_INS or MANUALS\_POPULATE\_INS has failed.

This procedure retrieves the temporary records that were written to the update\_batch\_trai\_err and update\_batch\_values\_err tables and completes the

processing.

## MANUALS\_POPULATE\_INS

Updates all the appropriate database tables after the Business Logic Engine runs. Make sure you run this procedure after running the Business Logic Engine or the BLE Step.

## MDP\_ADD

This procedure is run automatically when needed. It is responsible for maintaining the mdp\_matrix table.

If the Analytical Engine fails with an error ("node not found in map"), you can correct the error by setting the align\_sales\_data\_levels\_in\_loading parameter to true and then manually running the MDP\_ADD procedure.

Depending on the setting of the RunProportInMdp\_add parameter, this procedure may or may not call the proport mechanism when it runs.

## POP\_ALL\_MATCH\_PROPOSAL

**Only for DSM.** This procedure iterates through all settlements (except for off-invoice settlements), finds promotions that meet all the match criteria, and writes a record into the proposed\_match table for each match.

This procedure performs the following comparisons, which are controlled by parameters:

- It compares the promotion date (DSMPEShipDateSeries) to the settlement date. Only promotions with close enough dates are considered possible matches.  
  
The DSMAllShipDateDifference parameter specifies the window of time that Demantra uses to search for a promotion that matches a given settlement. Express this as the number of time buckets between the promotion end date and the deduction date.
- It compares the promotion budget (DSMPromotionBudgetSeries) to the monetary settlement amount. A promotion is a possible match only if its remaining budget is at least as large as the settlement amount.

## POP\_OI\_MATCH\_PROPOSAL

**Only for DSM.** This procedure iterates through all off-invoice settlements, finds promotions that meet all the match criteria, and writes a record into the proposed\_match table for each match.

This procedure performs the following comparisons, which are controlled by

parameters:

- It compares the promotion budget (DSMPromotionBudgetSeries) to the off-invoice amount. For this comparison, the DSMOIPercentDifference parameter specifies the maximum percent difference (of monetary amount) permitted when matching an off-invoice settlement to possible promotions.
- It compares the promotion date (DSMPEShipDateSerie) to the off-invoice date. Only promotions with close enough dates are considered possible matches. You use the DSMOIShipDateDifference parameter to specify the closeness of these dates.
- It can also check that the off-invoice settlement and the possible promotions use the same product. To control this check, you use the DSMOICheckProduct parameter.

## PRE\_LOGON

Sets the database date and time formats.

Many other predefined procedures automatically call this procedure.

## REBUILD\_INDEXES

**Oracle only.** Rebuilds table indexes, a necessary maintenance task for the database.

**Note:** This procedure requires additional space (equal to the current tablespace) and can take a long time.

## REBUILD\_SCHEMA

Rebuilds all tables, a necessary maintenance task for Oracle databases.

**Note:** This procedure requires additional space (equal to the current tablespace) and can take a long time.

## REBUILD\_TABLES

**Oracle only.** Rebuilds the sales\_data and mdp\_matrix tables, a necessary maintenance task for Oracle databases.

**Note:** This procedure requires additional space (equal to the current tablespace) and can take a long time.

### Arguments

This procedure has the following optional positional arguments:

- The first argument indirectly specifies which tables to rebuild. If null, the procedure rebuilds tables according to the `Rebuild_Sales_Table` parameter. If this argument is 1, the procedure rebuilds the `sales_data` table. If this parameter is 0, the procedure skips the `sales_data`.
- If the second argument is 0, the procedure rebuilds the `sales_data` (if permitted by the previous argument), `mdp_matrix`, items and location tables. If this parameter is 1, the procedure rebuilds all tables listed in `user_tables` that need to be rebuilt.

## REPLACE\_APOSTROPHE\_LEVELS

Iterates through the level tables and replaces any apostrophes in the column names with underscore characters.

## UPGRADE\_TO\_DSM

Creates the objects that define DSM:

- Internal table structures
- Settlement and check request levels
- Canned DSM worksheets, as well as all series used in those worksheets
- Methods (right-click actions) for use in DSM worksheets, as well as associated workflows
- Integration workflow suitable for use with DSM

The installer runs this procedure, if you choose to set up a default DSM environment. This procedure uses settings that you provide when you run the installer.

For details, see "Configuring DSM".

## UPGRADE\_TO\_SHAPE\_MODELLING

Creates samples for activity shape modeling. Specifically this procedure does the following:

- Creates two sample activity causal factors: `Product_launch` and `Price_change`.
- It creates four editable series for the benefit of end users, described in the following table.

Series Name	Data Association	Series Purpose
Price_change	Sales	Lets the user indicate the start and duration of the price change shape associated with a specific combination. Within this series, for each date, the user chooses "Start" or "Active" from a dropdown menu to specify the promotion start and continuation dates. The default is "None," meaning no promotion. The user identifies past activities and marks where future activities will occur.
Price_change_QAD	Combination	<p>Controls whether the Analytical Engine rescales the generated shape to align with the amplitude of the most recent observed instance of this shape, for a given combination.</p> <p>Specify the number of buckets for which the shape alignment should occur, starting with the beginning of the shape. Typically you use either 0 or the length of the shape.</p>
Product_launch	Sales	Like Price_change, but applies to the product launch shape instead of the price change shape.
Product_launch_QAD	Combination	Like Price_change_QAD, but applies to the product launch shape instead of the price change shape.

See "About Activity Shape Modeling".



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## Key Tables

This chapter provides reference information for some of the most important tables in Demantra, especially the data fields used by or written by the Analytical Engine. Unless otherwise noted, this information applies to all Demantra products.

This chapter covers the following topics:

- Sales\_Data
- Mdp\_matrix
- Promotion\_Data

### Sales\_Data

The following table lists the most important fields in the sales\_data table. The Analytical Engine reads from and writes to some of these fields, which you use mainly to create series.

Field Name	Use	Field Purpose
item_id	Read-only	Unique identifier for the item. Together, item_id, location_id, and sales_date form the primary key for rows in the sales_data table.
location_id	Read-only	Unique identifier for the location.
sales_date	Read-only	Date for this record.

Field Name	Use	Field Purpose
item_price	Read-only (imported)	Price for this item, at this location, on this date.
actual_quantity		
manual_fact		
manual_stat		
salesplus	Read-only (imported)	The demand used by the Analytical Engine.
orders		
FORE_0, FORE_1, FORE_2, ...	Read-only	The forecasts generated by the Analytical Engine. The Analytical Engine cycles through these columns. Each time, it writes the current forecast into one column (overwriting the oldest forecast). The Analytical Engine then adds a row to the forecast_history table that describes this forecast and that indicates which column it is stored in.
OBS_ERROR_STD	User input	<p>Specifies how the Analytical Engine should consider this observation when fitting each engine model. Specify a positive number, to be used as a weight for this observation. Use 1 to treat this observation as a standard observation.</p> <p>This field is ignored unless UseWeightedRegression is specified as yes (1).</p> <p>UseWeightedRegression is an engine parameter; see "Engine Parameters" .</p>

Field Name	Use	Field Purpose
outlier	Read-only	Indicates whether the Analytical Engine has marked this row as an outlier.
regime_change	Read-only	Indicates whether the Analytical Engine has marked this combination as an regime change.
approve	User input	
final approve	User input	
batch	Read-only	
PD1, PD2, PD3, PD4, PD5, PD6, PD7	No	Available only in a daily system. Daily proportions for this combination, for different days of the week.
PW1, PW2, PW3, PW4, PW5, PW6	No	Available only in a weekly or daily system. Weekly proportions for this combination, for different weeks of a month. When calculating these proportions, Demantra factors in the number that this week has.

## Mdp\_matrix

The following table lists the most important fields in the mdp\_matrix table. You can use these fields to create series or levels that provide information about different combinations or that enable the user to manipulate different combinations.

Field Name	Use	Field Purpose
item_id	Read-only	Unique identifier for the item. Together, item_id and location_id form the primary key for rows in the mdp_matrix table.

Field Name	Use	Field Purpose
location_id	Read-only	Unique identifier for the location.
aggri_98	User input	Specifies whether to aggregate demand for this item-location combination, if this combination is young. See "prediction_status".
aggri_99	User input	Specifies whether to aggregate demand for this item-location combination, if this combination is dead. See "prediction_status".
delta	User input	Used in the proposit calculation as in the following example:  $P1 = \text{glob\_prop} * \text{delta} + (\text{monthly demand}) * (1 - \text{delta})$
delta_d	User input	Specifies the day-to-day smoothing of the daily proportions, which are calculated as in the following example: $D1 = (\text{actual average for day 1}) * \text{delta\_d} + (\text{weekly proportion}) * (1 - \text{delta\_d})$ Here D1 is the proportion for the combination for the first day of the week.
delta_w	User input	Specifies the week-to-week smoothing of the weekly proportions, which are calculated as in the following example: $PW1 = (\text{actual average for week 1}) * \text{delta\_w} + (\text{monthly proportion}) * (1 - \text{delta\_w})$ Here PW1 is the proportion for the combination for the first week of the month.
do_aggri	User input	Specifies whether to perform aggregation on this item-location combination. Choose one of the following values:  0—Will Not Be Used in Aggregation  1—Will Use Aggregation

Field Name	Use	Field Purpose
do_fore	User input	<p>Specifies whether to perform forecasting on this item-location combination. Choose one of the following values:</p> <p>0—Do Not Do Forecast.</p> <p>1—Do Forecast (the default).</p> <p>2—Do Zero Forecast. This combination is not used in aggregation.</p>
dying_time	Yes	<p>If no sales occurred during the length of time specified by dying_time, the combination will be marked as dead. If this field is null for a given combination, Demantra uses the dying_time parameter instead.</p>
glob_prop	Read-only	<p>Rolling average demand for this combination, averaged over the recent past, as specified by the length of time given by the hist_glob_prop setting.</p>
hist_glob_prop	User input	<p>Number of base time buckets worth of data to use to calculate the rolling average, glob_prop, for this combination. If this field is null for a given combination, Demantra uses the hist_glob_prop parameter instead.</p>

Field Name	Use	Field Purpose
is_fictive	Read-only	<p>Indicates whether this combination is real or fictive. This field is set automatically by Demantra. It has one of the following values:</p> <p>1 means that the combination was created through Member Management and no data has been loaded for it yet.</p> <p>0 means that there are sales for this combination.</p> <p>2 means that there are no sales for this combination.</p> <p>3 means that an error occurred while loading this combination or while redefining this combination. (When Demantra loads a new combination or changes the definition of a combination, it temporarily sets is_fictive equal to 3. When Demantra finishes the action, it then resets is_fictive equal to 0 or 2.)</p> <p>The engine does not consider the is_fictive setting.</p>
missing_all_sources	Read-only	<p>Used during chaining. Indicates whether the source data for this combination is complete. For each combination, this field has one of the following values:</p> <p>Yes means that there is no data for this combination.</p> <p>Partial means that there is data for this combination only for some of the dates.</p> <p>No means that there is data for this combination for all dates.</p>
missing_some_sources	Read-only	<p>Used during chaining. For each combination, this field indicates one of the following:</p> <p>Yes means that there is no data for one of the items in the combination.</p> <p>Partial means that there is data for this combination only for some of the dates.</p>

Field Name	Use	Field Purpose
models	Read-only	<p>Indicates the engine models that the Analytical Engine used when forecasting this combination, during the most recent engine run. Demantra uses a single letter to indicate each model:</p> <p>A: ARLOGISTIC</p> <p>B: BWINT</p> <p>C: CMREGR</p> <p>D: DMULT</p> <p>E: ELOG</p> <p>F: FCROST</p> <p>G: LOGISTIC</p> <p>H: HOLT</p> <p>K: ICMREGR</p> <p>J: IREGR</p> <p>L: LOG</p> <p>M: MRIDGE</p> <p>R: REGR</p> <p>V: ARIX</p> <p>X: ARX</p> <p>To specify multiple models, Demantra concatenates the letters together. For example, BDF means the BWINT, DMULT, and FCROST models.</p> <p>For information on engine models, see "Theoretical Engine Models" .</p>
new_member	Read-only	Specifies whether to run proposit on this combination; used by the Run_full_matrix_proposit parameter.
outlier	Read-only	Indicates whether the Analytical Engine has marked this combination as an outlier, for any time bucket.

Field Name	Use	Field Purpose
P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12	Read-only	Monthly proportions for this combination. Each proportion represents the level-adjusted sales for this combination, for each month of the year, as averaged over multiple years
PD1, PD2, PD3, PD4, PD5, PD6, PD7	No	Available only in a daily system. Daily proportions for this combination, for different days of the week.
post_effect	User input	<p><b>PE only.</b> For each combination, specifies how the Analytical Engine should search for the effects of any given promotion, after the end of that promotion. Specify this as the number of base time buckets after the end of a promotion.</p> <p>Null is treated as zero.</p> <p>Searching for post-promotional effects can slow the engine down, so Oracle recommends doing this only for a few combinations. For those combinations, Oracle recommends specifying a value of 2–4, to avoid possible overlaps between different promotions.</p>
pre_effect	User input	<p><b>PE only.</b> For each combination, specifies how the Analytical Engine should search for the effects of any given promotion, before the start of that promotion. Specify this as the number of base time buckets before the start of a promotion.</p> <p>Null is treated as zero.</p> <p>Searching for pre-promotional effects can slow the engine down, so Oracle recommends doing this only for a few combinations. For those combinations, Oracle recommends specifying a value of 2–4, to avoid possible overlaps between different promotions.</p>

Field Name	Use	Field Purpose
prediction_status	Read-only	<p>Controls how the Analytical Engine uses this combination. Each combination has one of the following prediction status values:</p> <p>96 (No Forecast)—This status means that the Analytical Engine will completely ignore this combination.</p> <p>97 (Create Zero Forecast) —A user has set do_fore equal to 2 manually. This status means that the Analytical Engine will insert a zero forecast for this combination but otherwise ignore it.</p> <p>98 (Young) —Sales for this combination are too new to be used for prediction.</p> <p>99 (Dead) —Sales for this combination are not recent enough to be used for prediction.</p> <p>1 (Live or Active)—Neither young nor dead.</p> <p>The Analytical Engine ignores any young or dead combinations, except when it is necessary to aggregate. In case of aggregation, Demantra considers the do_aggri, aggri_98, or aggri_99 flag of the combination.</p> <p>Demantra sets the prediction_status indicator as follows.</p> <p>For fictive combinations (is_fictive = 1), Demantra automatically sets the prediction status to 98.</p> <p>For real combinations (is_fictive equal to 0 or 2), Demantra uses the following rules:</p> <p>If do_fore is 0, then prediction_status will be 99.</p> <p>If do_fore is 1, then prediction_status is set as follows:</p> <p>If the combination is dead because of the dying_time parameter, then prediction_status is set to 99.</p> <p>If the combination is young because of the mature_age parameter, then prediction_status is set to 98.</p>

Field Name	Use	Field Purpose
		Otherwise, the prediction_status is set to 1.  If do_fore is 2, then prediction_status will be 97.  dying_time and mature_age are engine parameters; see "Non-Engine Parameters".
prop_changes	Read-only	Specifies whether to run proposit on this combination; used by the Run_full_matrix_proport parameter.
PW1, PW2, PW3, PW4, PW5, PW6	No	Available only in a weekly or daily system. Weekly proportions for this combination, for different weeks of a month. When calculating these proportions, Demantra factors in the number that this week has.
level_id	Read-only	The level of the forecast tree where the forecast for this combination was generated.
item_node	Read-only	Item member in that level.
loc_node	Read-only	Location member in that level.

## Promotion\_Data

**PE only.** The following table lists the most important fields in the promotion\_data table. The Analytical Engine reads from and writes to some of these fields, which you use mainly to create series that show the forecast results.

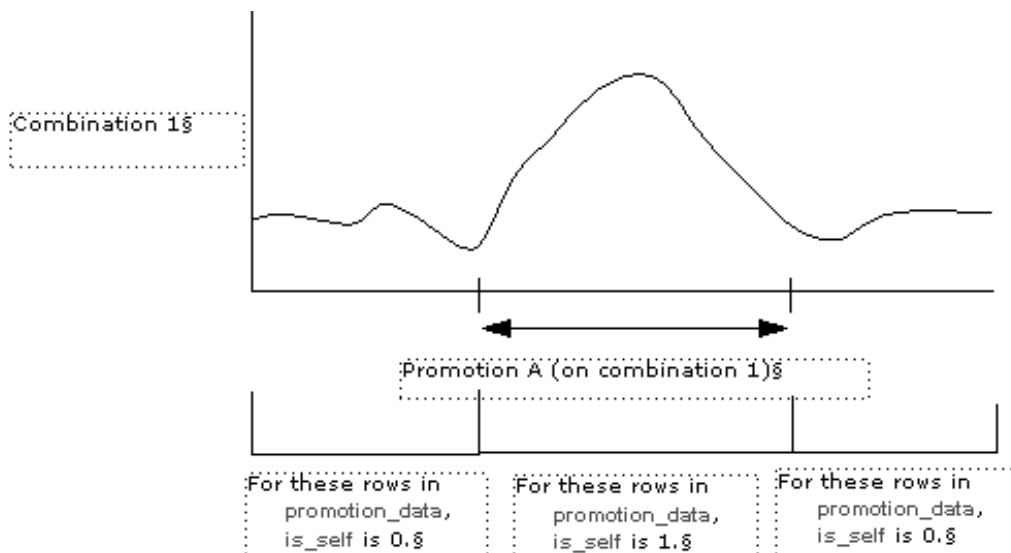
Field Name	Use	Field Purpose
item_id	Read-only	Unique identifier for the item. Together, item_id, location_id, sales_date, and promotion_id form the primary key for rows in the promotion_data table.

Field Name	Use	Field Purpose
location_id	Read-only	Unique identifier for the location.
sales_date	Read-only	Date for this record.
promotion_id	Read-only	Unique identifier for a promotion.
is_self	Read-only	Equals 1 if the lifts in this row (uplift, pre- and post-effect, and switching effects) are associated with the promotion and date of this row. See "Is_Self".
fore_0_uplift	Read-only	Basic lift due to this promotion, during the dates of the promotion.
fore_0_sw_channel	Read-only	Effects of channel switching as described in "Switching Effects".
fore_0_store	Read-only	Effects of store switching.
fore_0_product	Read-only	Effects of store switching.
fore_0_brand	Read-only	Effects of brand or category switching.
fore_0_pre_effect	Read-only	Pre-promotional effect due to this promotion.
fore_0_post_effect	Read-only	Post-promotional effect due to this promotion.

Field Name	Use	Field Purpose
*norm*	Read-only	<p>Normalized versions of the forecast data, if requested via the NormalizeResults parameter. When the Analytical Engine normalizes its results, it rescales the historical engine results so that the observed baseline values are preserved.</p> <p>NormalizeResults is an engine parameter; see "Engine Parameters".</p>

### Is\_Self

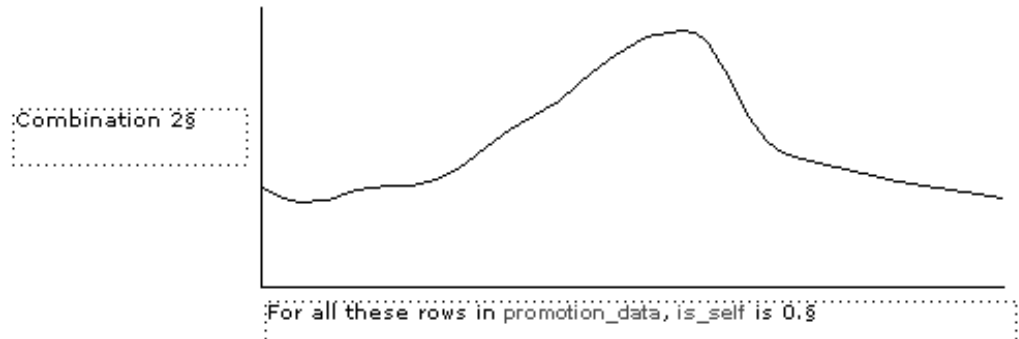
In any given row of the promotion\_data, the Analytical Engine uses the is\_self field to indicate whether the lifts in that row are associated with the promotion and date of that row. (Specifically, this refers to the uplift, pre and post-effect, and switching effects.) Consider the following example, with a combination that has a promotion (Promotion A) on it for some dates. For simplicity, this graph shows just the uplift on this combination due to the promotion. Each time point in this graph corresponds to a row in promotion\_data. The notes at the bottom of the figure show the value of is\_self for different times.



As you can see, during the dates of the promotion itself, is\_self is 1. Outside those dates, is\_self is 0 because these dates fall outside the promotion.

Now consider another combination and the same period of time. The sales for this other

combination were lifted, even though the promotion was not applied to this combination. The following graph shows the uplift on this combination, due to Promotion A (which ran only on the other combination). Again, each time point corresponds to a row in promotion\_data:



For all these rows in promotion\_data, is\_self is 0 because these lifts are due to a promotion that did not run on this combination.



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## Server Expression Functions and Operators

This appendix provides reference information for the operators and functions that are allowed in server expressions.

This chapter covers the following topics:

- Supported SQL Functions
- Operators in Server Expressions
- Oracle Tokens

### Supported SQL Functions

You can use the following SQL functions in a Oracle server expression:

Function	Aggregating?	Description	Supported on	
			Yes	Yes
<i>Avg (column)</i>	Yes*	Returns the average of the values of a group.	Yes	Yes
<i>Count (column)</i>	Yes***	Returns the number of members of a group.	Yes	Yes

Function	Aggregating?	Description	Supported on	
Decode ( <i>expression</i> , <i>value1</i> [, <i>return1</i> , <i>value2</i> , <i>return2</i> , ...], <i>defaultreturn</i> )	No	Matches <i>expression</i> to the test cases <i>value1</i> , <i>value2</i> , and so on, and returns the return value ( <i>return1</i> , <i>return2</i> , and so on) that corresponds to the matched value.	No	Yes
Lower ( <i>column</i> )	No	Returns a string in lower case.	Yes	Yes
Ltrim ( <i>column</i> )	No	Removes characters from the left side of the string.	Yes	Yes
Max ( <i>column</i> )	Yes*	Returns the maximum of the values of a group.	Yes	Yes
Min ( <i>column</i> )	Yes*	Returns the minimum of the values of a group.	Yes	Yes
Nvl ( <i>expression1</i> , <i>expression2</i> )	No	If <i>expression1</i> is not null, returns <i>expression1</i> . Otherwise, returns <i>expression2</i> .	No	Yes
Round ( <i>number</i> [, <i>m</i> ])	No	Rounds the given number to the specified number <i>m</i> of decimal places (zero by default).	Yes	Yes

Function	Aggregating?	Description	Supported on	
Rtrim ( <i>column</i> )	No	Removes characters from the right side of the string.	Yes	Yes
Safe_Division ( <i>argument1</i> , <i>argument2</i> , <i>argument3</i> )	No	Custom function created by Oracle. This function returns <i>argument1</i> divided by <i>argument2</i> , unless <i>argument2</i> is null. If <i>argument2</i> is null, then the function returns <i>argument3</i> .	Yes	Yes
SubStr ( <i>expression</i> , <i>start</i> , <i>length</i> )	No	Returns the substring of a given length that starts at the given position.	No	Yes
Sum ( <i>column</i> )	Yes**	Returns the sum of the values of a group.	Yes	Yes
Sysdate()	No	Returns the current date and time.	No	Yes
To_char ( <i>date</i> , [ <i>format</i> ]) or To_char ( <i>number</i> , [ <i>format</i> ])	No	Returns the input, a date or number, converted to a string using the given format.	No	Yes
To_date ( <i>date</i> , [ <i>format</i> ])	No	Returns a formatted date.	No	Yes

Function	Aggregating?	Description	Supported on	
To_number ( <i>date</i> , [ <i>format</i> ])	No	Returns a number.	No	Yes
Upper ( <i>column</i> )	No	Returns a string in upper case.	Yes	Yes

\*If you use this function as the aggregating function for a series, the series should be non-proportional. \*\*If you use this function as the aggregating function for a series, the series should be proportional. \*\*\*If you use this function as the aggregating function for a series, the series should be non-editable.

**Note:** A server expression must be an aggregating expression that returns numeric, date, string, or true/false values.

**Note:** If a series is going to be used within cached worksheets, its server expression cannot return null or zero-length values. Use the expression to\_number(null,0) to express null values.

**Note:** In these reference sections, square brackets indicate optional parts of the syntax.

For details on these functions, consult the documentation for either SQL Server or Oracle, as appropriate.

## Operators in Server Expressions

You can use the following operators in a Oracle server expression: + - \* / () < <= > >= And Else In Not Or Then When

Calculations follow standard algebraic rules of precedence.

## Oracle Tokens

You can use the following special-purpose tokens in a Oracle server expression:

Token	Allowed in	Automatically replaced by
#CONFIDENCE_LEVEL#	Server expressions	Confidence level associated with the forecast. Not supported in the Web user interfaces.
#FDATE@<Version>#	Series hint messages	Date of the specified forecast version*. For example, #FDATE@0# is replaced by the date on which current forecast was generated.
#FORE@<Version>#	Server expressions	The specified forecast version*. For example, #FORE@0# is replaced by the current forecast version.
#POST_EFFECT@<Version>#	PE server expressions	The post-promotional effect associated with the specified forecast version*.
#PRE_EFFECT@<Version>#	PE server expressions	The pre-promotional effect associated with the specified forecast version*.
#SIMULATION_TABLE#	Server expressions	.
#SW_BRAND@<Version>#	PE server expressions	The brand switching associated with the specified forecast version*.
#SW_CHANNEL@<Version>#	PE server expressions	The channel switching associated with the specified forecast version*.
#SW_PRODUCT@<Version>#	PE server expressions	The product switching associated with the specified forecast version*.
#SW_STORE@<Version>#	PE server expressions	The store switching associated with the specified forecast version*.

Token	Allowed in	Automatically replaced by
#UNIT#	Server expressions	The unit conversion factor that corresponds to the unit used in the worksheet. See "Configuring Units, Indexes, and Update-Lock Expressions".
#UPLIFT@<Version>#	PE server expressions	The uplift associated with the specified forecast version*.
*The most recent forecast is 0, the previous forecast is 1, and higher numbers specify forecasts generated earlier than that.		

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## Client Expression Functions and Operators

This appendix provides reference information for the operators and functions that are allowed in client expressions.

This chapter covers the following topics:

- About This Reference
- Operators in Client Expressions
- Abs Function
- Case
- CurrentRow
- Date
- Day
- Exp
- ForecastFirstRow
- Fpos
- Fsum
- GetRow
- GetWorksheetLevelNumber
- If
- Is\_Modified
- IsNull
- Mod
- Month
- NumberOfTimeBuckets
- Pi

- Rand
- Round
- RowCount
- Sqrt
- SummaryAVG
- SummaryCount
- SummaryMax
- SummaryMin
- SummarySum
- SummaryWAVG
- TimeBucket
- Today
- Truncate
- Year
- Z\_Val

## About This Reference

This appendix provides reference information for the operators and functions that are allowed in client expressions.

- Edit-lock expressions must evaluate to true or false values.
- In these reference sections, square brackets indicate optional parts of the syntax.

## Operators in Client Expressions

You can use the following operators in a client expression: + - \* / ( ) [] < <= <> = > >= And Else In Not Or Then When

Precedence of calculations follows standard algebraic rules.

Finally, to specify a series, use either of the following syntaxes:

- series\_name
- series\_name[relative-time-bucket]

For example: Sales [ -1] refers to the previous period(*column*). Sales [ 1] refers to the next period(*column*). [0] is not allowed.

## Abs Function

Returns the absolute value of a number.

### Syntax

- `Abs (argument)`

The value of *argument* must be either numeric or null.

- If *argument* is numeric, the function returns the absolute value of *argument*.
- If *argument* is null, the function returns null.

## Case

Tests the values of a series or expression and returns values based on the results of the test. If more than one WHEN clause matches the given input, the function returns the result corresponding to the first matching one.

### Syntax

- `Case ( test WHEN value1 THEN result1 [ WHEN value2 THEN result2] [ additional WHEN-THEN clauses] [ ELSE else ] )`

The square brackets indicate optional parts of the syntax. The arguments are as follows:

- *test* is the series or expression whose values you want to test. You can use a column name or a column number preceded by a pound sign (#).
- *value1*, *value2*, and so on are possible values that *test* can have. Each value can be any of the following:
  - A single value
  - A list of values separated by commas (for example, 2, 4, 6, 8)
  - IS followed by a relational operator and comparison value (for example, IS>5)
  - Any combination of the preceding expressions, separated by commas (for example, 1,3,5,7,9, IS>42)

In this case, the function implicitly behaves as if the expressions were combined by a logical OR.

- *result1*, *result2*, and so on are the results to return for the possible values. For example, if *test* evaluates to *value1*, then the function returns *result1*. All returned values must have the same data type.

- *else* specifies the value to return if *test* does not equal any of the given cases (*value1*, *value2*, and so on). The default for *else* is null.

### Examples

The following expressions are valid uses of Case:

- Case ( Input1 When is > 1 Then 10 When 2 Then 20 Else 30 ) Case ( Input1 When is < 10 Then 5 When is < 20 Then 50 ) Case ( Input1 When is > 100, is < 0 Then 5 Else 30 ) Case ( Input1 When is > 1 Then 10 )

See also

- "If"

## CurrentRow

Returns the number of the worksheet row that currently has the focus, that is, the worksheet row that the user has selected.

This function is easiest to use in color expressions.

Within the main client expression for a series, you can use this function to find the relative position of a row, in relation to another row. For example, you can use it indirectly to find the last row number.

**Note:** Remember that apart from the color expression and the edit-lock expression, the worksheet does not re-evaluate client expressions until a value changes in the worksheet. That is, the action of moving the cursor does not force the main client expressions to be re-evaluated.

**Note:** This means that if you use this function within the main client expression for a series, the expression should also refer to a series that the user will change.

If the function fails, it returns 0.

### Syntax

- CurrentRow ()

### Notes

When used in a general client expression (that is, neither a color expression nor an edit-lock expression), this function always returns 1.

When used in a color or edit-lock expression, this function returns the number that corresponds to the row that currently has the focus, that is, the row that the user has currently highlighted.

You can use this function in an edit-lock expression, but the `GetRow` function is a better choice. For example, consider the following possible edit-lock expressions:

- `CurrentRow() < ForecastFirstRow() GetRow() < ForecastFirstRow()`

Both expressions make it impossible to edit the series for the rows before the start of the forecast. However, if you use the former expression, all the cells will appear editable if the user selects a row before the start of the forecast, which would be very confusing.

See also

- `"ForecastFirstRow" "GetRow"`

## Date

Given a string argument, returns a date. This function works only in the desktop.

### Syntax

- `Date (string)`

See also

- `"Day" "Month" "Today" "Year"`

## Day

Returns an integer indicating the day of the month of the given date value.

### Syntax

- `Day (argument)`

The value of *argument* must be either a date or null.

- If *argument* is a date, the function returns an integer representing the day (1–31) of the month in that date.
- If *argument* is null, the function returns null.

## Exp

Returns the number e raised to the specified power.

### Syntax

- `Exp (argument)`

The value of *argument* must be either numeric or null.

- If *argument* is numeric, the function returns the number e raised to the power of *argument*.
- If *argument* is null, the function returns null.

Example

This expression returns 7.38905609893065:

- Exp(2)

These statements convert a natural logarithm (base e) back to a regular number. When executed, Exp sets value to 200:

- double value,  $x = \log(200)$   
value = Exp(x)

## ForecastFirstRow

Returns the number of the row in the current worksheet where the forecast begins. It refers to the batch forecast.

### Syntax

- ForecastFirstRow()

See also

- "CurrentRow" "GetRow"

## Fpos

Periods of supply. Checks the period of the first arguments against the period (from the next period) of the second argument. This function works only on the forecast data.

**Note:** You cannot use this function in color expressions.

### Syntax

- Fpos (*series1,series2*)

Each argument should be a series.

Examples

- If (GetRow() >= ForecastFirstRow() Fpos(SupplyTinv, SupplyTinvFinalFcst) Null)

The section that uses "GetRow() >= ForecastFirstRow()" is essential because the expression works only in forecast.

Date	Inventory (SupplyTinv)	Forecast (SupplyTinvFinalFcs t)	Third Series with FPOS
January	12	5	2.5
February		5	
March		4	
April		6	

$Fpos = 5 + 4 + 6 \cdot 0.5 = 2.5$ . The inventory (12) will cover the forecast for 2.5 periods.

## Fsum

Returns a series that adds multiple future consecutive items from a given series. The second argument, either a number or another series, specifies the number of time periods to use for each sum.

**Note:** You cannot use this function in color expressions.

### Syntax

- `Fsum (series , count)`

The arguments are as follows:

- *Series* should be an actual series name.
- *Count* should be either a numeric series or an actual integer between 1 and 15, inclusively. If count is more than 15, the function returns null.

The parameters can be only the names of data series or actual values. It is not permitted to enter other functions or [ ] brackets inside the FSUM function.

### Examples

- `Fsum (Series1, Series2)`

Date	Series1	Series2	=Fsum	Note about this entry
Jan	100	3	360	Series2 for Jan is 34, so the function finds the next 3 time periods within Series 1; that is, 110, 130, and 120. The sum of those numbers is 360.
Feb	110	2	250	Series2 for Feb is 2, so the function finds the next 2 time periods within Series 1; that is, 130 and 120. The sum of those numbers is 250.
March	130	2	290	Series2 for March is 2, so the function finds the next 2 time periods within Series 1; that is, 120 and 170. The sum of those numbers is 290.
April	120	2	...	
May	170	3	...	
April	...			

## GetRow

Returns the number of the worksheet row. You generally use this function in edit-lock

expressions that lock worksheet rows depending on position.

If the function fails, it returns 0.

**Syntax**

- `GetRow ( )`

See also

- "CurrentRow" "ForecastFirstRow"

# GetWorksheetLevelNumber

Returns an integer that indicates the relative level of the summary row where this function is used.

**Note:** This function is available only for use within the summary row of a series.

**Syntax**

- `GetWorksheetLevelNumber ( )`

You use this function to achieve different kinds of summaries for a series in different contexts in a given worksheet. Specifically, when a worksheet uses one or more levels on the x-axis, the worksheet table includes intermediate summary rows, for example:

09/08/2003	Stop and Shop Store 001:	Rainbow LF Chocolate Chip	\$5,548,561	
		Rainbow LF Oatmeal Raisin	\$2,165,763	
		Rainbow LF Peanut Butter	\$12,421	
		Rainbow Reg Chocolate Chip	\$1,199,128	
		Rainbow Reg Peanut Butter	\$1,909,066	
		Rainbow Spc Biscuits	\$6,487,385	
		Summary	\$17,342,364	
12/08/2003	Stop and Shop Store 001:	Rainbow LF Chocolate Chip	\$5,316,576	
		Rainbow LF Oatmeal Raisin	\$2,167,184	
		Rainbow LF Peanut Butter	\$51,299	
		Rainbow Reg Chocolate Chip	\$1,439,943	
		Rainbow Reg Peanut Butter	\$1,976,406	
		Rainbow Spc Biscuits	\$7,845,928	
		Summary	\$18,797,336	
Summary			\$77,725,936	

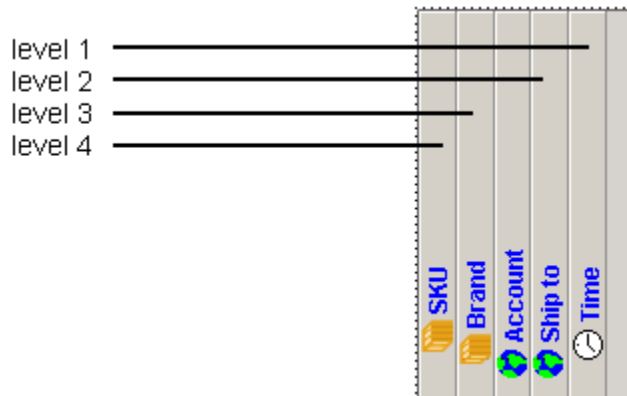
intermediate summaries

final summary

By default, the final summary row and all the intermediate summary rows are calculated in exactly the same way. The `GetWorksheetLevelNumber` function provides a way to distinguish each summary row, so that you can create a different summary functions as needed, at each of those levels.

To determine the relative aggregation level of the summary rows, the function

considers the layout of the worksheet. The following figure relates the summary levels to the x-axis layout:



For level 1 in the worksheet, etWorksheetLevelNumber returns 1, and so on. If there are n levels on the x-axis of the worksheet, the function returns n+1 for the final summary.

### Example

Suppose that you want to display only the intermediate summary but not the final summary, as follows:

Account	Time	Sample Max
Stop and Shop	02/17/2003	100
	08/18/2003	200
	02/16/2004	150
	Summary	200
WalMart	02/17/2003	125
	08/18/2003	220
	02/16/2004	170
	Summary	220
Summary		

To achieve this, you could use a summary row expression of the following form:

- If ( GetWorksheetLevelNumber() =1, SummaryMax ( Sample Max ) , Null Value )

**Note:** If you configure a series with a context-sensitive summary row like this, be careful to use that series only within worksheets that have the appropriate layout. You may want to add a usage note to the series hint message to guide users.

## If

Tests a true/false expression and returns one of two possible values based on the results

of the test.

### Syntax

- IF (*test* , *trueresult*) IF (*test* , *trueresult*, *falseresult*)
- The arguments are as follows:
- *test* is the series or expression that has true or false values.
- *trueresult* is the result to return if *test* equals true.
- *falseresult* is the result to return if *test* equals false. The default for *falseresult* is null. That is, if you do not specify this argument, the function returns null.

**Note:** Within a color expression, only the first syntax variant is allowed. That is, a color expression cannot include *falseresult*.

### Examples

This expression returns 7 if Retail\_history is greater than Retail\_model; otherwise it returns Demand:

- If (Retail\_History > Retail\_Model, 7, Demand)

See also

- "Case"

## Is\_Modified

Returns true or false depending on whether a given series has been edited since the last time data was saved.

### Syntax

- Is\_Modified (*series*)

Here *series* should be an editable series. The function does not detect whether a calculated series has been changed by having its inputs edited.

### Examples

The following expression returns the Inventory series if Pseudo has been modified and returns the Safety series if Pseudo has not been modified:

- If (Is\_Modified(Pseudo), Inventory, Safety )

## IsNull

Returns true or false depending on whether a given series equals null.

### Syntax

- IsNull(*series*)

## Mod

Returns the remainder (modulus) of a division operation.

**Note:** The results of this function take slightly longer to display than for other functions.

### Syntax

- Mod (*argument1*, *argument2* )

The value of *argument1* and *argument2* must be either numeric or null.

- If both *argument1* and *argument2* are numeric, the function returns the remainder (modulus) of a division operation. Specifically, it returns the following result:

*argument2* - round(*argument2*/*argument1*) where round(*argument2*/*argument1*) equals *argument2*/*argument1* rounded to the nearest integer.

The returned value is the data type of whichever argument has the more precise data type.

- If *argument2* or *argument2* is null, the function returns null.
- If *argument2* is 0, the function returns null.

### Examples

- Mod(20, 6) returns 2  
Mod(25.5, 4) returns 1.5  
Mod(25, 4.5) returns 2.5

## Month

Returns an integer indicating the month of the given date value.

This can be used to show or use dates in calculations. Also, a planning process can be maintained, while the locking expression is based dynamically on dates. For example, override is allowed only in the first two weeks of the month.

### Syntax

- Month (*argument*)

The value of *argument* must be either a date or null.

- If *argument* is a date, the function returns an integer (1 to 12) representing the month in that date.
- If *argument* is null, the function returns null.

## NumberOfTimeBuckets

Returns the number of base time buckets belonging to the aggregated time period to which a worksheet row belongs.

### Syntax

NumberOfTimeBuckets()

### Example

- Suppose we have weekly system and we are looking at a worksheet with 4-4-5 time aggregation. The function will return the values as follows:

Start Date	End Date	Number of Base Time Buckets
07/10/2002	03/11/2002	(03/11/2002 + 1 day) - 07/10/2002 = 28 days/7 = 4
04/11/2002	01/12/2002	(01/12/2002 + 1 day) - 04/11/2002 = 28 days/7 = 4
02/12/2002	05/12/2002	(05/12/2002 + 1 day) - 02/12/2002 = 35 days/7 = 5
06/01/2003	02/02/2003	(02/02/2003 + 1 day) - 06/01/2003 = 28 days/7 = 4

See also

- "TimeBucket"

## Pi

Returns the number pi multiplied by a specified number.

### Syntax

- `Pi (argument)`

The value of *argument* must be either numeric or null.

- If *argument* is numeric, the function returns the number pi multiplied by *argument*.
- If *argument* is null, the function returns null.

The function returns -1 if an error occurs.

### Examples

You can use this function to convert angles to and from radians. For example, because pi equals 180 degrees, you can convert 60 degrees to radians as follows:

- `60 * 180 / pi(1)`

## Rand

Returns a random integer between 1 and a specified upper limit.

**Note:** This function does not generate true random numbers. If you repeatedly call this function, you will receive a pseudo-random sequence.

### Syntax

- `Rand ( argument )`
- The value of *argument* must be either numeric or null. If numeric, the argument must have a value between 1 and 32767, inclusive.
- If *argument* is a number greater than or equal to 1, the function returns a random integer between 1 and *argument*, inclusive.
- If *argument* is null, the function returns null.

### Examples

The following expression returns a random whole number between 1 and 10:

- `Rand(10)`

## Round

Returns a number rounded to a specified number of decimal places.

### Syntax

- Round (*argument1*, *argument2*)
- The value of *argument1* and *argument2* must be either numeric or null. If numeric, *argument2* should be a non-negative integer between 0 to 18, inclusive.
- If *argument1* is numeric and *argument2* is a non-negative integer, the function returns the value of *argument1*, rounded to the number of decimal places specified by *argument2*.
- If *argument1* or *argument2* is null, the function returns null.
- If the function fails, it returns null.

### Examples

The following expression returns 9.62:

- Round(9.624, 2)

The following expression returns 9.63:

- Round(9.625, 2)

The following expression returns 9.600:

- Round(9.6, 3)

The following expression returns -9.63:

- Round(-9.625, 2)

see also

- "Truncate"

## RowCount

Returns the numbers of rows in the worksheet where this function is used.

### Syntax

- RowCount ( )

See also

- "ForecastFirstRow" "GetRow"

## Sqrt

Returns the square root of a non-negative number.

### Syntax

- `Sqrt (argument)`

The value of *argument* must be either a non-negative number or null.

- If *argument* is a non-negative number, the function returns the square root of *argument*.
- If *argument* is null, the function returns null.

### Examples

This expression returns 1.414213562373095.

- `Sqrt(2)`

This expression results in an error at execution time.

- `Sqrt(-2)`

## SummaryAVG

Returns the average value of the displayed rows of the specified series.

**Note:** This function is available only for the summary row of a series.

### Syntax

- `SummaryAvg( argument )`

Here *argument* is the name of a series that has a numeric value.

Any null value is treated as zero.

## SummaryCount

Returns the total count of the displayed rows of the specified series.

**Note:** This function is available only for the summary row of a series.

### Syntax

- `SummaryCount( argument )`

Here *argument* is the name of a series that has a numeric value.

## SummaryMax

Returns the maximum value of the displayed rows of the specified series.

**Note:** This function is available only for the summary row of a series.

### Syntax

- SummaryMax( *argument* )

Here *argument* is the name of a series that has a numeric value.

Any null value is treated as zero.

## SummaryMin

Returns the minimum value of the displayed rows of the specified series.

**Note:** This function is available only for the summary row of a series.

### Syntax

- SummaryMin( *argument* )

Here *argument* is the name of a series that has a numeric value.

Any null value is treated as zero.

## SummarySum

Returns the sum of the displayed rows of the specified series.

**Note:** This function is available only for the summary row of a series.

### Syntax

- SummarySum( *argument* )

Here *argument* is the name of a series that has a numeric value.

Any null value is treated as zero.

## SummaryWAVG

Returns the weighted average of the displayed rows.

**Note:** This function is available only for the summary row of a series.

#### Syntax

- `SummaryWavg( argument1 , argument2 )`

Here *argument1* and *argument2* are the name of series that have a numeric value. This function performs a weighted average of the values in *argument1*, using the values in *argument2* as the weights.

Any null value is treated as zero.

## TimeBucket

Returns the number of days within the base time bucket in your system. For example, if your base time bucket is a week, this function returns 7.

#### Syntax

- `TimeBucket()`

See also

- "NumberOfTimeBuckets"

## Today

Returns the current system date.

This can be used to show or use dates in calculations. Also a planning process can be maintained, while the locking expression is based dynamically on dates. For example, override is allowed only in the first two weeks of the month, and so on.

#### Syntax

- `Today ()`

## Truncate

Returns a number truncated to a specified number of decimal places.

#### Syntax

- `Truncate ( argument1 , argument2 )`

The value of *argument1* and *argument2* must be either numeric or null. If numeric, *argument2* should be a non-negative integer between 0 to 18, inclusive.

- If *argument1* is numeric and *argument2* is a non-negative integer, the function

returns the value of *argument1*, truncated to the number of decimal places specified by *argument2*.

- If *argument2* or *argument2* is null, the function returns null.
- If the function fails, it returns null.

### Examples

The following expression returns 9.2:

- Truncate(9.22, 1)

The following expression returns -9.2:

- Truncate(-9.29, 1)

See also

- "Round"

## Year

Returns a four-digit integer indicating the year of the given date value.

This can be used to show or use dates in calculations. Also a planning process can be maintained, while the locking expression is based dynamically on dates. For example, override is allowed only in the first two weeks of the month, and so on.

### Syntax

- Year ( *argument* )

The value of *argument* must be either a date or null.

- If *argument* is a date that includes a four-digit year, the function returns a four-digit integer representing the year.
- If *argument* is a date that includes a two-digit year, the function returns a four-digit integer representing the year, as follows:
  - If the two-digit year is between 00 to 49, Demantra assumes 20 as the first two digits.
  - If the two-digit year is between 50 and 99, Demantra assumes 19.
- If *argument* is null, the function returns null.
- If an error occurs, the function returns 1900.

Demantra handles years from 1000 to 3000 inclusive. If your data includes date before

1950, such as birth dates, always specify a four-digit year so that Year and other functions, such as Sort, interpret the date as intended.

## Z\_Val

Z\_val is used in safety stock calculation. Given a specified service level, this function returns a value to use in the safety stock calculation, by looking up values in a table.

### Syntax

- Z\_Val (*argument*)

The value of *argument* must be either numeric or null.

- If *argument* is less than or equal to 0, the function returns null.
- If *argument* is greater than 0 but less than the largest max\_value, the function returns the z\_val from the following table.
- If *argument* is greater than the largest max\_value, the function returns null.
- If *argument* is null, the function returns null.

### Z\_Val Table

If the argument is...		The function returns this z_val...
greater than the min_level	and less than or equal to the max_level	
0	0.85	1.04
0.85	0.86	1.09
0.86	0.87	1.13
0.87	0.88	1.18
0.88	0.89	1.23
0.89	0.9	1.282
0.9	0.91	1.34
0.91	0.92	1.41

If the argument is...		The function returns this z_val...
greater than the min_level	and less than or equal to the max_level	
0.92	0.93	1.48
0.93	0.94	1.56
0.94	0.95	1.645
0.95	0.96	1.75
0.96	0.97	1.88
0.97	0.98	2.06
0.98	0.99	2.33
0.99	0.995	2.576
0.995	0.999	3.09
0.999	0.9995	3.291
0.9995	0.99995	3.891
0.99995	0.999995	4.417

### Example

If we select a service level of 95.5% then the expression will look at the table at the following line, because this lies between 0.95 and 0.96 (the minimum and maximum values in the range). A z\_val value of 1.75 is returned.

min_level	max_level	z_val
0.95	0.96	1.75



---

## Workflow Steps

This chapter provides reference information for the available workflow steps.

This chapter covers the following topics:

- Specifying a Task
- BLE Step
- Condition Step
- Container Step
- Create Member Step
- Custom Step
- DEI Step
- Delete Member Step
- Edit Member Step
- Email Step
- Exception Step
- Executable Step
- Fail-To-Execute Step
- Group Step
- Selection Step
- Simulation Step
- Stored Procedure Step
- Transfer Step
- User Step
- Wait Until Step
- Worksheet Cache Step

## Specifying a Task

Several of the step types include a task or list of tasks, for use in Collaborator Workbench. A task consists of a set of properties, described here.

Each user who logs onto Collaborator Workbench sees an individualized list of tasks in a module called My Tasks on the Collaborator Workbench page.

Each task in the My Tasks module has a subject line which can be a link to a URL, and a description that explains more about the purpose of the task. The subject line link can refer to a worksheet, a file, a URL that initiates an external application, or any other URL.

### Task Properties (in a Workflow Step)

Property	Description
Message	Message to include in My Tasks. It is also used in the email message, if you use that option.
URL	<p>Optionally specify a URL, including the prefix <code>http://</code>. For example,</p> <p><code>http://www.acme.com/page.html</code></p> <p>If you do not include the prefix <code>http://</code> then the URL is read relative to the local host's Workflow Engine root directory. For example, <code>buyer/start.html</code> is read as:</p> <p><code>http://localhost/demantra/Portal/buyer/start.html</code></p> <p>You must specify either a URL or a worksheet to open.</p>
Worksheet to open	<p>Optionally select a worksheet, from the list of public worksheets defined in Demantra. This worksheet is listed in My Tasks. If you use the email option, the subject line of the message includes a link to this worksheet.</p> <p>You must specify either a URL or a worksheet to open.</p>
Source name	Optionally specify the originator of this task.

Property	Description
Description	Optionally specify a longer description of this task, up to 255 characters. This text will show in the Description field in My Tasks. It is also used in the email message, if you use that option.
File	Optionally specify a local file to send to the task recipient. Specify a full path and filename that is accessible to the Workflow Manager, on the machine that is running that software.
Send as email as well	Select this check box if the system should also send an email message containing this task.  <b>Make sure that each user has an email address.</b> You use the Business Modeler to configure email addresses for the users. See "Creating or Modifying a User".

See also

- Oracle Demantra Demand Management User's Guide

## BLE Step

This kind of step submits a worksheet to the Business Logic Engine queue. The worksheet is run when its turn is reached. The Business Logic Engine then evaluates all the client expressions, splits the resulting data to the lowest level, and saves it to the database.

**Note:** The BLE Step starts the Business Logic Engine if necessary.

**Note:** The MANUALS\_POPULATE\_INS procedure should be scheduled to run periodically so that it can update tables as needed, after the Business Logic Engine evaluates the worksheet.

### End Conditions

This step is completed when the Business Logic Engine finishes processing the specified worksheet.

### Properties

Properties	Description	Default
Step ID	Unique identifier for the step.	
Worksheet Name	Select the worksheet to evaluate. The list of worksheets includes all public worksheets and all worksheets that you own.	
Comments	Optional comments.	
Recovery	<p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask—the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry—the engine executes the step again.</p> <p>Continue—the engine continues with the next step.</p> <p>Abort—the engine terminates the workflow instance.</p>	Ask
Check Finish After	Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.	0 seconds
Check Finish Every	The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.	60 seconds
Pause	Specify how long to wait after a step has been completed, before starting the next step.	0 seconds

Properties	Description	Default
Timeout>Timer	Specify a timeout for the step.	never
Timeout>Alert Time	Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module.	never

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

If this step times out, the worksheet request is not deleted from the Business Logic Engine queue. You must manually delete the worksheet request from the Business Logic Engine queue.

## Condition Step

This kind of step tests a worksheet, an SQL statement, or a Java class, and proceeds to either the True step or the False step, based on the result of that test.

The Workflow Engine continues with the True step in any of the following cases:

1. If the worksheet contains data
2. If the SQL statement returns data
3. If the Java class returns the True value

The Workflow Engine continues with the False step in any of the following cases:

- If the worksheet is empty
- If the SQL statement returns no data
- If the Java class returns the False value

### End Conditions

This step is completed when the test has successfully been performed.

### Properties

Properties	Description	Default
Step ID	Unique identifier for the step.	
Pause	Specify how long to wait after a step has been completed, before starting the next step.	0 seconds
Worksheet Name	Select the worksheet to test. The list of worksheets includes all public worksheets and all worksheets that you own.	
SQL	Specify an SQL statement.	
Class name	Specify a custom Java class that returns either True or False.	
Recovery	Specify what the Workflow Engine should do if the system crashes while performing this step:  Ask—the engine follows a Fail-To-Execute procedure for the step.  Retry—the engine executes the step again.  Abort—the engine terminates the workflow instance.	Ask

Properties	Description	Default
Population	<p>Specifies the population attribute that further filters the worksheet used by this step. Specify the following:</p> <p>Name—specify the name of the population attribute, as given in GROUP_ATTRIBUTES_POPULATION.ATTRIBUTE_LABEL. In the demo, this attribute is named Population.</p> <p>The Value field is not used.</p> <p>This property is useful when you use a workflow as a method; otherwise it has no effect.</p>	

## Container Step

This kind of step is used to execute multiple single steps simultaneously and independently. The Container step is completed when all steps in it are completed.

**Note:** In order to run a sequence of steps from within a Container step, you can use an Executable step that initiates a workflow instance that itself contains the required series of steps. However, you should remember that new workflow instance is run separately and does not affect the timeout, fail-to-execute, or end conditions of the original Container step.

### Included Steps

A Container step can contain any number of steps. All the steps proceed independently of each other. The steps do not have to be for the same user.

You cannot include the following kinds of steps:

- Condition Step
- Container Step
- Exception Step

Also, the order in which the steps are included is not relevant to their processing.

### End Conditions

This step is completed when all the steps that it contains are completed.

### Properties

Properties	Description	Default
Step ID	Unique identifier for the step.	
Check Finish After	Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.	0 seconds
Check Finish Every	The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.	60 seconds
Pause	Specify how long to wait after a step has been completed, before starting the next step.	0 seconds
Recovery	Specify what the Workflow Engine should do if the system crashes while performing this step:  Ask — the engine follows a Fail-To-Execute procedure for the step.  Retry — the engine executes the step again.  Abort — the engine terminates the workflow instance.	Ask

### Fail-To-Execute

If any of the steps in a container step fail to execute, the engine waits until all other steps have either finished before performing a Fail-To-Execute procedure on the entire container step.

An email notification is sent to the process initiator and shows which specific steps failed to execute. For example:

- **Subject:** Failure in Process execution. **Message Text:** Process ID: 19 Schema ID: 7 Step ID: ContainerStep Error description: Invalid user name: Brian, internal step in container step: 'Action Required Activities'. Schema name: 'Check for Action Required', step name: 'Notify user of Action Required'

See also "Fail-To-Execute Step".

### Timeout

If an individual step included within a Container step times out, it does not continue to its own timeout step. The timeout procedure is executed but the timeout step is not activated.

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

## Create Member Step

This kind of step should be used only as a method. It uses the passed arguments, and creates the specified level member.

### End Conditions

This step is completed when the member has been created.

### Properties

Properties	Description	Default
Step ID	Unique identifier for the step.	

Properties	Description	Default
Recovery	<p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask — the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry — the engine executes the step again.</p> <p>Continue — the engine continues with the next step.</p> <p>Abort — the engine terminates the workflow instance.</p>	Ask
Pause	Specify how long to wait after a step has been completed, before starting the next step.	0 seconds

See also

- "Delete Member Step" "Edit Member Step"

## Custom Step

This kind of step executes a Java class from within a workflow instance. You can use this kind of step to add functionality to your workflow or interact with external applications without having to change the workflow structure itself.

If a user has launched the workflow from within a worksheet, Demantra automatically passes arguments to the workflow, which Custom Step can use.

### End Conditions

This step is completed when the executed Java class is completed.

### Properties

Properties	Description	Default
Step ID	Unique identifier for the step.	

Properties	Description	Default
Class Name	The Java class to execute.	
Parameters	Any input parameters that are needed by the Java class. For each parameter, specify the parameter name and value, as well as an optional description.	
Recovery	<p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask—the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry—the engine executes the step again.</p> <p>Continue—the engine continues with the next step.</p> <p>Abort—the engine terminates the workflow instance.</p>	Ask
Check Finish After	Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.	0 seconds
Check Finish Every	The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.	60 seconds
Pause	Specify how long to wait after a step has been completed, before starting the next step.	0 seconds

### Java Class Functions

The Java class should contain these two functions:

- `public int executeStep() { write your code here }`  
`setParameters(Hashtable params) { write your code here }`

The workflow step executes the `executeStep()` function.

`setParameters(Hashtable params)` defines parameters for the class. This function is called before execution.

### Available Arguments

If a user has launched the workflow from within a worksheet, Demantra automatically passes arguments to the workflow.

### Example

- ```
package com.demantra.workflow.step;
import com.demantra.workflow.parameters.*;
public class SampleCustomStep implements CustomStep
{
    public SampleCustomStep() {}
    public int executeStep(Parameter[] parms)
    {
        int i, length = parms != null ? parms.length : 0;
        for(i=0; i<length; i++)
            System.out.println("Parameter name : " + parms[i].getName() + " value: " +
                parms[i].getValue());
        // write your own logic here
        // .....
        return LinkedStep.ST_COMPLETED;
    }
}
```

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

## DEI Step

This kind of step provides access to the DEI Engine and runs the integration that is

described in the specified file. The DEI Engine does not need to be running before this step is launched.

**Note:** Demantra Enterprise Integrator (powered by Pervasive) is licensed, packaged, and documented separately from the core Demantra products. It provides enterprise database connectivity, with native connectors to more than 100 enterprise systems. It stores all design metadata in an open XML-based design repository for easy metadata interchange and reuse.

### End Conditions

This step is completed when the DEI Engine has completed its processing.

### Properties

| Properties      | Description                                                                                                                                                                                                                                                                                                                              | Default |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Step ID         | Unique identifier for the step.                                                                                                                                                                                                                                                                                                          |         |
| ProjectDocument | Specifies the DEI engine djar file that contains the XML specification of the data integration to perform.                                                                                                                                                                                                                               |         |
| Recovery        | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask     |

### See also

For information on creating the djar file, see the Demantra Enterprise Integrator documentation, available separately from the core Demantra platform.

## Delete Member Step

This kind of step should be used only as a method. It deletes the specified level member.

### End Conditions

This step is completed when the level member has been removed from the database.

### Properties

| Properties | Description                                                                                                                                                                                                                                                                                                                              | Default   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Step ID    | Unique identifier for the step.                                                                                                                                                                                                                                                                                                          |           |
| Recovery   | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask       |
| Pause      | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds |

See also

- "Create Member Step" "Edit Member Step"

## Edit Member Step

This kind of step should be used only as a method. It uses the passed arguments, and modifies the specified level member.

**Note:** If you are configuring a method that changes attribute values, the

workflow must include an Edit Member Step as its first step.  
Otherwise, the changed values will not be saved to the database.

### End Conditions

This step is completed when the level member has been edited.

### Properties

| Properties         | Description                                                                                                                                                                                                                                                                                                                              | Default   |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Step ID            | Unique identifier for the step.                                                                                                                                                                                                                                                                                                          |           |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask       |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                   | 0 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds |

See also

- "Create Member Step" "Delete Member Step"

## Email Step

This kind of step is used to send an email message to a user. This step allows a connection to the installed messaging application using SMTP protocol.

## End Conditions

This step is completed when the email message is successfully delivered to the installed messaging system.

**Note:** This step does not check if or when the message is read.

## Properties

| Properties | Description                                                                                                                                                                                                                                                                                                                              | Default   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Step ID    | Unique identifier for the step.                                                                                                                                                                                                                                                                                                          |           |
| Pause      | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds |
| To User    | Select the user who should receive the email. The list of possible users includes all users defined within this component.                                                                                                                                                                                                               |           |
| Subject    | The subject line of the email message                                                                                                                                                                                                                                                                                                    |           |
| Message    | The email message text                                                                                                                                                                                                                                                                                                                   |           |
| Recovery   | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask       |

## Note

**Make sure that the user has an email address.** You use the Business Modeler to

configure email addresses for the users. See "Creating or Modifying a User".

## Exception Step

This kind of step sends tasks to users depending on specific conditions in the Demantra database. This step runs a worksheet, normally a worksheet in which an exception condition has been defined. (If you attach an exception to a worksheet, Demantra checks the values of the worksheet data and displays only the combinations that meet the exception criteria.)

If the worksheet returns data, then the Workflow Engine sends a task to each specified user. When all users have marked as this task as done, the workflow continues to the next step.

### End Conditions

This step is completed when all users mark the task as Done.

### Properties

| Properties     | Description                                                                                                                                                                                                                                     | Default |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Step ID        | Unique identifier for the step.                                                                                                                                                                                                                 |         |
| Worksheet Name | Select the worksheet to test, normally a worksheet in which an exception condition has been defined. The list of worksheets includes all public worksheets and all worksheets that you own. Be sure to select a public worksheet for this step. |         |
| Task           | Specify a task. See "Specifying a Task".                                                                                                                                                                                                        |         |
| User           | Select the user or users who should receive tasks in the case of this exception. Press and hold down the Ctrl or Shift key while selecting multiple users. The list of possible users includes all users defined within this component.         |         |

| Properties         | Description                                                                                                                                                                                                                                                                                                                              | Default    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Group              | Select the group or groups who should receive tasks in the case of this exception. Press and hold down the Ctrl or Shift key while selecting multiple users. The list of possible groups includes all users defined in Demantra.                                                                                                         |            |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask        |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                   | 0 seconds  |
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                                                                                  | 60 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds  |
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                                                                                                                                                                                          | never      |

| Properties         | Description                                                                                                                                                                                                                                                                                                                                                                                                                    | Default |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module.                                                                                                                                                                                                                                                             | never   |
| Population         | <p>Specifies the population attribute that further filters the worksheet used by this step. Specify the following:</p> <p>Name—specify the name of the population attribute, as given in GROUP_ATTRIBUTES_POPULATION.ATTRIBUTE_LABEL. In the demo, this attribute is named Population.</p> <p>The Value field is not used.</p> <p>This property is useful when you use a workflow as a method; otherwise it has no effect.</p> |         |

### Fail-To-Execute

Aside from the expected cases of Fail-To-Execute such as an invalid worksheet ID, you should take care to avoid the following circumstances which will also cause a Fail-To-Execute:

- Workflow Initiator does not have privileges to execute the condition worksheet.
- An invalid Group id or User id in the ExceptionStep.

This applies if a Group contains an invalid User id or any individual User id listed to receive the Exception step task is invalid. Exception step will Fail-To-Execute even if all other Group ids or User ids in the Exception step are valid.

In the event of a Fail-To-Execute, none of the user groups or users listed in the Exception step receive the Exception step task.

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if

the step has finished.

In timers, a month is measured as a calendar month.

## Executable Step

This kind of step runs applications from within the workflow instance. The applications can be external executable files such as exe. and batch files, or Demantra executables (such as the Analytical Engine).

### End Conditions

This step is completed when the executed program ends and sends an interrupt to the Workflow Engine. The Workflow Engine then continues with the workflow instance.

### Properties

| Properties   | Description                                                                                                                                                                                                       | Default   |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Step ID      | Unique identifier for the step.                                                                                                                                                                                   |           |
| Pause        | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                          | 0 seconds |
| Command Line | The location of the network of the file to be executed, and its full name. (Must be in double quotes). Specify the full path to the file.<br><br><b>Note:</b> The file location is always from the server's view. |           |

| Properties | Description                                                                                                                                                                                                                                                                                                                                     | Default |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Recovery   | <p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask—the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry—the engine executes the step again.</p> <p>Continue—the engine continues with the next step.</p> <p>Abort—the engine terminates the workflow instance.</p> | Ask     |

## Notes

The Workflow Engine executes the command that you specified for the Command Line option. For this reason, you can only run files that can be opened by using a single DOS prompt instruction. This is important if you are accessing files over a network.

Also, if you are invoking a batch file, be sure to do the following within that batch file:

- Enclose all paths within double quotes
- Use complete paths and file names

For information on running the Analytical Engine from the command line, see "Running the Engine from the Command Line".

When executing batch files, Fail-to-Execute is triggered only if there is an error when executing the batch file. If the batch file fail after execution, then Fail-to-Execute will not be triggered.

To run a .bat file from the Workflow Engine, do the following:

## Example:

1. Create the .bat file. Within this file, ensure that all paths are enclosed in double quotes. For example:
  - `cd "E:\Demantra\Spectrum610\scripts_vtk\Biio_load_proms"`
  - IF EXIST
  - "E:\Demantra\Spectrum610\scripts\_vtk\Biio\_load\_proms\cust\_prom\_flag.dat" (exit) ELSE (myplus vk\_check\_file)

- Within the Workflow Manager, create a new workflow.
- Insert an Executable Step.
- In the Command Line option of this step, put the full path to the location of the file you wish to run.

## Fail-To-Execute Step

This kind of step is the automatic response when the Workflow Engine fails to execute a step. This may happen for a variety of reasons, for example, an invalid worksheet or user, a database communication error, the Web server being down, or failure of an invoked external application.

**Note:** Container step has a specific Fail-To-Execute procedure. For more information, see "Container Step".

### What a Fail-to-Execute Step Does

When the Workflow Engine fails to execute any step, it stops running the current process and does the following instead:

- It executes a standard selection step. The selection step creates a selection task in the My Tasks module of the user who initiated the workflow instance. The task contains the failed process details, the details of the failed step, the error details and response options to choose from. See "Response Options".
- A Fail-To-Execute process is displayed in the Workflow Manager and in the Process Instance screen. See "Creating Workflows".
- In addition to the selection task, and the usual task email, an email is sent to the process initiator with details of the failed process. For example:

**Subject:** Failure in process execution

**Message text:** Process ID: 15 Schema ID: 2 Step ID: Request response on Out of limits Error description: Invalid user name: RJACKSON. Schema name: 'Out of Limits tasking', step name: 'Notify relevant user'

### Response Options

---

Retry

The failed step is rerun and the process continues. This option can be used when the cause of the failure is identified and solved, and it is necessary to rerun the step.

---

|          |                                                                                                                                                                                                                                                                                                                                               |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Continue | <p>The process continues running by going to the Next Step ID of the failed step. This option is used when the cause of the failure is identified and solved. The process instance initiator can continue the workflow instance after manually performing the failed step function.</p> <p>Not all kinds of steps have a Continue option.</p> |
| Abort    | <p>The error is fatal and the failed process must be terminated.</p>                                                                                                                                                                                                                                                                          |

## Group Step

This kind of step sends tasks to a user group or groups. Tasks are shown in My Tasks in Collaborator Workbench, and a task is usually associated with a worksheet. The purpose of a task is typically to draw attention to exceptions, or to request that the user review and possibly edit the worksheet.

In contrast to the User Step, this step includes the Manager property, which specifies the user who is in charge of or manages the process.

You can use this step to send a worksheet to users with different security permissions. Each user is then presented with a worksheet, with contents filtered by the user's permissions.

You can also configure the step to automatically send email notification of the new task.

**Important:** If you do so, make sure that each user has an email address.

You use the Business Modeler to configure email addresses for the users. See "Creating or Modifying a User".

### End Conditions

This step is completed when all the users mark all the tasks as Done.

### Properties

| Properties | Description                     | Default |
|------------|---------------------------------|---------|
| Step ID    | Unique identifier for the step. |         |

| Properties         | Description                                                                                                                                                                                                                                                                                                                              | Default   |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| User               | Select the user or users who should receive this task or tasks. Press and hold down the Ctrl or Shift key while selecting multiple users. The list of possible users includes all users defined within this component.                                                                                                                   |           |
| Group              | Select the group or groups who should receive this task or tasks. Press and hold down the Ctrl or Shift key while selecting multiple users. The list of possible groups includes all users defined in Demantra.                                                                                                                          |           |
| Tasks              | Specify one or more tasks. See "Specifying a Task".                                                                                                                                                                                                                                                                                      |           |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask       |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                   | 0 seconds |

| Properties         | Description                                                                                                                                                                                                                                                                          | Default    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                              | 60 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                             | 0 seconds  |
| Manager            | Specify the user who is in charge of or manages the process. In the event of a timeout, this user is notified by email. This notification is in addition to the timeout notification email that is sent to each user whose task has timed out and the timeout step that is executed. |            |
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                                                                                                                                      | never      |
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module.                                                                                                                   | never      |

## Timeout

A group task times out if one or more of the users in the group do not mark the task as done before the response period has ended. The timeout procedure is as follows:

A user who is responsible for the relevant task receives an email message notification of all the users within the group that have not marked the task as done. For example, this may be the group manager, or a supporting job function.

1. The task stays in the My Tasks module of the users who have not marked it as done.
2. The Workflow Engine continues with an alternative procedure that has been

defined within the workflow for this circumstance.

## Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

For easy maintenance and flexibility, it is recommended to use the Group property instead of User whenever possible. Using Group allows you to change the defined user name for a job function within a workflow instance without editing the workflow schema itself.

If any of the specified Group is empty or contains an invalid user name, then this step will Fail-To-Execute.

See also

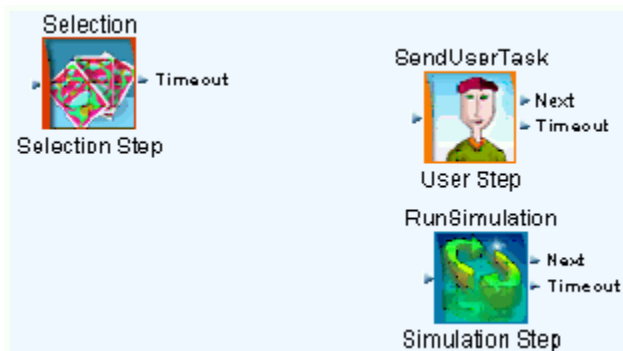
- For information on tasks, see the Oracle Demantra Demand Management User's Guide.

## Selection Step

This kind of step sends a selection task to a user. A selection task includes a list of options, each of which specifies a different branch for the workflow to follow. Like other tasks, this task is shown in My Tasks in Collaborator Workbench. This task can also be associated with a worksheet.

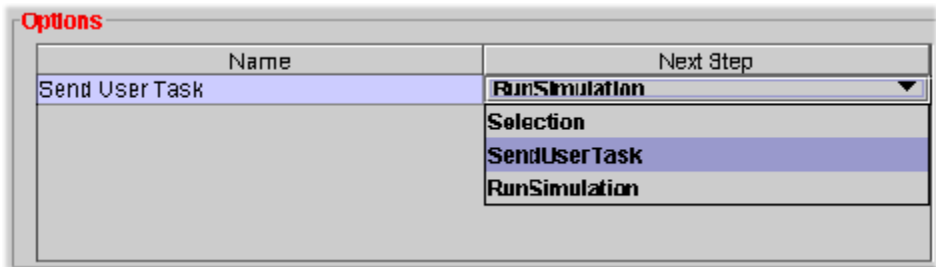
### Defining and Linking to Selections

When you first add a Selection step to a workflow, it does not contain any options and therefore does not have any connectors that lead from those options. For example, suppose that you have created a Selection step and two other steps that you want to use as options:

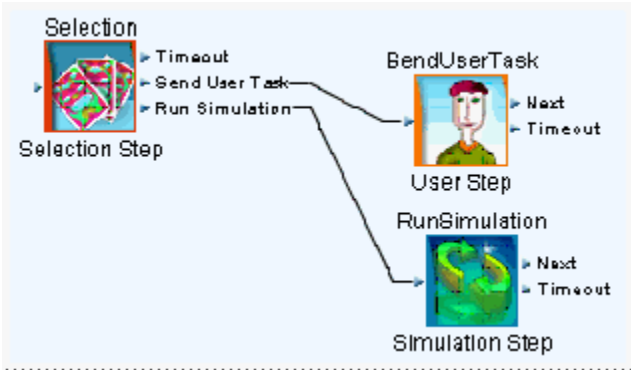


Within the properties of the Selection step, you can add the options. When you add an option, you specify a user-friendly name and you choose the corresponding step from

the list of existing steps as follows:



As you add each option, the Workflow Editor automatically creates a connection handle for that option and automatically links that to the appropriate step, as follows:



You may enter as many options as you like into a selection step.

### End Conditions

This step is completed when the user makes a selection and marks the selection task as Done.

### Properties

| Properties  | Description                                                                                                                | Default |
|-------------|----------------------------------------------------------------------------------------------------------------------------|---------|
| Step ID     | Unique identifier for the step.                                                                                            |         |
| Option Name | The Name of the Option. This is the text that shows for each option in the selection list presented by the selection task. |         |

| Properties         | Description                                                                                                                                                                                                                                                                     | Default    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| User               | Select the user who should receive this list of options. The list of possible users includes all users defined within this component.                                                                                                                                           |            |
| Task               | This is the task that the SelectionStep sends.                                                                                                                                                                                                                                  |            |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Abort—the engine terminates the workflow instance. | Ask        |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                          | 0 seconds  |
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                         | 60 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                        | 0 seconds  |
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                                                                                                                                 | never      |

| Properties         | Description                                                                                                                                                        | Default |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module. | never   |

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

## Simulation Step

This kind of step submits a worksheet to the Simulation Engine and then displays the worksheet and the simulation results to a specific user. The user can either accept or reject the simulation. This kind of step works the same as running a simulation in the user applications.

**Note:** The Simulation Step does not start the Simulation Engine. You must make sure that the engine is running before a step of this kind is launched; otherwise the step will fail. You can start the Simulation Engine by using an Executable Step.

**Note:** You must take care not to initiate the Simulation Engine twice.

**Note:** The Simulation Engine and Analytical Engine cannot run simultaneously. You must take care not to initiate the Simulation Engine if the Analytical Engine is running.

**Note:** Before running the simulation, the Workflow Engine checks to see if a simulation is running or has already run for this worksheet. If a simulation has been scheduled but has not yet run, the Workflow Engine waits until the simulation completes and then continues to the next step in the workflow schema. If a simulation has already run but has not been accepted or rejected, the Workflow Engine rejects it and executes the workflow simulation step.

## End Conditions

This step is completed when the Simulation Engine finishes processing the simulation request.

## Properties

| Properties  | Description                                                                                                                                                                                                                                                                                                                                                                                                         | Default |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Step ID     | Unique identifier for the step.                                                                                                                                                                                                                                                                                                                                                                                     |         |
| User        | Select the user who should receive this simulation worksheet. The list of possible users includes all users defined within this component.                                                                                                                                                                                                                                                                          |         |
| Auto Accept | <p>Specify whether to accept the results of the simulation automatically:</p> <p>If Yes, the results of the simulation are saved directly as valid forecast data.</p> <p>If No, the results of the simulation are first made available for review by a user. To review the results of a simulation, the assigned user can open the worksheet from a task. The user can then decide whether or not to save them.</p> | Yes     |
| Query Name  | Select the worksheet on which to run the simulation. The list of worksheets includes all public worksheets and all worksheets that you own.                                                                                                                                                                                                                                                                         |         |

| Properties         | Description                                                                                                                                                                                                                                                                                                                                             | Default    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Recovery           | <p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask — the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry — the engine executes the step again.</p> <p>Continue — the engine continues with the next step.</p> <p>Abort — the engine terminates the workflow instance.</p> | Ask        |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                                  | 0 seconds  |
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                                                                                                 | 60 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                                | 0 seconds  |
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                                                                                                                                                                                                         | never      |
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module.                                                                                                                                                                                      | never      |

## Notes

If a step ends before the Check Finish After period, or during a Check Finish Every

period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

In the event of a timeout or a major system failure, the simulation request remains in the Simulation Engine queue. You must remove it manually from the queue.

See also

- For information on simulation, see the Oracle Demantra Demand Management User's Guide or other user manuals. Also see "Batch and Simulation Modes".

## Stored Procedure Step

This kind of step runs a stored database procedure, such as MDP\_ADD or REBUILD\_INDEXES.

For information on creating database procedures, see the Oracle or SQL Server documentation.

### End Conditions

This step is completed when the database procedure finishes.

### Properties

| Properties     | Description                                                                                                                             | Default   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Step ID        | Unique identifier for the step.                                                                                                         |           |
| Pause          | Specify how long to wait after a step has been completed, before starting the next step.                                                | 0 seconds |
| Procedure Name | Name of the stored procedure.                                                                                                           |           |
| Parameters     | Any input parameters that are needed by the database procedure. List the parameters in the order that they are needed by the procedure. |           |

| Properties | Description                                                                                                                                                                                                                                                                                                                                             | Default |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Recovery   | <p>Specify what the Workflow Engine should do if the system crashes while performing this step:</p> <p>Ask — the engine follows a Fail-To-Execute procedure for the step.</p> <p>Retry — the engine executes the step again.</p> <p>Continue — the engine continues with the next step.</p> <p>Abort — the engine terminates the workflow instance.</p> | Ask     |

see also

- For information on the predefined Demantra database procedures, see "Database Procedures".

## Transfer Step

This kind of step executes an import or export integration interface. You create integration interfaces within the Business Modeler. See "Series and Level Integration"

**Note:** To execute a file load interface within a workflow, create a batch script that executes the interface, and then use an Executable Step to run the script.

### End Conditions

This step is completed when the interface has been executed.

### Properties

| Properties | Description                     | Default |
|------------|---------------------------------|---------|
| Step ID    | Unique identifier for the step. |         |

| Properties | Description                                                                                                                                                                                                                                                                                                                              | Default   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Type       | Specify the type of data transfer: Import or Export.                                                                                                                                                                                                                                                                                     |           |
| Profile    | Select the integration interface from the dropdown list. See "Series and Level Integration".                                                                                                                                                                                                                                             |           |
| Pause      | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds |
| Recovery   | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask       |

## User Step

This kind of step sends tasks to a user. Tasks are shown in My Tasks in Collaborator Workbench, and a task is usually associated with a worksheet. The purpose of a task is typically to draw attention to exceptions, or to request that the user review and possibly edit the worksheet.

You can also configure the step to automatically send email notification of the new task. **If you do so, make sure that the user has an email address.** You use the Business Modeler to configure email addresses for the users. See "Creating or Modifying a User".

### End Conditions

This step is completed when the user marks all tasks as Done.

### Properties

| Properties         | Description                                                                                                                                                                                                                                                                                                                              | Default    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Step ID            | Unique identifier for the step.                                                                                                                                                                                                                                                                                                          |            |
| User               | Select the user who should receive this list of options. The list of possible users includes all users defined within this component.                                                                                                                                                                                                    |            |
| Task               | Specify one or more tasks. See "Specifying a Task".                                                                                                                                                                                                                                                                                      |            |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask        |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                   | 0 seconds  |
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the end conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                                                                                  | 60 seconds |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds  |

| Properties         | Description                                                                                                                                                        | Default |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                    | never   |
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module. | never   |

### Timeout

A user task times out if the user does not mark the task as done before the response period has ended. The timeout procedure for a user task is as follows:

The user is sent an email notification that the task has timed out.

1. The task is removed from the user's task list.
2. The Workflow Engine continues with an alternative procedure that has been defined within the workflow for this circumstance.

### Notes

If a step ends before the Check Finish After period, or during a Check Finish Every period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

See also

- For information on tasks, see the Oracle Demantra Demand Management User's Guide.

## Wait Until Step

This kind of step pauses the workflow until a specific condition is met. When the condition is true, the Workflow Engine continues with the next step in the workflow.

You can specify a condition in either of the following general ways:

- You can instruct the Workflow Engine to look for a specific file and wait until the file is created, or is modified, or reaches a certain size.
- You can specify an SQL query to execute. The Workflow Engine runs repeatedly until it returns a value that is different from the original returned value. With this

option, you pause a workflow until, for example, a price changes.

You can specify multiple wait conditions. If you do, they are combined with a logical OR. For example, if you select both Created and Modified, the Workflow Engine waits until either a new file has been created or an existing file has been modified.

### End Conditions

This step is completed when the condition is met.

### Properties

| Properties | Description                                                                                                                                                                                            | Default |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Step ID    | Unique identifier for the step.                                                                                                                                                                        |         |
| File       | Full path and filename for the file to be checked. The path and filename can include wildcards, for example:<br><br>c:\dat\*.dat<br><br>The Workflow Engine ignores the case of the path and filename. |         |

| Properties | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Default |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Wait Until | <p>Specify the file state to wait for:</p> <p>Created—wait until this file is created. If you use a wildcard in the filename, then wait until at least one new file that matches the given name is created.</p> <p>Exists—wait until this file exists. If you use a wildcard in the filename, then wait until at least one new file that matches the given name is created. In contrast to the Created option, this option creates a condition that can be true even for the first time the file is checked.</p> <p>Modified—wait until the timestamp on this file has been changed. If you use a wildcard in the filename, then wait until the timestamp on at least one matching file is changed.</p> <p>Size is bigger than—wait until the file is larger than the given size, in kB. If you use a wildcard in the filename, then wait until at least one of the matching files exceeds the given size.</p> |         |
| SQL        | <p>Specify an SQL statement. Every time period, the Workflow Engine will execute this statement. When the result of this statement is different than it was before, the step condition has been met, and the workflow continues.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |

| Properties         | Description                                                                                                                                                                                                                                                                                                                              | Default    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the specified conditions have been met. This property specifies how long to wait between two successive checks.                                                                                                                                                            | 60 seconds |
| Recovery           | Specify what the Workflow Engine should do if the system crashes while performing this step:<br><br>Ask—the engine follows a Fail-To-Execute procedure for the step.<br><br>Retry—the engine executes the step again.<br><br>Continue—the engine continues with the next step.<br><br>Abort—the engine terminates the workflow instance. | Ask        |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                                                                                                                                                                   | 0 seconds  |
| Pause              | Specify how long to wait after a step has been completed, before starting the next step.                                                                                                                                                                                                                                                 | 0 seconds  |
| Timeout>Timer      | Specify a timeout for the step.                                                                                                                                                                                                                                                                                                          | never      |
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out. During the alert phase, the task due date is displayed in red in the user's My Task module.                                                                                                                                                                       | never      |

#### Note

If a step ends before the Check Finish After period, or during a Check Finish Every

period, then the Workflow Engine still waits for that counter to finish before checking if the step has finished.

In timers, a month is measured as a calendar month.

## Worksheet Cache Step

This kind of step refreshes the caches of the specified worksheets, for the specified users.

Users can also refresh manually.

### End Conditions

This step is completed when all the specified caches are refreshed.

### Properties

| Properties         | Description                                                                                                                                                                                 | Default    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Step ID            | Unique identifier for the step.                                                                                                                                                             |            |
| Worksheet Name     | Select a worksheet, from the list of public worksheets defined in Demantra.                                                                                                                 |            |
| User               | Specify the Demantra user whose cache should be refreshed, for the given worksheet. (Each user has a separate cache for each worksheet.) Or specify All to refresh the cache for all users. |            |
| Check Finish Every | The Workflow Engine checks periodically to see whether or not the specified conditions have been met. This property specifies how long to wait between two successive checks.               | 60 seconds |
| Check Finish After | Specify how long to wait after starting the step and before first checking to see if the end conditions have been met.                                                                      | 1 minute   |

| Properties         | Description                                                                              | Default   |
|--------------------|------------------------------------------------------------------------------------------|-----------|
| Pause              | Specify how long to wait after a step has been completed, before starting the next step. | 0 seconds |
| Timeout>Timer      | Specify a timeout for the step.                                                          | never     |
| Timeout>Alert Time | Specify the alert phase that can occur just before the step times out.                   | never     |



# Part 4

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## Configuring Specific Applications



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## Configuring Promotion Effectiveness

This chapter describes how to configure Promotion Effectiveness, if an existing Demantra implementation is already in place.

This chapter covers the following topics:

- Overview of Promotion Effectiveness
- Overview of the Configuration Process
- Configuring Levels for Promotion Effectiveness
- Setting Parameters
- Configuring the Activity Browser
- Configuring Promotion Statuses
- Loading Promotion Data
- Reference: PE Levels

### Overview of Promotion Effectiveness

Promotion Effectiveness is a configurable Web-based product that analyzes the effectiveness of your marketing promotions, in particular trade promotions. In addition to base forecasting and forecasting lift due to promotions, Promotion Effectiveness can analyze the effects of different items on the sales patterns of others.

Promotion Effectiveness uses the same Web client that is used for Demand Management and DSM. For Promotion Effectiveness, the Analytical Engine provides a greater breakdown of details than does the engine for demand planning.

### Overview of the Configuration Process

These steps assume that you have already set up the basic Demantra implementation. This means that your implementation already contains the item levels and location levels that are meaningful in the designated environment.

To configure Promotion Effectiveness, the general steps are as follows:

1. Create the levels required by Promotion Effectiveness and then optionally customize them; see "Configuring Levels for Promotion Effectiveness".
2. Set values of parameters that control the behavior of the Web client, as it relates to Promotion Effectiveness. See "Setting Parameters".
3. Optionally configure the Activity Browser, if the default configuration is not suitable. See "Configuring the Activity Browser".
4. Decide if you are going to use the default promotion life cycle provided by Demantra. Configure this life cycle as described in "Configuring Promotion Statuses".
5. Load promotions and promotion data as described in "Loading Promotion Data".
6. Configure the Analytical Engine for use with Promotion Effectiveness. See "Configuring and Running the Analytical Engine".

## Configuring Levels for Promotion Effectiveness

To configure levels for Promotion Effectiveness, execute the `CREATE_PE_STRUCT` database procedure. To do this, use a database tool or the SQL command line.

You can customize these levels to some extent. See "Reference: PE Levels".

## Setting Parameters

To configure Promotion Effectiveness, specify values for the following parameters:

| Parameter         | Description                                                                                                                                       |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| ColorCodingLevel  | Specifies the ID of the level that will be used to color code promotions.                                                                         |
| PromoDefaultStart | Specifies the default start date for promotions created within a worksheet: the current date, the last loaded sales date, or the worksheet start. |
| PromoDefaultSpan  | Specifies the default length of time for promotions created within a worksheet, in base time units.                                               |

| Parameter                                          | Description |
|----------------------------------------------------|-------------|
| For additional parameters, see "Engine Parameters" |             |

See also

- "Configuring Parameters"

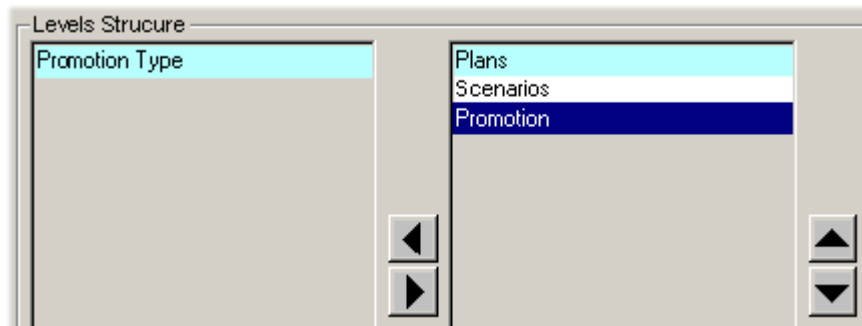
## Configuring the Activity Browser

The CREATE\_PE\_STRUCT procedure configures the Activity Browser in the Activity Details subtab in worksheets. You can reconfigure the Activity Browser as needed.

### To configure the Activity Browser

1. Click Configuration > Configure Levels. Or click the Configure Levels button. Business Modeler displays the Configure Levels screen.

2. Right-click a general level and select Open > Activity Browser.



3. For each general level to include in the Activity Browser, click the left arrow to move that general level from the left list to the right list.  
Or drag and drop general levels between the two lists as needed.
4. To specify the order of levels in the right side of the screen, select a level and click the up or down buttons.
5. When you are done, click Finish.

## Configuring Promotion Statuses

The CREATE\_PE\_STRUCT procedure provides a default set of promotion statuses to

support a typical promotion life cycle. The IDs have default names and specific hardcoded behaviors meanings, as follows:

| <b>promotion.status field</b> | <b>Default status name*</b> | <b>Hardcoded behavior</b>                                                                                                                   |
|-------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1                             | Unplanned                   | Analytical Engine ignores this promotion.<br><br>A user can manually change the promotion status to 1, 2, or 3.                             |
| 2                             | Cancelled                   | A user can manually change the promotion status to 1, 2, or 3.                                                                              |
| 3                             | Planned                     | A user can manually change the promotion status to 1, 2, or 3.                                                                              |
| 4                             | Committed                   | User cannot change the status. (An optional procedure can be used to advance the status; see below.)<br><br>User cannot edit the promotion. |
| 5                             | Executed                    | User can change the status to 6, but cannot otherwise edit the promotion.                                                                   |
| 6                             | Closed                      | User cannot change the status and cannot edit the promotion in other ways.                                                                  |

\*The status names are in the promotion\_status\_lookup table.

## Automatic Advancement of Promotion Status

Demantra provides a tool to automatically advance the status of promotions based on their starting dates. The EXPOSE\_PROMOTIONS procedure iterates through the promotions listed in the promotion table, checks the status field of each, and does the following:

- If the current status is 3 (planned) and if the current date is after the from\_date of

the promotion, change the status to 4 (committed).

- If the current status is 4 (committed) and if the current date is after the `until_date` of the promotion, change the status to 5 (executed).

You should schedule this procedure to run periodically either within the Workflow Engine.

## Customizing the Promotion Status Behavior

Depending on how suitable the default behavior is, you have several options:

- Give a new name to each status, for example:

| Status ID | Possible Status Names |
|-----------|-----------------------|
| 1         | Unplanned             |
| 2         | Planned               |
| 3         | Committed             |
| 4         | Executed              |
| 5         | Closed                |
| 6         | Canceled              |

This system provides flexibility until promotions are committed.

- If you do not mind the Analytical Engine using all promotions, you can create your own status series and your own procedure to advance the status as needed.
- If you do want the Analytical Engine to ignore unplanned promotions but prefer to use different rules to control promotion editability, you can create a new status series that uses the same database field and update that field in the background. Also write your own procedure to advance the status as needed.

## Loading Promotion Data

To load promotions (which are general levels), create and use an integration interface that includes a level profile. Demantra does not provide a predefined interface for this, because promotions vary in nature.

To load promotional data (promotion-type series), create and use an integration

interface that includes a data profile that includes the desired series.  
See "Series and Level Integration".

## Reference: PE Levels

The CREATE\_PE\_STRUCT procedure adds the following levels to your database:



The following sections provide details on these levels:

- Promotion
- Promotion Type
- Scenarios
- Plans

### Promotion

This level contains the details for promotions. This is a general level with the following attributes:

| Attribute            | Column Name | Data Type | Purpose                                                                                                                                                               |
|----------------------|-------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Population Attribute | n/a         | n/a       | Allows you to associate the promotion with combinations and dates.                                                                                                    |
| Status               | status      | Number    | ID of the status of this promotion.<br><br>This is a lookup attribute of type table; it uses the promotion_status_lookup table. See "Configuring Promotion Statuses". |

### Promotion Type

This level contains the default promotion types. This is a general level with no attributes. You can redefine this level as needed.

### Scenarios

This level groups the promotions. This is a general level with the following attributes:

| Attribute | Column Name   | Data Type | Purpose                                                                                                    |
|-----------|---------------|-----------|------------------------------------------------------------------------------------------------------------|
| Name      | SCENARIO_DESC | Character | Name of this scenario.                                                                                     |
| Plans     | PLAN_ID       | Number    | ID of the plan to which this scenario belongs.<br><br>This is a lookup attribute based on the Plans level. |

You can redefine this level as needed.

### Plans

This level groups the scenarios.

This is a general level with one attribute:

| Attribute | Column Name | Data Type | Purpose            |
|-----------|-------------|-----------|--------------------|
| Name      | PLAN_DESC   | Character | Name of this plan. |

You can redefine this level as needed.



---

## Configuring DSM

This chapter describes how to configure DSM and load an initial set of data.

This chapter covers the following topics:

- Overview of DSM
- Data Flow in DSM
- Overview of the Configuration Process
- Setting Up Database Structures
- Configuring Promotions and Promotion Series
- Identifying Key Promotion Series
- Configuring Settlement Matching
- Configuring Write-Offs
- Loading Initial Data and Creating Possible Matches
- Describing Customer Relationships
- In Case of Problems
- Reference: DSM Levels
- Reference: DSM Series
- Reference: DSM Integration Interfaces
- Reference: Other DSM Tables

### Overview of DSM

Oracle Demantra Deduction and Settlement Management (DSM) is a Web-based, configurable tool to help users at a manufacturing company resolve settlements with customers (usually retailers) who have run promotions, sold products, and now need reconciliation. Users view the promotional events that DSM provides as possible matches, and then select one and finalize the match. Users can then attach proof of

performance for the promotion, approve the match, and request a check to be sent to the customer (if appropriate). Users can also mark a settlement as a duplicate, split a settlement (typically to match only part of it), or deny a settlement.

Often, a third party (a broker) has negotiated the terms. Demantra system may be set up to enable users to collaborate with outside brokers, for example, to acquire extra information if needed.

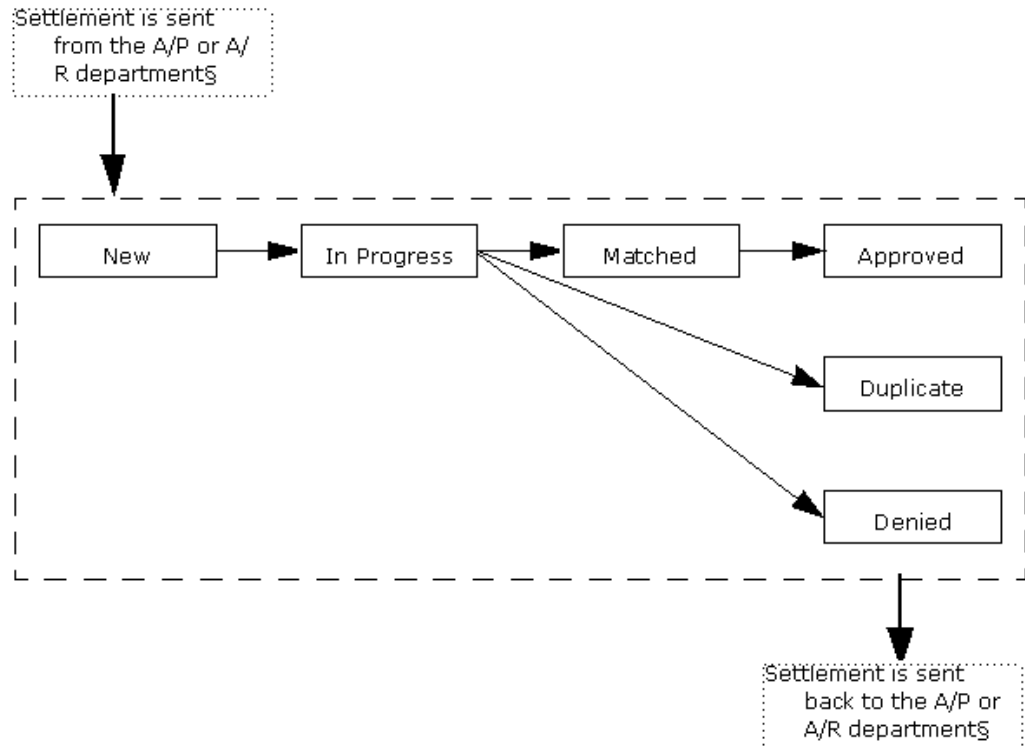
### **Types of Settlements**

DSM organizes settlements into two groups: trade and non-trade. For trade settlements, DSM recognizes three general types of settlements:

- A claim is a request from a customer for payment. In these cases, the customer has run the promotion and is requesting to be reimbursed, based on an agreement with the customer. If a user approves the claim, DSM sends a request to the A/P department to send a check to this customer or to the broker, as applicable.
- A deduction is a short payment on an invoice. In these cases, the customer has run the promotion and has made a short payment on an invoice. By permitting this short payment, the user is reimbursing the customer for running the promotion.
- An off-invoice settlement represents the case where the customer was billed a lower amount (that is, "off invoice") for the products, as compensation for running the promotion. In this kind of settlement, the settlement amount was negotiated ahead of time.

### **User Actions and Settlement Stages**

Within DSM, a settlement can go through the following stages:



In general, claims come into DSM through the accounts payable (A/P) department. Deductions and off-invoice settlements come into DSM through in the accounts receivable (A/R) department. In all cases, the settlement is loaded into DSM automatically.

Then, in most cases, the processing is as follows:

1. When a user receive a new settlement, he or she takes ownership of it. At this point, the settlement is In Progress.
2. Then the user reviews the possible promotions to which the settlement may apply. DSM displays suitable possible matches.
3. If the user finds a matching promotion, he or she matches the settlement and validate the proof of performance. Usually, the user scans in a document that shows that the promotion was actually run as required, and then uploads that as an attachment to the settlement.
4. The user then approves the settlement. In some organizations, the customer service department (CSD) representative has authority to approve a settlement. In others, a manager does that job.
5. If the settlement is a claim, the user issues a check request to your company's A/P department, to send a check to the customer or to the broker as needed.

In other cases, the user may find that the settlement is a duplicate or you may find another reason to deny it, per the company's policies and practices. When the user denies a settlement, the A/P system may enter a chargeback to the customer.

Also, a user can also split the settlement and match only part of it, as appropriate.

### **Customers and Check Recipients**

If a user issues a check request, it is necessary to determine the recipient of that check. The matched event is associated with a particular customer, but the check itself might need to go to a different recipient, depending on the customer's business relationships.

For example, suppose the matched event was associated with Acme Foods. Acme Foods may have created the event with the help of a broker, and it might be appropriate to make the check payable to Acme but send it to the broker, who hand-delivers it as a customer-service gesture.

For another example, the manufacturer might receive an invoice from an indirect customer, who funded and planned the event with Acme (who then ran the event). In this case, it would be suitable to make the check payable to and send it to the indirect customer.

As a result of all this complexity, when an event is matched to a given location A, it is necessary to consider all the other locations that are related to location A in various ways. The user will view these locations and direct the check appropriately.

## **Data Flow in DSM**

DSM works with external systems such as accounts payable and accounts receivable. Ultimately, those systems own most the data; DSM is responsible only for matching settlements to promotions and performing the associated record keeping.

At a high level, the overall flow of data is as follows:

1. Within DSM, an automated workflow imports settlement data from external corporate systems.
2. The same automated workflow then runs database procedures that iterate through the settlements and identify possible matches for each. The procedures write the results to an internal table for later use. Optionally, another database procedure iterates through the settlements and writes off any that fall below a specified threshold.
3. A typical user, who is responsible for a subset of the locations (possibly an account), opens a DSM worksheet and displays settlements associated with those locations.
4. For each unresolved settlement, the worksheet lists possible promotions that could match that settlement. Here, DSM uses the internal table that contains all possible matches.

5. For each settlement, the user does one or more of the following:
  - Linking the settlement to a promotion. If the settlement is a claim, the user can next specify details for a check request.

The same user or another user with higher permission then approves the settlement.
  - Denying a settlement, because it is a duplicate or for another reason.
  - Splitting the settlement, creating a new settlement in the process. A user usually splits a settlement in order to link part of it to a promotion.
6. Within DSM, an automated workflow exports details to the external systems. The details vary by implementation but may include the following, for each settlement:
  - Settlement status, as set by DSM and its users
  - Changes to the G/L (general ledger) code, as set by DSM users
  - Current amount of the settlement, if only part of the settlement was valid

The workflow also exports check requests (as specified within DSM) and chargebacks (if only part of the settlement was valid).

## Overview of the Configuration Process

These steps assume that you have already set up the basic Demantra implementation. This means that your implementation already contains the item levels, location levels, and promotion levels that are meaningful in the designated environment.

To configure DSM, the general steps are as follows:

1. Identify item and location levels associated with settlements. Then run a database script to set up DSM database structures, using that information. See "Setting Up Database Structures".

This script also creates the canned DSM worksheets, all series used in those worksheets, methods (right-click actions) for use in DSM worksheets, all associated workflows, and an integration workflow suitable for use with DSM.
2. Customize your existing promotion level to include a budget, and configure series to store that data. See "Configuring Promotions and Promotion Series".
3. Indicate how to use your promotion series. See "Identifying Key Promotion Series".
4. Specifying tolerance windows to control how closely to match settlements and promotions. See "Configuring Settlement Matching".

5. Configure the automatic write-off mechanism, if needed. See "Configuring Write-Offs".
6. Load the G/L codes, an initial set of invoices, and an initial set of settlements. See "Loading Initial Data and Creating Possible Matches".
7. Populate two tables that list the types of relationships between retailers and other entities, so that DSM can look up all locations related to the matched location.
8. Optionally customize the DSM worksheets. At a minimum, you may want to create a Promotion Effectiveness worksheet and use that within DSM (as a subtab worksheet).
9. Customize the integration so that new settlements are loaded periodically. Each time settlements are loaded, be sure to run the DSM procedures in order to create proposed matches.

## Setting Up Database Structures

DSM associates each settlement with an item and a location. Internally, this association is represented in complex tables. The association can be different in different implementations, and Demantra provides a script to set up the needed database structures.

To set up the DSM database structures, do the following:

1. In the SYS\_PARAMS table, set the values for the following parameters:

| Parameter                   | Description                                                                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SettlementLocationExtension | Specifies the internal identifier of the location-type level with which settlements should be associated. This generally represents the entity that is being billed or refunded. |
| SettlementProductExtension  | Specifies the internal identifier of the item-type level with which settlements should be associated. This generally represents a promoted product or a product group.           |

2. Run the UPGRADE\_TO\_DSM procedure from a database tool or the SQL command line.
3. See the Oracle Demantra Release Notes for notes on adjustments or corrections to make, in case the procedure has any defects.

**Note:** Pay careful attention to the adjustments listed in the Oracle Demantra Release Notes, or else the DSM worksheets will not run.

4. In the Business Modeler, associate the DSM worksheets with your promotion level, with your account level, and with the settlement level.

You do this step as part of creating your components.

## Configuring Promotions and Promotion Series

In order to extend your existing promotion levels to work with DSM, do the following:

1. Create series as follows, if you do not yet have series similar to them:

- A promotion budget series as follows:

---

|                           |                                               |
|---------------------------|-----------------------------------------------|
| <b>Editability:</b>       | Non-editable                                  |
| <b>Data Table:</b>        | Promotion level                               |
| <b>Data Type:</b>         | Numeric                                       |
| <b>Update Field:</b>      | Promotion_budget (for example)                |
| <b>Server Expression:</b> | max(promotion.promotion_budget) (for example) |
| <b>Proportionality:</b>   | Proportional                                  |

---

**Tip:** You might want to create two budget series: one that is editable and the other, non-editable. They both would use the same update field.

- A series to store the monetary off-invoice amounts for the promotions, for cases when that is applicable.

---

|                    |                 |
|--------------------|-----------------|
| <b>Data Table:</b> | Promotion level |
| <b>Data Type:</b>  | Numeric         |

---

---

|                           |                                         |
|---------------------------|-----------------------------------------|
| <b>Update Field:</b>      | offinvoice (for example)                |
| <b>Server Expression:</b> | max(promotion.offinvoice) (for example) |
| Proportionality:          | Proportional                            |

---

- A series to store the ending date of each promotion, typically the date on which shipments end. This is the date that you will compare to the settlement dates, for the purpose of matching settlements to promotions.

---

|                           |                                                     |
|---------------------------|-----------------------------------------------------|
| <b>Editability:</b>       | Non-editable                                        |
| <b>Data Table:</b>        | Promotion level                                     |
| <b>Data Type:</b>         | Date                                                |
| <b>Update Field:</b>      | endship (for example)                               |
| <b>Server Expression:</b> | max(promotion.until_date) (for example)             |
| Extra From:               | promotion_dates, promotion (for example)            |
| Extra Where               | promotion.promotion_id=promotion_dates.promotion_id |
| Proportionality:          | Non-proportional                                    |

---

**Note:** This series must have extra from and extra where expressions, or else the POP\_ALL\_MATCH\_PROPOSAL will fail.

- An optional series to store the starting date of each promotion, typically the date on which shipments for the promotion start.

---

|                     |              |
|---------------------|--------------|
| <b>Editability:</b> | Non-editable |
|---------------------|--------------|

---

---

|                           |                                                     |
|---------------------------|-----------------------------------------------------|
| <b>Data Table:</b>        | Promotion level                                     |
| <b>Data Type:</b>         | Date                                                |
| <b>Update Field:</b>      | startship (for example)                             |
| <b>Server Expression:</b> | max(promotion.from_date) (for example)              |
| Extra From:               | promotion_dates, promotion (for example)            |
| Extra Where               | promotion.promotion_id=promotion_dates.promotion_id |
| Proportionality:          | Non-proportional                                    |

---

2. Make a note of the IDs of these series, as shown in the Business Modeler.
3. Add a budget attribute to your existing promotion level. For Column Name, specify the column that stores the budget series that you just defined.

See also

- "Creating a Series"
- "Adding Attributes to a Level"

## Identifying Key Promotion Series

To connect DSM to your promotions and promotion series, you set the following parameters:

- DSMPromotionBudgetSeries should be the ID of the promotion budget series. When a settlement is matched to a promotion, DSM adjusts this budget as appropriate.
- DSMPEOIAmountSeries should be the ID of the series that stores the monetary off-invoice amounts for the promotions.
- DSMPEShipDateSeries is the ID of the series that stores the appropriate promotion date, to be compared with settlement dates.

## Configuring Settlement Matching

To configure the matching process for DSM, you must specify values for the following additional parameters:

- DSMAllShipDateDifference
- DSMOIPercentDifference
- DSMOIShipDateDifference

The matching process is different for off-invoice settlements than it is for claims and deductions. The following sections provide the details.

### Claims and Deductions

To find promotions to match to a claim or deduction, DSM performs two comparisons:

- DSM compares the promotion date to the settlement date. Only promotions with close enough dates are considered possible matches.

The DSMAllShipDateDifference parameter specifies the window of time that Demantra uses to search for a promotion that matches a given settlement. Express this as the number of time buckets between the promotion end date (DSMPEShipDateSeries) and the settlement date.

- DSM compares the promotion budget (DSMPromotionBudgetSeries) to the monetary settlement amount. A promotion is a possible match only if its remaining budget is at least as large as the settlement amount.

These parameters are used by the POP\_ALL\_MATCH\_PROPOSAL procedure, which you should execute every time you load settlement data.

### Off-Invoice Settlements

An off-invoice settlement must be handled slightly differently. This kind of settlement can occur only if there was an agreement to bill the customer below the invoice rate. Typically, the settlement amount was decided at that time and less variation is anticipated than with other kinds of settlements. You specify a tolerance window to use when comparing the settlement amount to promotion amounts. For flexibility, you can specify a different tolerance for date comparison as well.

It is expected that each off-invoice settlement will be matched to only one promotion or possibly to a small number of promotions, in contrast to other kinds of settlements.

To find promotions to match to an off-invoice settlement, DSM performs the following comparisons:

- DSM compares the promotion budget to the off-invoice amount. For this comparison, the DSMOIPercentDifference parameter specifies the maximum percent difference (of monetary amount) permitted when matching an off-invoice

settlement to possible promotions. The promotion budget is controlled by `DSMPromotionBudgetSeries`.

- DSM compares the promotion date to the off-invoice date. Only promotions with close enough dates are considered possible matches. You use the `DSMOIShipDateDifference` parameter to specify the closeness of these dates. The promotion date is controlled by `DSMPEShipDateSeries`.

These parameters are used by the `POP_OI_MATCH_PROPOSAL` procedure, which you should execute every time you load settlement data.

## Configuring Write-Offs

If a settlement is below a certain size, DSM can automatically write it off without user intervention. This process changes the settlement status to Write Off. If your implementation requires write-offs, do the following:

1. Create a workflow to automatically run the Java class `com.demantra.workflow.step.CustomWriteOffStep` each time you load settlement data.
2. Set a value for the `DSMWriteOffThreshold` parameter, which specifies the monetary amount below which Demantra automatically writes off a settlement.

## Loading Initial Data and Creating Possible Matches

The recommended way to load an initial set of data is to use the integration interfaces that are provided with DSM. The `UPGRADE_TO_DSM` procedure creates these integration interfaces. After loading the data, you should create the possible matches for use within the DSM worksheets.

This section describes how to quickly get started with an initial set of data; it does not discuss integration or automation in any detail.

The overall procedure is as follows:

1. In the Business Modeler, open each of the import integration interfaces, click Next until you reach the last screen (the preview screen), and click Create in order to create the staging table for that interface.

In this step, you create the following staging tables:

- `BIIO_GL_Code`
- `BIIO_Settlement_Import`
- `BIIO_Invoice`

2. Load data into these staging tables:
  - For G/L codes, see "G/L Code Import".
  - For settlements, see "Settlement Import".
  - For invoices, see "Invoice Import".
3. Be sure to commit the changes.
4. Create and run a workflow or a set of workflows that execute these integration interfaces.

**Note:** Because settlements refer to G/L codes and invoices, you should load G/L codes and invoices first. It is also good practice to check the results of that step before executing the interface to load settlements. You can use the Business Modeler to verify that the G/L, settlement, and invoice levels contain the members that you imported; see "Viewing the Members of a Level".

5. Execute the POP\_ALL\_MATCH\_PROPOSAL and POP\_OI\_MATCH\_PROPOSAL procedures, either from within a workflow or from a SQL command line. Verify that the new tentative matches are written into the proposed\_match table.
6. Optionally create and run a workflow to run the Java class `com.demantra.workflow.step.CustomWriteOffStep`.

See also

"Creating or Editing Workflow Schemas"

## Describing Customer Relationships

DSM uses two tables to describe relationships such as those between a customer and a broker, so that the user can have an appropriate choice of ways to direct the check. You should populate these tables according to the requirements of the implementation.

### To describe the customer relationships:

1. Populate the Customer\_Type table to list all the customer types, such as the following example set:
  - Direct customer
  - Indirect customer
  - Broker

- Other
2. Second, the Customer\_Type\_Relation table describes all the relationships between the customer locations (specifically, at the location level you have associated with settlements). Each row consists of three fields:
- CUSTOMER\_LHS is the ID of a customer (for example, A).
  - RELATION\_TYPE is the ID of a type of customer, which we use here as a type of relationship (for example, Broker).
  - CUSTOMER\_RHS is the ID of a related customer (for example, B).

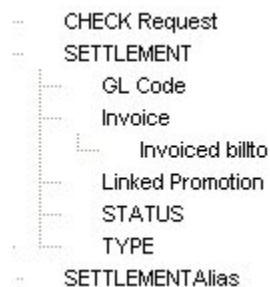
This row means that A is a Broker for B.

## In Case of Problems

See the Oracle Demantra Release Notes for notes on adjustments or corrections to make, in case the UPGRADE\_TO\_DSM procedure has any defects.

## Reference: DSM Levels

The UPGRADE\_TO\_DSM procedure adds the following levels to your database. These levels are not used by any other Demantra products.



You should not modify these levels without consulting Oracle.

**Note:** For technical reasons, the following restrictions apply:

- If you use a settlement level in a worksheet, you cannot use levels from any other hierarchy in that worksheet, either to aggregate or to filter. This means that the only location level you can use is the aliased one that is inside the settlement hierarchy.
- If you use a settlement level in a worksheet, all series in the worksheet must refer to tables used by the settlement hierarchy.

The following sections provide details on these levels:

- Check Request
- Settlement
- GL Code
- Invoice
- Invoiced Billto
- Linked Promotion
- Status
- Type
- SettlementAlias

## Check Request

This level contains the details for check requests, which are exported to the accounting systems that actually perform them. A check request is an instruction to send a check to a customer or designated third party.

This is a general level with the following attributes:

| Attribute         | Column Name          | Data Type | Purpose                                                  |
|-------------------|----------------------|-----------|----------------------------------------------------------|
| Address line 1    | CUST_ADDR_LN1        | Character | Address of this customer, for use in this check request. |
| Address line 2    | CUST_ADDR_LN2        | Character |                                                          |
| Address line 3    | CUST_ADDR_LN3        | Character |                                                          |
| Address line 4    | CUST_ADDR_LN4        | Character |                                                          |
| Amount            | CHECK_REQUEST_AMOUNT | Number    | Monetary amount of the check request.                    |
| BK Address line 1 | BK_ADDR_LN1          | Character | Address of the broker, if applicable.                    |
| BK Address line 2 | BK_ADDR_LN2          | Character |                                                          |

| Attribute           | Column Name             | Data Type | Purpose                                               |
|---------------------|-------------------------|-----------|-------------------------------------------------------|
| BK Address line 3   | BK_ADDR_LN3             | Character |                                                       |
| BK Address line 4   | BK_ADDR_LN4             | Character |                                                       |
| BK Attn             | BK_ATTN                 | Character | Addressee of the broker.                              |
| BK City             | BK_CITY                 | Character | City of the broker, for use in the address.           |
| BK Company          | BK_COMPANY              | Character | Name of the broker's company, for use in the address. |
| BK Country          | BK_COUNTRY              | Character | Country of the broker, for use in the address.        |
| BK State            | BK_STATE                | Character | State of the broker, for use in the address.          |
| BK Zip              | BK_ZIP                  | Character | Postal code of the broker, for use in the address.    |
| Check Request #     | CHECK_REQUEST_NUM       | Number    | Number of the check request.                          |
| Check Requested FOR | CHECK_REQUEST_REASON_ID | Number    | Reason code associated with this check request.       |
| Customer City       | CUST_CITY               | Character | City of the customer, for use in the address.         |
| Customer Country    | CUST_COUNTRY            | Character | Country of the customer, for use in the address.      |
| Customer Reference  | CR_CUSTOMER_REFERENCE   | Character |                                                       |

| <b>Attribute</b>  | <b>Column Name</b>        | <b>Data Type</b> | <b>Purpose</b>                                                   |
|-------------------|---------------------------|------------------|------------------------------------------------------------------|
| Customer State    | CUST_STATE                | Character        | State of the customer, for use in the address.                   |
| Customer Type     | CUSTOMER_TYPE             | Number           |                                                                  |
| Customer Zip      | CUST_ZIP                  | Character        | Postal code of the customer, for use in the address.             |
| Date Issued       | CHECK_REQUEST_DATE_ISSUED | Date             | Date on which the check request was issued.                      |
| Date Requested    | CHECK_REQUEST_DATE        | Date             | Date of the check request.                                       |
| Invoice           | INVOICE_ID                | Number           | ID of the invoice with which this check request is associated.   |
| Mail To Broker    | MAIL_TO_BK                | Number           |                                                                  |
| Name              | CHECK_REQUEST_DESC        | Character        | Description of the check request.                                |
| Note              | CHECK_REQUEST_NOTE        | Character        | Note entered when check request was made.                        |
| Payee             | PAYEE                     | Character        | Person or entity to whom the check should be written.            |
| Promo Description | CR_PROMOTION_ID           | Character        | ID of the promotion with which this check request is associated. |
| Settlement ID     | SETTLEMENT_ID             | Number           | ID of the associated settlement.                                 |

For information on importing or exporting this level, see "Check Request Import and Export".

## Settlement

The Settlement level aggregates settlement data. In general, a settlement is an outstanding sum of money that needs to be resolved, related to a promotion.

This is a general level with the following attributes.

| Attribute        | Column Name         | Data Type | Purpose                                                                                                                                                                                            |
|------------------|---------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Account          | t_ep_lr2_EP_ID      | Number    | Description of the customer with which this settlement is associated. This must be the description field as listed in the level table, for the location level that is associated with settlements. |
| Amount To Link   | LINKED_AMOUNT       | Number    | Monetary amount that has been matched to promotions.                                                                                                                                               |
| Cust Check Date  | CUSTOMER_CHECK_DATE | Date      | Applies only to deductions and off-invoice settlements. This is the date of the check from the customer.                                                                                           |
| Customer Check # | CUSTOMER_CHECK_NUM  | Number    | Applies only to deductions and off-invoice settlements. This is the number of the check from the customer for this settlement. Uses the customer's check numbering system.                         |
| Date Posted      | DATE_POSTED         | Date      | Date when the settlement was posted.                                                                                                                                                               |

| Attribute         | Column Name          | Data Type | Purpose                                                                             |
|-------------------|----------------------|-----------|-------------------------------------------------------------------------------------|
| Event Product     | promoted_product     | Number    | Code of the associated item, as listed in the Demantra tables.                      |
| GL Code           | GL_CODE_ID           | Number    | Code of the associated G/L code, as listed in the Demantra tables.                  |
| Link Date         | LINK_DATE            | Date      | Date on which this settlement was linked to a promotion.                            |
| Linked Promotion  | PROMOTION_ID         | Number    | ID of the associated promotion, as listed in the Demantra tables.                   |
| Method Status     | METHOD_STATUS        | Number    | For internal use only.                                                              |
| Name              | SETTLEMENT_DESC      | Character | Description of the settlement.                                                      |
| Open Amount       | OPEN_AMOUNT          | Number    | Remaining amount of the settlement that has not yet been matched to any promotions. |
| Related WS        | RELATED_WS           | Number    | Demantra ID of the worksheet that is associated, by default, with settlements.      |
| Settlement #      | SETTLEMENT_NUMBER    | Number    | Number for the settlement, as given in the enterprise systems.                      |
| Settlement Action | SETTLEMENT_ACTION_ID | Number    |                                                                                     |

| Attribute           | Column Name           | Data Type | Purpose                                                                                              |
|---------------------|-----------------------|-----------|------------------------------------------------------------------------------------------------------|
| Settlement Amount   | SETTLEMENT_AMO<br>UNT | Number    | Total monetary amount of the settlement.                                                             |
| Settlement Invoice  | INVOICE_ID            | Number    | ID of the associated invoice, as listed in the Demantra tables.                                      |
| Settlement Owner    | SETTLEMENT_OWNER      | Number    | DSM user who has claimed responsibility for this settlement.                                         |
| Settlement Type     | SETTLEMENT_TYPE_ID    | Number    | Type of the settlement. This should be one of the IDs of the Type level; see "Type".                 |
| Split Settlement ID | SPLIT_SETTLEMENT_ID   | Number    | ID of the settlement that was split off from this settlement, if any.                                |
| Status              | SETTLEMENT_STATUS_ID  | Number    | Status of the settlement. This should be one of the IDs of the Status level; see "Status".           |
| Supplier Check #    | SUPPLIER_CHECK_NUM    | Number    | Applies only to claims. Date of the check to the customer.                                           |
| Supplier Check Date | SUPPLIER_CHECK_DATE   | Date      | Applies only to claims. This is the number of the check that reimburses the customer for this claim. |

For information on loading settlements into DSM, see "Settlement Import".

## GL Code

This level contains the G/L codes that you loaded from the other corporate systems.

This is a general level with no attributes.

For information on loading G/L codes, see "G/L Code Import".

## Invoice

This level contains the invoices that you loaded from the other corporate systems.

This is a general level with the following attributes.

| Attribute        | Column Name    | Data Type | Purpose                                             |
|------------------|----------------|-----------|-----------------------------------------------------|
| Invoice #        | INVOICE_NUM    | Number    | Invoice number, as used in the corporate systems.   |
| Invoice Date     | INVOICE_DATE   | Date      | Date of the invoice.                                |
| Invoiced Bill To | t_ep_lr2_EP_ID | Number    | ID of the customer to whom this invoice was issued. |
| Name             | INVOICE_DESC   | Character | Description. Can be identical to the invoice codes. |

For information on loading invoices, see "Invoice Import".

## Invoiced Billto

This level is an alias to the actual location level that you associated with settlements. Demantra creates, maintains, and uses this alias for technical reasons, and you should not make changes to it.

## Linked Promotion

This level is an alias to the lowest promotion level. Demantra creates, maintains, and uses this alias for technical reasons, and you should not change it.

## Status

This level contains the predefined settlement statuses:

- New
- In Progress
- Unapproved
- Approved
- Duplicate
- Denied
- Write Off

These statuses are not customizable. Do not change this level in any way.

## Type

This level contains the predefined settlement types:

- Claim
- Off-invoice
- Deduction
- Non-Trade
- Claim resulting from an original claim split
- Deduction resulting from an original deduction split

These types are not customizable. Do not change this level in any way.

## SettlementAlias

This level is an alias to the settlement level. Demantra creates, maintains, and uses this alias for technical reasons, and you should not change it.

## Reference: DSM Series

For information on the predefined series, see the Oracle Demantra Deduction and Settlement Management User's Guide.

## Reference: DSM Integration Interfaces

The UPGRADE\_TO\_DSM procedure automatically creates integration interfaces to help

you import or export the following:

- G/L codes
- Invoices
- Settlements
- Check requests

This section provides details on these integration interfaces.

### G/L Code Import

---

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| <b>Interface Name:</b> | Reason Code Integration INTERFACE                                                |
| <b>Type:</b>           | Import                                                                           |
| <b>Description:</b>    | Imports rows from a staging table and adds the new members to the GL Code level. |
| <b>Staging Table:</b>  | BIIO_GL_Code                                                                     |

---

### BIIO\_GL\_Code

This staging table has the following structure:

---

| Field        | Data Type      | Purpose                                                                                                              |
|--------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| GL_CODE_CODE | varchar2(120)  | <b>Cannot be null.</b> Short version of the general ledger codes, as used in the enterprise system. Example: SPOILED |
| GL_CODE_DESC | varchar2(2000) | <b>Cannot be null.</b> Longer description of the codes. In some cases, these are identical to the codes.             |

---

### Invoice Import

---

|                        |                               |
|------------------------|-------------------------------|
| <b>Interface Name:</b> | Invoice Integration INTERFACE |
| <b>Type:</b>           | Import                        |

---

---

|                     |                                                                                  |
|---------------------|----------------------------------------------------------------------------------|
| <b>Description:</b> | Imports rows from a staging table and adds the new members to the Invoice level. |
|---------------------|----------------------------------------------------------------------------------|

|                |              |
|----------------|--------------|
| Staging Table: | BIIO_Invoice |
|----------------|--------------|

---

### BIIO\_Invoice

This staging table has the following structure:

---

| Field          | Data Type      | Purpose                                                                                                                                                                                                  |
|----------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INVOICE_CODE   | varchar2(120)  | <b>Cannot be null.</b> Unique code for the invoice, for use in Demantra.                                                                                                                                 |
| INVOICE_DESC   | varchar2(2000) | <b>Cannot be null.</b> Description. Can be identical to the invoice codes.                                                                                                                               |
| LR2            | varchar2(120)  | <b>Cannot be null.</b> Code of the customer with which this invoice is associated. This must be the code field as listed in the level table, for the location level that is associated with settlements. |
| INVOICE_NUM    | number(20,10)  | Invoice number, as used in the corporate systems.                                                                                                                                                        |
| INVOICE_DATE   | date           | Date of the invoice.                                                                                                                                                                                     |
| T_EP_LR2_EP_ID | varchar2(2000) | Description of the customer with which this invoice is associated. This must be the description field as listed in the level table, for the location level that is associated with settlements.          |

---

### Settlement Import

---

|                        |                                                                                     |
|------------------------|-------------------------------------------------------------------------------------|
| <b>Interface Name:</b> | SETTLEMENT LEVEL import                                                             |
| <b>Type:</b>           | Import                                                                              |
| <b>Description:</b>    | Imports rows from a staging table and adds the new members to the Settlement level. |

---

---

Staging Table:

BIIO\_Settlement\_Import

---

### BIIO\_Settlement\_Import

This staging table has the following structure:

| Field                      | Data Type      | Purpose                                                                                                                                                                    |
|----------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SETTLEMENT_CODE            | varchar2(500)  | <b>Cannot be null.</b> Unique code for the settlement, for use in Demantra.                                                                                                |
| SETTLEMENT_DESC            | varchar2(2000) | <b>Cannot be null.</b> Description of the settlement.                                                                                                                      |
| INVOICE_CODE               | varchar2(120)  | <b>Cannot be null.</b> Code of the associated invoice, as listed in the Demantra tables.                                                                                   |
| GL_CODE_CODE               | varchar2(120)  | <b>Cannot be null.</b> Code of the associated G/L code, as listed in the Demantra tables.                                                                                  |
| SETTLEMENT_STATU<br>S_CODE | varchar2(120)  | <b>Cannot be null.</b> Status of the settlement. This should be one of the codes of the Status level; see "Status".                                                        |
| SETTLEMENT_TYPE_<br>CODE   | varchar2(120)  | <b>Cannot be null.</b> Type of the settlement. This should be one of the codes of the Type level; see "Type".                                                              |
| PROMOTION_CODE             | varchar2(120)  | <b>Cannot be null.</b> Code of the associated promotion, as listed in the Demantra tables.                                                                                 |
| SETTLEMENT_OWNE<br>R       | varchar2(50)   | DSM user who has claimed responsibility for this settlement.                                                                                                               |
| DATE_POSTED                | date           | <b>Should not be null.</b> Date when the settlement was posted.                                                                                                            |
| CUSTOMER_CHECK_<br>NUM     | number(20,10)  | Applies only to deductions and off-invoice settlements. This is the number of the check from the customer for this settlement. Uses the customer's check numbering system. |

| <b>Field</b>          | <b>Data Type</b> | <b>Purpose</b>                                                                                                                                                                                     |
|-----------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CUSTOMER_CHECK_DATE   | date             | Applies only to deductions and off-invoice settlements. This is the date of the check from the customer.                                                                                           |
| SETTLEMENT_AMOUNT     | number(20,10)    | Total monetary amount of the settlement.                                                                                                                                                           |
| SUPPLIER_CHECK_NUMBER | number(20,10)    | Applies only to claims. This is the number of the check that reimburses the customer for this claim.                                                                                               |
| SUPPLIER_CHECK_DATE   | date             | Applies only to claims. Date of the check to the customer.                                                                                                                                         |
| SETTLEMENT_TYPE_ID    | varchar2(2000)   | Type of the settlement. This should be one of the IDs of the Type level; see "Type".                                                                                                               |
| SETTLEMENT_ACTION_ID  | varchar2(255)    |                                                                                                                                                                                                    |
| LINKED_AMOUNT         | number(20,10)    | Monetary amount that has been matched to promotions.                                                                                                                                               |
| OPEN_AMOUNT           | number(20,10)    | Remaining amount of the settlement that has not yet been matched to any promotions.                                                                                                                |
| INVOICE_ID            | varchar2(2000)   | ID of the associated invoice, as listed in the Demantra tables.                                                                                                                                    |
| T_EP_LR2_EP_ID        | varchar2(2000)   | Description of the customer with which this settlement is associated. This must be the description field as listed in the level table, for the location level that is associated with settlements. |
| GL_CODE_ID            | varchar2(2000)   | ID of the associated G/L code, as listed in the Demantra tables.                                                                                                                                   |
| SETTLEMENT_STATUS_ID  | varchar2(2000)   | Status of the settlement. This should be one of the IDs of the Status level; see "Status".                                                                                                         |

| Field               | Data Type      | Purpose                                                                                           |
|---------------------|----------------|---------------------------------------------------------------------------------------------------|
| PROMOTION_ID        | varchar2(2000) | ID of the associated promotion, as listed in the Demantra tables.                                 |
| PROMOTED_PRODUCT    | varchar2(2000) | Description field of the associated item, as listed in the level table for the appropriate level. |
| LINK_DATE           | date           | Date on which this settlement was linked to a promotion.                                          |
| METHOD_STATUS       | varchar2(200)  | For internal use only.                                                                            |
| SPLIT_SETTLEMENT_ID | number(20,10)  | ID of the settlement that was split off from this settlement, if any.                             |
| RELATED_WS          | number(20,10)  | Demantra ID of the worksheet that is associated, by default, with settlements.                    |
| SETTLEMENT_number   | number(20,10)  | Number for the settlement, as given in the enterprise systems.                                    |

### Settlement Export

|                        |                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface Name:</b> | SETTLEMENT LEVEL export                                                                                                        |
| <b>Type:</b>           | Export                                                                                                                         |
| <b>Description:</b>    | Exports members of the Settlement level. Performs full export (not incremental) to \TEMP\IntegrationDIR\Export_Settlement.TXT. |
| <b>Staging Table:</b>  | N/A                                                                                                                            |

### Check Request Import and Export

|                        |                                     |
|------------------------|-------------------------------------|
| <b>Interface Name:</b> | CHECK Request Integration INTERFACE |
| <b>Type:</b>           | Import & Export                     |

|                     |                                                                                                                                                                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description:</b> | <p>When used for import: imports rows from a staging table and adds the new members to the Check Request level.</p> <p>When used for export: performs full export (not incremental) to<br/> \TEMP\IntegrationDIR\Export_CheckRequest.TXT</p> |
| Staging Table:      | BIIO_CheckRequest                                                                                                                                                                                                                            |

### BIIO\_CheckRequest

This staging table has the following structure:

| Field                     | Data Type      | Purpose                                                                        |
|---------------------------|----------------|--------------------------------------------------------------------------------|
| CHECK_REQUEST_CODE        | varchar2(120)  | <b>Cannot be null.</b> Unique code for the check request, for use in Demantra. |
| CHECK_REQUEST_DESC        | varchar2(2000) | <b>Cannot be null.</b> Description of the check request.                       |
| INVOICE_ID                | varchar2(2000) | ID of the invoice with which this check request is associated.                 |
| CHECK_REQUEST_NUMBER      | number(20,10)  | Number of the check request.                                                   |
| CHECK_REQUEST_AMOUNT      | number(20,10)  | Monetary amount of the check request.                                          |
| CHECK_REQUEST_DATE        | date           | Date of the check request.                                                     |
| CHECK_REQUEST_DATE_ISSUED | date           | Date on which the check request was issued.                                    |
| CHECK_REQUEST_REASON_ID   | varchar2(255)  | Reason code associated with this check request.                                |
| CHECK_REQUEST_NOTE        | varchar2(200)  | Note entered when the check request was created.                               |

| Field                     | Data Type      | Purpose                                                                                 |
|---------------------------|----------------|-----------------------------------------------------------------------------------------|
| CR_CUSTOMER_REFER<br>ENCE | varchar2(200)  |                                                                                         |
| CR_PROMOTION_ID           | varchar2(2000) | ID of the promotion with which this check request is associated.                        |
| CUSTOMER_TYPE             | number(20,10)  | ID of a customer type, from the Customer_Type table. See "Reference: Other DSM Tables". |
| PAYEE                     | varchar2(200)  | Person or entity to whom the check should be written.                                   |
| CUST_ADDR_LN1             | varchar2(200)  | Address of this customer, for use in this check request.                                |
| CUST_ADDR_LN2             | varchar2(200)  |                                                                                         |
| CUST_ADDR_LN3             | varchar2(200)  |                                                                                         |
| CUST_ADDR_LN4             | varchar2(200)  |                                                                                         |
| CUST_CITY                 | varchar2(200)  |                                                                                         |
| CUST_STATE                | varchar2(200)  |                                                                                         |
| CUST_ZIP                  | varchar2(200)  |                                                                                         |
| CUST_COUNTRY              | varchar2(200)  |                                                                                         |
| MAIL_TO_BK                | number(20,10)  |                                                                                         |
| BK_COMPANY                | varchar2(200)  | Name of the associated broker, if any, for use in this check request.                   |
| BK_ATTN                   | varchar2(200)  | Addressee of the broker.                                                                |
| BK_ADDR_LN1               | varchar2(200)  | Address of the broker.                                                                  |
| BK_ADDR_LN2               | varchar2(200)  |                                                                                         |
| BK_ADDR_LN3               | varchar2(200)  |                                                                                         |

| Field         | Data Type     | Purpose                          |
|---------------|---------------|----------------------------------|
| BK_ADDR_LN4   | varchar2(200) |                                  |
| BK_CITY       | varchar2(200) |                                  |
| BK_STATE      | varchar2(200) |                                  |
| BK_ZIP        | varchar2(200) |                                  |
| BK_COUNTRY    | varchar2(200) |                                  |
| SETTLEMENT_ID | number(20,10) | ID of the associated settlement. |

## Reference: Other DSM Tables

DSM uses the following additional tables; see "Describing Customer Relationships".

### Customer\_Type

This table has the following structure:

| Field              | Data Type      | Purpose                                                                        |
|--------------------|----------------|--------------------------------------------------------------------------------|
| CUSTOMER_TYPE_ID   | number(10)     | <b>Cannot be null.</b> Unique ID for the customer type, for use in Demantra.   |
| CUSTOMER_TYPE_CODE | varchar2(240)  | <b>Cannot be null.</b> Unique code for the customer type, for use in Demantra. |
| CUSTOMER_TYPE_DESC | varchar2(1000) | Description of the customer type.                                              |
| FICTIVE_CHILD      | number(10)     | Ignore this field.                                                             |
| IS_FICTIVE         | number(1)      | Ignore this field.                                                             |
| LAST_UPDATE_DATE   | date           | Ignore this field.                                                             |

### Customer\_Type\_Relation

This table has the following structure:

| Field         | Data Type  | Purpose                                                                                                                                             |
|---------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| CUSTOMER_LHS  | number(10) | <b>Cannot be null.</b> ID of a customer, specifically a member of the location level with which settlements are associated, in this implementation. |
| RELATION_TYPE | number(10) | <b>Cannot be null.</b> ID of a customer type, from the Customer_Type table.                                                                         |
| CUSTOMER_RHS  | number(10) | <b>Cannot be null.</b> ID of a customer, specifically a member of the location level with which settlements are associated, in this implementation. |

If CUSTOMER\_LHS refers to Customer A, RELATION\_TYPE refers to the Broker type, and CUSTOMER\_RHS refers to Customer B, then this row means that Customer A is a Broker for Customer B.

[not implemented] JDSM can also check that the settlement and the possible promotions use the same product. To control this check, you use the DSMOICheckProduct parameter. This parameter controls matching for all kinds of settlements.[not implemented] JDSM can also check that the settlement and the possible promotions use the same product. To control this check, you use the DSMOICheckProduct parameter. This parameter controls matching for all kinds of settlements.

---

## Configuring Promotion Optimization for PTP

This chapter describes how to configure the Promotion Optimization module. You can skip this chapter until you need to work with Promotion Optimization.

This chapter covers the following topics:

- Overview of the Configuration Process
- Set Up Promotion Optimization Without Using the Installer
- Configuring the Optimization Step
- Other Important Notes

### Overview of the Configuration Process

To configure Promotion Optimization, you use the following general process:

1. First do one of the following:
  - Run the Demantra installer, choosing the option to install Promotion Optimization.
  - Or manually do the same work that the installer does; see "Setting Up PO Without Using the Installer".
2. Then see "Configuring the Optimization Step".
3. Before using Promotion Optimization for the first time, run the Analytical Engine in batch mode so that your machine has access to the engine's cached results. See "Using the Engine Administrator and Running the Engine".

### Set Up Promotion Optimization Without Using the Installer

If you did not use the Demantra installer to set up Promotion Optimization, complete the steps in this section.

## Setting Environment Variables

Promotion Optimization requires two Windows environment variables

---

|                   |                                                                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ILOG_LICENSE_FILE | Must equal the path and filename of the Promotion Optimization license file (access.ilm)<br><br>For example:<br><br>F:\Demantra<br>Spectrum\Collaborator\demantara\optimization\dl |
| PATH              | Must include the directory Demantra_root\Collaborator\virtual_directory\optimization\dl<br><br>For example: F:\Demantra<br>Spectrum\Collaborator\demantara\optimization\dl         |

---

## Registering the Analytical Engine

The installer registers the engine. If you do not use the installer, you may need to register the engine manually.

To do so, double-click the batch file Demantra\_root/Demand Planner/Analytical Engines/bin\RegEngine.bat.

## Configuring the Optimization Step

For Promotion Optimization, the primary configurable element is the Optimization step. Because this requires details about your installation location, you must configure this step manually.

### To configure the optimization step

1. Browse to the following case-sensitive URL:  
  
`http://server name/virtual directory/workflow/login.jsp`  
  
A login page appears.
2. Enter the user name *dp* with the password *dp*, and then click Log on.  
  
**Note:** Only the user of this workflow (*dp*) can make changes to it.
3. In the row for the Call Promotion Optimizer workflow, click Edit.
4. Right-click the Call Promotion Optimizer step, and then choose Properties.

5. In the Parameters section, edit the following parameters. This step is required in order to make optimization work in your environment.

| Parameter Name | Purpose                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|
| MODEL_PATH     | Complete path and filename of the <i>promoopt.opl</i> file.                                                                      |
| dbms_type      | The database type, one of the following:<br><br>odbc<br><br>oracle81                                                             |
| dbms_connect   | Database connection information in the form<br>database_user/database_password@databasename<br>. For example: demantra/d@alexish |

6. Optionally edit the following parameters.

**Caution:** Do not edit parameters that are not listed in this chapter.

| Parameter Name         | Purpose                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------|
| opti_level_item        | Name of the item level for optimization. This is case-sensitive.<br><br>For example: SKU            |
| opti_level_location    | Name of the location level for optimization. This is case-sensitive.<br><br>For example: Ship to    |
| opti_level_promo       | Name of the promotion level for optimization. This is case-sensitive.<br><br>For example: Promotion |
| promo_max_budget_attr  | Name of the field in the Promotion table that stores the maximum budget.                            |
| promo_used_budget_attr | Name of the field in the Promotion table to which the method writes the optimized budget.           |

| Parameter Name                | Purpose                                                                                                                                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| opti_value_steps              | Number of variations of the causal factors that the optimizer should try. Use a value from 50 to 500.                                                                                                                                                     |
| MAX_PROMO_ON_PROD_ACC         | Maximum number of concurrent promotions on a given account. Suggested value: 1.                                                                                                                                                                           |
| MAX_LENGTH_OF_PROMO           | Maximum permitted length of any promotion, measured in base time buckets.                                                                                                                                                                                 |
| MIN_RET_MARGIN                | <p>SQL expression that returns the margin that the retailer requires. Do not set equal to 0.</p> <p>Promotion Optimization computes the retailer margin as follows:</p> $(\text{sale price} + \text{buydown}) / \text{list price} - 1$                    |
| MIN_MAN_MARGIN                | <p>SQL expression that returns the minimum margin that the manufacturer requires. Do not set equal to 0.</p> <p>Promotion Optimization computes the manufacturer margin as follows:</p> $(\text{list price} - \text{buydown}) / \text{cost of goods} - 1$ |
| MAX_BUY_DOWN                  | Maximum permitted buydown. Use a very large number such as 100000.                                                                                                                                                                                        |
| RET_CONSUMER_PRICE_EXPRESSION | SQL expression that returns the everyday price seen by the consumer.                                                                                                                                                                                      |
| MAN_LIST_PRICE_EXPRESSION     | SQL expression that returns the list price seen by the retailer.                                                                                                                                                                                          |
| MAN_COGS_EXPRESSION           | SQL expression that returns the cost of goods to the manufacturer.                                                                                                                                                                                        |
| MAN_VEHICLE_COST_EXPRESSION   | SQL expression that returns any fixed costs associated with running the promotion.                                                                                                                                                                        |
| FIXED_BUYDOWN_YN              | Specifies whether to use buydown as an input (1) or to calculate the optimal buydown (0). Use 1.                                                                                                                                                          |

| Parameter Name           | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BUYDOWN_EXPRESSION       | SQL expression that returns the buydown per unit.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MIN_RET_REVENUE          | Minimum retailer revenue for any promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MIN_RET_DEMAND           | Minimum retailer demand (unit count) for any promotion.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MIN_MAN_PROFIT           | Minimum manufacturer profit for any promotion.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MIN_RET_INC_PROFIT       | Minimum retailer incremental profit for any promotion.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MIN_RET_INC_REVENUE      | Minimum retailer incremental revenue for any promotion.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| GOAL_FOCUS               | Specifies if Promotion Optimization should optimize from the manufacturer's perspective (0; recommended) or the retailer's perspective (1).                                                                                                                                                                                                                                                                                                                                |
| COEFFICIENT_RANGE_FACTOR | <p>Controls the range of possible coefficient values to be searched.</p> <p>For any given causal factor, Promotion Optimization by default tests a discrete set of coefficient values, ranging from 0 to the largest value observed in history. This parameter specifies the additional percentage to add to that range of values.</p> <p>For example, to allow Promotion Optimization to search values 20% larger than historically seen, set this parameter to 0.20.</p> |
| DEFAULT_RET_MARGIN       | SQL expression that returns the default retailer margin.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| DEFAULT_MAN_MARGIN       | SQL expression that returns the default manufacturer margin.                                                                                                                                                                                                                                                                                                                                                                                                               |
| RETAILER_LEVEL_ID        | ID of the level (from group_tables) that corresponds to the retailers.                                                                                                                                                                                                                                                                                                                                                                                                     |

## Other Important Notes

The Promotion Optimization module uses certain fields in the Promotion and promotion\_data tables; do not change the names of any fields.

Also, the Promotion Optimization methods do not check for all the required inputs. In particular, you must make sure that the following information is available before running these methods:

- List price
- Buydown

---

## Loading Data for PTP

This chapter describes how to load data into PTP and maintain PTP levels and data. It also provides all the related reference information.

This chapter covers the following topics:

- PTP Data Needs
- Integration in PTP
- Using the Data Loading Wizard
- Reference: CSV Files for the Data Loading Wizard
- Reference: Data Loading Wizard Details
- Reference: Staging Tables
- Reference: Integration Interfaces

### PTP Data Needs

Without going into details of the specific formats (given later), this section lists the data needs for PTP.

#### Always Required

Every PTP system must have the following data:

- Basic sales data: the total quantity sold of each SKU at each ship-to location over the course of each week, and the regular retail price paid by the customer.
- The manufacturer's cost of goods (COG) for each item.
- The list price paid by the retailer for each item.
- Information on how each SKU fits into the item hierarchy and information on how each ship-to location fits into the location hierarchies.

- Basic data for historical or future promotions: for each promotion, the start and end dates, the items and locations to which the promotion applies, and the sale price per unit.
- Additional details for the promotions: promotion type, slotting costs, buydown allowance per item, and total vehicle costs.

### **Nice to Have**

By default, PTP assumes that additional data is also available, but you can reconfigure PTP to work if it is not.

- Syndicated data that includes the following breakdowns:
  - Base sales quantity (items sold if there had been no promotions)
  - Incremental sales quantity (additional items sold because of promotions)
  - Base sales dollars
  - Incremental sales dollars

**Note:** If this data is not available, see "Reconfiguring Series if Syndicated Data Is Not Used".

- Syndicated ACV data, which measures the number of stores that ran each kind of promotion, weighted by store size:
  - % ACV ANY PROMO
  - % ACV DISP
  - % ACV FEAT
  - % ACV FEAT&DISPLAY
  - % ACV FREQSHOPPER
  - % ACV TPR

**Note:** The ACV data is required if promotion data is unavailable.

### **Purely Optional**

Other data is purely optional:

- Additional details for promotions: consumer overlays, start and end shipping dates,

and settlement payment type.

- Additional sales data: number of units shipped from the manufacturer to the retailer.

## Integration in PTP

To understand integration in PTP, it is useful to review integration as the Demantra platform handles it.

### Data Loading and Integration in the Platform

Demantra provides the following tools for data loading and integration:

- The Data Model Wizard defines the basic levels and sales series in a data model and creates the `ep_load_sales` procedure, which handles data loading for those levels and series. The wizard also creates a batch script for running that procedure.

The Data Model Wizard does not load promotions or promotion data.

- The Integration Interface Wizard creates integration interfaces that can load promotions and promotion data. You execute the integration interfaces from within Workflow Manager or APS.exe.

In both cases, the wizards create staging tables, which usually serve as the starting point for data loading.

These tools are documented in Part II, "Basic Configuration".

### Data Loading and Integration in PTP

Because the PTP model is already defined, PTP provides an `ep_load_sales` procedure and integration interfaces that all work with the PTP model. It is not necessary to use the Data Model Wizard or the Integration Interface Wizard. The required staging tables already exist as well.

To facilitate data loading, PTP provides a user interface (Data Loading Wizard) that consolidates all data loading into one place. This tool starts with comma-delimited files, transfers the information into the staging tables, and then executes the relevant procedures to populate the internal tables.

The Data Loading Wizard performs an additional, useful task. You indicate the start of the Current Year scenario, and the wizard automatically places promotions into the Current Year or Actuals based on their dates.

It is not necessary to create or directly populate the staging tables. It is necessary only to provide comma-delimited files with the correct information; see "Reference: CSV Files for the Data Loading Wizard".

Each step in the Data Loading Wizard is optional, which means that if a failure occurs, you can correct the problem and try again by skipping the steps that completed successfully. The section "Reference: Data Loading Wizard Details" describes the wizard

in detail so that you know what it does at each step.

See also

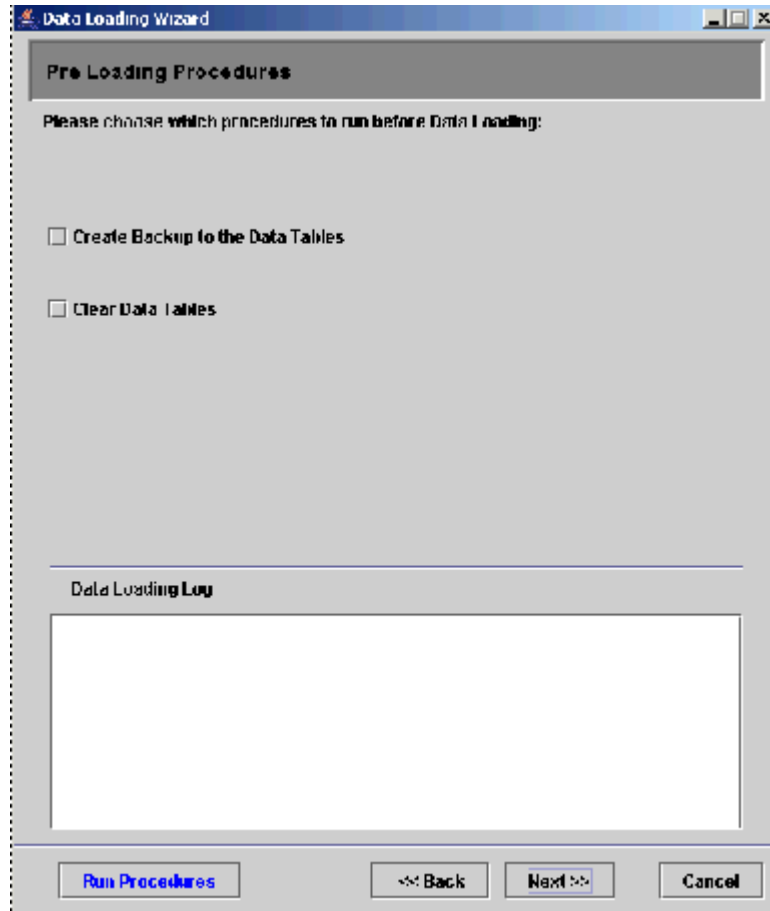
"Using the Data Loading Wizard"

## Using the Data Loading Wizard

### To use the Data Loading Wizard:

1. Create two comma-separated text files that contain the sales and promotions you want to load. For information on the required format of these files, see "Reference: CSV Files for the Data Loading Wizard".
2. Start the Data Loading Wizard. To do so, double-click the file *Demantra\_root* \Collaborator\virtual\_directory\Run Data Loader.bat (for example, f:\TPMO\Collaborator\demantara\Run Data Loader.bat).
3. On the first screen, click Next.

The Data Loading Wizard displays the Pre-loading Procedures screen:



All the rest of the screens have the same general appearance and behavior.

4. Click the check boxes for the actions that you want to perform before loading data. These options are as follows:

---

Create backup to the data tables

Back up all the data tables (sales\_data, mdp\_matrix, promotion, promotion\_data, and so on) by creating a copy of each table.

Clear data tables

Delete all records of the preceding tables (after backing them up, if requested).

---

5. If you click either check box, click Run Procedures to perform the specified actions. Then wait until the Data Loading Log area indicates successful completion.
6. Click Next.

The Data Loading Wizard displays the Populate SALES Data screen. The purpose

of this screen is to load the sales\_data table and related tables.

7. Click Browse and navigate to the file you created that contains the sales data.
8. Click Import Sales Data. Then wait until the screen indicates successful completion.
9. Click Next.

The Data Loading Wizard displays the Split Level Data File screen. The purpose of this screen is to identify your file that contains promotions and promotion data and to then split that into three normalized files, specifically:

- biio\_imp\_promo\_data.csv
  - biio\_population.csv
  - biio\_promotion.csv
10. For Data File Location, click Browse and navigate to the file you created that contains the promotions and promotion data.
  11. For Split Destination, click Browse and navigate to the directory where you want to store the three normalized files.
  12. Make a note of the location of these files.
  13. For the date option, select the date that marks the start of the Current Year scenario. The Data Loading Wizard will automatically assign promotions to the Current Year or Actuals, based on their dates.
  14. Click Split File. Then wait until the screen indicates successful completion.
  15. Click Next.

The Data Loading Wizard displays the Import Level screen. The purpose of this screen is to import the promotions into all the relevant internal tables. This step does not load the promotion series.

16. For Level Data, click Browse and navigate to the file that the Data Loading Wizard created that contains the promotions: biio\_promotion.csv
17. For Attributes Data, click Browse and navigate to the file that the Data Loading Wizard created that contains the promotion attributes: biio\_population.csv
18. Click Import Level. Then wait until the screen indicates successful completion.
19. Click Next.

The Data Loading Wizard displays the Import Level Data screen. The purpose of

this screen is to import the promotion series.

20. Click Browse and navigate to the file that the Data Loading Wizard created that contains the promotion series: `biio_imp_promo_data.csv`.
21. Click Import Level Data. Then wait until the screen indicates successful completion. At this point, the promotions are fully loaded and usable.
22. Click Next.

The Data Loading Wizard displays the Post Loading Procedures screen. The purpose of this screen is to run additional database procedures as needed.

23. Click the check boxes for the procedures that you want to perform before loading data. Currently, there is only one option, and it is recommended that you use it:

**24. Run the post loading procedure**

Click Run Procedures to perform the specified actions. Then wait until the screen indicates successful completion.

25. Click Finish.

## Reference: CSV Files for the Data Loading Wizard

The Data Loading Wizard requires the following comma-separated text files:

- "File for Sales Data"
- "File for Promotions and Promotion Data"

These files can have any name.

This documentation does not include details on the three intermediate files that the Data Loading Wizard creates (`biio_promotion.csv`, `biio_population.csv`, and `biio_imp_promo_data.csv`).

### File for Sales Data

This section describes the format of the file that contains sales data. All fields are written to the `T_SRC_DATA` staging table.

This file also must include information on how each SKU fits into the item hierarchy and information on how each ship-to location fits into the location hierarchies. For information on these hierarchies, see "Item Levels" and "Location Levels".

To identify members of these hierarchies, you should use short string names (and use them completely consistently); spaces are permitted but single quotes, double quotes, and ampersands are disallowed. The Demantra platform supports two external identifiers ("code" and "description") for object names, but in PTP item and location levels, these are set equal to each other. That is, the code for a SKU is the same as the

description for it.

| Position | Data type* | Required? | How used                                      |
|----------|------------|-----------|-----------------------------------------------|
| 1        | Date       | Required  | Date of the sale.                             |
| 2        | Text       | Required  | Ship-to location associated with the sale.    |
| 3        | Text       |           | Parent bill-to for this ship-to.              |
| 4        | Text       |           | Parent retailer for this ship-to.             |
| 5        | Text       | Required  | Territory associated with the sale.           |
| 6        | Text       |           | Parent district for this territory.           |
| 7        | Text       |           | Parent region for this district.              |
| 8        | Text       |           | Parent sales area for this region.            |
| 9        | Text       |           | Parent division for this sales area.          |
| 10       | Text       |           | Parent company for this division.             |
| 11       | Text       | Required  | SKU associated with the sale.                 |
| 12       | Text       |           | Parent product group for this SKU.            |
| 13       | Text       |           | Parent product family for this product group. |
| 14       | Text       |           | Parent product line for this product family.  |
| 15       | Text       |           | Parent brand for this SKU.                    |
| 16       | Text       |           | Parent segment for this brand.                |
| 17       | Text       |           | Parent category for this segment.             |
| 18       | Text       |           | Parent promotion group for this SKU.          |

| Position | Data type* | Required? | How used                                                                                                                                      |
|----------|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 19       | Number     |           | Populates the Shipments series, which specifies the number of units shipped from the manufacturer to the ship-to destination of the retailer. |
| 20       | Number     | **        | Syndicated data used to populate the Actuals Base series, the base number of items sold if no promotions occurred.                            |
| 21       | Number     | **        | Syndicated data used to populate the Actuals Incr series, the incremental number of items sold due to promotions                              |
| 22       | Number     | Required  | Populates the Actuals Ttl series, the total number of items sold of this item at this location on this date.                                  |
| 23       | Number     | Required  | Syndicated data used to populate the Avg Rtl sd series, the average item price.                                                               |
| 24       | Number     | Required  | Populates the COGS series, the cost of goods to the manufacturer.                                                                             |
| 25       | Number     | Required  | Populates the List Price series, the price charged by the manufacturer to the retailer.                                                       |
| 26       | Number     | ***       | Syndicated data used to populate the % ACV ANY PROMO series, which measures the number of stores that ran any promotion.                      |
| 27       | Number     | ***       | Syndicated data used to populate the % ACV DISP series, which measures the number of stores that ran displays.                                |
| 28       | Number     | ***       | Syndicated data used to populate the % ACV FEAT series, which measures the number of stores that ran features.                                |
| 29       | Number     | ***       | Syndicated data used to populate the % ACV FEAT&DISPLAY series, which measures the number of stores that ran features and displays.           |

| Position | Data type* | Required? | How used                                                                                                                               |
|----------|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------|
| 30       | Number     | ***       | Syndicated data used to populate the % ACV TPR series, which measures the number of stores that ran temporary price deductions.        |
| 31       | Number     | ***       | Syndicated data used to populate the % ACV FREQSHOPPER series, which measures the number of stores that ran frequent shopper specials. |
| 32       | Number     | **        | Syndicated data used to populate the Base Evt \$ Rtl sd series, the base dollars earned by retailer for the specific item.             |
| 33       | Number     | **        | Syndicated data used the Incr Evt \$ Rtl sd series, the incremental dollars earned by retailer for the specific item.                  |
| 34       | Number     | Required  | Syndicated data used to populate the Shelf Price sd series, the regular retail price for the item at the specific retailer location.   |

\*All dates must be in the format mm/dd/yyyy

\*\*Can be omitted; see "Reconfiguring Series if Syndicated Data Is Not Used".

\*\*\*Required if promotion data is not available.

### File for Promotions and Promotion Data

This section describes the format of the file that contains promotions and promotion data. This table also lists the staging tables in which each of these fields is written.

For promotions and dropdown values for promotions series, the code and descriptions are not necessarily the same. The table indicates which identifier to use in each case.

| Position | Data type*   | Required? | How used                                                   | Staging tables                     |
|----------|--------------|-----------|------------------------------------------------------------|------------------------------------|
| 1        | Alphanumeric | Required  | Unique code for the promotion, for use in Demantra.        | BIIO_Promotion and BIIO_Population |
| 2        | Text         | Required  | Description or name of the promotion, for use in Demantra. | BIIO_Promotion                     |

| Position | Data type* | Required? | How used                                                                                                                                                                                                                         | Staging tables  |
|----------|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 3        | Date       | Required  | Start date for this promotion.                                                                                                                                                                                                   | BIIO_Population |
| 4        | Date       | Required  | End date for this promotion.                                                                                                                                                                                                     |                 |
| 5        | Text       | Required  | Name of the lowest item-type level corresponding to the promotion, for example "SKU".                                                                                                                                            |                 |
| 6        | Text       | Required  | <p>Name of a member of this item level.</p> <p>Note that typically a promotion is run for multiple items and possible multiple locations, which means that this file would have a record for each item-location combination.</p> |                 |
| 7        | Text       | Required  | Name of the lowest location-type level corresponding to the promotion, for example "Ship To".                                                                                                                                    | BIIO_Promotion  |
| 8        | Text       | Required  | Name of a member of this location level.                                                                                                                                                                                         |                 |
| 9        | Text       | Required  | Unique code for the promotion type, as listed in the PROMOTION_TYPE table.                                                                                                                                                       |                 |
| 10       | Text       |           | Populates the Cons Promo attribute, which indicates any associated consumer overlay.                                                                                                                                             |                 |
| 11       | Date       |           | Populates the Start Ship attribute, the date on which shipments will start for this promotion.                                                                                                                                   |                 |
| 12       | Date       |           | Populates the End Ship attribute, the date on which shipments will end for the promotion.                                                                                                                                        |                 |

| Position                                                                                              | Data type* | Required? | How used                                                                                                                                                                                                     | Staging tables          |
|-------------------------------------------------------------------------------------------------------|------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 13                                                                                                    | Number     | Required  | Sale price per unit at shelf. Used by the Sale Priceseries.                                                                                                                                                  | BIIO_IMP_PROM<br>O_DATA |
| 14                                                                                                    | Number     | Required  | Planned spend associated with slotting costs. Used by the Slotting \$ series.                                                                                                                                |                         |
| 15                                                                                                    | Number     | Required  | Buydown allowance per unit, for this promotion. Can be used for off-invoice deductions or billback. Used by the Buydown series.                                                                              |                         |
| 16                                                                                                    | Number     | Required  | Total planned vehicle costs for this promotion. Used by the Loading Veh \$ series.                                                                                                                           |                         |
| 17                                                                                                    | Text       |           | <p>Description of the pay type of this promotion, as listed in the pay_type_lookup table, one of the following:</p> <p>Bill Back</p> <p>Off Invoice</p> <p>Auth Deduc</p> <p>Used by the Pay Typeseries.</p> |                         |
| *All dates must be in the format mm/dd/yyyy                                                           |            |           |                                                                                                                                                                                                              |                         |
| **For identifiers for item-type and location-type members, see the comments in "File for Sales Data". |            |           |                                                                                                                                                                                                              |                         |

## Reference: Data Loading Wizard Details

For your reference, the Data Loading Wizard performs the following steps:

1. Optionally backs up the sales\_data, mdp\_matrix, promotion, and promotion\_data tables.
2. Optionally runs the APPPROC\_CLEAR\_DATA procedure; see "Procedures".
3. Imports the raw sales data into the T\_SRC\_DATA staging table.

4. Runs the EP\_LOAD\_MAIN procedure.

When the process finishes, the T\_SRC\_DATA staging table is empty. Also, all tables that are related to sales data are filled with the given data. This includes sales\_data, mdp\_matrix, ITEMS, LOCATION, and the related level tables.

5. Reads the raw promotion file and splits it into three files as follows:

---

|                         |                                                            |
|-------------------------|------------------------------------------------------------|
| biio_imp_promo_data.csv | Stores the promotions.                                     |
| biio_population.csv     | Stores the promotion populations (combinations and dates). |
| biio_promotion.csv      | Stores the promotion series.                               |

---

6. Reads the biio\_promotion.csv and biio\_population.csv files and populates the BIIO\_Promotion and BIIO\_Population staging tables.

7. Runs the Import Promotion Levels integration interface via the following command-line entry:

```
aps.exe IMPORT_LEVEL "Import Promotion Levels" "Import Promotion Levels"
```

After this interface is run, the BIIO\_Promotion and BIIO\_Population staging tables are empty. The BIIO\_Promotion\_err and BIIO\_Population\_err tables contain any errors that occurred, along with a copy of the data in which the problem occurred. The promotion, promotion\_dates, promotion\_data tables are all populated. The promotion\_data contains nulls for some fields, because the promotion series have not yet been loaded.

8. Reads the biio\_promotion.csv file and populates the BIIO\_Promotion staging table.

9. Runs the Import Promotion Data2 integration interface via the following command-line entry:

```
aps.exe IMPORT_DATA "Import Promotion Data2" "IMP_PROMO_DATA"
```

After this interface is run, the BIIO\_Promotion staging table is empty. The BIIO\_Promotion\_err table contains any errors that occurred, along with a copy of the data in which the problem occurred. The relevant fields in promotion\_data are also updated.

10. Optionally runs the APPPROC\_POST\_DATA\_LOAD procedure. see "Procedures".

## Reference: Staging Tables

Internally, PTP uses the following staging tables:

- "BIIO\_IMP\_PROMO\_DATA"
- "BIIO\_Promotion"
- "BIIO\_Population"
- "T\_SRC\_DATA"

If you use the Data Loading Wizard, you do not have to populate these tables directly; instead you create the comma-separated files described in "Reference: CSV Files for the Data Loading Wizard". The information here is provided for reference and debugging purposes.

### **BIIO\_IMP\_PROMO\_DATA**

This staging table is used by the Import Promotion Data2 integration interface and has the following structure:

| <b>Field</b>       | <b>Data Type</b> | <b>Required?</b> | <b>Purpose*</b>                                                                                                                                                                    |
|--------------------|------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sdate              | date             |                  | Sales date.                                                                                                                                                                        |
| LEVEL1             | varchar2(500)    |                  | Code of the promotion member to which this data applies.                                                                                                                           |
| PROMO_PRI<br>CE    | number(20,10)    |                  | Sale price per unit at shelf. Used by the Sale Price series.                                                                                                                       |
| SLOTTING_<br>SPEND | number(20,10)    |                  | Planned spend associated with slotting costs. Used by the Slotting \$ series.                                                                                                      |
| CASE_BUYD<br>OWN   | number(20,10)    |                  | Buydown allowance per unit, for this promotion. Can be used for off-invoice deductions or billback. Used by the Buydown series.                                                    |
| VEHICLE_S<br>PEND  | number(20,10)    |                  | Total planned vehicle costs for this promotion. Used by the Loading Veh \$series.                                                                                                  |
| ALLOWAN<br>CE_TYPE | varchar2(50)     |                  | Description of the pay type of this promotion, as listed in the pay_type_lookup table. Use the pay_type_desc field, rather than the code or ID field. Used by the Pay Type series. |
| IS_SELF            | number(20,10)    |                  | Specify as 1 for all records. Used for internal purposes.                                                                                                                          |

| Field                                       | Data Type | Required? | Purpose* |
|---------------------------------------------|-----------|-----------|----------|
| *For details on these series, see "Series". |           |           |          |

### BIIO\_Promotion

This staging table is used by the Import Promotion Levels integration interface. It contains all the promotion attributes, of which only a subset are typically imported. This table has the following structure:

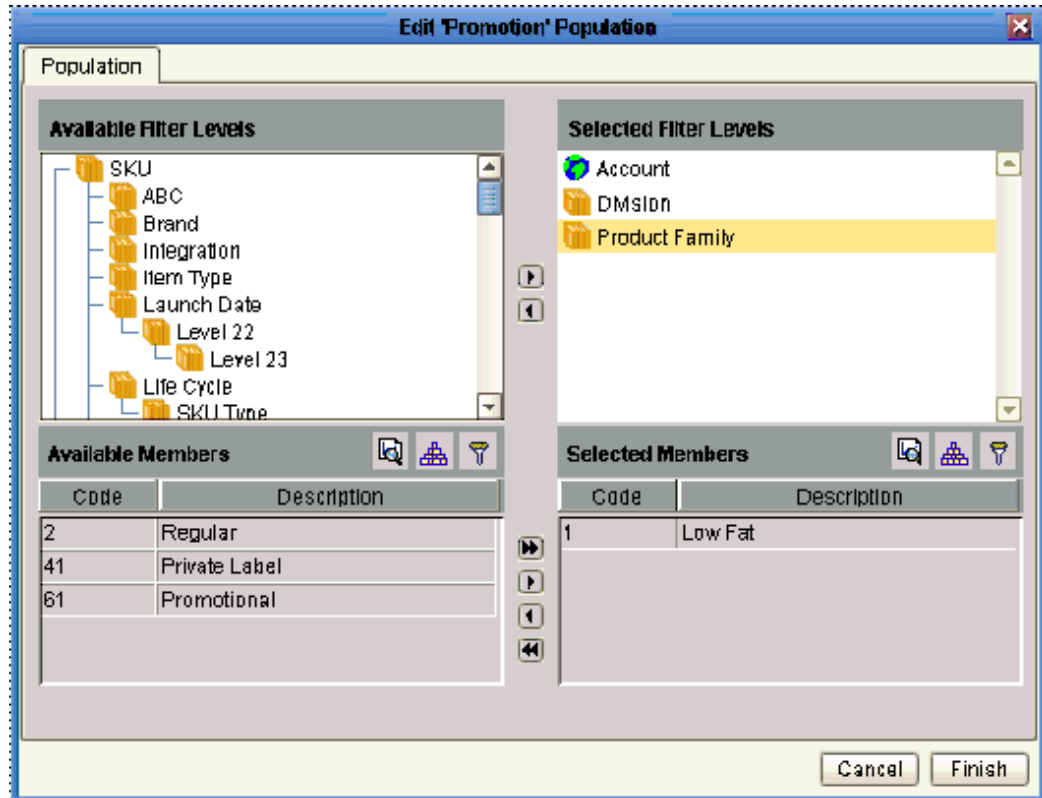
| Field                  | Data Type      | Required? | Purpose*                                                                                                                                                                                                                                   |
|------------------------|----------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROMOTION_CODE         | varchar2(500)  | Required  | Unique code for the promotion, for use in Demantra.                                                                                                                                                                                        |
| PROMOTION_DESCRIPTION  | varchar2(2000) | Required  | Description or name of the promotion, for use in Demantra.                                                                                                                                                                                 |
| SCENARIO_CODE          | varchar2(500)  | Required  | Unique code for the scenario to which this promotion belongs, as listed in the SCENARIO table.<br><br>If you use the Data Loading Wizard to populate this table, it automatically assigns each promotion to a scenario based on its dates. |
| PROMOTION_TYPE_CODE    | varchar2(500)  | Required  | Unique code for the promotion type, as listed in the PROMOTION_TYPE table.                                                                                                                                                                 |
| PROMOTION_STATUS_CODE  | varchar2(120)  | Required  | Unique code for the promotion status, as listed in the promotion_stat table.                                                                                                                                                               |
| BUY_DOWN               | number(20,10)  |           | Populates the Buydown attribute.                                                                                                                                                                                                           |
| OPTIMIZATION_GOAL      | varchar2(2000) |           | Populates the Optimization Goal attribute.                                                                                                                                                                                                 |
| OPTIMAL_PRICE_DECREASE | number(20,10)  |           | Populates the Optimal Price Decrease attribute.                                                                                                                                                                                            |

| <b>Field</b>           | <b>Data Type</b> | <b>Required?</b> | <b>Purpose*</b>                                                                                                    |
|------------------------|------------------|------------------|--------------------------------------------------------------------------------------------------------------------|
| STATUS                 | varchar2(30)     |                  | Populates the Status attribute.                                                                                    |
| SCENARIO_ID            | varchar2(2000)   |                  | Populates the Scenarios attribute. This should be the description of the scenario to which this promotion belongs. |
| PROMOTION_TYPE_ID      | varchar2(2000)   |                  | Populates the Vehicle Type attribute.                                                                              |
| APPROVAL               | varchar2(200)    |                  | Populates the Approval attribute.                                                                                  |
| SHIP_DATE              | date             |                  | Populates the Start Ship attribute. Date on which shipments will start for this promotion.                         |
| CONS_PROMO             | varchar2(50)     |                  | Populates the Cons Promo attribute, which indicates any associated consumer overlay.                               |
| OPTI_PROMOTION_TYPE_ID | varchar2(2000)   |                  | Populates the Optimal Type attribute.                                                                              |
| MAX_BUDGET             | number(20,10)    |                  | Populates the Max Budget attribute. Maximum allowed budget for this promotion.                                     |
| SPEND                  | number(20,10)    |                  | Populates the Optimal Budget attribute.                                                                            |
| ROI                    | number(20,10)    |                  | Populates the Return on Investment (ROI) attribute.                                                                |
| PROFIT                 | number(20,10)    |                  | Populates the Optimal Profit attribute.                                                                            |
| TOTAL_LIFT_U           | number(20,10)    |                  | Populates the Optimal Lift attribute.                                                                              |
| TOTAL_LIFT_D           | number(20,10)    |                  | Populates the Optimal Revenue attribute.                                                                           |

| Field                                              | Data Type      | Required? | Purpose*                                          |
|----------------------------------------------------|----------------|-----------|---------------------------------------------------|
| PROMOTION_STATUS_ID                                | varchar2(2000) |           | Populates the Event Status attribute.             |
| PROMOTION_TYPE_ID1                                 | varchar2(2000) |           | Populates the Promotion Type1 attribute.          |
| STATUS_ID1                                         | varchar2(30)   |           | Populates the Promotion Status attribute.         |
| END_SHIP                                           | date           |           | Populates the End Ship attribute.                 |
| METHOD_STATUS                                      | varchar2(200)  |           | Populates the method_status attribute.            |
| OPTIMIZATION_STATUS                                | varchar2(50)   |           | Populates the Optimization Status attribute.      |
| MIN_RTL_MARGIN_OVERRIDE                            | number(20,10)  |           | Populates the Min Rtl Margin Override attribute.  |
| FIXED_BUYDOWN_YN                                   | varchar2(100)  |           | Populates the Fixed Buydown attribute.            |
| MAX_BUYDOWN                                        | number(20,10)  |           | Populates the Max Buydown attribute.              |
| OPTIMIZATION_RANGE_START                           | date           |           | Populates the Optimization Range Start attribute. |
| OPTIMIZATION_RANGE_END                             | date           |           | Populates the Optimization Range End attribute.   |
| OPTIMIZATION_COUNT                                 | number(20,10)  |           | For internal use only.                            |
| *For details on these attributes, see "Promotion". |                |           |                                                   |

### BIIO\_Population

This staging table is used by the Import Promotion Levels integration interface and describes the population of each promotion. Specifically, it contains the same information as this window:



For each promotion, the table can contain multiple rows. Each row specifies a level and a member of that level, just as the preceding screen does (the previous screen shows that this promotion is associated with the Low Fat member of the Product Family). This table has the following structure:

| Field        | Data Type    | Required? | Purpose                                                      |
|--------------|--------------|-----------|--------------------------------------------------------------|
| LEVEL_MEMBER | varchar2(40) | Required  | Code of the promotion that you are loading.                  |
| FROM_date    | date         | Required  | Start date for this promotion.                               |
| UNTIL_date   | date         | Required  | End date for this promotion.                                 |
| FILTER_LEVEL | varchar2(50) | Required  | Name of a level, for example "Product Family" or "SKU".      |
| LEVEL_ORDER  | number(15)   | Required  | Use 1 for a location-type level or 2 for an item-type level. |

| Field             | Data Type    | Required? | Purpose                                                       |
|-------------------|--------------|-----------|---------------------------------------------------------------|
| FILTER_MEM<br>BER | varchar2(50) | Required  | Description of a member of this level, for example "Low Fat". |

### T\_SRC\_DATA

This staging table is used by the ep\_load\_main procedure. Each record corresponds to sales data for a given SKU, within a given ship-to and a given territory. For information on the hierarchy, see "Item Levels" and "Location Levels".

| Field      | Data Type     | Purpose*                                   |
|------------|---------------|--------------------------------------------|
| SALES_DATE | date          | Date of the sale.                          |
| T_EP_LR1   | varchar2(100) | Ship-to location associated with the sale. |
| T_EP_LR2   | varchar2(100) | Parent bill-to for this ship-to.           |
| T_EP_LR2A  | varchar2(100) | Parent retailer for this ship-to.          |
| LR1_ATTR1  | varchar2(100) | Not used.                                  |
| LR1_ATTR2  | varchar2(100) | Not used.                                  |
| T_EP_LS1   | varchar2(100) | Territory associated with the sale.        |
| T_EP_LS2   | varchar2(100) | Parent district for this territory.        |
| T_EP_LS3   | varchar2(100) | Parent region for this district.           |
| T_EP_LS4   | varchar2(100) | Parent sales area for this region.         |
| T_EP_LS5   | varchar2(100) | Parent division for this sales area.       |
| T_EP_LS6   | varchar2(100) | Parent company for this division.          |
| LS1_ATTR1  | varchar2(100) | Not used.                                  |
| LS1_ATTR2  | varchar2(100) | Not used.                                  |
| T_EP_LM1   | varchar2(100) | Not used.                                  |

| <b>Field</b> | <b>Data Type</b> | <b>Purpose*</b>                               |
|--------------|------------------|-----------------------------------------------|
| LM1_ATTR1    | varchar2(100)    | Not used.                                     |
| LM1_ATTR2    | varchar2(100)    | Not used.                                     |
| T_EP_P1      | varchar2(100)    | SKU associated with the sale.                 |
| T_EP_P2      | varchar2(100)    | Parent product group for this SKU.            |
| T_EP_P3      | varchar2(100)    | Parent product family for this product group. |
| T_EP_P4      | varchar2(100)    | Parent product line for this product family.  |
| T_EP_P2A     | varchar2(100)    | Parent brand for this SKU.                    |
| T_EP_P2A1    | varchar2(100)    | Parent segment for this brand.                |
| T_EP_P2A2    | varchar2(100)    | Parent category for this segment.             |
| T_EP_P2B     | varchar2(100)    | Parent promotion group for this SKU.          |
| T_EP_M1      | varchar2(100)    | Not used.                                     |
| T_EP_M2      | varchar2(100)    | Not used.                                     |
| SDATA4       | number(20,10)    | Populates the Shipments series                |
| SDATA5       | number(20,10)    | Populates the Actuals Base series.            |
| SDATA6       | number(20,10)    | Populates the Actuals Incr series.            |
| ACTUAL_QTY   | number(20,10)    | Populates the Actuals Ttl series.             |
| ITEM_PRICE   | number(20,10)    | Populates the Avg Rtl sd series.              |
| EQ_UNIT      | number(20,10)    | Not used.                                     |
| SDATA7       | number(20,10)    | Populates the COGS series.                    |
| SDATA8       | number(20,10)    | Populates the List Price series.              |

| Field                                       | Data Type     | Purpose*                                 |
|---------------------------------------------|---------------|------------------------------------------|
| SDATA9                                      | number(20,10) | Populates the % ACV ANY PROMO series.    |
| SDATA10                                     | number(20,10) | Populates the % ACV DISP series.         |
| SDATA11                                     | number(20,10) | Populates the % ACV FEAT series.         |
| SDATA12                                     | number(20,10) | Populates the % ACV FEAT&DISPLAY series. |
| SDATA13                                     | number(20,10) | Populates the % ACV TPR series.          |
| SDATA14                                     | number(20,10) | Populates the % ACV FREQSHOPPER series.  |
| T_EP_LR3                                    | varchar2(100) | Not used.                                |
| T_EP_LR3A                                   | varchar2(100) | Not used.                                |
| T_EP_P5                                     | varchar2(100) | Not used.                                |
| T_EP_P2A3                                   | varchar2(100) | Not used.                                |
| T_EP_P2B1                                   | varchar2(100) | Not used.                                |
| T_EP_LS7                                    | varchar2(100) | Not used.                                |
| BASE_EVT_DOL_R<br>TL                        | number(20,10) | Populates the Base Evt \$ Rtl sd series  |
| INCR_EVT_DOL_R<br>TL                        | number(20,10) | Populates the Incr Evt \$ Rtl sd series. |
| SHELF_PRICE_SD                              | number(20,10) | Populates the Shelf Price sd series.     |
| *For details on these series, see "Series". |               |                                          |

## Reference: Integration Interfaces

If you use the Data Loading Wizard, you do not have to run these interfaces directly. The information here is provided for reference and debugging purposes.

TPMO provides the following integration interfaces.

## Import Promotion Levels

This integration interface is defined as follows:

---

|                     |                                                                                                                                                                                                                                                                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type:</b>        | Import                                                                                                                                                                                                                                                                                                                                      |
| <b>Description:</b> | <p>Imports rows from a staging table and adds the new members to the Promotion level. If the new promotions refer to combinations that are not yet present in this database, this interface creates those combinations as well.</p> <p>Also imports rows from another staging table, which contains the population of these promotions.</p> |
| Staging Tables:     | <p>BIIO_Promotion stores the promotion members. Edit this table before editing BIIO_Population.</p> <p>BIIO_Population stores the populations of the promotions.</p>                                                                                                                                                                        |

---

## Import Promotion Data2

This integration interface is defined as follows:

---

|                     |                                                                                                                    |
|---------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Type:</b>        | Import                                                                                                             |
| <b>Description:</b> | <p>Imports rows from a staging table and updates the promotion series data in the appropriate internal tables.</p> |
| Staging Table:      | BIIO_IMP_PROMO_DATA                                                                                                |

---

---

## Other Configuration for PTP

This chapter describes how you can configure PTP, apart from configuring Promotion Optimization.

This chapter covers the following topics:

- Configuring the Default Promotion Start and Span
- Changing the Default Retailer Profile
- Configuring the Right-Click "Open With" Option
- Removing Right-Click Menu Options
- Replacing Collaborator Workbench Graphics
- Configuring Promotion Status Behavior
- Re-configuring Series if Syndicated Data Is Not Used

### Configuring the Default Promotion Start and Span

**To configure the default promotion start and span:**

1. In the Business Modeler, click Parameters > System Parameters.
2. Click the Worksheet tab.
3. Edit the following parameters:

---

|                   |                                                                                                                                                   |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| PromoDefaultStart | Specifies the default start date for promotions created within a worksheet: the current date, the last loaded sales date, or the worksheet start. |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

---

|                  |                                                                                 |
|------------------|---------------------------------------------------------------------------------|
| PromoDefaultSpan | Specifies the default length of time for promotions created within a worksheet. |
|------------------|---------------------------------------------------------------------------------|

4. Click Save.
5. Click Close.

## Changing the Default Retailer Profile

### Predefined Behavior

For any given retailer, the user can specify attributes or can instead use the default retailer profile. The CopyRetailerDefaults workflow checks for any retailers that use the default profile, and it copies the default details to those retailers. You should run this workflow each time you change a retailer to use the default profile and each time you change the default profile.

### Possible Changes

You can change the default retailer profile, as follows:

1. In the Business Modeler, click Configuration > Configure Levels.
2. Right-click the Retailer level and select Open > General Attributes.  
Business Modeler displays the default attributes for the retailer level. Together, these constitute the "default retailer profile."
3. Click a retailer attribute on the left.
4. In the right area, change Default Value.
5. Continue with other attributes as needed.
6. When you are done, click Next and then click Finish.
7. Restart the Application Server to make the changes available to the users.

## Configuring the Right-Click "Open With" Option

By default, when users right-click a promotion, scenario, or retailer within PTP, they can use the Open and Open With menu options to open a worksheet that is filtered to that selection (the Open option opens the default worksheet). This is configurable within the Business Modeler.

### To configure the "Open With" menu option:

1. In the Business Modeler, click Components > Create/Open Component. Or click the Create/Open Component button.
2. Click Oracle PTP, and then click OK.
3. Click Next repeatedly until the Select Component Queries for Levels screen is displayed.

This screen allows you to associate public worksheets with levels.

Select Level:

Available Queries:

- 000. Introduction
- 0008. Middle out Enterprise Plan
- 001. Store Plan
- 002. Creating a strategic plan
- 004. New Product Launch
- 005. Analyze historical Statistical perform
- 006. Clustering Report update
- 007. Analyze Historical Plan performance
- 008. Middle out Enterprise Plan
- 009. Store Manager Plan
- 010. Consensus Plan
- 011. Consensus Plan Cross tab analysis
- 012. Budget Exception Analysis
- 013. Lifecycle Management
- 014. Wall Management
- 015. Coupon Program

Selected Queries:

Default Query:

Total Available Queries: 39

Total Selected Queries: 0

This association is used in two ways:

- Within the Members Browser, a user can use the right-click menu to open any of these associated worksheets directly from a member of the level (via the Open With menu option). In this case, Demantra opens the associated worksheet. The worksheet is filtered to show only data relevant to the member.
  - Within the worksheet designer, users can add a sub tab to a worksheet; the sub tab shows details for a given member. The sub tab can display any of the worksheets that are associated with a level included in the main worksheet. The sub tab is filtered to show only data relevant to the member.
4. To associate a worksheet with a level, do the following:
    1. Click the level in the Select Level drop down menu.

2. Double-click the worksheet in Available Queries list, which moves it to the Selected Queries list.
3. Move other worksheets from the Available Queries list to the Selected Queries list, as needed.
4. Decide which worksheet in the Selected Queries list should be the default worksheet for this level. For that worksheet, click the Default check box. When the user right-clicks and selects Open, this is the worksheet that will be used.
5. When you are done on this screen, click OK.

## Removing Right-Click Menu Options

The options on the right-click menu are Oracle methods. You can remove these options if needed; for example, if your system is not using optimization, you might want to remove the optimization options.

### To modify a level method:

1. In the Business Modeler, click Configuration > Configure Methods.  
The system displays a screen showing the existing methods, including all the predefined methods.
2. Optionally click a level name (such as Promotion, Scenario, or Retailer) in the drop-down list at the top of the screen.  
The screen is re-displayed with only the methods associated with that level.
3. To hide this menu option, uncheck the Display in menu check box.
4. Click Finish.

## Replacing Collaborator Workbench Graphics

The Web-based Demantra products contain default images that you can replace with your organization's own designs. To do so, just back up the default images and substitute your own image files, giving them the same filenames as listed here.

The graphic files are in the following directory:

Demantra\_root/Collaborator/portal/images

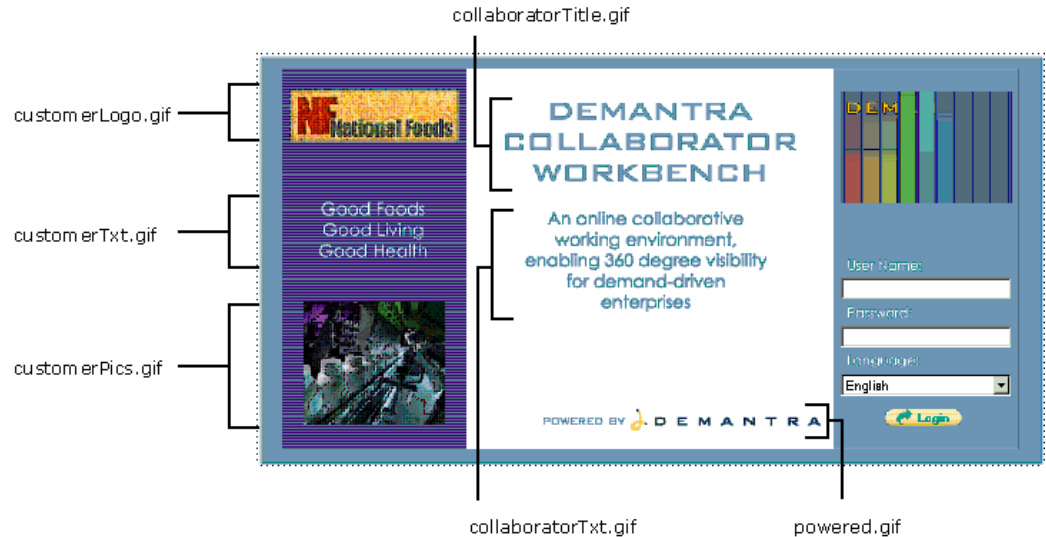
You can replace any of the graphics files in this directory. If you replace the default graphics with other graphics that have the same width and height, those graphics will fit on the page without the need for any further editing.

## Collaborator Workbench Splash Screen

The splash screen uses the graphic collaborator\_splash.gif.

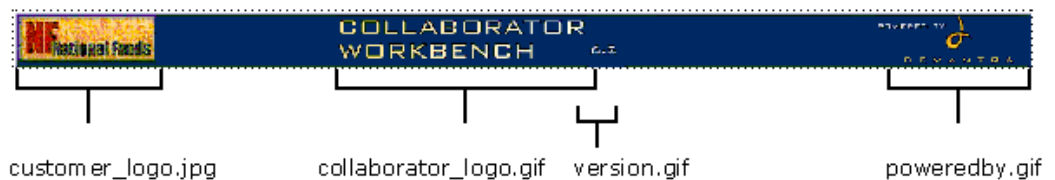
## Collaborator Workbench Login Page

On the login page, the most commonly replaced images are the following:



## Collaborator Workbench Main Page

On the main page, the most commonly replaced images are as follows:



## Configuring Promotion Status Behavior

You can redefine the behavior of the promotion statuses in PTP.

**Caution:** You should not do this unless you are familiar with series definitions and with the Business Modeler.

## Predefined Behavior

Demantra provides predefined promotion statuses (the Status attribute) and behavior, which PTP uses indirectly. PTP internally uses the Demantra predefined statuses but instead displays its own set of statuses (the Evt Status series).

Specifically the Status series maps the PTP statuses to the internal statuses. To do this mapping, this series has a client expression as follows:

if ( (evt status = 1), 1, if ( (evt status < 7), 2, 6))

This expression checks the value of the Evt Status series and decides the internal status value to which it maps. The resulting value is saved to the update field for the Status series, which is promotion.status. This is the field that controls whether a promotion is editable.

The following table lists the PTP status, the internal hardcoded statuses and their behavior, and explains the added TPMO behavior:

| <b>Evt Status series</b> | <b>Promotion.Status field</b>                   | <b>Hardcoded behavior</b>                        | <b>Additional TPMO behavior</b>                                                                                                                                       |
|--------------------------|-------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 (a. Unplanned)         | 1 (Unplanned)                                   | Analytical Engine ignores this promotion.        | Promotion does not affect fund balances or the forecast.                                                                                                              |
| 2 (b. Planned)           | 2 (Cancelled)                                   | .                                                | The cost of the promotion is deducted from the available balance of funds.                                                                                            |
| 3 (c. Approved)          |                                                 | .                                                |                                                                                                                                                                       |
| 4 (d. Committed)         |                                                 | .                                                | Via a PTP procedure, PTP takes a snapshot of the current state of the promotion, for use in later analysis. The committed promotions are included in all projections. |
| 5 (e. Partial Paid)      |                                                 | .                                                | .                                                                                                                                                                     |
| 6 (f. Paid)              |                                                 | .                                                | .                                                                                                                                                                     |
|                          | 3 (Planned)                                     | See "Automatic Advancement of Promotion Status". | .                                                                                                                                                                     |
|                          | 4 (Committed)                                   |                                                  |                                                                                                                                                                       |
|                          | 5 (Executed)                                    |                                                  |                                                                                                                                                                       |
|                          | PTP does not use these hardcoded status values. |                                                  |                                                                                                                                                                       |

| Evt Status series | Promotion.Status field | Hardcoded behavior              | Additional TPMO behavior |
|-------------------|------------------------|---------------------------------|--------------------------|
| 7 (g. Closed)     | 6 (Closed)             | User cannot edit the promotion. | .                        |

## Notes

- Because of the way that PTP handles status, users must save worksheet data and rerun the worksheet whenever they change the status of a promotion. Otherwise, the status change is not reflected in the worksheet series.
- PTP currently includes extraneous status attributes (Event Status and Promotion Status), which you should ignore.
- You should not redefine series unless you are familiar with series definitions and with the Business Modeler.

## Possible Changes

- You can change the dropdown choices of the Evt Status series.
- You can change the client expression of the Evt Status series, to map the statuses differently to the hardcoded statuses.

## Re-configuring Series if Syndicated Data Is Not Used

As noted in "Reference: CSV Files for the Data Loading Wizard", Demantra uses syndicated data that includes the following breakdowns:

- Base sales quantity (items sold if there had been no promotions)
- Incremental sales quantity (additional items sold because of promotions)
- Base sales dollars
- Incremental sales dollars

If this data is not available, it is necessary to reconfigure some PTP series. You may also need to modify some PTP procedures and triggers.

**Caution:** You should not do this unless you are thoroughly familiar with the Demantra platform.

## Series to Reconfigure

The following series directly use the syndicated breakdowns via client expressions:

- Base Evt \$ Rtl
- Incr Evt Vol
- Incr Evt \$ Rtl

Each of these series has a client expression of the following form:

if past end date = 1, use syndicated data; otherwise, use engine data

(For each promotion, the **Past End Date** series equals 1 if the promotion is past or equals 0 otherwise.) For example, the client expression for **Base Evt \$ Rtl** is as follows:

```
if(past end date = 0,  
if( isnull(Base Evt $ Rtl Fut),0, Base Evt $ Rtl Fut ),  
if(isnull( Base Evt $ Rtl Act ),0, Base Evt $ Rtl Act ))
```

The **Base Evt \$ Rtl Act** contains the syndicated data.

You can reconfigure these series by rewriting this client expression so that the series always uses engine data. Or you can modify the actuals series to contain different data, depending on your needs.

Also, several series refer directly to the syndicated incremental volume via server expressions. These include BDF Exp Ttl Act, Incr COGS \$ Act, Incr Evt \$ Act, and MDF Exp Ttl Act.

## Data Synchronization

If you reconfigure any of these series, you should understand how PTP maintains the data for these series. PTP loads this data into sales\_data. For performance reasons, this information is needed in the promotion\_data table instead, so PTP uses procedures and triggers to copy this data to that table. The following section gives the details.

## Syndicated Data in PTP

The following table summarizes where the syndicated data is loaded, where that data is synchronized, and what series use this data in the sales\_data and promotion\_data tables, respectively. For completeness, this table lists all the syndicated data, including required data and data that is not synchronized.

| Information                           | In the sales_data table |                    | In the promotion_data table |                     |
|---------------------------------------|-------------------------|--------------------|-----------------------------|---------------------|
|                                       | Field*                  | Series             | Field**                     | Series              |
| Average retail price, always required | item_price              | Avg Rtl sd         | avg_rtl_pd                  | Avg Rtl             |
| Cost of goods, always required        | sdata7                  | COGS sd            | cogs_pd                     | COGS                |
| List price, always required           | sdata8                  | List Price sd      | list_price_pd               | List Price          |
| Shelf price, always required          | shelf_price_sd          | Shelf Price sd     | ed_price                    | Shelf Price         |
| Total volume, always required         | actual_quantity         | Actuals Ttl        |                             |                     |
| Base volume                           | sdata5                  | Actuals Base       |                             |                     |
|                                       | volume_base_ttl***      | Many series        | volume_base_ttl             | Many series         |
| Base dollars                          | BASE_EVT_DOL_RTL        | Base Evt \$ Rtl sd | base_evt_d_rtl_act          | Base Evt \$ Rtl Act |
| Incremental volume                    | sdata6                  | Actuals Incr       | incr_evt_vol_act            | Incr Evt Vol Act    |
| Incremental dollars                   | INCR_EVT_DOL_RTL        | Incr Evt \$ Rtl sd | incr_evt_d_rtl_act          | Incr Evt \$ Rtl Act |
| % ACV ANY PROMO                       | sdata9                  | % ACV ANY PROMO    |                             |                     |
| % ACV DISP                            | sdata10                 | % ACV DISP         |                             |                     |
| %ACV FEAT                             | sdata11                 | % ACV FEAT         |                             |                     |
| %ACV FEAT&DISPLAY                     | sdata12                 | % ACV FEAT&DISPLAY |                             |                     |

| Information                                                                 | In the sales_data table |                      | In the promotion_data table |        |
|-----------------------------------------------------------------------------|-------------------------|----------------------|-----------------------------|--------|
|                                                                             | Field*                  | Series               | Field**                     | Series |
| %ACV TPR                                                                    | sdata13                 | % ACV TPR            |                             |        |
| %ACV<br>FREQSHOPPER                                                         | sdata14                 | % ACV<br>FREQSHOPPER |                             |        |
| *These fields in sales_data are loaded.                                     |                         |                      |                             |        |
| **These fields in promotion_data are maintained by procedures and triggers. |                         |                      |                             |        |
| ***This field in sales_data is maintained by procedures and triggers.       |                         |                      |                             |        |

For information on procedures and triggers, see "Procedures".

---

## PTP Reference

This chapter provides reference information for PTP series, levels, methods, and so on.

This chapter covers the following topics:

- Series
- Item Levels
- Location Levels
- Retailer
- Promotion Levels
- Lookup Tables
- Methods
- Procedures
- Triggers
- Workflows
- Engine Configuration

### Series

This chapter provides reference information for PTP series, levels, methods, and so on.

PTP provides the following series:

| Series          | Table           | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For details, see...                   |
|-----------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| # Wks           | promotion       | Event length in weeks, assuming that each week starts on Monday. Always rounded up to a whole number of weeks.                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                       |
| # Wks O         | promotion level | Event length in weeks, for optimized promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | "Optimizing a Promotion"              |
| # Wks P         | promotion level | <p>Projected event length in weeks, as predicted when the promotion was committed.</p> <p>This series is configured (via a client expression) to have three branches, as follows:</p> <ul style="list-style-type: none"> <li>• If the value of this series is not null, that means Demantra has captured projections for this promotion. So use that value.</li> <li>• If the value is null and if the promotion is Committed, use the value # Wks.</li> <li>• If the value is null and if the promotion is not Committed, use null.</li> </ul> | "Event Projections and Event Actuals" |
| \$ Sales        | sales_data      | Annual dollar sales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       |
| \$ Sales Proj   | sales_data      | Planned sales dollars: actuals (for past dates) plus forecast (for future dates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |
| % ACV ANY PROMO | sales_data      | Measures the number of stores that ran any promotion, weighted by store size. Loaded from syndicated data.                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                       |
| % ACV DISP      | sales_data      | Measures the number of stores that ran displays, weighted by store size. Loaded from syndicated data.                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                       |

| Series                    | Table      | Purpose                                                                                                                                                               | For details, see...      |
|---------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| % ACV FEAT                | sales_data | Measures the number of stores that ran features, weighted by store size. Loaded from syndicated data.                                                                 |                          |
| % ACV<br>FEAT&DISPLA<br>Y | sales_data | Measures the number of stores that ran combined features and displays, weighted by store size. Loaded from syndicated data.                                           |                          |
| % ACV<br>FREQSHOPPE<br>R  | sales_data | Measures the number of stores that ran frequent shopper specials, weighted by store size. Loaded from syndicated data.                                                |                          |
| % ACV TPR                 | sales_data | Measures the number of stores that ran temporary price reductions, weighted by store size. Loaded from syndicated data.                                               |                          |
| % Attained                | sales_data | Percentage of sales quota attained.                                                                                                                                   | "Sales % vs. Quota"      |
| % Spend                   | promotion  | Event spending (vehicle and buydown), as a percentage of event sales. This is a useful metric of the effectiveness of a promotion; the lower this number, the better. | "Cost Benefit Review"    |
| % Spend O                 | promotion  | Event spending (vehicle and buydown), as a percentage of event sales, for the optimized promotion..                                                                   | "Optimizing a Promotion" |

| Series       | Table      | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For details, see...                   |
|--------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| % Spend P    | promotion  | <p>Projected event spending (vehicle and buy down), as a percentage of event sales, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals:</p> <ul style="list-style-type: none"> <li>• If the actual value is more than 20% different from the projection in the undesirable sense, the projection is shown in red.</li> <li>• If the actual value is more than 20% different from the projection in the desirable sense, the projection is shown in green. For example, if the actual profit was 130% of the projected profit, the projection is shown in green.</li> </ul> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| ActualLY     | sales_data | Actual demand one year ago.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                       |
| Actuals Base | sales_data | Base number of units sold in the past, if there had been no promotions. Loaded from syndicated data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                       |
| Actuals Incr | sales_data | Incremental number of units sold in the past, due to promotions. Loaded from syndicated data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                       |
| Actuals LY   | sales_data | Actual demand one year ago.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                       |
| Actuals Ttl  | sales_data | Total number of units sold in the past. This includes both base and incremental volume. Loaded from syndicated data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "About Quotas and Funds"              |
| Avg % Disc   | promotion  | Average percent discount                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | "Viewing Actual Averages"             |

| <b>Series</b>     | <b>Table</b> | <b>Purpose</b>                                                      | <b>For details, see...</b>                |
|-------------------|--------------|---------------------------------------------------------------------|-------------------------------------------|
| Avg % Spend       | promotion    | Average percent spend                                               |                                           |
| Avg B Dwn         | promotion    | Average buy down for the event                                      |                                           |
| Avg CPIU          | promotion    | Average cost per incremental unit                                   |                                           |
| Avg Evt Spend     | promotion    | Average weekly event spend                                          | "Viewing Actual Averages"                 |
| Avg Inc Rtl Prft  | promotion    | Average weekly incremental retailer profit                          |                                           |
| Avg Incr Evt \$   | promotion    | Average weekly incremental event dollars for manufacturer           |                                           |
| Avg Incr Evt Vol  | promotion    | Average weekly incremental event volume                             |                                           |
| Avg Incr Mfg Prft | promotion    | Average weekly incremental manufacturer profit                      |                                           |
| Avg Lift          | promotion    | Average lift factor for promotion                                   |                                           |
| Avg Mfg Prft      | promotion    | Average weekly manufacturer profit                                  |                                           |
| Avg Rtl           | promotion    | Average unit retail price at shelf.<br>Loaded from syndicated data. |                                           |
| Avg Rtl Margin    | promotion    | Average retailer event margin                                       |                                           |
| Avg Rtl Prft      | promotion    | Average weekly retailer profit                                      |                                           |
| Avg Rtl sd        | sales_data   | Average unit retail price at shelf.<br>Loaded from syndicated data. |                                           |
| Avg Ttl Evt Vol   | sales_data   | Average weekly total event volume                                   | "Viewing Actual Averages"                 |
| Base Evt \$       | promotion    | Base sales for the manufacturer, during the promotion.              | "Lift Decomposition Table - Manufacturer" |

| Series              | Table      | Purpose                                                                                                                              | For details, see...                   |
|---------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Base Evt \$ O       | promotion  | Base sales for the manufacturer, during the optimized promotion.                                                                     | "Optimizing a Promotion"              |
| Base Evt \$ P       |            | Projected base sales for the manufacturer, during the promotion.                                                                     |                                       |
| Base Evt \$ Rtl     | promotion  | Base sales for the retailer, during the promotion.                                                                                   | "Lift Decomposition Table - Retailer" |
| Base Evt \$ Rtl Act | promotion  | Base event dollars from a retailer's perspective, as determined by syndicated data.                                                  |                                       |
| Base Evt \$ Rtl P   | promotion  | Projected base sales for the retailer, during the promotion.                                                                         |                                       |
| Base Evt \$ Rtl sd  | sales_data | Base event dollars earned by the retailer, as loaded from external systems. By default, this series displays loaded syndicated data. |                                       |
| Base Evt Vol        | promotion  | Baseline volume during the promotion.                                                                                                |                                       |
| Base Evt Vol O      | promotion  | Baseline volume during the optimized promotion.                                                                                      | "Optimizing a Promotion"              |
| Base Fcst           | sales_data | Base volume: actuals (for past dates) plus forecast (for future dates).                                                              |                                       |
| BDF Auth            | sales_data | Authorized brand development funds, calculated as follows: (base rate + dev rate) * volume + fixed BDF funds                         | "About Quotas and Funds"              |
| BDF Alloc           | promotion  | Allocated brand development funds, based on the percentage set by the planner                                                        | "Marking a Promotion as Planned"      |

| Series          | Table      | Purpose                                                                                                                                                             | For details, see...            |
|-----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| BDF Alloc %     | promotion  | Read-only series that indicates how much of event spending (apart from slotting costs) is to be allocated to BDF.<br><br>Note that BDF Alloc % + MDF Alloc % = 100% |                                |
| BDF Auth        | sales_data | Authorized brand development fund, calculated as follows:<br><br>(base rate + dev rate) * volume + fixed funds                                                      | "About Quotas and Funds"       |
| BDF Bal         | sales_data | Remaining (unspent) BDF funds, computed as follows:<br><br>BDF Auth - BDF Alloc                                                                                     |                                |
| BDF Base Rate   | sales_data | Brand Development Fund Base rate -- displayed to the user in the field.                                                                                             |                                |
| BDF Dev Rate    | sales_data | Brand Development Fund Development rate, entered by corporate HQ.                                                                                                   |                                |
| BDF Fixed Funds | sales_data | BDF fixed funds                                                                                                                                                     |                                |
| Buydown         | promotion  | Buydown allowance or discount per promoted unit that will be paid to the retailer. May be used for either off-invoice or bill back.                                 | "Promotion Costs and Spending" |
| Buydown \$      | promotion  | Buy down spend for the promotion, computed as the buy down allowance multiplied by the volume.                                                                      |                                |
| Buydown O       | promotion  | Buy down spend for the optimized promotion.                                                                                                                         | "Optimizing a Promotion"       |
| Can Vol Dir     |            |                                                                                                                                                                     |                                |

| Series          | Table     | Purpose                                                                                                                                                                                                                                                                                                                                                                                                     | For details, see...                       |
|-----------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Canbl \$        | promotion | Cannibalization dollars for the manufacturer. This considers volume that has been cannibalized from other products.                                                                                                                                                                                                                                                                                         | "Lift Decomposition Table - Manufacturer" |
| Canbl \$ P      | promotion | Projected cannibalization dollars for the manufacturer.                                                                                                                                                                                                                                                                                                                                                     |                                           |
| Canbl \$ Rtl    | promotion | Cannibalization dollars for the retailer. This considers volume that has been cannibalized from other products and from other stores of this retailer.                                                                                                                                                                                                                                                      | "Lift Decomposition Table - Retailer"     |
| Canbl \$ Rtl P  | promotion | Projected cannibalization dollars for the retailer.                                                                                                                                                                                                                                                                                                                                                         |                                           |
| Canbl Vol Mfg   | promotion | Cannibalization volume for the manufacturer,                                                                                                                                                                                                                                                                                                                                                                |                                           |
| Canbl Vol Other | promotion | <p>Cannibalization of sales at other stores, as a result of the promotion. This is a negative number that indicates how many fewer units were sold. To the retailer, this is an undesirable effect. To the manufacturer, this effect is neutral, because the manufacturer cares only about net volume.</p> <p>(In Promotion Effectiveness terminology, this is the so-called "store switching" effect.)</p> |                                           |
| Canbl Vol Own   | promotion | <p>Cannibalization of sales of other products by the same manufacturer, as a result of the promotion. This is a negative number that indicates how many fewer units were sold.</p> <p>(In Promotion Effectiveness terminology, this is the so-called "product switching" effect.)</p>                                                                                                                       |                                           |

| Series        | Table           | Purpose                                                                                                                                                                                                                                                                                                                                                                 | For details, see...                   |
|---------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Canbl Vol Rtl | promotion       | <p>Cannibalization volume for the retailer.</p> <p>This is the sum of Canbl Vol Other and Canbl Vol Own, both of which are undesirable to the retailer.</p>                                                                                                                                                                                                             |                                       |
| COGS          | promotion       | Cost of goods, as paid by the manufacturer.                                                                                                                                                                                                                                                                                                                             |                                       |
| COGS sd       | sales_data      | Cost of goods, as paid by the manufacturer.                                                                                                                                                                                                                                                                                                                             |                                       |
| Cons Promo    | promotion level | <p>Consumer overlay, the deal type as seen by the consumer. For example, buy-1-get-1-free. Controls the number of units in the deal and affects the volume.</p> <p>Uses the Cons_type lookup table; see "Lookup Tables".</p>                                                                                                                                            |                                       |
| Cons Promo P  | promotion level | <p>Projected consumer overlay, the deal type as seen by the consumer, as predicted when the promotion was committed.</p> <p>This is shown in red if the actual deal type was different.</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> <p>Uses the Cons_type lookup table; see "Lookup Tables".</p> | "Event Projections and Event Actuals" |
| CPIU          | promotion       | Cost per incremental unit sold as a result of the promotion.                                                                                                                                                                                                                                                                                                            |                                       |
| CPIU O        | promotion       | Cost per incremental unit sold as a result of the optimized promotion.                                                                                                                                                                                                                                                                                                  | "Optimizing a Promotion"              |

| Series               | Table           | Purpose                                                                                                                                                                                                                                                                                                                                             | For details, see...                   |
|----------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| CPIU P               | promotion       | <p>Projected cost per incremental unit sold as a result of the promotion, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| Cumulative % vs Plan | sales_data      | Total cumulative actuals, as a fraction of the plan.                                                                                                                                                                                                                                                                                                |                                       |
| Cumulative Actuals   | sales_data      | The total actuals (base plus incremental) cumulative to date.                                                                                                                                                                                                                                                                                       |                                       |
| Cumulative Plan      | sales_data      | Cumulative frozen planned volume.                                                                                                                                                                                                                                                                                                                   |                                       |
| End Ship             | promotion level | Date when shipments will end for the event                                                                                                                                                                                                                                                                                                          | "Creating a Promotion"                |
| Evt Spend            | promotion       | Total plan spend (by the manufacturer) for the promotion, sum of buy down, vehicle costs, and slotting.                                                                                                                                                                                                                                             |                                       |
| Evt Spend exS        | promotion       | <p>Total planned buy down and vehicle costs for promotion.</p> <p>This spend is split between MDF and BDF funds. To control the split, you set the MDF Alloc % series, which controls how much of the spending is funded by MDF.</p>                                                                                                                |                                       |
| Evt Spend exS O      | promotion       | Total planned buy down and vehicle costs for optimized promotion.                                                                                                                                                                                                                                                                                   | "Optimizing a Promotion"              |

| Series             | Table              | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | For details, see...                       |
|--------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Evt Spend exS<br>P | promotion          | <p>Projected total planned buy down and vehicle costs for promotion, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p>                                                                                                                                                         | "Event Projections and Event Actuals"     |
| Evt Status         | promotion<br>level | <p>Status of the promotion as shown to users. For allowed values, see "Promotion Status".</p> <p>Also, the color of this series indicates the optimization status of this promotion:</p> <ul style="list-style-type: none"> <li>• Yellow means that the promotion has been optimized.</li> <li>• Green means that the promotion has been optimized and accepted, so that the promotion is using the optimization results.</li> <li>• White means that the promotion has not been optimized.</li> </ul> |                                           |
| Incr Evt \$        | promotion          | Incremental sales to the manufacturer due to the promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                            | "Lift Decomposition Table - Manufacturer" |
| Incr Evt \$ Net    | promotion          | Net incremental sales due to the event.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |
| Incr Evt \$ O      | promotion          | Incremental sales to the manufacturer due to the optimized promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                  | "Optimizing a Promotion"                  |

| Series              | Table      | Purpose                                                                                                                                                                                                                                                                                                                                         | For details, see...                   |
|---------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Incr Evt \$ P       | promotion  | <p>Projected incremental sales to the manufacturer, due to the event, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| Incr Evt \$ Rtl     | promotion  | Incremental sales to the retailer due to the promotion.                                                                                                                                                                                                                                                                                         | "Lift Decomposition Table - Retailer" |
| Incr Evt \$ Rtl Act | promotion  | Incremental sales to the retailer due to the promotion, as determined by syndicated data.                                                                                                                                                                                                                                                       |                                       |
| Incr Evt \$ Rtl sd  | sales_data | Incremental event dollars earned by the retailer, as loaded from external systems. By default, this series displays loaded syndicated data.                                                                                                                                                                                                     |                                       |
| Incr Evt Vol        | promotion  | Incremental volume due to the promotion.                                                                                                                                                                                                                                                                                                        |                                       |
| Incr Evt Vol Act    | promotion  | Incremental volume due to the promotion, as determined by syndicated data.                                                                                                                                                                                                                                                                      |                                       |
| Incr Evt Vol Fut    | promotion  | Incremental volume due to the promotion. This series has values for all dates (not just future dates).                                                                                                                                                                                                                                          |                                       |
| Incr Evt Vol O      | promotion  | Incremental volume due to the optimized promotion.                                                                                                                                                                                                                                                                                              | "Optimizing a Promotion"              |

| Series          | Table      | Purpose                                                                                                                                                                                                                                                                                                                         | For details, see...                   |
|-----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Incr Evt Vol P  | promotion  | <p>Projected incremental volume due to the promotion, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| Incr Evt Vol sd | sales_data | Incremental event volume, as loaded from syndicated data.                                                                                                                                                                                                                                                                       |                                       |
| Incr Fcst       | sales_data | Incremental volume: actuals and forecast due only to planned promotions.                                                                                                                                                                                                                                                        |                                       |
| Incr Mfg Prft   | promotion  | <p>Incremental profit to the manufacturer due to the promotion. Event spending and slotting have been deducted.</p> <p>This profit is in addition to the manufacturer's usual profit and is thus a measure of the value of the promotion.</p> <p>This series is displayed in red if the value is negative.</p>                  |                                       |
| Incr Mfg Prft O | promotion  | <p>Incremental profit to the manufacturer due to the optimized promotion.</p> <p>This series is displayed in red if the value is negative.</p>                                                                                                                                                                                  | "Optimizing a Promotion"              |

| Series                 | Table     | Purpose                                                                                                                                                                                                                                                                                                                                             | For details, see...                   |
|------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Incr Mfg Prft P        | promotion | <p>Projected incremental profit to the manufacturer due to the promotion, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| Incr Rtl Prft          | promotion | <p>Incremental retailer profit due to the promotion, calculated as the incremental volume multiplied by the retailer's margin.</p> <p>This profit is in addition to the retailer's usual profit and is thus a measure of the value of the promotion to the retailer.</p> <p>This series is displayed in red if the value is negative.</p>           |                                       |
| Incr Rtl Prft O        | promotion | <p>Incremental retailer profit due to the optimized promotion.</p> <p>This series is displayed in red if the value is negative.</p>                                                                                                                                                                                                                 | "Optimizing a Promotion"              |
| Incr Rtl Prft P        | promotion | <p>Projected incremental retailer profit due to the promotion, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p>            | "Event Projections and Event Actuals" |
| incr_vol_no_un<br>plan | promotion | Incremental volume caused only by the planned promotions.                                                                                                                                                                                                                                                                                           |                                       |

| Series        | Table      | Purpose                                                                                                                                                                                                                                                                                                                                  | For details, see...              |
|---------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Is_self       | promotion  | <p>For internal use only. This series indicates whether the promotion and the item-location combination are related:</p> <ul style="list-style-type: none"> <li>• 1 means that the promotion applies to the item-location combination.</li> <li>• 0 means that the promotion applies to some other item-location combination.</li> </ul> |                                  |
| Lift          | promotion  | Lift factor for the promotion. This is the event volume divided by the base volume.                                                                                                                                                                                                                                                      |                                  |
| Lift O        | promotion  | Lift factor for the optimized promotion.                                                                                                                                                                                                                                                                                                 | "Optimizing a Promotion"         |
| List Price    | promotion  | List price, the price charged by the manufacturer to the retailer.                                                                                                                                                                                                                                                                       |                                  |
| List Price sd | sales_data | List price, the price charged by the manufacturer to the retailer.                                                                                                                                                                                                                                                                       |                                  |
| MDF Auth      | sales_data | <p>Authorized market development fund, computed as follows:</p> <p><math>(\text{base rate} + \text{dev rate}) * \text{volume} + \text{fixed funds}</math></p>                                                                                                                                                                            |                                  |
| MDF Alloc     | promotion  | <p>MDF spending that is allocated to fund this event. This is computed as follows:</p> <p><math>\text{MDF Alloc \%} * \text{Evt Spend exS}</math></p>                                                                                                                                                                                    | "Marking a Promotion as Planned" |

| Series          | Table      | Purpose                                                                                                                                                                                                        | For details, see...      |
|-----------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| MDF Alloc %     | promotion  | <p>Editable series that controls how much of event spending (apart from slotting costs) is to be allocated to MDF.</p> <p>Note that BDF Alloc % + MDF Alloc % = 100%</p> <p>Enter 50 for 50%, for example.</p> |                          |
| MDF Auth        | sales_data | <p>Authorized market development fund, computed as follows:</p> <p>(base rate + dev rate) * volume + fixed funds</p>                                                                                           | "About Quotas and Funds" |
| MDF Bal         | sales_data | <p>Remaining (unspent) MDF funds, computed as follows:</p> <p>MDF Auth - MDF Alloc</p>                                                                                                                         |                          |
| MDF Base Rate   | sales_data | Market development fund base rate.                                                                                                                                                                             | "About Quotas and Funds" |
| MDF Dev Rate    | sales_data | Market development fund development rate.                                                                                                                                                                      |                          |
| MDF Fixed Funds | sales_data | MDF fixed funds.                                                                                                                                                                                               |                          |
| Mfg Prft O      | promotion  | <p>Manufacturer's profit from the optimized event.</p> <p>This series is displayed in red if the value is negative.</p>                                                                                        |                          |
| Mfg Profit      | promotion  | <p>Manufacturer's profit from the event, considering both cost of goods and event spending.</p> <p>This series is displayed in red if the value is negative.</p>                                               |                          |
| Mfg Profit Var  | promotion  |                                                                                                                                                                                                                |                          |

| Series                 | Table              | Purpose                                                                                                                                                                                     | For details, see...                       |
|------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Net Incr Evt \$        | promotion          | Net revenue from the manufacturer's perspective. This considers the total manufacturer's lift dollars and subtracts costs due to cannibalization and pre- and post-effects.                 | "Lift Decomposition Table - Manufacturer" |
| Net Incr Evt \$<br>Rtl | promotion          | Net revenue from a retailer's perspective. This considers the total retailer's lift dollars and subtracts costs due to cannibalization (as seen by the retailer) and pre- and post-effects. | "Lift Decomposition Table - Retailer"     |
| Net Incr Rtl<br>Prft   | promotion          | Net incremental profit for the retailer, after considering cannibalization and pre- and post-effects.                                                                                       |                                           |
| Optimization<br>Status | promotion<br>level | Indicates the status of any optimization that was run on this promotion. Used in the color expression of the Evt Status series. Not meant for direct use.                                   |                                           |
| Optimized              | promotion          | For internal use only. Indicates if optimization was run on this promotion.                                                                                                                 |                                           |

| Series          | Table           | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For details, see...                       |
|-----------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Past End Date   | promotion level | <p>Not displayed. This internal series is used to check whether a promotion has already occurred. For any promotion, this series equals one of the following values:</p> <ul style="list-style-type: none"> <li>1 means that the promotion is past; specifically, the max_sales_date is equal to or after the end date of the promotion.</li> <li>0 means that the promotion is in the future.</li> </ul> <p>Other series use this series within client expressions that have the following general logic:</p> <p>if past end date = 1, use actuals data; otherwise, use forecast data.</p> |                                           |
| Pay Type        | promotion       | Type of settlement arranged with the retailer for this promotion. Indicates the payment terms between the manufacturer and the retailer for this promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |
| Plan Vol        | sales_data      | Manufacturer's planned revenue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |
| Pre-Post \$     | promotion       | Total sales made by the manufacturer before and after the promotion, as a result of the promotion. This is shown as a positive number for graphing purposes. These sales, however, are subtracted from the total sales.                                                                                                                                                                                                                                                                                                                                                                     | "Lift Decomposition Table - Manufacturer" |
| Pre-Post \$ Rtl | promotion       | Total sales made by the retailer before and after the promotion, as a result of the promotion. This is shown as a positive number for graphing purposes. These sales, however, are subtracted from the total sales.                                                                                                                                                                                                                                                                                                                                                                         | "Lift Decomposition Table - Retailer"     |

| Series         | Table           | Purpose                                                                                                                                                   | For details, see...                       |
|----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Pre-Post Vol   | promotion       | Total volume before and after the promotion, as a result of the promotion. This is generally a negative number.                                           | "Lift Decomposition Table - Manufacturer" |
| Rtl Prft       | promotion       | Retailer's profit from the event.<br><br>This series is displayed in red if the value is negative.                                                        |                                           |
| Rtl Prft O     | promotion       | Retailer's profit from the optimized event.<br><br>This series is displayed in red if the value is negative.                                              | "Optimizing a Promotion"                  |
| Sale Price     | promotion       | Sale price per unit at shelf.                                                                                                                             |                                           |
| Sale Price O   | promotion level | Sale price per unit at shelf, for the optimized promotion.                                                                                                |                                           |
| Sales Quota    | sales_data      | Sales quota (revenue).                                                                                                                                    |                                           |
| Sales Quota    | sales_data      | Sales quota (revenue).                                                                                                                                    |                                           |
| Sales Var      | promotion       |                                                                                                                                                           |                                           |
| Shelf Price    | promotion       | Everyday price to the consumer.<br><br>In contrast to the Shelf Price sd series, this series is stored in promotion_data for better performance.          |                                           |
| Shelf Price sd | sales_data      | The everyday price to the consumer, as loaded from external systems. This series is stored in sales_data and is mainly for internal use; see Shelf Price. |                                           |
| Shipments      | sales_data      | Number of units shipped from the manufacturer to the ship-to destination of the retailer.                                                                 |                                           |

| Series        | Table           | Purpose                                                                                                                                                                                                                                                                                                                                      | For details, see...                   |
|---------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Slot Auth     | sales_data      | Authorized slotting funds.                                                                                                                                                                                                                                                                                                                   | "About Quotas and Funds"              |
| Slot Bal      | sales_data      | Remaining slotting budget.                                                                                                                                                                                                                                                                                                                   |                                       |
| Start Event   | promotion       | Date when promotion starts in stores.                                                                                                                                                                                                                                                                                                        | "Creating a Promotion"                |
| Start Event O | promotion level | Date when optimized promotion starts in stores.                                                                                                                                                                                                                                                                                              | "Optimizing a Promotion"              |
| Start Event P | promotion level | <p>Projected date when promotion starts in stores, as predicted when the promotion was committed.</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p>                                                                                                                         | "Event Projections and Event Actuals" |
| Start Ship    | promotion level | Date when the product will start to be shipped                                                                                                                                                                                                                                                                                               | "Creating a Promotion"                |
| Status        | promotion level | For internal use only.                                                                                                                                                                                                                                                                                                                       |                                       |
| Ttl Evt \$    | promotion       | Total revenue during the event, for the manufacturer.                                                                                                                                                                                                                                                                                        |                                       |
| Ttl Evt \$ O  | promotion       | Total revenue during the optimized event, for the manufacturer.                                                                                                                                                                                                                                                                              | "Optimizing a Promotion"              |
| Ttl Evt \$ P  | promotion       | <p>Projected total revenue during the event, for the manufacturer, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |

| Series         | Table           | Purpose                                                                                                                                                                                                                                                                                                    | For details, see...                   |
|----------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Ttl Evt \$ Rtl | promotion       | Total revenue during the event, for the retailer.                                                                                                                                                                                                                                                          |                                       |
| Ttl Evt Vol    | promotion       | Total volume for the promotion.                                                                                                                                                                                                                                                                            |                                       |
| Ttl Evt Vol O  | promotion       | Total volume for the optimized promotion.                                                                                                                                                                                                                                                                  | "Optimizing a Promotion"              |
| Ttl Evt Vol P  | promotion       | <p>Projected total event volume, as predicted when the promotion was committed.</p> <p>PTP uses colors to indicate deviations between the projections and the actuals; see "% Spend P".</p> <p>This series is configured (via a client expression) to have three branches, in the same way as # Wks P.</p> | "Event Projections and Event Actuals" |
| Ttl Fcst       | sales_data      | Total volume: base forecast plus incremental forecast.                                                                                                                                                                                                                                                     |                                       |
| Ttl Fund Auth  | promotion       | Total authorized spending, including MDF, BDF, and slotting.                                                                                                                                                                                                                                               | "About Quotas and Funds"              |
| Ttl Fund Bal   | promotion       | Remainder of total authorized spending, after accounting for spending.                                                                                                                                                                                                                                     |                                       |
| Units          | promotion_level | Number of units associated with the consumer deal (Cons Promo). Usually this is 1. This is 2 in the case of 2-for-1 deals.                                                                                                                                                                                 |                                       |
| Unmatched \$   | sales_data      | Trade spend not yet matched to an event.                                                                                                                                                                                                                                                                   |                                       |
| Uplift         | promotion_data  |                                                                                                                                                                                                                                                                                                            | "About Quotas and Funds"              |
| Veh \$         | promotion       | Vehicle cost for the promotion.                                                                                                                                                                                                                                                                            | "Promotion Costs and Spending"        |

| Series                   | Table           | Purpose                                                                                                                                                                                                | For details, see...                   |
|--------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Veh \$ O                 | promotion       | Vehicle cost for the optimized promotion.                                                                                                                                                              | "Optimizing a Promotion"              |
| Veh Type                 | promotion level | The vehicle type or event type of the promotion.                                                                                                                                                       | "Promotion Costs and Spending"        |
| Veh Type O               | promotion level | The vehicle type or event type of the optimized promotion.                                                                                                                                             | "Optimizing a Promotion"              |
| Veh Type P               | promotion level | Projected vehicle type of the promotion, as predicted when the promotion was committed.<br><br>This series is configured (via a client expression) to have three branches, in the same way as # Wks P. | "Event Projections and Event Actuals" |
| Vehicle Cost DISPLAY     | promotion       | Vehicle cost for event of type DISPLAY.                                                                                                                                                                |                                       |
| Vehicle Cost F&D         | promotion       | Vehicle cost for event of type F&D.                                                                                                                                                                    |                                       |
| Vehicle Cost F. SHOPPER  | promotion       | Vehicle cost for event of type F. SHOPPER.                                                                                                                                                             |                                       |
| Vehicle Cost FEATURE     | promotion       | Vehicle cost for event of type FEATURE.                                                                                                                                                                |                                       |
| Vehicle Cost NATIONAL TV | promotion       | Vehicle cost for event of type NATIONAL TV.                                                                                                                                                            |                                       |
| Vehicle Cost TPR         | promotion       | Vehicle cost for event of type TPR.                                                                                                                                                                    |                                       |
| Volume Base              | sales_data      | Base volume aggregated over sales data.                                                                                                                                                                | "About Quotas and Funds"              |

| Series             | Table          | Purpose                                                                                                                                                                                                                                                                | For details, see... |
|--------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Volume Base<br>Ttl | sales_data     | Base volume series used by many other series. This series gives the base volume, if no promotions were run or are run. It checks the value of Past End Date and uses the following logic.<br><br>If past end date = 1, use actuals data; otherwise, use forecast data. |                     |
| Volume Incr<br>Ttl | promotion_data | Incremental volume series used by many other series. This series gives the incremental volume due to promotions. It checks the value of Past End Date and uses the following logic.<br><br>If past end date = 1, use actuals data; otherwise, use forecast data.       |                     |

## Item Levels

PTP uses the following item levels:



The most commonly used item level is Promotion Group. Some PTP worksheets use Brand or Segment. The other levels are provided for convenience, so that you can create worksheets aggregated at those levels.

The Manufacturer level is populated via the APPPROC\_MAINTAIN\_TERR\_RETAILER procedure. The rest are created by ep\_load\_main.

## Location Levels

PTP uses the following location levels:



The most commonly used location levels are Territory and Retailer. The Retailer has a set of attributes, described in the following subsection. The other levels are provided for convenience, so that you can create worksheets aggregated at those levels.

The Territory-Retailer level is used by the Analytical Engine. This level is populated via the APPPROC\_MAINTAIN\_TERR\_RETAILER procedure. The rest are created by ep\_load\_main.

Internally, the lowest location level is a combination of Ship To and Territory and is created automatically by Demantra.

## Retailer

This level contains the retailers. It is expected that retailers will be loaded rather than created within PTP. However, users can and should modify attributes of these retailers:

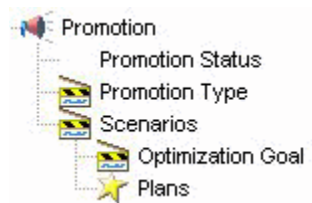
| Attribute                   | Purpose                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Account Classification      | Dropdown list with the following choices: <ul style="list-style-type: none"><li>Growth</li><li>Holding</li><li>Declining</li></ul> |
| Avg Everyday Selling Margin | Average selling margin, disregarding promotions.                                                                                   |

| Attribute                     | Purpose                                                                                                                                                                          |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class_of_Trade                | <p>Dropdown list with the following choices:</p> <ul style="list-style-type: none"> <li>• Food</li> <li>• Drug</li> <li>• Mass</li> <li>• C-Store</li> <li>• Military</li> </ul> |
| Event Threshold: Display Only | Minimum number of units that should be sold for an event of type Display.                                                                                                        |
| Event Threshold: F Shopper    | Minimum number of units that should be sold for an event of type F. Shopper.                                                                                                     |
| Event Threshold: Feat Display | Minimum number of units that should be sold for an event of type F&D.                                                                                                            |
| Event Threshold: Feature Only | Minimum number of units that should be sold for an event of type Feature.                                                                                                        |
| Event Threshold: Natl TV      | Minimum number of units that should be sold for an event of type National TV.                                                                                                    |
| Event Threshold: TPR Only     | Minimum number of units that should be sold for an event of type TPR.                                                                                                            |
| Key Competitors               | A text field where you can list the key competitors of this retailer.                                                                                                            |
| Min Man Event Margin          |                                                                                                                                                                                  |
| Min Rtl Event Margin          | Minimum margin that this retailer must make on an event. Promotion Optimization considers only events that provide at least this much margin.                                    |
| Name                          | Name of the retailer.                                                                                                                                                            |
| Number of Active Stores       | Number of active stores that this retailer operates.                                                                                                                             |

| Attribute                       | Purpose                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ship Timing: Display Stock #Wk  | Specifies how much earlier this retailer likes to receive any items to be placed in display stock. Specify as the number of weeks needed before the start of the promotion. |
| Ship Timing: Displays # Wks     | Specifies how much earlier this retailer likes to receive any displays to be placed in the stores. Specify as the number of weeks needed before the start of the promotion. |
| Ship Timing: Reg Open Stock Wks | Specifies how much earlier this retailer likes to receive any items to be placed in open stock. Specify as the number of weeks needed before the start of the promotion.    |
| Slotting Fees per item          | Amount that this retailer charges to place the items on the shelf, per item.                                                                                                |
| Use Default Profile             | Controls whether to update this profile by getting the default values for all these attributes.                                                                             |
| Veh Costs: Display Only         | Default cost for an event of type Display for this retailer.                                                                                                                |
| Veh Costs: F Shopper            | Default cost for an event of type F. Shopper for this retailer.                                                                                                             |
| Veh Costs: Feature & Display    | Default cost for an event of type F&D for this retailer.                                                                                                                    |
| Veh Costs: Feature Only         | Default cost for an event of type Feature for this retailer.                                                                                                                |
| Veh Costs: Natl TV              | Default cost for an event of type National TV for this retailer.                                                                                                            |
| Veh Costs: TPR Only             | Default cost for an event of type TPR for this retailer.                                                                                                                    |

## Promotion Levels

PTP uses the following promotion levels:



The following sections provide details on these levels:

- "Promotion"
- "Promotion Status"
- "Promotion Type"
- "Scenarios"
- "Optimization Goal"
- "Plans"

## Promotion

This level contains the promotions. Users can add, modify, or remove promotions as needed. The following table lists all the attributes of promotions and indicates when these attributes are displayed:

| Attribute     | When Displayed           | Purpose                                                                                                                                                                                                 |
|---------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approval      |                          |                                                                                                                                                                                                         |
| Buydown       |                          | Buy down allowance for this promotion. May be used for Off Invoice or Bill back purposes.                                                                                                               |
| Cons Promo    | When creating or editing | Consumer overlay. Indirectly specifies the number of units included in the deal to the customer.<br><br>Uses the Cons_type lookup table; see "Lookup Tables".                                           |
| End Ship      | When creating or editing |                                                                                                                                                                                                         |
| Event Status  | Not used.                | Ignore this attribute. It is not used.                                                                                                                                                                  |
| Fixed Buydown | When optimizing          | Specifies whether Promotion Optimization should use the buydown that you have already entered or calculate an optimal buydown for this promotion.<br><br>Uses a lookup table that should not be edited. |

| Attribute               | When Displayed           | Purpose                                                                                                                                                                                                                                                                                |
|-------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max Budget              | When optimizing          | Maximum allowed budget for this promotion.                                                                                                                                                                                                                                             |
| Max Buydown             | When optimizing          | Maximum allowed buydown for this promotion. If Promotion Optimization calculates an optimal buydown, the buydown will not exceed this value.                                                                                                                                           |
| method_status           |                          | Uses a lookup table that should not be edited.                                                                                                                                                                                                                                         |
| Min Rtl Margin Override | When optimizing          | <p>Minimum margin that the retailer must make on this promotion. By default, Promotion Optimization considers the retailer's default required minimum margin. Use this parameter to override that value, if needed.</p> <p>Use a value greater than 0 and less than or equal to 1.</p> |
| Name                    | When creating or editing | Name of the promotion. Does not have to be unique.                                                                                                                                                                                                                                     |
| Optimal Budget          |                          |                                                                                                                                                                                                                                                                                        |
| Optimal Lift            |                          |                                                                                                                                                                                                                                                                                        |
| Optimal Price Decrease  |                          |                                                                                                                                                                                                                                                                                        |
| Optimal Profit          |                          |                                                                                                                                                                                                                                                                                        |
| Optimal Revenue         |                          |                                                                                                                                                                                                                                                                                        |
| Optimal Type            |                          | Indicates the optimal vehicle type for this promotion. This attribute is a lookup attribute that uses the Promotion Type level.                                                                                                                                                        |

| Attribute                  | When Displayed           | Purpose                                                                                                                                                                                                                                                                                                               |
|----------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optimization Goal          | When optimizing          | <p>Select one of the following goals for this promotion:</p> <ul style="list-style-type: none"> <li>• Maximize Revenue</li> <li>• Maximize Profit</li> <li>• Maximize Units</li> </ul> <p>This attribute is a lookup attribute that uses the Optimization Goal level.</p>                                             |
| Optimization Range End     | When optimizing          | <p>By default, Promotion Optimization assumes that you want the optimized promotion to fall within the span of time of the original promotion. If you want Promotion Optimization to search for a better time for this promotion, use these attributes to specify the range of time for optimization to consider.</p> |
| Optimization Range Start   | When optimizing          |                                                                                                                                                                                                                                                                                                                       |
| Optimization Status        | Never displayed          | Status of the optimization process on this promotion. Uses a lookup table that should not be edited.                                                                                                                                                                                                                  |
| Population                 | When creating or editing | Combinations where this promotion will run and dates of the promotion.                                                                                                                                                                                                                                                |
| Promotion Status           | Not used.                | Ignore this attribute. It is not used.                                                                                                                                                                                                                                                                                |
| Promotion Type1            | Never displayed          | Current vehicle type for this promotion. This attribute is a lookup attribute that uses the Promotion Type level.                                                                                                                                                                                                     |
| Return on Investment (ROI) |                          |                                                                                                                                                                                                                                                                                                                       |
| Scenarios                  | When creating or editing | Scenario to which this promotion belongs. This attribute is a lookup attribute that uses the Scenarios level.                                                                                                                                                                                                         |
| Start Ship                 | When creating or editing |                                                                                                                                                                                                                                                                                                                       |

| Attribute    | When Displayed                     | Purpose                                                                                         |
|--------------|------------------------------------|-------------------------------------------------------------------------------------------------|
| Status       | Never displayed; not used directly |                                                                                                 |
| Vehicle Type | When creating or editing           | Type of the promotion. This attribute is a lookup attribute that uses the Promotion Type level. |

## Promotion Status

This level contains the PTP promotion statuses.

## Promotion Type

This level contains the promotion types, by default, the following set:

| Type        | Details                                                                                                              |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Display     | Display Only                                                                                                         |
| F. Shopper  | F Shopper                                                                                                            |
| F&D         | Feature and Display                                                                                                  |
| Feature     | Feature Only                                                                                                         |
| National TV | National TV advertising. If this does not apply, you can use this type as a placeholder for another type, as needed. |
| TPR         | Temporary price reduction only.                                                                                      |

Consultants can add other types, but changes are needed in multiple places if this is done. The documentation for this is currently out of scope.

## Scenarios

This level contains the scenarios, which have the following purposes:

- Actuals contains promotions from previous years. These promotions are excluded from most PTP worksheets because they fall outside the span of time used in these

worksheets.

- Current Year should contain the promotions that are planned for the current fiscal year.
- Sandbox should contain all promotions that are not yet planned.

## Optimization Goal

This level contains the predefined optimization goals. Do not make changes to this level.

## Plans

This level is not used in PTP worksheets.

## Lookup Tables

This section lists the configurable lookup tables used by promotion levels and series.

**Note:** You can change the contents of these table, but you should not change their structure.

## Cons\_type

This table lists types of consumer overlays and for each type, indicates the number of units included in the deal to the consumer. This lookup table is used by the Cons Promo attribute, the Cons Promo series, and the Cons Promo P series. This table has the following structure:

| Field          | Required? | Data type    | Purpose                            |
|----------------|-----------|--------------|------------------------------------|
| CONS_TYPE_ID   | required  | NUMBER(10)   | Unique ID for Oracle internal use. |
| CONS_TYPE_CODE |           | VARCHAR2(50) | Code for the consumer overlay.     |
| CONS_TYPE_DESC |           | VARCHAR2(50) | Name of the consumer overlay.      |
| IS_FICTIVE     |           | NUMBER(1)    | Leave these null.                  |

| Field                | Required? | Data type  | Purpose |
|----------------------|-----------|------------|---------|
| SELF_SHAPE_INDICATOR |           | NUMBER(5)  |         |
| IG_SHAPE_INDICATOR   |           | NUMBER(5)  |         |
| OMIT_SEASONAL        |           | NUMBER(5)  |         |
| FICTIVE_CHILD        |           | NUMBER(10) |         |
| LAST_UPDATE_DATE     |           | DATE       |         |

## Pay\_Type\_lookup

This table controls the drop-down choices in the Pay Type series. This table has the following structure:

| Field                | Required? | Data type    | Purpose                            |
|----------------------|-----------|--------------|------------------------------------|
| PAY_TYPE_ID          | required  | NUMBER(10)   | Unique ID for Oracle internal use. |
| PAY_TYPE_CODE        |           | VARCHAR2(50) | Code for the consumer overlay.     |
| PAY_TYPE_DESC        |           | VARCHAR2(50) | Name of the consumer overlay.      |
| IS_FICTIVE           |           | NUMBER(1)    | Leave these null.                  |
| SELF_SHAPE_INDICATOR |           | NUMBER(5)    |                                    |
| IG_SHAPE_INDICATOR   |           | NUMBER(5)    |                                    |
| OMIT_SEASONAL        |           | NUMBER(5)    |                                    |

| Field            | Required? | Data type  | Purpose |
|------------------|-----------|------------|---------|
| FICTIVE_CHILD    |           | NUMBER(10) |         |
| LAST_UPDATE_DATE |           | DATE       |         |

## Methods

PTP uses the following custom methods.

### Optimize Promotion

This method uses the Call Promotion Optimizer predefined workflow. The Call Promotion Optimizer workflow consists of three steps:

1. The first step initializes the necessary fields in the database. This step collects arguments, passes them to the APPPROC\_PRE\_OPTIMIZATION stored procedure, and then runs that stored procedure.

**Caution:** You should not change this step.

2. The second step calls the optimizer. This is a custom step that collects arguments and calls the OPL class file, which runs the optimization.

**Note:** You must configure this for your specific installation, as described in Configuring the Optimization Step.

3. The final step cleans up the necessary fields in the database, collects arguments, passes them to the APPPROC\_POST\_OPTIMIZATION stored procedure, and then runs that stored procedure.

**Caution:** You should not change this step.

If the user uses this method, Demantra creates a virtual promotion that the user can display along with the current promotion (in the PMO: Optimization Comparison worksheet).

### Accept Optimization

This method saves the optimized promotion, overwriting the previous details.

Specifically, it copies data from the optimized series to the corresponding standard series, for the selected promotion. For example, it copies data from # Wks O to # Wks.

This method uses the AcceptOptimization predefined workflow. This workflow consists of one step (which calls the APPPROC\_ACCEPT\_OPTIMIZATION procedure).

## Procedures

PTP uses the following custom procedures.

| Procedure                          | Purpose                                                                                                                                                                                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AP<br>PPROC_ACCEPT_OPTIMIZATION    | Used by Promotion Optimization.                                                                                                                                                                                                                                                                          |
| APPPROC_BLE_ACTUALS_LY             | Updates the ActualLY series.                                                                                                                                                                                                                                                                             |
| AP<br>PPROC_BLE_VOLUME_BASE_FUTURE | <p>Updates sales_data.vol_base_ttl, for all dates.</p> <p>For dates in the future, this procedure sets the field equal to the latest base forecast from the engine.</p> <p>For dates in the past, this procedure sets the field equal to the value of sales_data.sdata5, the syndicated base volume.</p> |
| AP<br>PPROC_BLE_VOLUME_BASE_HIST   | <p>Updates sales_data.vol_base_ttl, for dates in the past.</p> <p>This procedure sets the field equal to the value of sales_data.sdata5, the syndicated base volume.</p>                                                                                                                                 |
| APPPROC_CLEAR_DATA                 | Clears the sales_data, mdp_matrix, promotion, and promotion_data tables. Called by the Data Loading Wizard.                                                                                                                                                                                              |
| APPPROC_COPY_DEF_RETAILER          | <p>Iterates through all retailers, finds any that have been marked as using the default profile, and copies the default attribute values to each of those retailers.</p> <p>This procedure is also called by the Data Loading Wizard.</p>                                                                |
| APPPROC_DROP_TEMPS                 | Drops the temporary tables.                                                                                                                                                                                                                                                                              |
| AP<br>PPROC_MAINTAIN_TERR_RETAILER | <p>Populates the Manufacturer level and the Territory-Retailer level.</p> <p>This procedure is called by the Data Loading Wizard.</p>                                                                                                                                                                    |

| Procedure                 | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| APPPROC_POST_DATA_LOAD    | <p>This procedure completes the last steps needed during data loading:</p> <ul style="list-style-type: none"> <li>• Updates the LAST_DATE_BACKUP parameter in the INIT_PARAMS_0 table to equal the last sales date in the system.</li> <li>• Runs the APPPROC_COPY_DEF_RETAILER procedure.</li> <li>• Runs the APPPROC_MAINTAIN_TERR_RETAILER procedure.</li> <li>• Updates the promotion_data table with values loaded into sales_data.</li> <li>• Updates sales_data .vol_base_ttl according to the sdata5 column that was loaded. This initiates the APPTRIG_VOLUME_BASE_UPDATE_SD trigger; see "Triggers".</li> </ul> <p>This procedure is called by the Data Loading Wizard.</p> |
| APPPROC_POST_OPTIMIZATION | Used by Promotion Optimization.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| APPPROC_PRE_OPTIMIZATION  | Used by Promotion Optimization.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Instead of running procedures directly, use the workflows provided by PTP. See "Administration" and "Workflows".

## Triggers

PTP uses the following custom triggers.

| Trigger                      | When activated           | Action                                                                                    |
|------------------------------|--------------------------|-------------------------------------------------------------------------------------------|
| A<br>PPTRIG_INSERT_PROMOTION | When inserting promotion | Gets list price, shelf price, and COGs from sales_data and copies them to promotion_data. |

| Trigger                           | When activated                               | Action                                                                                                                                                                                            |
|-----------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A<br>PPTRIG_INSERT_PROMOTION_PAST | When inserting promotion in the past         | Updates the following series for this promotion: <ul style="list-style-type: none"> <li>Avg Rtl sd</li> <li>Incr Evt Vol Act</li> <li>Base Evt \$ Rtl Act</li> <li>Incr Evt \$ Rtl Act</li> </ul> |
| AP<br>PTRIG_SHELF_PRICE_UPDATE_SD | When updating shelf price on sales_data.     | Copies that data into promotion_data.                                                                                                                                                             |
| APP<br>TRIG_VOLUME_BASE_UPDATE_PD | When inserting a promotion                   | Gets sales_data.volume_base_ttl and updates the field by the same name in promotion_data.                                                                                                         |
| A<br>PPTRIG_VOLUME_BASE_UPDATE_SD | When updating volume_base_ttl in sales_data. | Copies that data into promotion_data                                                                                                                                                              |

## Workflows

PTP uses the following workflows:

| Workflow                 | When to run          | Description                                                                                                                                      |
|--------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| AcceptOptimization       | Do not run directly. | Used by the Accept Optimization method.                                                                                                          |
| Call Promotion Optimizer | Do not run directly. | Used by the Optimize Promotion method.<br><br><b>Note:</b> Includes installation-dependent details and must be configured for each installation. |

| Workflow                        | When to run                                                                                                                             | Description                                                                                                                                                  |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CopyRetailerDefaults            | Run this each time you edit a retailer to use the default profile and each time you edit the retailer defaults in the Business Modeler. | Executes the APPPROC_COPY_DEF_RETAILER procedure.                                                                                                            |
| Create Member                   | Do not run directly.                                                                                                                    | Used internally when a user creates a member of a level.                                                                                                     |
| Delete Member                   | Do not run directly.                                                                                                                    | Used internally when a user deletes a member of a level.                                                                                                     |
| DoNothing                       | Do not use.                                                                                                                             | Do not use.                                                                                                                                                  |
| Edit Member                     | Do not run directly.                                                                                                                    | Used internally when a user edits a member of a level.                                                                                                       |
| Import Promo Data               | Not required.                                                                                                                           | Provided for you to use if you want to load data manually rather than using the Data Loading Wizard.                                                         |
| ImportPromotionLevels           | Not required.                                                                                                                           | Provided for you to use if you want to load data manually rather than using the Data Loading Wizard.                                                         |
| Paste Member                    | Do not run directly.                                                                                                                    | Used internally when a user pastes a member of a level.                                                                                                      |
| Run App Proc After Batch Engine | Run this after you run the Analytical Engine.                                                                                           | Runs the following required procedures: <ul style="list-style-type: none"> <li>• APPPROC_BLE_ACTUALS_LY</li> <li>• APPPROC_BLE_VOLUME_BASE_FUTURE</li> </ul> |
| Run Drop Temps                  | Run this daily.                                                                                                                         | Executes the APPPROC_DROP_TEMPS procedure.                                                                                                                   |
| Run Engine and BLE              |                                                                                                                                         | Do not use.                                                                                                                                                  |

| Workflow     | When to run          | Description                            |
|--------------|----------------------|----------------------------------------|
| runprocsteps | Do not run directly. | Used by the Optimize Promotion method. |

## Engine Configuration

This section describes the basic engine configuration in PTP.

### Forecast Tree

The PTP forecast tree is as follows:

| Forecast level number | Levels used in this forecast level |                       | Notes                                            |
|-----------------------|------------------------------------|-----------------------|--------------------------------------------------|
|                       | Item level                         | Location level        |                                                  |
| 1                     | Lowest level                       | Lowest level          |                                                  |
| 2                     | Promotion Group                    | Territory Retailer    | This is also the lowest promotional level (LPL). |
| 3                     | Brand                              | Retailer              | This is also the influence group level (IGL).    |
| 4                     | Category                           | Retailer              | This is also the influence range level (IRL).    |
| 5                     | Highest fictive level              | Highest fictive level |                                                  |

### Parameter Settings

In PTP, the following parameter values are set for the Analytical Engine:

| Setting                    | Value | Notes                                                                                                                                                                      | Needed for                |
|----------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| COMPETITION_IT<br>EM       | 352   | This is the manufacturer level.                                                                                                                                            | Analytical Engine         |
| COMPETITION_L<br>OCATION   | 237   | This setting refers to the Competition_Location group table, which has only one row. This has the same effect as setting COMPETITION_LOCATION equal to the Retailer level. |                           |
| CalcOptimizationI<br>nput  | yes   |                                                                                                                                                                            | Promotion<br>Optimization |
| StartAverage               | 0     |                                                                                                                                                                            |                           |
| AverageHorizon             | 52    | Specify the length of time, in base time units, to use in calculating the average baseline forecast. Typically one year or half a year is suitable.                        |                           |
| BottomCoefficientL<br>evel | 2     |                                                                                                                                                                            |                           |
| TopCoefficientLev<br>el    | 3     |                                                                                                                                                                            |                           |

## Engine Models

Only the linear models work with Promotion Optimization. Therefore, in the model table in the database, the following models are marked as IS\_OPTIMIZATION=1: R-REGR, M-MRIDGE, and C-CMREG.



# Part 5

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## Other Configuration



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## Fine Tuning and Scaling Demantra

Typically you adjust parameters to control your solution's global behavior, including various defaults and performance settings. This chapter provides an overview of most of the parameters, grouped into specific areas.

This chapter covers the following topics:

- Basic Parameters
- Application Server
- Collaborator Workbench
- Database
- Date/Time Formats
- Email
- Integration
- Item Aggregation
- Logs and Old Data
- Proport Mechanism
- Simulation
- Solution Branding
- Threading
- Workflow
- Worksheets

### Basic Parameters

For reference, Demantra stores basic configuration information in the following parameters. Unless otherwise noted, you should not change these parameters after going live:

| Parameter                 | Description                                                                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| active_forecasts_versions | Specifies how many forecast versions the Demantra database should store.<br><br>You can change this parameter after going live.                                  |
| FIRSTDAYINWEEK            | First day of week to use when binning sales data into base time buckets, in a weekly system. It is not generally safe to change this parameter after going live. |

## Application Server

The APS queue uses the following parameters:

| Parameter              | Description                                                              |
|------------------------|--------------------------------------------------------------------------|
| QueryMechanisimTimeOut | The timeout period for the query notification listener, in milliseconds. |
| StartUpdateQueue       | Specifies whether to start the manual update listener.                   |
| UpdateQueueTimeout     | The timeout period for the manual update listener, in milliseconds.      |

## Collaborator Workbench

The following parameters control Collaborator Workbench. Also see "Solution Branding" for parameters that control Collaborator Workbench titles.

- "General"
- "My Tasks"
- "Who's Online"
- "Content Panes"

## General

The following parameters control Collaborator Workbench in general:

| Parameter                                    | Description                                                                                                                                          |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| collaborator.supportURL                      | URL of the Support link, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench. |
| collaborator.searchURL                       | URL of the Search link, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench.  |
| dir.onlineHelp                               | URL of the online help, relative to http://server name/virtual directory/portal/. This link is in the upper right corner of Collaborator Workbench.  |
| navBarContentProvider.addNewContentLink.Text | Text of the New link, which is shown at the top of the Contents menu.                                                                                |
| Server.SessionExpiration                     | Specifies how long (in seconds) before an idle Collaborator Workbench session expires.                                                               |

Also see "Customizing Demantra Web Pages".

## My Tasks

The following parameter affects the My Tasks pane of Collaborator Workbench:

| Parameter              | Description                                                            |
|------------------------|------------------------------------------------------------------------|
| general.userList.tasks | Specifies whether the My Tasks module displays the Create Task button: |

## Who's Online

The following parameters control the Who's Online pane of Collaborator Workbench:

| Parameter                            | Description                                                     |
|--------------------------------------|-----------------------------------------------------------------|
| general.userList.whoisonline         | Specifies whether the Who's Online module is displayed.         |
| UserListContentProvider.commonTitle  | The title of the Who's Online pane.                             |
| UserTitleContentProvider.TimeToSleep | The time to wait polling user status for the Who's Online pane. |

## Content Panes

The following parameters control the default behavior of graph-type content panes:

| Parameter                 | Description                                                                                                                                                                                                                                                                                         |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graph.MaxLabelWidth       | Maximum width of labels in graph-type content panes in Collaborator Workbench. If a label is too longer, the last characters are represented by three periods (...).                                                                                                                                |
| Legend.MaxLegendItemWidth | Maximum width (in characters) of the legend in a graph-type content pane in Collaborator Workbench. If any lines of the legend are too longer, the last characters of those lines are represented by three periods (...), as follows: <div> </div> |
| Query.MaxCombinations     | Maximum number of combinations that can be displayed in a graph-type content pane in Collaborator Workbench, when you display a single series plotted for multiple combinations. The user receives an error if a content pane contains more than this number of combinations.                       |

| Parameter                       | Description                                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Query.MaxSeries                 | Maximum number of series that can be displayed in a graph-type content pane in Collaborator Workbench. The user receives an error if a content pane contains more than this number of series.                       |
| Query.TopBottom.MaxCombinations | Maximum number of combinations that can be displayed in a content pane that contains a stacked bar chart or pie chart. The user receives an error if a content pane contains more than this number of combinations. |

See also

"Email"

"Workflow"

"Worksheets"

## Database

The following parameters control how Demantra connects to and uses the Demantra database.

- "General Database Settings"
- "Database Connections"
- "Oracle Tablespaces"
- "Technical Settings"

For additional parameters that specify *which* database Demantra connects to, see the Oracle Demantra Installation Guide.

## General Database Settings

| Parameter    | Description                                    |
|--------------|------------------------------------------------|
| DBDateFormat | Controls the date format used in the database. |

| Parameter           | Description                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------------|
| LockTimeout         | Specifies the period (in seconds) between killing a database session and releasing the lock for that session. |
| Rebuild_Sales_Table | Specifies whether the REBUILD_TABLES procedure should rebuild the sales_data table. Applies only to Oracle.   |

## Database Connections

The following parameters control Oracle Demantra's database connections:

| Parameter                       | Description                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| AdditionalConnectionsExpression | <b>New for 7.0)</b> Ignore this parameter for now.                                                                                             |
| DBConnectionTimeout             | The database connection timeout period.                                                                                                        |
| DBIdleTimeOut                   | The connection idle timeout period.<br>Recommended: 300000 (5 minutes)                                                                         |
| MaxDBConnections                | The maximum number of database connections for the Demantra database user.<br><br>Recommended: the number of concurrent users multiplied by 2. |
| MinDBConnections                | The minimum number of database connections for the Demantra database user.                                                                     |

## Oracle Tablespaces

For Oracle databases, Demantra writes to multiple tablespaces, as specified during installation. The tablespace assignments are controlled by parameters, which you can edit through the Business Modeler. Make sure that these parameters refer to tablespaces within the appropriate database user, and make sure each has enough storage. Additional parameters control the default initial sizes and how much storage is added.

| Parameter                      | Description                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------------------|
| initial_param                  | Default initial size of system tablespaces.                                                    |
| next_param                     | Incremental amount of storage that is added to a tablespace when more space is needed.         |
| tablespace*                    | Tablespace used for the sales table.                                                           |
| indexspace*                    | Database index space that stores the forecast table indexes, as specified during installation. |
| simulationspace*               | Tablespace used for simulation data.                                                           |
| simulationindexspace*          | Tablespace used for simulation index data.                                                     |
| sales_data_engine_index_space* | Tablespace used for the index of sales_data_engine.                                            |
| sales_data_engine_space*       | Tablespace used for sales_data_engine table.                                                   |

\* You set these parameters during installation.

Oracle recommends that you use the standard names for these tablespaces, as documented in the Oracle Demantra Installation Guide. Then it is easier for you to share your database with Demantra Customer Support in case of problems.

## Technical Settings

The following parameters should be adjusted only by someone experienced with databases:

| Parameter                 | Description                                                                                                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_records_for_commit    | The number of records that Demantra will insert into the database before performing a COMMIT operation. If you increase this number, the insertion will run more quickly, but you risk losing all uncommitted records in case of a crash. |
| oracle_optimization_mode* | <b>Oracle only.</b> Optimization mode of the database, either cost-based (most common) or rule-based.                                                                                                                                     |

| Parameter                                       | Description                                                                                                        |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| pct_increase_for_analyze                        | Percentage of data increase for a given table, beyond which Demantra automatically increases the table size.       |
| set_rb*                                         | <b>(Oracle 8i only)</b> Set Rollback Segment command. This is database dependent. See your database documentation. |
| *For these parameters, see "Engine Parameters". |                                                                                                                    |

See also

"Integration"

## Date/Time Formats

The following parameters control the formats of date and date/time values throughout Demantra:

| Parameter                 | Description                                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| applicationDateFormat     | The system date format.                                                                                                                                                                               |
| applicationDateTimeFormat | The system date/time format, used where both a date and time are displayed.                                                                                                                           |
| DBDateFormat              | Controls the date format used in the database.                                                                                                                                                        |
| format.dates.longFormat   | Long date format.                                                                                                                                                                                     |
| format.dates.shortFormat  | Short date format, used in the title bar of Collaborator Workbench.                                                                                                                                   |
| InsertDateTimeFormat      | The date-time format that Demantra uses when writing to the database. When you enter dates in a worksheet or import dates, Demantra converts them to this format before writing them to the database. |

## Email

If you are using any of the Demantra Web-based software, Demantra can automatically send email on specific occasions, for example, within workflows. To enable this, first set up an administrator email account on an SMTP server; this account will be the originator of all Demantra's automatic messages. You will probably need the help of the IT department to get this account configured correctly, depending on the network security.

Then use the parameters in this section to specify that email account for use by Demantra.

- "Configuring Demantra Email"
- "Strings Used in Demantra Email"

### Configuring Demantra Email

First, the following parameters specify the email account from which Demantra Web-based software will send email.

| Parameter                | Description                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------------------|
| mail*                    | Controls whether email is enabled.                                                                    |
| mail.server*             | SMTP server that is hosting the email application to be used by Demantra.                             |
| mailAddress*             | Mail address of the designated Demantra administrator.                                                |
| mail.strings.from.system | Specifies the title of the sender of Demantra email messages, for example "Demantra Solution Manager" |
| mail-username*           | Username of the designated Demantra administrator.                                                    |
| mail-password*           | Password of the designated Demantra administrator.                                                    |
| mail.outgoing.server     |                                                                                                       |
| AuditMailAddress         | Mail address of the BCC recipient of Demantra email messages.                                         |

| Parameter                                                                                          | Description                                                             |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| mail_recipient                                                                                     | Specifies where to send a message when error is found during data load. |
| *These can be set via the Demantra installer or later. See the Oracle Demantra Installation Guide. |                                                                         |

### Strings Used in Demantra Email

In addition, the following parameters control the strings used in the email messages that Demantra sends.

| Parameter                          | Description                                                                                     |
|------------------------------------|-------------------------------------------------------------------------------------------------|
| company.name                       | Name of your company; the Workflow Engine uses this string in email when a workflow step fails. |
| mail.strings.internalerror.message | Text of email message sent in case of error.                                                    |
| mail.strings.internalerror.subject | Subject of email message sent in case of error.                                                 |
| mail.strings.from.system           | <b>Added in 7.0.</b> Message sent in a fail-to-execute task description.                        |
| mail.strings.processfailuresubject | Message sent when a process is terminated.                                                      |
| mail.strings.processterminated     | String included in recovery email message.                                                      |
| mail.strings.recovery              | Message sent in a fail-to-execute task subject.                                                 |
| mail.strings.taskfailuresubject    | Message sent when a task is timed out.                                                          |
| mail.strings.tasktimedoutsubject   | Message sent when a task is timed out in a group step.                                          |
| mail.strings.timeout.group         | Message sent when a task is timed out in a user step.                                           |
| mail.strings.timeout.user          | Text of email message sent in case of error.                                                    |

## Integration

The following parameters control import and integration in Demantra. These parameters apply only to the core Demantra tools

| Parameter                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| accumulatedOrUpdate                | For integration, this parameter specifies whether the system adds to the existing data (accumulate) or overwrites the existing data (update).                                                                                                                                                                                                                                                                                                  |
| align_sales_data_levels_in_loading | <p>Specifies whether to maintain matrix information (combination information that is time-independent) within the sales_data table. If requested, this adjustment is made when data is added via loading, integration, or other mechanisms.</p> <p>If you set this parameter to yes, it is also necessary to rewrite some database procedures. For additional configuration steps, see Part , "Reconfiguring the sales_data_engine Table".</p> |
| ImportBlockSize                    | The number of rows for each commit, used during import.                                                                                                                                                                                                                                                                                                                                                                                        |
| InsertDateTimeFormat               | The date/time format that Demantra uses when writing to the database. When you enter dates in the worksheet wizard, Demantra converts them to this format.                                                                                                                                                                                                                                                                                     |
| Insertmissingvalues                | Specifies whether to insert zero values for dates that have null values.                                                                                                                                                                                                                                                                                                                                                                       |
| LoadDataStop                       | Specifies whether Demantra should stop loading data when it finds an error in the data.                                                                                                                                                                                                                                                                                                                                                        |
| RunProportInMdp_add                | Specifies whether to call the proport mechanism from the MDP_ADD procedure.                                                                                                                                                                                                                                                                                                                                                                    |
| UpdateAudit                        | Specifies whether the MANUALS_INS_INTEGRATION procedure updates the audit tables.                                                                                                                                                                                                                                                                                                                                                              |

| Parameter             | Description                                                                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| update_units_by_items | <p>Specifies how to update units for the INSERT_UNITS procedure.</p> <ul style="list-style-type: none"> <li>By items (faster but less accurate)</li> <li>By combinations (slower but accurate)</li> </ul> |

## Item Aggregation

For improved performance, you can configure Demantra to aggregate data by items and use that aggregated data whenever possible. In this case, Demantra maintains the branch\_data\_items table in addition to the usual tables. Demantra uses this table whenever possible; it does not use the table whenever you need to view specific locations or filter by location. To configure Demantra in this manner, set the UseItemsAggri parameter.

**Note:** Also be sure the DYNAMIC\_SYNC is scheduled to run periodically to keep the branch\_data\_items table up to date.

## Logs and Old Data

The following parameters control how long Demantra keeps various kinds of historical data:

| Parameter            | Description                                            |
|----------------------|--------------------------------------------------------|
| audit_history_length | Number of months of audit data to keep.                |
| log.history          | The number of days for which workflow history is kept. |

Also see "Logging Messages of the Application Server".

## Proport Mechanism

Parameters That Control Behavior

| Parameter         | Purpose                                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hist_glob_prop    | Specifies the maximum number of base time buckets to use in calculating glob_prop, the running average demand for any given item-location combination.                                                                                                                               |
| def_delta         | <p>Specifies the default value for the delta field in the mdp_matrix table. If delta equals null for a given combination, the system uses the value of this parameter instead.</p> <p>In turn, the delta field specifies the month-to-month smoothing of the weekly proportions.</p> |
| proport_missing   | Specifies what value to use for dates with null sales (zero or average).                                                                                                                                                                                                             |
| proport_threshold | Specifies the number of distinct months needed to compute P1, ... P12 in the usual way.                                                                                                                                                                                              |
| proport_spread    | Specifies what value to use for any month that has null data.                                                                                                                                                                                                                        |
| last_date         | Last date of actual sales, to be used by the Analytical Engine and the proport mechanism. No dates after this are used towards the forecast or the proport calculation.                                                                                                              |
| quantity_form     | Expression that the Analytical Engine uses to select the historical demand from the sales_data table; the result of this expression is the data that the engine uses as input.                                                                                                       |
| mature_age        | Controls the mature_date, which is calculated backwards from the current date using the mature_age parameter. A combination is young (rather than active) if it does not have any non-zero sales data for dates on or before the mature_date.                                        |
| dying_time        | If no sales occurred during the length of time specified by dying_time, the combination will be marked as dead (0 forecast will be issued).                                                                                                                                          |

| Parameter                                       | Purpose |
|-------------------------------------------------|---------|
| *For these parameters, see "Engine Parameters". |         |

### Parameters That Affect Performance

| Parameter                                        | Purpose                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| add_zero_combos_to_mdp*                          | If true, add combinations to mdp_matrix even if their historical data consists of zeros. This parameter is used by the proport mechanism.                                                                                                                                                                                                                                 |
| Run_full_matrix_proport                          | <p>Specifies whether to run the proport mechanism on all the item-location combinations.</p> <ul style="list-style-type: none"> <li>• If no (0), run proport only on the combinations that have prop_changes=1.</li> <li>• If yes (1), run proport on all combinations in mdp_matrix.</li> <li>• If 2, run proport on all combinations that have new_member=1.</li> </ul> |
| * For these parameters, see "Engine Parameters". |                                                                                                                                                                                                                                                                                                                                                                           |

## Simulation

When a user starts a large simulation, it is useful to check the size of that simulation and provide a warning if it will take a long time to run. You may also want to prevent too-large simulations from being run at all.

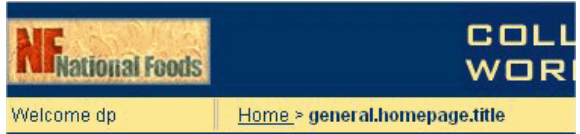
You can configure Demantra to detect large simulations and display a message to the user, to confirm that this is what the user wants to do. You use the following parameters:

| Parameter   | Purpose                                                                                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SimWarnSize | Specifies the threshold size of a simulation that is large enough to trigger a warning message to the user. Specify this as a percentage of the total number of combinations.                                                                                   |
| SimMaxSize  | Specifies the threshold size of a simulation that is too large to run. If a user tries to perform a simulation of this size, Demantra displays a message and does not attempt the simulation. Specify this as a percentage of the total number of combinations. |
| MatrixCombs | Indicates the number of combinations currently in the mdp_matrix table.<br><br>This information can be useful in helping you to set SimMaxSize and SimWarnSize.                                                                                                 |

You should run some trial simulations on the solution hardware and set threshold values that are appropriate for the actual users.

## Solution Branding

The following parameters control titles throughout the Demantra solution:

| Parameter              | Description                                                                                                                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| company.name           | Name of your company; the Workflow Engine uses this string in email when a workflow step fails.                                                                                                         |
| general.homepage.title | Title of the Collaborator Workbench home page, as used within the Collaborator Workbench title bar, as follows:<br> |

| Parameter          | Description                                                                        |
|--------------------|------------------------------------------------------------------------------------|
| general.title.text | Title of the browser window when it displays Collaborator Workbench. For example:  |
|                    |  |

## Threading

Demantra uses threading mechanisms in multiple places. Threading is a general mechanism that uses system resources more effectively to run several tasks in parallel.

- "Threading for the Attribute Update Mechanism"
- "Threading for the Update Mechanism"
- "Threading for Updating Parallel Values"
- "Threading for Promotion Copy/Paste"
- "Threading for Methods"
- "Threading in the Web Worksheets"
- "Threading in the Business Logic Engine"

### Threading for the Attribute Update Mechanism

This thread pool uses the following parameters:

| Parameter                            | Description                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------------------|
| threadpool.attributesUpdate.per_comb | Maximum number of threads that a single thread can use.                                            |
| threadpool.attributesUpdate.size     | Maximum number of allowed threads for this thread pool. This should be less than MaxDBConnections. |

| Parameter                           | Description                                                                                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| threadpool.attributesUpdate.timeout | Idle timeout period. This specifies how long (in milliseconds) a thread is left unused before it is ended automatically. |

### Threading for the Update Mechanism

The update mechanism saves data to the database. This thread pool uses the following parameters:

| Parameter           | Description                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| MaxUpdateThreads    | Maximum number of allowed threads for the update mechanism. You should set this equal to the number of database server CPUs plus 1. |
| UpdateThreadTimeout | Idle timeout period. This specifies how long (in milliseconds) a thread is left unused before it is ended automatically.            |

### Threading for Updating Parallel Values

This thread pool uses the following parameters:

| Parameter                 | Description                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------|
| threadpool.update.size    | Maximum number of allowed threads for this thread pool. This should be less than MaxDBConnections.                       |
| threadpool.update.timeout | Idle timeout period. This specifies how long (in milliseconds) a thread is left unused before it is ended automatically. |

### Threading for Promotion Copy/Paste

Another thread pool handles copying and pasting promotions. This thread pool uses the following parameters:

| Parameter                         | Description                                                                                                                         |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| threadpool.copy_paste.per_process | Maximum number of allowed threads for the copy/paste mechanism in any given process.                                                |
| threadpool.copy_paste.size        | Maximum number of allowed threads for the copy/paste mechanism. This should be less than MaxDBConnections.                          |
| threadpool.copy_paste.timeout     | Idle timeout period. This specifies how long (in milliseconds) a copy/paste thread is left unused before it is ended automatically. |

### Threading for Methods

Another thread pool handles level methods. This thread pool uses the following parameters:

| Parameter                       | Description                                                                                                                                                      |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| threadpool.level_method.size    | Maximum number of allowed threads for methods. This should be less than MaxDBConnections.                                                                        |
| threadpool.level_method.timeout | Idle timeout period. This specifies how long (in milliseconds) a method thread is left unused before it is ended automatically. Recommended: 300000 (5 minutes). |
| threadpool.level_method.block   | Specifies how the level methods should access this thread pool, either:<br><br>wait (wait for a free thread)<br><br>abort (do not wait for a free thread)        |

### Threading in the Web Worksheets

The Web worksheets also use threading

| Parameter                    | Description                                                                                                                                                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| threadpool.query_run.size    | Maximum number of allowed threads that Demantra can use to run a Web worksheet. If this number is missing or negative, the worksheet run mechanism does not use threads.<br><br>This should be less than MaxDBConnections. Also be sure to leave room for system processes. |
| threadpool.query_run.timeout | Idle timeout period. This specifies how long (in milliseconds) a worksheet thread is left unused before it is ended automatically.                                                                                                                                          |

### Threading in the Business Logic Engine

The Business Logic Engine uses threading as follows: The thread pool specifies the number of parallel BLE tasks, each of which loads a different combination of the worksheet, runs the calculation engine on it, and saves the data back to the database. The number of threads in the pool is affected by the system resources, mainly the number of CPUs that the machine has (each thread runs on a different CPU). The following parameters control this threading mechanism:

| Parameter         | Description                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------------------|
| BLEThreadPoolSize | Maximum number of allowed threads for the Business Logic Engine.                                                             |
| BLETimeOut        | Idle timeout period. This specifies how long (in milliseconds) a BLE thread is left unused before it is ended automatically. |

## Workflow

The following parameters control the Workflow module:

| Parameter    | Description                                                                                     |
|--------------|-------------------------------------------------------------------------------------------------|
| company.name | Name of your company; the Workflow Engine uses this string in email when a workflow step fails. |

| Parameter         | Description                                                                                                                                                                                                                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| execution.shell   | Applies to the Executable Step. This parameter specifies any prefix that is needed in order to run executable steps. For example, you may need to specify the following for Unix:<br><br>./                                                                                                                      |
| log.history       | The number of days for which workflow history is kept.                                                                                                                                                                                                                                                           |
| server.generalurl | URL for the workflow server, not including the portal/workflow directory.                                                                                                                                                                                                                                        |
| workflow.group    | Comma-separated list of groups whose users are authorized to log into the Workflow Editor. Use the group names as specified in the Business Modeler.<br><br>In order to log into the Workflow Editor, these users also must have System Manager permission level. See "Providing Access to the Workflow Editor". |

See also

"Solution Branding" "Collaborator Workbench" "Email"

## Worksheets

The following parameters affect the Web-based worksheets. They are grouped into several areas:

- "General Worksheet Behavior"
- "Worksheet Applet Download"
- "Worksheet Performance"
- "Worksheet Designer"

For another way to improve performance, see also "Managing Level Caching".

### General Worksheet Behavior

The following parameters control the default behavior of the Web-based worksheets

| Parameter                            | Description                                                                                                                                                                                                                             |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AutoRunMode                          | Specifies whether a worksheet automatically reruns after any change in its definition. This parameter also specifies whether a worksheet is automatically run when it is opened in any way.                                             |
| client.enableOpenNoteWithDoubleClick | <p>Specifies whether users can access the notes dialog box by double-clicking within the worksheet table.</p> <p>In any case, it is always possible to access this dialog box by using the right-click menu, as in Microsoft Excel.</p> |

### Worksheet Applet Download

The following parameters control how the Web-based worksheet applet is downloaded:

| Parameter                 | Description                                                                                                                                                                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client.activationMethod   | <p>Specifies how the Web client (Demand Planner Web, Promotion Effectiveness, or Settlement Management) will be started, by using either the Sun Java Plug-in or Java Web Start.</p> <p>With Java Web Start, you can log into different Demantra versions, and Java correctly manages the Demantra jar files so that you do not have collisions.</p> |
| javaPlugin.downloadUrl    | <p>URL of the folder from which the Java plugin is downloaded. This parameter specified during the installation.</p> <p>The property allows you to direct the plugin download to other locations outside the application folder, if necessary. This approach, however, is not recommended.</p>                                                       |
| client.javaPlugin.version | Specifies the version of the Java plugin to use for all client machines. If you change this version, also place the installer for the appropriate JRE into the Demantra_root/Collaborator/virtual_directory/plugin directory on the server machine.                                                                                                  |

### Worksheet Performance

The following parameters affect the performance of the Web client:

| Parameter                    | Description                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ClientDDCacheCapacity        | Specifies the maximum number of distinct dropdown lists per worksheet that any client should cache. These caches are cleared when the worksheet is closed.                                                                                                                                                                                                                                            |
| EnableWorksheetCaching       | Enables or disables the worksheet caching feature.                                                                                                                                                                                                                                                                                                                                                    |
| EnableIncrementalLoading     | Enables the Demantra incremental loading feature, for faster worksheet reruns. There is no user impact apart from performance.                                                                                                                                                                                                                                                                        |
| client.JREMaxMemory          | Maximum amount of memory (in MB) that JRE can use. The Web worksheets (Demand Planner Web, Promotion Effectiveness, and Settlement Management) use JRE.                                                                                                                                                                                                                                               |
| client.MaxCombsLoadChunkSize | Maximum number of combinations to load each time the user clicks the green "load now" button in a worksheet.                                                                                                                                                                                                                                                                                          |
| UseDateRangeMatrix           | <p>Controls whether the system will use new internal data structures to improve the performance of worksheets that include promotions (or other general levels that have population attributes). If you enable this option, the largest benefit occurs in cases where promotions are long (and have many rows of data).</p> <p>The system uses these structures automatically for other purposes.</p> |

### Worksheet Designer

The following parameters control the defaults in the worksheet/content designer

| Parameter       | Description                                                                               |
|-----------------|-------------------------------------------------------------------------------------------|
| OpenWithContext | Specifies the default setting of the Open With Context setting of the worksheet designer. |

| Parameter                          | Description                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client.worksheet.privateAccessType | Specifies the default setting of the public/private option in the worksheet designer.                                                                                                                                                                                                                                                   |
| WorksheetDefaultDateChoiceMethod   | Controls the default start date for worksheets, either relative to today or relative to last loaded sales date.                                                                                                                                                                                                                         |
| WorksheetDefaultSpan               | Specifies the default length of time for a worksheet, in base time units. Must be a positive, even number, 2 or greater.                                                                                                                                                                                                                |
| ManualRefreshAsDefault             | Specifies the default setting of the Refresh Type caching option in the worksheet designer.                                                                                                                                                                                                                                             |
| WorksheetCachingAsDefault          | Specifies the default setting of the Cache Worksheet Data check box in the worksheet designer.                                                                                                                                                                                                                                          |
| PromoDefaultSpan                   | Specifies the default length of time for promotions created within a worksheet.                                                                                                                                                                                                                                                         |
| PromoDefaultStart                  | <p>Specifies the default start date for promotions created within a worksheet. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• today (0)</li> <li>• last loaded sales date (1)</li> <li>• start date of the worksheet (2)</li> </ul>                                                                      |
| MaxAvailableFilterMembers          | <p>Specifies the maximum number of members that can be retrieved in the worksheet filter screen. If the user selects more members than allowed, a message asks the user to add further filtering.</p> <p>This limit helps to prevent users from creating worksheets with too many members (which can adversely affect performance).</p> |

See also

"Collaborator Workbench"



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## Customizing Demantra Web Pages

This chapter describes how to customize the Demantra Web pages.

This chapter covers the following topics:

- Logging onto the Collaborator Workbench Administrator
- Configuring Menus in Collaborator Workbench
- Running Oracle Executables from Collaborator Menus
- Configuring the Panes
- Specifying Content Pane Security
- Replacing Default Demantra Graphics
- Customizing the Collaborator Workbench Login Page
- Configuring Links in Collaborator Workbench

### Logging onto the Collaborator Workbench Administrator

You use the Collaborator Workbench Administrator to control access to menu items.

#### **To log onto the Collaborator Workbench Administrator:**

1. Open the administration login page:

`http://server name/virtual directory/portal/adminLogin.jsp`

For example:

`http://frodo/demantra/portal/adminLogin.jsp`

2. Enter the user name and password and click Log on.

Demantra displays the Administration page, which includes the following choices:

[Define Menus](#)  
[Define Program Groups](#)  
[Define Program Permissions](#)  
[Define Content Security](#)  
[Default Pane Layout](#)  
  
[Logout](#)  
[Login to Collaborator Workbench](#)  
[Login to Demantra Anywhere](#)

See also

"Customizing Demantra Web Pages"

## Configuring Menus in Collaborator Workbench

You can configure the Planning Applications and Tools and Applications menus, which are in the tool bar at the top of the Collaborator Workbench page.

### To configure Collaborator Workbench menus:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".
2. Click Define Menus.

The system displays a page showing the current contents of Planning Applications and Tools and Applications menus:

| "Planning Applications" menu bar  |                     |                                                |
|-----------------------------------|---------------------|------------------------------------------------|
| "Desktop" group                   |                     |                                                |
|                                   | Item Title          | Description                                    |
| <input type="checkbox"/>          | Demand Replenisher  | Demand Replenisher                             |
| <input type="checkbox"/>          | Demand Planner      | Demand planning software                       |
| <input type="checkbox"/>          | Member Management   | Demand planning software - member management   |
| <input type="checkbox"/>          | Chaining Management | Demand planning software - chaining management |
| <input type="checkbox"/>          | Business Modeler    | Business Modeler                               |
| "Tools and Applications" menu bar |                     |                                                |
| "Web Links" group                 |                     |                                                |
|                                   | Item Title          | Description                                    |
| <input type="checkbox"/>          | Demantra Web Site   | Demantra Web Site                              |
| <input type="checkbox"/>          | Workflow            | Workflow                                       |

#### To add a menu item:

1. Within either the Planning Applications or Tools and Applications section, click the Add button.

A page appears prompting you for information about the item to add.

**\* Item title:** Demantra Fulfillment

**Description:** Demantra Fulfillment

SPM410.exe

**\* Program:** Browse...

**Parameters:** /autologin userid=dp pwd=dp

**Type:** Program Initiation

**\* - Mandatory fields**

Cancel OK

2. In the Item Title field, specify the title of the menu item as it should appear in the menu.
3. For Type, choose one of the following options:

---

|                       |                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------|
| Planning Applications | Starts a Demantra desktop product.                                                                                      |
| Program Initiation    | Starts an ordinary executable.                                                                                          |
| Web link              | Opens a Web page.                                                                                                       |
| Encrypted User/PWD    | Starts a product with encrypted user name and password. Do not use for a product installed on a Citrix Metafile server. |
| Special Citrix        | Starts a product installed on the Citrix Metafile server. Sends an encrypted user name and password.                    |

---

4. Complete the rest of the fields as follows:

---

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description | Optional description of this menu item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Program     | <p>Path and filename of a file to be executed. This field is hidden if the type is Web link.</p> <p>See "Running Oracle Executables from Collaborator Menus" for options.</p>                                                                                                                                                                                                                                                                                                                                       |
| Target      | A URL. This field is visible only if the type is Web link.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Parameters  | <p>Any command line arguments that the executable file accepts. For example, suppose that the executable is SPM.exe and it accepts arguments to bypass the login, as follows:</p> <p><i>SPM.exe /autologin userid=username pwd=password</i></p> <p>In this case, specify Program as SPM.exe and use the following parameter string:</p> <p><i>/autologin userid=username pwd=password</i></p> <p>For the syntax to run specific Demantra executables, see "Running Oracle Executables from Collaborator Menus".</p> |

---

5. Click OK to close the popup page and save your changes.

#### **To edit a menu item:**

1. Check the check box next to the menu item.
2. Click the Edit button.  
A page appears prompting you for information about the item to change.
3. Complete the fields as in "To add a menu item".
4. Click OK to close the popup page and save your changes.

#### **To delete a menu item:**

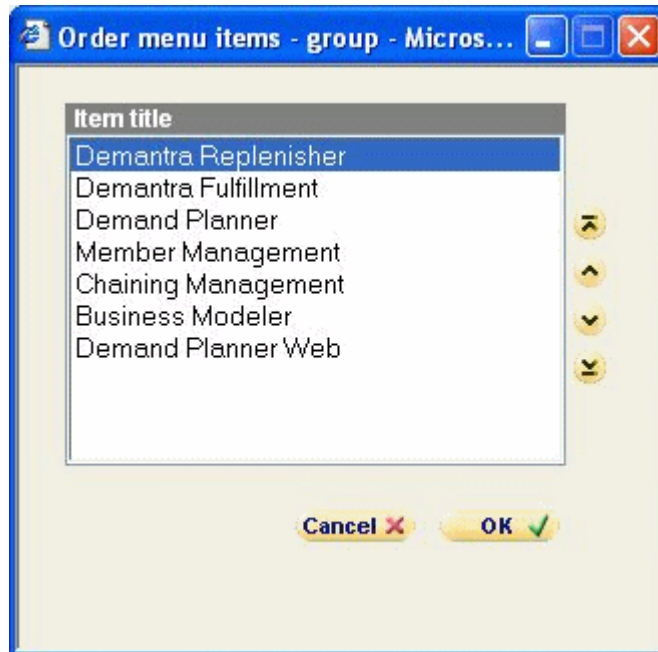
1. Check the check box next to the menu item.
2. Click the Delete button.  
A warning message appears.

3. Click OK to confirm the deletion.

**To change the order of the items in a menu:**

1. In the section corresponding to that menu, click the Order button.

The system displays a popup page where you can change the order of the items.



2. Select an item and click an arrow button to move the item up or down in the list.
3. When you are done, click OK.

See also

"Running Oracle Executables from Collaborator Menus"

## Running Oracle Executables from Collaborator Menus

When you configure the Planning Applications and Tools and Applications menus, you typically add menu items that launch Demantra executables.

This section lists the basic syntax needed in common situations.

| Executable to launch                                 | Settings to use in Menu Item dialog box*                             |                                                                                                                                                                                                                           |
|------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | Program                                                              | Parameters/Notes                                                                                                                                                                                                          |
| Member Management                                    | Path and filename of the dp.exe file in your installation            | tools?member management                                                                                                                                                                                                   |
| Chaining Management                                  | Path and filename of the dp.exe file in your installation            | tools?chaining management                                                                                                                                                                                                 |
| Demand Planner, bypassing login screen               | Path and filename of the dp.exe file in your installation            | /autologin userid= <i>user</i> pwd= <i>password</i><br><br>Here <i>user</i> is the user ID and <i>password</i> is the corresponding password.                                                                             |
| Promotion Effectiveness Analytical Engine            | Path and filename of the EngineManager.exe file in your installation | <i>mode profile_ID</i><br><br>Here, <i>mode</i> is either:<br><br>1=batch mode<br><br>99=simulation<br><br>And <i>profile_ID</i> specifies the engine profile to use. For additional parameters, see "Engine Parameters". |
| *In all cases, Type should be Planning Applications. |                                                                      |                                                                                                                                                                                                                           |

For information on how to add menu items to Collaborator Workbench, see "Configuring Menus in Collaborator Workbench."

## Configuring the Panes

### To specify your pane configuration:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".

Oracle Demantra displays the Administration page, which includes the following choices:

[Define Menus](#)  
[Define Program Groups](#)  
[Define Program Permissions](#)  
[Define Content Security](#)  
[Default Pane Layout](#)  
  
[Logout](#)  
[Login to Collaborator Workbench](#)  
[Login to Demantra Anywhere](#)

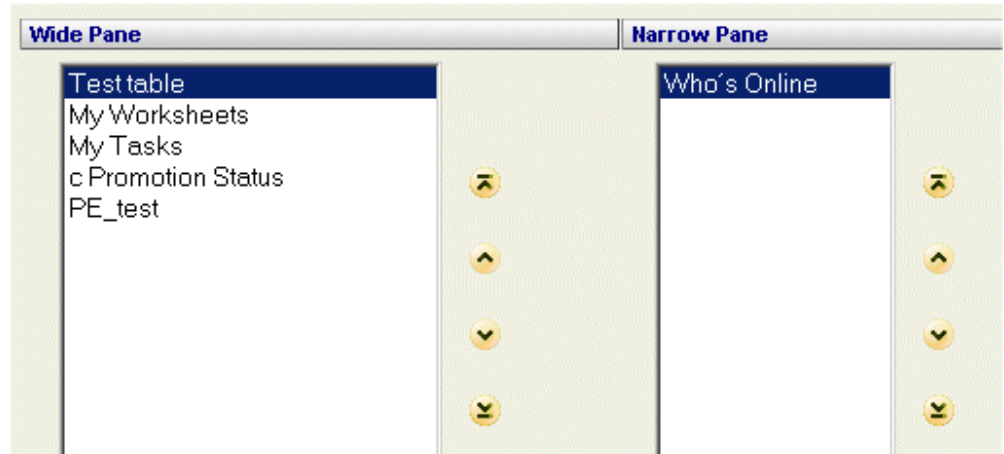
2. Click Default Pane Layout.

The Personalize - Modules page appears. This page contains two lists: one for items that can be displayed in the wide pane and one for items that can be displayed in the narrow pane.

| Wide Pane                                                                                                                                                                                                                                                                                                                                                                                                                  | Narrow Pane                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Select All</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> c. Revenue per Regional Manager</li><li><input checked="" type="checkbox"/> My Worksheets</li><li><input checked="" type="checkbox"/> My Tasks</li><li><input checked="" type="checkbox"/> c Promotion Status</li><li><input checked="" type="checkbox"/> PE_test</li><li><input checked="" type="checkbox"/> Test table</li></ul> | <p><b>Select All</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> c. 12 Months Revenue by Region</li><li><input checked="" type="checkbox"/> Who's Online</li><li><input type="checkbox"/> c. MY Private Label SKU</li></ul> |

These lists include the following:

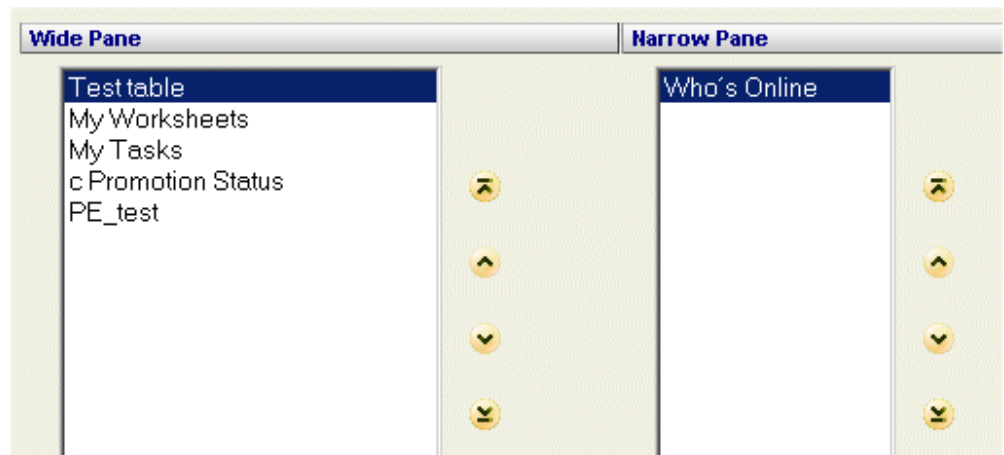
- My Tasks and My Worksheets, which can be displayed only in the wide pane
- Who's Online, which can be displayed only in the narrow pane
- Worksheets that have been defined as content and to which you have access. When a worksheet is defined as content, it is defined as belonging to the wide pane or the narrow pane.



3. In each list, use the check boxes to select or deselect the modules that you want to see.

4. Click Next.

The Personalize - Order page appears. Like the previous page, this page has one list for the wide pane and one for the narrow pane.



5. Select a module and then click the up or down buttons to change its position in the list.

The order here is the order in which these modules are shown in Collaborator Workbench.

6. Click Next.

The next page summarizes your choices. You can return to the previous pages to make further alterations.

7. Click Finish to save your changes. Or click Back to go back to the previous pages.

See also

"Specifying Content Pane Security"

## Specifying Content Pane Security

You can control access to the different Collaborator Workbench panes (My Tasks, My Worksheets, and Who's Online).

### To specify access to Collaborator Workbench panes:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".

The Administration page appears.

2. Click Define Content Security.

The system displays a table with one row for each user. Here you specify which panes to make available to each user.

|              | My Tasks                            | My Worksheets                       | Who's Online                        |
|--------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ...          | Select All                          | Select All                          | Select All                          |
| Abby_Rose    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Bill         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Bill_Feldman | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| dp           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| ERP          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Guy_Cabotini | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Guy_Vidlov   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Jeff_Wilson  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Maria_C      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Mike_Kim     | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Misty        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Sharon_Crean | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |

3. Do one of the following:

- Check the check box for a pane to grant user access to the user.
- Clear the check box for a pane to deny access to the user.

4. Click Finish.

See also

"Configuring the Pane Configuration"

## Replacing Default Demantra Graphics

The Web-based Demantra products contain default images that you can replace with

your organization's own designs. To do so, just back up the default images and substitute your own image files, giving them the same filenames as listed here.

The graphic files are in the following directory:

*Demantra\_root/Collaborator/portal/images*

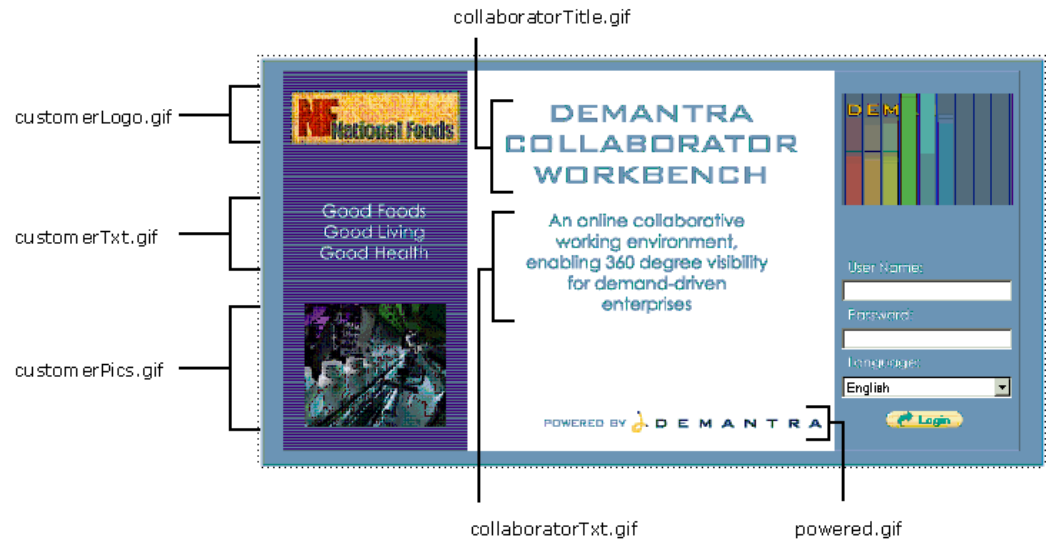
You can replace any of the graphics files in this directory. If you replace the default graphics with other graphics that have the same width and height, those graphics will fit on the page without the need for any further editing. If your graphics files have different dimensions, you may need to edit the corresponding page to accommodate them.

### Collaborator Workbench Splash Screen

The splash screen uses the graphic collaborator\_splash.gif.

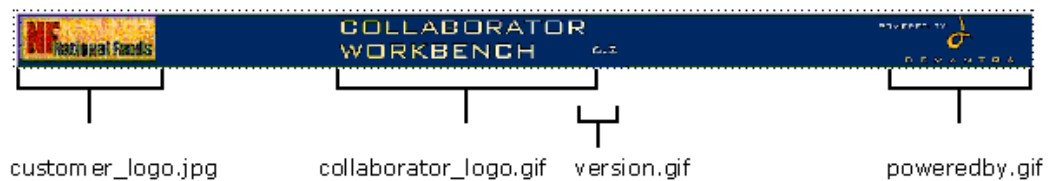
### Collaborator Workbench Login Page

On the login page, the most commonly replaced images are the following:



### Collaborator Workbench Main Page

On the main page, the most commonly replaced images are as follows:



## Customizing the Collaborator Workbench Login Page

The login page is `Demantra_root/Collaborator/portal/loginpage.jsp`

You can edit this page and you can redesign the layout and design as you wish.

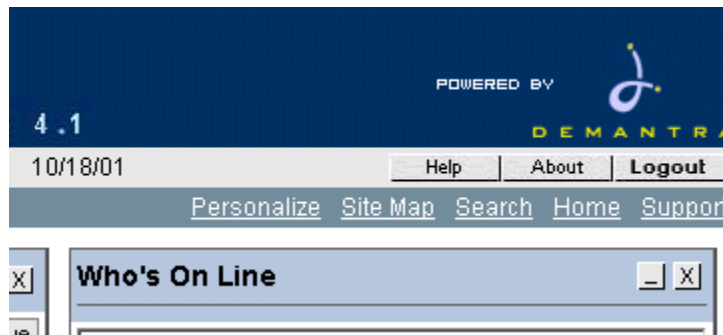
**Caution:** A basic knowledge of HTML is required to perform this task.

However, the following code must be retained, because this provides the login functionality:

```
<TD>
<!-- The login area (username, password, language, login)--> <%@ include
file="loginarea.jsp" %>
\</TD>
```

## Configuring Links in Collaborator Workbench

The main Collaborator Workbench page provides a set of default links, some of which are configurable. These links are located on the second toolbar.



To configure these links, edit the file `secondbar.jsp`.

**Caution:** A basic knowledge of HTML is required to perform this task.

Links can be added, but the layout of the page must not be changed. Configurable links are marked by `href = "#"`.

Link	Comments
Personalize	Must not be changed. Vital functionality depends on this link

Link	Comments
Site Map	This is an empty link that can be customized or removed as required.
Search	This is an empty link that can be customized or removed as required.
Home	This performs a logout and redirects to the login page. This would typically be reconfigured to link to the customers' home page.
Support	This is an empty link that can be customized or removed as required. This would typically be used to provide an email link to the webmaster.

Also see "Collaborator Workbench".



---

## Configuring Rolling Data

This chapter describes how to roll selected data, saving a copy of the current version of that data.

This chapter covers the following topics:

- About Rolling Data
- Creating or Modifying Rolling Data Profiles
- Executing Rolling Data Profiles

### About Rolling Data

It is often useful to be able to see older data and possibly compare it with the current data. In the case of forecasts, the Analytical Engine automatically saves older versions. If you need access to older versions of *other* data, however, you must explicitly instruct Demantra to save the data.

To do so, you use the Business Modeler to make a copy of the original data (usually a series) for later use. You define one or more *rolling data profiles*, each of which associates a source series (or a server expression) with a target series.

- The target series must already exist.
- The target series should usually be configured almost the same way as the source series (except for the hint message and so on). See "Creating a New Series Based on an Existing Series."
- The target series must have an update field in the same table as the source series; see "Specifying Data Properties of a Series."
- You can use any kind of series (numeric, date, or string), but the target and source series must be of the same type.

Then you configure a *rolling data session*, which specifies a set of rolling data profiles to run. The rolling data session specifies which profiles are active.

You can execute the active profiles from within the Business Modeler or from a workflow.

## Creating or Modifying Rolling Data Profiles

### To create or modify a rolling data profile:

1. Select Engine > Rolling Data.

The Rolling Data screen appears.

The screenshot shows the 'Rolling Data' window. On the left, a 'Profiles' list contains 'Rolling Profile Test' with a checkmark. The main area shows the configuration for this profile: 'Profile Name' is 'Rolling Profile Test', 'Profile Description' is 'Copy data from test-base to test-archive'. Under 'Source', 'Series' is selected with 'test-base' in the dropdown, and 'Source's Period' is 'History & Forecast'. Under 'Target', 'Series Name' is 'test-archive'. At the bottom are buttons: Close, Save, Refresh, Delete, Insert, Configure Session..., and Execute.

2. Do one of the following:
  - To select an existing profile, click the profile in the Profiles list.
  - To create a new profile, click Insert.

The screen displays a check mark next to the profile that you are editing.

3. Type a unique name and an optional description for the profile.
4. In the Source area, do one of the following:
  - Select a source series from the Series dropdown list.

**Note:** If the server expression for the series uses the round function, note that the rounding occurs before the data is rolled

forward. In this case, you might have slight errors at aggregated levels.

- Type a server expression into the Server Expression field. In this case, click Verify Expression to check the expression. The expression must be an aggregating SQL expression; see "Syntax of Server Expressions".
5. Specify the period association of this data source by selecting an option from Source's Period.
  6. In the Target area, select a series from the Series Name dropdown box. Make sure that the target series is of the same data type as the source series or the source expression.
  7. Click Save.

**To delete a rolling data profile:**

1. Click the profile in the Profiles list.
2. Click Delete.
3. Click OK to confirm the deletion.

See also

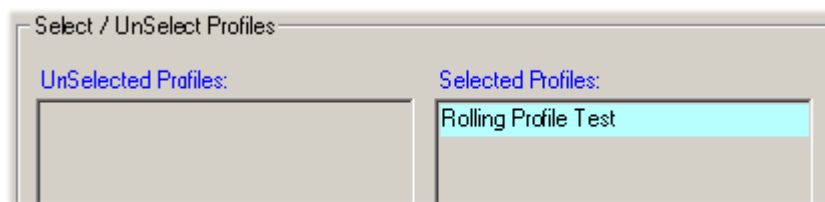
"About Rolling Data"

## Executing Rolling Data Profiles

**To specify the active rolling data profiles:**

1. Select Engine > Rolling Data.
2. Click Configure.

The Configure Rolling Session screen appears.



3. To include a profile to run, drag it from the left list to the right list. Or to exclude a profile from the next session, drag it from the right list to the left list.
4. To change the order in which the profiles should be executed, drag the profiles up or down within the left list as required.
5. Click Save.

### **To execute the active rolling data profiles:**

You can execute the active profiles in several different ways:

- You can execute the active profiles from within the Business Modeler. To do so, select Engine > Rolling Data. Then click Execute. Demantra immediately starts running the profiles that are currently listed in the Configure Rolling Session window.
- You run the EXECUTE\_PROFILES procedure from within a workflow.
- You can run the INSERT\_UNITS procedure. Depending on the value of the RunInsertUnits engine parameter, this procedure runs the EXECUTE\_PROFILES procedure.

In any case, they are executed in the order in which they are listed in the Configure Rolling Session dialog box. For each active profile, Business Modeler copies the source data into the target series. Data for any given time bucket is copied into the same time bucket in the target series.

See also

"About Rolling Data"

"Preparing the Database"

---

## Performing Constraint Profit Optimization

This chapter describes how to use the Constraint Profit Optimizer.

This chapter covers the following topics:

- About Constraint Profit Optimization
- Creating or Modifying an Optimization Profile
- Deleting a Constraint Optimization Profile
- Running a Constraint Optimization Profile

### About Constraint Profit Optimization

Within the Business Modeler, the Constraint Profit Optimizer enables distributors and retailers to make the most effective use of available storage and display space throughout the supply chain. Demand forecasts for specific products are linked to space available, stock on hand, predetermined minimum and maximum levels, and profit scales to calculate the most profitable mix of products.

**Note:** In this example, a retail store is given as an example. However, constraint profit optimization can be applied to any stage of the supply chain, such as warehouses and distribution centers.

To achieve the best plan in a retail environment, it may be necessary to consider the following restraints, in addition to sales data and causal factors:

- Available space in store fixtures
- Available space in the store altogether
- Minimum and maximum facing required for a particular product in the store

The Constraint Profit Optimizer identifies sale opportunities, and fills the existing shelf space with products that have the highest probability of selling.

If the Optimizer discovers that a store has available or badly exploited shelf space, an alert is displayed. For example, if the minimum predetermined quantity for a product in a particular store is 10, but the Optimizer calculates its optimized inventory to be 3, the user is alerted. Similarly, an alert will be displayed if the maximum predetermined quantity for a product is 15 but the optimized inventory is calculated as 20.

The Optimizer considers the profitability of the products (not service levels). For each item, the client must give a figure on a scale of one to ten.

The system uses constraint dimensions (for example display/storage space) and a mix dimensions (for example item).

If a shelf has space which is less than can hold the maximum amounts for each product, so the Optimizer will determine the optimum stocking levels for maximum profit.

When the stock level reaches the maximum number for the most profitable product, the system then starts stocking the next profitable product.

## Creating or Modifying an Optimization Profile

You can create and save any number of optimization profiles.

### **To create or modify an optimization profile:**

1. Select Parameters > Constraint Optimization.

The Constraint Profit Optimization Wizard appears.

2. Do one of the following:

- To create new profile, click the New Optimization Profile button.
- To modify a profile, click the profile button.


The New Optimization Profile - Details screen appears

3. Type a name and optional description for the profile.
4. Click Next.

The Time and Analytical Selections screen appears.

**Time Selection**

Time Mode:
☒ Relative
☐ Fixed

Start Date:


Start After:

Lead:

**Analytical**

Bounded:

Include Stock:
☒ No
☐ Yes

Statistical Model:
☐ Poisson
☒ Normal

Update Review Flag: ☒
Use Prediction Status Constraint: ☒

Created By: dp

Created On: 5/7/2003 12:29:14

Last Modified On: 5/12/2003 14:35:54

5. Complete the fields as follows.

Time Mode	Choose one of the following: <ul style="list-style-type: none"> <li>Relative—specifies the time relative to the date of execution.</li> <li>Fixed—specifies a fixed span of time, starting with the Start Date field and spans the periods specified in the Lead field</li> </ul>
Start Date	Select a date for the optimization process to calculate from.
Start After	Specify the number of time buckets after which to start the optimization relative to execution date. For example, if the number is 2 and the day of execution is today, then the optimization output will be calculated starting from 2 days from today.
Lead	Specify the number of time buckets to use in the optimization process.

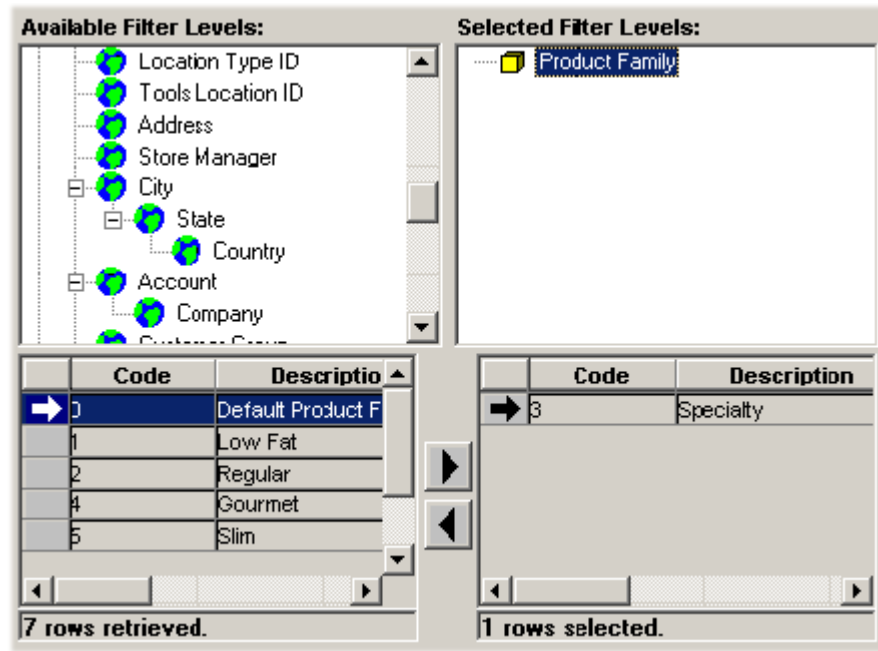
---

Bounding	<p>Choose one of the following:</p> <ul style="list-style-type: none"> <li>• Bounded—Calculates the optimal stock according to both the constraint on space and product boundaries (min and max).</li> <li>• Unbounded—Calculate optimal stock according to the constraint on space only.</li> <li>• Both—Calculates optimal stock according to both options above.</li> </ul>
Include Stock	Specifies whether to include existing stock levels in the calculation.
Statistical Model	<p>Choose one of the following:</p> <ul style="list-style-type: none"> <li>• Normal—Recommended when there is a large amount of data.</li> <li>• Poisson—Recommended when there is a limited amount of data.</li> </ul>
Update Review Flag	If this option is checked, the profile updates the review flags for the combinations. If you are not using these flags, uncheck this option for better performance.
Use Prediction Status Constraint	If this option is checked, the profile considers only those combinations that have prediction_status equal to 1 (live combinations).

---

**6.** Click Next.

The Populations screen appears.



It is generally a good idea to specify the scope of the optimization by filtering the data. By doing so, you increase performance; otherwise the optimization process will run on the whole database.

7. Double-click a level in the Available Filter Levels box.

The selected level appears in the Selected Filter Levels box.

The bottom left side of the screen, below Available Filter Levels, now displays members that the optimization will run on.

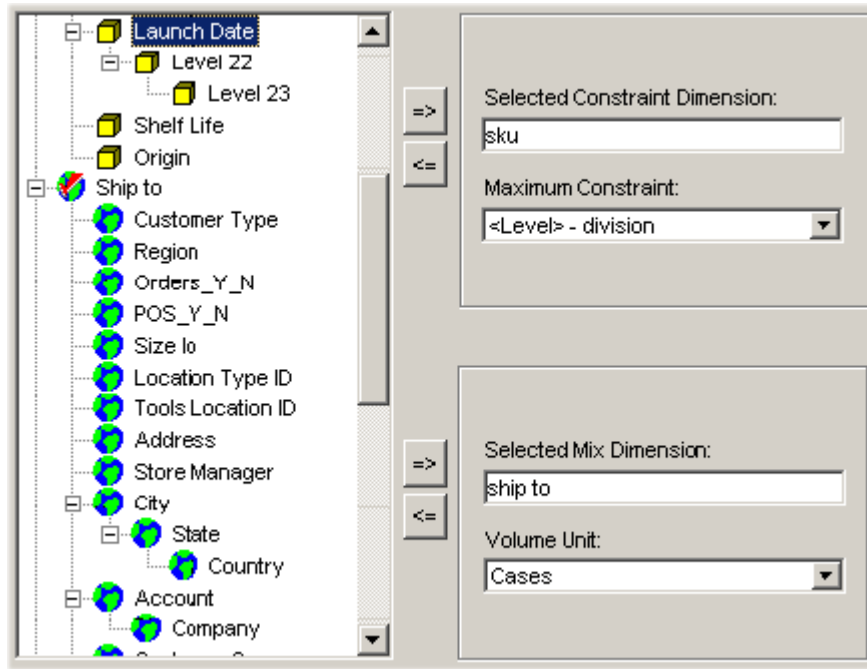
8. Click a member in the list, and then click the right arrow button. Or double-click the member you want to remove from the optimization process.

Business Modeler moves the selected values to the members list under the Selected Filter Levels box.

**Note:** The right list cannot include more than 200 members.

9. Continue filtering the data. When you are done filtering, click Next.

The Base Dimensions screen appears.



10. Complete the fields as follows.

Maximum Constraint	Select a level or mdp_matrix series.
Volume Unit	The unit used to measure the items.

11. Click Next.

The Input/Output Mapping screen appears.

Bounds Series	Minimum Constraint:	Min Amount
	Maximum Constraint:	Max Amount
Profit Scale:		Profit Scale
Tolerance:		Tolerance
Initial Stock:		Stock
Bounded:		Bounded
Unbound:		Unbounded
Review Flag:		Review Flag
Review Amount:		Review Amount
Free Space:		1406
Forecast:		fore_minus_0
Variance:		VARIANCE

12. Here you specify the series containing the input and output data.

Complete the fields (input series) as follows. Be sure to use only numeric series, not string or date series:

---

Bounds Minimum Constraint	The lower boundary constraint
Bounds Maximum Constraint	The upper boundary constraint.
Profit Scale	A customer defined scale of numbers specifying profitability.
Tolerance	Every time an item is added to the shelf, its profitability is reduced. This specifies the lowest boundary of profitability.
Initial Stock	Stock at start of optimization process.

---

13. Complete the field (output series) as follows:

---

Free Space	Available display/storage space.
------------	----------------------------------

---

14. Click Finish. Or to exit without saving, click Exit.

15. Click Execute to execute the optimization profile.

## Deleting a Constraint Optimization Profile

### To delete a constraint profit optimization profile:

1. In Business Modeler, navigate:  
Select Parameters > Constraint Optimization.  
The Constraint Profit Optimization Wizard appears.
2. Click an existing profile.
3. Click Delete.

## Running a Constraint Optimization Profile

### To run a constraint profit optimization profile:

1. In Business Modeler, navigate:  
Select Parameters > Constraint Optimization.  
The Constraint Profit Optimization Wizard appears.
2. Click an existing profile.
3. Click Execute.
  - In the Workflow Manager, execute the optimization programmatically. Specifically, create an executable step (within a workflow) that executes the optimization program.
  - Create a workflow to call the optimization executable, passing a parameter string that is the name of the constraint optimization profile.

**Note:** Depending on your options, the Constraint Profit Optimizer can affect only combinations that have a prediction status equal to 1 (live).

# Part 6

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## Configuring and Running the Analytical Engine



---

## Introduction to the Analytical Engine

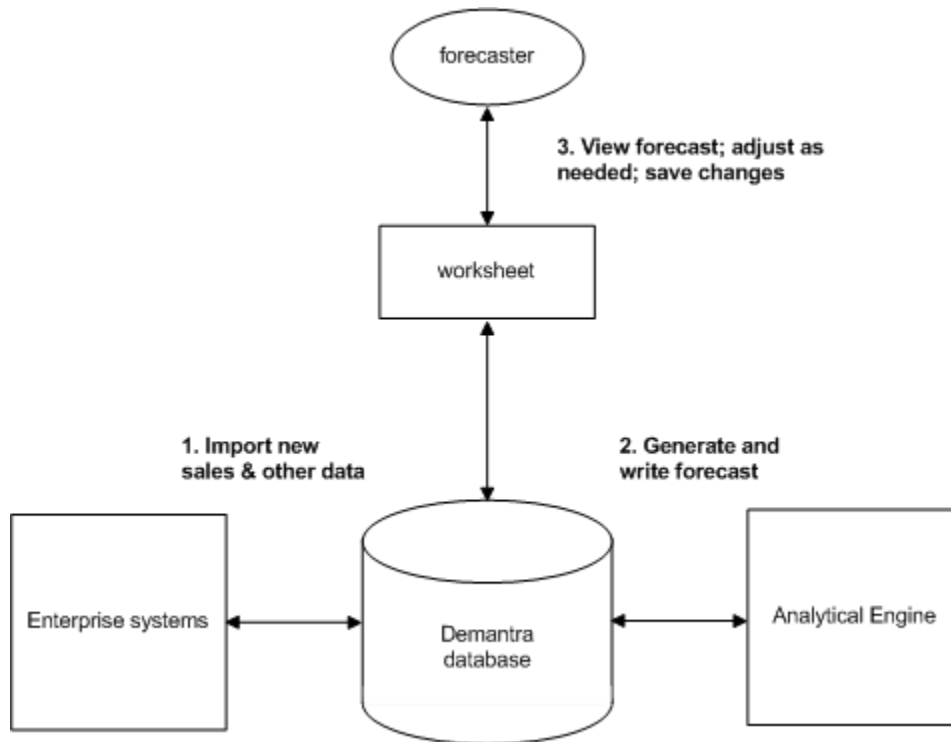
This chapter covers the following topics:

- Overview
- Engine Modes: DP and PE
- What the Engine Does
- Batch and Simulation Modes
- Engine Profiles
- Illegal Characters in Demantra

### Overview

The Oracle Analytical Engine is an advanced analytical engine capable of multi-dimensional forecasting with mixed modeling techniques. The system is designed for large-scale installations handling analysis and modeling of tens to hundreds of thousands of different demand patterns.

The following figure shows an overview of how a Demantra solution uses the Analytical Engine:



Within a Demantra solution, the Analytical Engine runs periodically (in the background), reading data from the Demantra database and generating forecast data. The forecaster uses a worksheet to view the forecast and make adjustments, saving those changes to the database. The updated forecast is available to all users with the appropriate authorization.

The preceding figure is not meant to show hardware configuration, which is discussed in the Oracle Demantra Installation Guide, rather than in this manual. You should be aware, however, that the Analytical Engine can be used in a distributed mode. Specifically, your system may include the Distributed Engine, where the Analytical Engine is registered on multiple machines, all with access to the Demantra database. In this mode, the Analytical Engine automatically distributes its work across multiple machines simultaneously. This maximizes processing power and reduces bottlenecks. For details, see the Oracle Demantra Installation Guide and "Details of the Distributed Engine".

## Engine Modes: DP and PE

Oracle provides two different modes of the Analytical Engine:

- In PE mode, the engine is suitable for use with Promotion Effectiveness.
- In DP mode, the engine is suitable for use in demand planning applications.

## What the Engine Does

The Analytical Engine accesses the database and reads the historical demand and data from the causal factors (such as seasons, price changes, and specific events such as promotions [in the case of Promotion Effectiveness]). It then generates a forecast for all or specific item-location combinations. Wherever possible, it generates the forecast at the lowest possible allowed level (such as SKU-store). If necessary, it aggregates data so that it can generate a forecast at a higher level and split it to the lower level as needed. The forecast tree (which you configure) controls how the Analytical Engine aggregates and splits data when performing this task.

When working on a node of the forecast tree, the Analytical Engine uses a set of engine models, which are mathematical forecasting models. It considers how well each of those models works for that node and it statistically combines the best results, and generates the forecast from that. Advanced users may choose to adjust parameters that control how the individual models work; see "Theoretical Engine Models" for details on the models. Advanced users can also adjust how the Analytical Engine treats different nodes in the forecast tree.

In PE mode, the Analytical Engine also decomposes the forecast into the following:

- The baseline forecast (the forecast that would apply if no promotions were planned for the future)
- Direct effects (uplifts on item-location combinations due to promotions for those combinations).
- Switching effects (positive and negative effects on combinations due to promotions for other combinations)

See also

"Basic Concepts" "Engine Details"

## Batch and Simulation Modes

The Analytical Engine can run in two modes: batch and simulation.

- In batch mode, the Analytical Engine considers all the item-location combinations and generates a forecast for all of them (with a few exceptions, noted in the next chapter). In a typical implementation, the engine automatically runs in batch mode regularly, perhaps after new data is imported.
- In simulation mode, the Analytical Engine considers only a subset of the combinations. In this mode, the engine (called the Simulation Engine) waits for simulation requests and then processes them.

In simulation mode, a user runs a worksheet and submits a simulation request for

some or all of the combinations in it. The simulation request is processed in the background but generally fairly soon. When the simulation is done, Demantra alerts the user, who can then accept or reject the results.

In this mode, the user is usually performing a "what if" analysis. That is, he or she has made some changes within the worksheet and then performs the simulation to see whether those changes have the desired effect.

It is also possible to run simulations programmatically from within a workflow.

The Analytical Engine can run in only one mode at a time.

See also

"Comparison of Batch and Simulation Modes"

"Running the Engine from the Engine Administrator"

"Running the Engine from the Start Menu"

## Engine Profiles

The Analytical Engine supports engine profiles, which are sets of engine parameters with specific values. Demantra provides some predefined profiles for different purposes, and you can define additional engine profiles, as needed. When you run the Analytical Engine, you specify the engine profile to use.

## Illegal Characters in Demantra

Within Demantra, do not use the following special characters:

Single quote (')

Double quote (")

Ampersand (&)

If you use these characters, unexpected results may occur.

---

## Basic Concepts

This chapter covers the following topics:

- Overview of Forecasting
- Causal Factors
- Promotions (PE Mode Only)
- Forecasting Models and the Engine Flow
- The Forecast Tree
- Influence and Switching Effects (PE Mode Only)
- Combination-Specific Settings
- The Forecast Data

### Overview of Forecasting

The Analytical Engine generates a forecast that considers the historical demand and the causal factors.

In this process, the Analytical Engine calculates a set of *coefficients* that describe how each causal factor affects demand for each item-location combination, over time. The Analytical Engine then uses those coefficients, along with future values for the causal factors, to determine the forecast.

You do not see or work with the coefficients directly, but you may find it helpful to see the general equation to which they apply:

$$D = \text{constant} + A1*CF1 + A2*CF2 + A3*CF3 + \dots$$

Where:

- D is the demand for a specific combination.
- constant is the constant demand for that combination, independent of time.

- CF1, CF2, CF3, and so on are the causal factors in the system. Some of them are local and apply just to this combination; others are global. All of them vary with time.
- A1, A2, A3, and so on are the coefficients that the Analytical Engine calculates for this combination. These are the same for all dates.

Demantra uses an equation like this for each combination. The Analytical Engine solves all the equations simultaneously and calculates the coefficients, which it then uses to generate the forecast.

After the forecast is generated the following information may be available:

- Base forecast
- Lift Forecast
- Item node, Location node, and the Level ID for the forecast
- Models used successfully for the forecast
- Models, which the engine attempted to use for the forecast and failed
- How the forecast was generated
- Metrics demonstrating quality of the forecast

## Causal Factors

*Causal factors* provide information about historical events that are expected to recur in the future. Causal factors cause demand to deviate from a trend. More specifically, a causal factor is a time-varying quantity (such as price, season, or day of the week) that affects demand. Demantra requires historical data for causal factors, as well as future data that describes expected occurrences that will affect demand.

**Note:** The Analytical Engine uses multiple theoretical models, and not all of them consider causal factors; see "Forecasting Models and the Engine Flow".

## Types of Causal Factors

Demantra uses the following general types of causal factors:

- *Global causal factors (global factors)* apply to all item-location combinations. For example, a season is a global causal factor. Most Demantra implementation use global factors. Oracle provides a set of base causal factors; see "Base Causal Factors".

- *Local causal factors* apply to specific item-location combinations. For example, a discount applied to a specific item in a specific sales region is a local causal factor. Price is another local causal factor.

Local causal factors include activities, which are a special kind of local causal factor that supports *activity shape modeling*; see "Activities and Activity Shape Modeling".

- **(For PE mode only)** *Promotional causal factors* apply to specific item-location combinations *and* to specific promotions. Promotional causal factors are available only within Promotion Effectiveness. Promotional causal factors are based on the attributes of the promotions in the system. You can use promotional causal factors to perform *promotional shape modeling*. See "Configuring Promotions and Promotional Causal Factors".

## Base Causal Factors

Demantra provides the following base causal factors. Except for Price, these are all global causals; Price is local:

- Constant
- t (time)
- Causal factors that correspond to the months of the year. The names of these causal factors depend on the time resolution:
  - d1, d2, ..., d12 (if the time resolution is monthly or weekly)
  - m1, m2, ... m12 (if the time resolution is daily)
- Causal factors that correspond to the days of the week (included only if the time resolution is daily): d1, d2, ..., d7
- Price

For these causal factors (except Price), Demantra provides data (for many years in the future) and the correct configuration. You should not edit or delete these causal factors. In the case of Price, you need to make sure that the sales\_data table contains the price information that this causal factor uses.

## Data and Configuration Details

Demantra requires the following information for each causal factor:

- Data for the causal factor for each time bucket, past and future.
- Configuration details on how the Analytical Engine should use this causal factor. Here you make the causal factor known to the Analytical Engine, and you specify

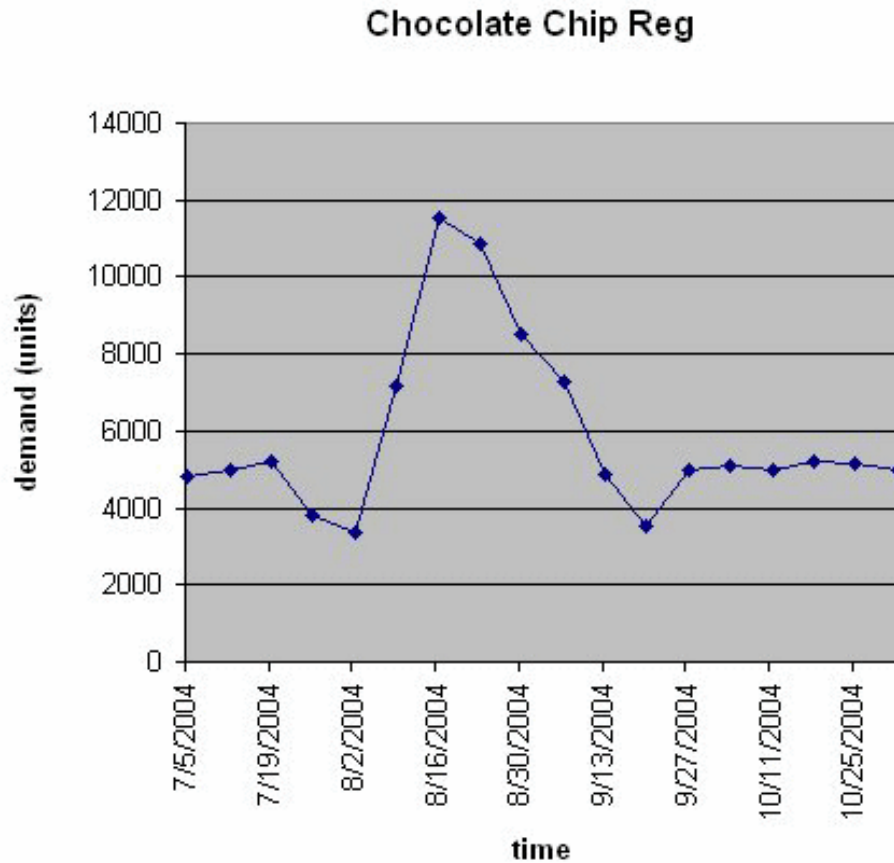
how the engine should use it.

For reference, the following table summarizes where this information is stored:

Causal factor type	Location of data	Configuration details
Global factors	Column in Inputs table	Causal Factors screen of the Forecast Tree Editor
Local causal factors other than activities	Column in sales_data table or SQL expression that aggregates data from that table	
Activities	Column in sales_data table	
Promotional causal factors (For PE mode only)	Aggregation function retrieves data from the promotion_data and promotion tables	Promotional Causal Factors screen of the Forecast Tree Editor

## Activities and Activity Shape Modeling

The Demantra *activity shape modeling* feature helps you easily reapply a demand profile that has a distinct shape over time. For any causal factor, Demantra requires past and future data. In the case of causal factors such as price and seasons, it is a simple process to obtain and load the data. Other causal factors are more difficult to describe mathematically. For example, when you run a promotional activity on a product, you may see a demand curve like the following:



If you plan a future activity that is similar to this historic activity, you would expect it to create similar demand. In general, shape modeling lets you do the following:

- Identify a historic demand curve as a reusable curve
- Create another instance of that curve starting at some future date, creating a new activity

Demantra internally represents the shape as a linear combination of as many as eight Oracle proprietary shapes. Then the Analytical Engine automatically uses this demand shape along with all the other data in the system to determine the forecast.

By default, the Analytical Engine averages the most recent data for a given shape with the stored information about that shape, which is an average of all the past observations of this shape. Users can control this, by forcing the Analytical Engine to rescale the generated shape to align with the recent data. Specifically, the user can indicate the number of buckets for which the shape alignment should occur, starting with the beginning of the shape. Typically the user specifies either 0 (the default) or the length of the shape (to realign the entire shape).

**Note:** Shape modeling capabilities are different in the two engine modes:

- In DP mode, the engine supports only activity shape modeling.
- In PE mode, the engine supports both activity shape modeling *and* promotional shape modeling. See "About Promotion Shape Modeling".

See "Engine Modes: DP and PE".

See also

"Configuring Causal Factors"

"Configuring Promotions and Promotional Causal Factors" (PE only)

## Promotions (PE Mode Only)

A promotion is an occurrence that starts at a specific date, has a certain duration, and has a certain time-varying affect on sales. Specifically, within Promotion Effectiveness, a promotion is associated with one or more item-location combinations (at any aggregation level) for a given time bucket or buckets. A given combination can have multiple promotions at any given time bucket.

As with sales data, promotion data can be imported. Depending on how your system is configured, Promotion Effectiveness may continue to import new promotions or users might create promotions within the Promotion Effectiveness user interface. Promotion Effectiveness displays promotions in the Activity Browser in the worksheets; here users create, edit, and remove promotions.

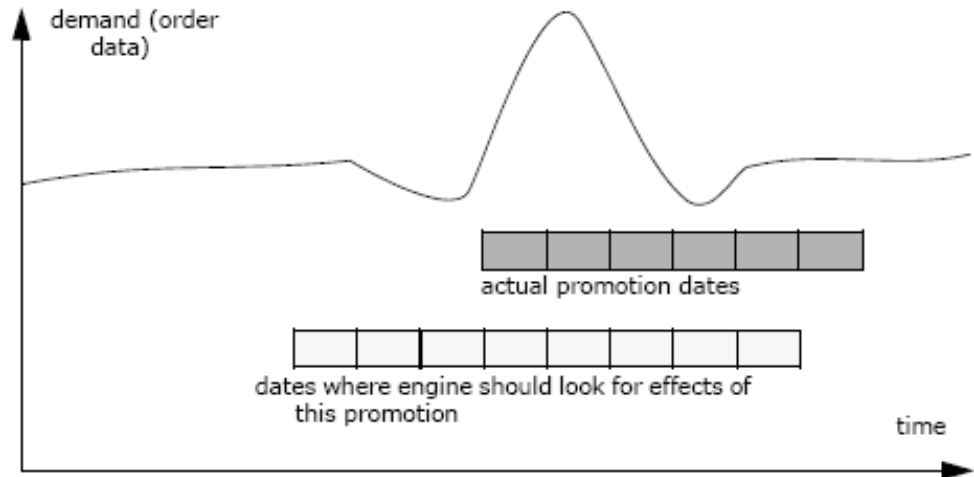
## Promotion Attributes

The Analytical Engine does not use the promotions directly. Rather it uses the promotion attributes, such as discount amount, display type, and so on, each of which can have a different effect on demand. The Analytical Engine converts the values of the promotion attributes to promotional causal factors.

During implementation, you specify the attributes that promotions can have, and you specify rules for converting attribute values into causal factors. When users create promotions within Promotion Effectiveness, they specify values for these attributes.

## Promotion Dates

Promotion Effectiveness assumes that a promotion has an effect between its start and end dates, as provided to Demantra, but typically the promotion has an actual effect in a slightly different span of time, as in the following example:



There is often a lag between the demand and the promotion associated with that demand. Typically this lag is larger with order data than with point of sale (POS) data, because retailers place orders further in advance. But there is often a lag even with POS data because customers know about an upcoming promotion and often delay normal purchases until the promotion occurs.

Accordingly, Promotion Effectiveness supports a couple of adjustments:

- First, you can specify an overall shift, which forces the Analytical Engine to shift the promotion dates globally by a specific number of time buckets. In the example above, the shift is -1 bucket.

This shift time applies to all the promotions (but not to other causal factors).

- Second, you can lengthen or "stretch" the span of a promotion by specifying an additional number of time buckets on either end of the promotion. In the preceding example, we added two time buckets to the start of the promotion.

**Note:** Users may want to add lift or other overrides to the promotion. It is important to remember before the Analytical Engine has been run, the database contains records only for the actual promotion dates; these records are created when the promotion is created. So overrides can be entered only on those dates.

After the engine has been run, however, the database has records for the additional dates as well and overrides can then be entered.

## Promotion Hierarchy

For the benefit of users who are creating or managing promotions, you can provide a

hierarchy that helps the users group the promotions. Then, within a worksheet, the Activity Browser can display that hierarchy, as in the following example:



The Analytical Engine ignores the hierarchy itself. For the engine, the important consideration is the promotion attributes, as noted earlier.

## Promotions and Promotion Shape Modeling

In addition to performing shape modeling for activities, the Promotion Effectiveness supports *shape modeling* for promotions. Specifically, you enable shape modeling for individual promotional causal factors, as needed.

As with ordinary activity shape modeling, Demantra internally represents the shape as a linear combination of the shapes. Then the Analytical Engine automatically uses this demand shape along with all the other data in the system to determine the forecast.

## Forecasting Models and the Engine Flow

The Analytical Engine uses a set of theoretical models, each of which evaluates some or all of the data. Most, but not all, of these models use causal factors. The models are documented in "Theoretical Engine Models".

The Analytical Engine follows a specific process of examining the data, checking for outliers and so on, evaluating the usefulness of each theoretical model, and generating the forecast. This process is described in detail in "The Forecasting Process".

Demantra provides parameters to control both the theoretical models and the overall engine flow. See "Tuning the Analytical Engine"; only advanced users should adjust these parameters.

## The Forecast Tree

In general, forecasting is most accurate when it can be performed at the lowest possible allowed aggregation level. However, sometimes there is not enough data at that level for all combinations. For those combinations, the Analytical Engine aggregates the data to a higher level and tries to generate a forecast there. The purpose of the forecast tree is to organize data for this process.

**Note:** The Analytical Engine also considers flags on different

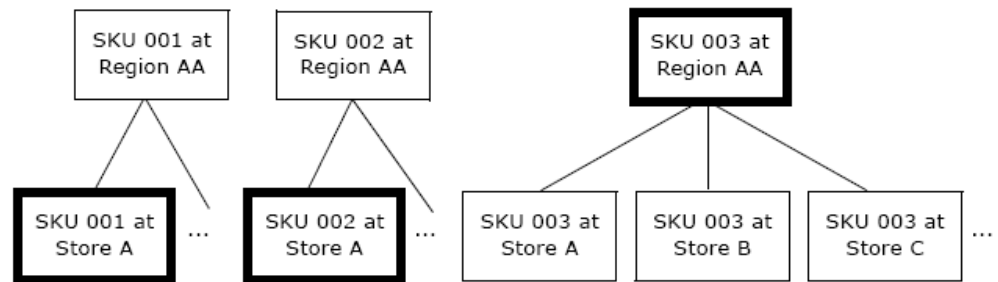
combinations; see "Combination-Specific Settings".

As noted in "Levels", you define aggregation levels for use in worksheets. You use some of these levels to build the forecast tree. For PE mode, you also use the forecast tree to define the influence relationships.

## Basics

Whenever the Analytical Engine generates a forecast at an aggregate level, it automatically splits the forecast for the parent node across the child nodes, again using the structure of the forecast tree. The proport mechanism controls how the aggregated forecast is split. For information on tuning proprot, see "Proport Mechanism".

Each node in the forecast tree aggregates both by items and by locations. The following example shows a small part of a forecast tree.



The bold boxes show the nodes at which the Analytical Engine is forecasting.

- In this example, there is enough data at the SKU-store level for SKU 001 and SKU 002; the Analytical Engine can generate a forecast at that level for those SKUs.
- On the other hand, there is less data for SKU 003, so the Analytical Engine aggregates data for that SKU across all the stores in Region AA, generates the forecast for those SKUs at the SKU-region level, and then splits to the store level.

## Accuracy Metrics for Forecasts

While generating the forecasts, the analytical engine also generates the accuracy metrics for the forecast to provide information regarding the quality of the forecast. The Analytical Engine generates the quality measures for forecasted combinations based on analysis of past forecasts, as the quality of a forecast is largely indeterminable without performing sample tests on the forecast data. The accuracy metrics uses the following formulas to judge the quality of the generated forecast:

- **MAPE Mean (Absolute Percentage Error):** Represented by  $\text{mean}(\text{abs}(\text{Series} - \text{Fit})) / \text{mean}(\text{abs}(\text{Series}))$

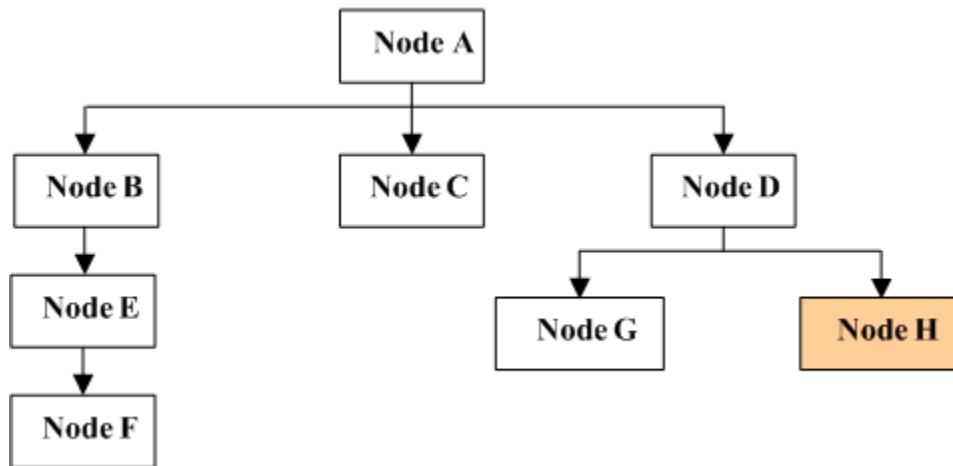
- **RMSE Root (Mean Squared Error):** Represented by  $\sqrt{\text{sum}(\text{Resid.}^2) / (\text{LengthSeries} - \text{Complexity})}$
- **PBias (Percentage Bias):** Represented by  $\text{sum}(\text{Resid}) / \text{sum}(\text{Series})$
- **Relative\_Error (Relative Error):** Represented by  $\text{median}(\text{abs}(\text{Series.} / \text{Fit}-1))$

The observations made by the engine using the above-mentioned formulas are stored in the MDP\_MATRIX table.

For a forecast tree, the accuracy metrics allocate down to the lowest level of the tree.

### Example

The following figure depicts a forecast tree, where each node represents aggregated data, both by items and by locations.



Node F has a forecast at the lowest level. Therefore, all accuracy metrics generated at node F would be assigned to the member data for node F.

Node G has a forecast at the lowest level. Therefore, all accuracy metrics generated at node G would be assigned to the member data for node G.

Node H failed at the lowest level and the forecast eventually is generated at node D. The accuracy metrics from node D should be allocated to all nodes that get a forecast from node D. Node G will get the accuracy metrics from node D, whereas node H will not receive the same from node D.

## Forecast Tree Example

The following list describes a possible forecast tree.

1. Highest level: all items and all locations, aggregated together
2. All items-Division

3. Brand-Division
4. Brand-Region
5. SKU-Region
6. Lowest level: SKU-Store

## Finding the Effects of Promotions (PE Mode Only)

For PE mode, the forecast tree must also be organized to support how the Analytical Engine identifies the effects of promotions. When you set up the forecast tree, you identify levels in the tree that the Analytical Engine can use in specific ways, as follows:

- The *influence range* level (IRL); see "Influence Ranges".
- The *influence group* level (IGL); see "Influence Groups".
- The lowest promotion level (LPL), which is lower than (or the same as) the IGL. This specifies the level at which promotions can be meaningfully aggregated together. For any node in the LPL, all promotions are assumed to have the same attribute values.

## Influence and Switching Effects (PE Mode Only)

To describe how the item-location combinations affect each other, you specify the influence ranges, influence groups, competitive item groups, and competitive location groups.

### Influence Ranges

When you define the forecast tree, you specify the *influence ranges* (IR). To do so, you specify the *influence range level* (IRL); each node within the IRL is an influence range.

Each influence range is a set of combinations that do not interact with combinations within any other IR. The *influence ranges* control how far the Analytical Engine looks for influence when promotions are run. This determines the breadth of the causality. An influence range is a set of item-location combinations that potentially interact with each other but not with combinations of other IRs. Typically each IR represents a different geographical area.

No information is available above the IRL to calculate effects of promotions. Therefore, if for certain nodes the Analytical Engine generates a forecast above the IRL, the forecast for those nodes includes only the baseline forecast.

# Influence Groups

When you define the forecast tree, you also specify the *influence groups* (IG), which are subdivisions of the influence ranges. To do so, you specify the *influence group level* (IGL); each node within the IGL is an influence group.

Each influence group consists of an *item group* and a *location group* with the following behavior:

- An item group (I) is a set of items that relate identically to all other items. In particular, the items within an item group compete in the same way with items of other item groups. These items are interchangeable, as far as promotions are concerned. For example, suppose that an item group is diet colas. A promotion on any diet cola has the same effect on sales of non-diet colas, for example.
- Similarly, a location group (G) is a set of locations that relate identically to all other locations.

Using these definitions, the engine can calculate the following three causal factors for each lowest-level combination:

self	Influence caused by promotions on this combination.
own	Influence caused by other combinations within the same IG.
other	Influence caused by all other combinations within the IR.

The Analytical Engine uses these causal factors internally to calculate the switching effects caused by promotions.

No information is available above the IGL to calculate switching effects. Therefore, if for certain nodes the Analytical Engine generates a forecast above the IGL, the forecast for those nodes includes only the baseline forecast and the direct effects.

# Competitive Item Groups (CI) and Competitive Location Groups (CL)

Typically, you also define *competitive item groups* (CI) and *competitive location groups* (CL):

- A *competitive item group* (CI) is a set of item groups that compete with each other. For example, diet beverages could be a CI that contains the following three item groups: diet colas, diet fruit juices, other diet beverages. Non-diet beverages could be another CI.
- A *competitive location group* (CL) is a set of location groups that compete with each other.

You do not define these groups directly in the forecast tree. Instead, you set them via parameters. The Analytical Engine does not aggregate data to the CI and CL, so it is not strictly necessary to make them consistent with the rest of the forecast tree; they must of course, be at a higher aggregation level than the item and location groups, respectively.

## Switching Effects

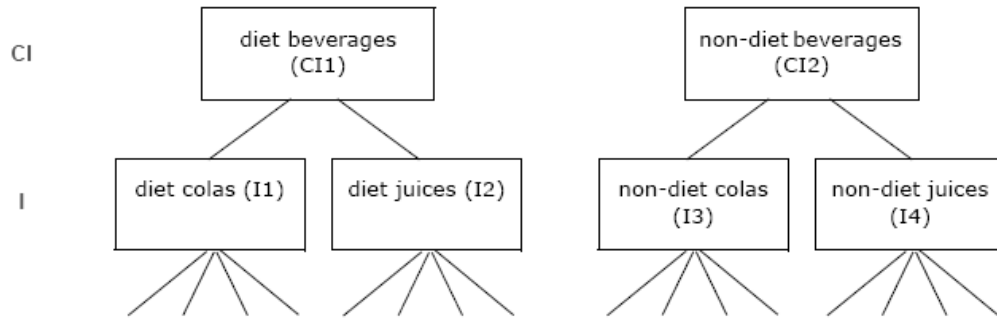
A switching effect occurs when a sale for a given item-location combination affects sales for another item-location combination. Promotion Effectiveness uses the preceding classification system to describe different switching effects. Each effect is associated with relationships between one item-location combination and others.

Effect*	CI	item group (I)	CL	location group (L)
Brand switching (or category switching)	different	<i>different by definition</i>	same	same or different
Channel switching	different	<i>different by definition</i>	different	<i>different by definition</i>
Product switching	same	same	same	same
	same	<i>different</i>	same	same
	same	<i>different</i>	different	<i>different by definition</i>
Store switching	same	same or different	same	different
	same	same	different	<i>different by definition</i>

\*Depending on how you define CI, CL, I, and L, the names of these effects may or may not be appropriate. You can rename these effects by renaming the series that display them.

Notice that if the CI and CL each have only one member, there is no competition, and the only effects that can be seen are product switching and store switching.

For simple example, consider a single store and the following item groups and competitive item groups:



- If a promotion is run for a diet cola (item in I1), that can have the following effects:
- Effect on sales of other diet colas at this store. Because both items are within the same item group, this is a case of product switching.
- Effect on sales of diet juices (I2) at this store. This is another case of product switching. The items are in different item groups but are in the same CI (CI1).
- Effect on sales of non-diet colas (I3) at this store. Because non-diet colas are in a different CI than the diet colas, this is a case of category switching.

## Combination-Specific Settings

The Analytical Engine also considers specific settings that vary from combination to combination, which are stored in the `mdp_matrix` table and which are affected by global parameters. This section provides an overview of the key settings, which are provided to support users who want closer control over the forecast. You can create levels or series that use these settings, as needed. Not all settings are meant to be changed directly.

### Fictive Status

Demantra sets a flag for each combination to indicate whether that combination is real or not. In `mdp_matrix`, the `is_fictive` flag has one of the following values:

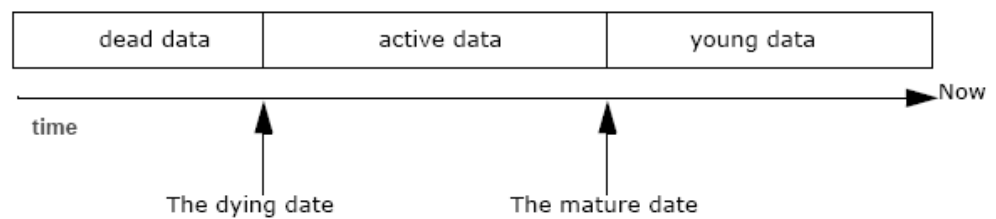
Value	General meaning
1	Combination is fictive (not real). This combination was created via Member Management.
0	Combination is real and it has non-zero sales data.

Value	General meaning
2	Combination is real but all sales are zero or null.
3	Errors occurred while loading this combination.

The Analytical Engine does not use this flag directly, and users should not edit it.

## Age

Each combination is either young, live, or dead, depending on the relative age of its sales data. Demantra uses two cutoff dates to determine the age of a combination:



The dying date is controlled by the `dying_time` parameter, and the mature date is controlled by the `mature_age` parameter. Both parameters are global.

Demantra automatically uses these cutoff dates as follows:

- If there are no sales for the combination after the dying date, the combination is considered dead.
- If there are no sales for the combination before the mature date, the combination is considered young.
- Otherwise, the combination is live or active.

See "Engine Parameters".

## The User-Controlled Do\_Fore Flag

Demantra provides a combination-specific flag with which advanced end users can control how the Analytical Engine works on individual combinations. This flag is in the `mdp_matrix` table and is called `do_fore`. In order to enable users to set this flag, you generally create an editable series that uses this flag. Users can set this flag to any of the following values:

Value	Meaning
0	The Analytical Engine will ignore this combination
1	The Analytical Engine will consider the combination. This is the default value.
2	The Analytical Engine will create a placeholder forecast for this combination that consists of zero values (which is useful if the user wants to create an override). The engine will otherwise ignore this combination. You typically use this setting for combinations created through Member Management.

The sole purpose of the `do_fore` flag is to give users a way to control the prediction status of the combination, as described next. The `do_fore` flag is not used directly by the Analytical Engine.

## Prediction Status

In `mdp_matrix`, the `prediction_status` indicator of a combination instructs the Analytical Engine how to handle this combination. The following values are possible:

Value	Affect on the Engine	Comments
No Forecast (96)	The Analytical Engine ignores this combination.	For future use; this setting cannot currently be achieved or used.
Create Zero Forecast (97)	The Analytical Engine creates a zero forecast but otherwise ignores the combination.	
Young (98)	The Analytical Engine creates a zero forecast but otherwise ignores the combination.	Sales for this combination are too new to be used for prediction.
Dead (99)	The Analytical Engine creates a zero forecast but otherwise ignores the combination.	Sales for this combination are not recent enough to be used for prediction.
Live or Active (1)	The Analytical Engine uses this combination for forecasting.	

Demantra automatically sets the prediction\_status indicator and users should not change it.

## How Prediction Status Is Set for Fictive Combinations

For *fictive combinations* (is\_fictive = 1), Demantra automatically sets the prediction status to 98.

## How Prediction Status Is Set for Real Combinations

The proposit mechanism considers all real combinations (is\_fictive equal to 0 or 2). It automatically sets the prediction status indicator for each combination based on the age of the combination and the do\_fore setting of the combination. Specifically, it sets the prediction\_status indicator as follows:

	do_fore is 0	do_fore is 1	do_fore is 2
Combination is dead	prediction_status is 99	prediction_status is 99	prediction_status is 97
Combination is young		prediction_status is 98	
Combination is live		prediction_status is 1	

## Aggregation Flags

As noted in "The Forecast Tree", the Analytical Engine sometimes needs to aggregate lowest level data in order to create a more accurate forecast. You can control, per combination, whether this combination should be aggregated to a higher level.

- If data for a specific combination is not aggregated, then that combination is not forecasted.
- Whenever the Analytical Engine aggregates data for any combination during forecasting, the engine also splits some of the forecast to that combination, according to the stored proportions of that combination.

Demantra provides three flags so that you can specify different rules based on the age of the combination. The flags are as follows:

Flag	When used
do_aggri	If combination is live
aggri_98	If combination is young
aggri_99	If combination is dead

Each of these flags (in mdp\_matrix) specifies whether to aggregate data for this combination during forecasting.

## Other Combination-Specific Settings

Demantra provides many parameters that control how the Analytical Engine behaves. By default, these parameters affect all the combinations in the forecast tree. Through the user interfaces, an advanced user can set analytical parameters for individual combinations if needed.

## The Forecast Data

The Analytical Engine writes the current forecast to one of the following fields in sales\_data: Fore\_0, Fore\_1, Fore\_2, and so on.

**Note:** For PE mode, this is the *baseline forecast*.

The Analytical Engine cycles through these columns. Each time, it writes the current forecast into one column (overwriting the oldest forecast). The Analytical Engine then adds a row to the forecast\_history table that describes this forecast and that indicates which column it is stored in.

The number of saved forecasts is specified by the active\_forecasts\_versions parameter.

## Forecast Decomposition (PE Mode Only)

For PE mode, the Analytical Engine also populates the following database fields in promotion\_data to show the effects of the promotions. These fields show the effects of a given promotion on a given combination, at a given date:

Field	Purpose
fore_0_uplift	Direct lift on a combination during the promotion dates, due to a promotion specifically associated with that combination.

Field	Purpose
fore_0_pre_effect	Direct lift on this combination before the promotion dates, due to a promotion specifically associated with that combination.
fore_0_post_effect	Direct lift on this combination after the promotion dates, due to a promotion specifically associated with that combination.
fore_0_brand	Effects of brand or category switching as described in "Switching Effects".
fore_0_sw_channel	Effects of channel switching on this combination, at this date, due to this promotion.
fore_0_product	Effects of product switching on this combination, at this date, due to this promotion.
fore_0_store	Effects of store switching on this combination, at this date, due to this promotion.

For the benefit of the users, you create series that use these data fields. Be sure to provide series names that make sense to the users and that are appropriate for the business.

## Forecast Versions (for Batch Runs)

As noted earlier, Demantra keeps a number of previous forecasts (as specified by the `active_forecasts_versions` system parameter). The most recent batch forecast is numbered 0, the previous one is numbered 1, and so on. When the Analytical Engine generates a new forecast, it moves the previous ones to different columns in the database. See "Engine Parameters".

Each series you create is implicitly or explicitly associated with a specific forecast version or multiple forecast versions. Typically, the large majority of series are associated with the most recent forecast, but it is often useful to configure some series to capture information associated with a previous forecast, or to compare multiple forecasts.

**Note:** If you need to display present and past versions of other data, you can configure and run *rolling data sessions*, which copy data from one series to another as specified. See "Configuring Rolling Data".

For information on `active_forecasts_versions`, see "Non-Engine Parameters".



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## Configuring the Analytical Engine

This chapter covers the following topics:

- Configuring the Engine
- General Data Requirements
- Structure and Requirements of the Forecast Tree
- Guidelines for the Forecast Tree
- Guidelines for Causal Factors

### Configuring the Engine

To configure the Analytical Engine, you generally perform the following tasks:

Engine mode	Task	Tool used	For information
Both	Loading demand data	Data Model Wizard or the Integration Interface Wizard	"Using the Data Model Wizard"  "Series and Level Integration"
Both	Configuring the forecast tree	Forecast Tree Editor, in the Business Modeler	"Configuring the Forecast Tree"
PE mode only	Configuring influence behavior	Parameter user interface, in the Business Modeler	"Defining Influence and Competition (PE Mode Only)"

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Engine mode	Task	Tool used	For information
Both	Modifying tables to store causal factor data; loading data	Business Modeler or third-party database tool	"Configuring Causal Factors"
Both	Configuring the causal factors	Forecast Tree Editor, in the Business Modeler	
PE mode only	Configuring the promotional causal factors	Forecast Tree Editor, in the Business Modeler	"Configuring Promotions and Promotional Causal Factors"
Both	Creating engine profiles and adjusting engine parameters as needed	Parameter user interface, in the Business Modeler	"Tuning the Analytical Engine"
Both	Running the Analytical Engine and checking the results	Engine Administrator (separate desktop user interface)	"Using the Engine Administrator and Running the Engine"

## General Data Requirements

All the sales and causal factor data should be as complete as possible. In particular, if you do not have complete causal factor data, you may have problems like the following:

- If a causal factor does not have values for future dates, it may not have a desired effect on forecasts. For example, if the Analytical Engine has learned that changes in price have an impact on sales, and the price causal factor is not extended into the future, this implies that the future price is zero. In this case, there will be a shift in the forecast values (presumably upwards: free items "sell" well). To overcome this problem, the fill-causals method can be used by checking the fill-causal option for that causal factor.
- Likewise, if the historical data is not long enough to learn the influence of all seasonal causal factors, the forecast for a missing seasonal period (for example month) may have an unexpected jump.

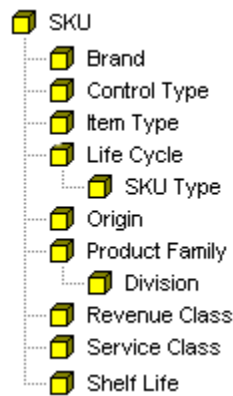
In general, point-of-sale (POS) data is preferable to orders. POS data is continuous, in contrast to order data, which is more sporadic, and it is easier to generate forecasts from

POS data.

If you are using the Analytical Engine in PE mode, note that it is also hard to detect switching effects in order data, and the lags between promotion dates and their effects are more variable.

## Structure and Requirements of the Forecast Tree

Within the forecast tree, all item levels tree must belong to the same item hierarchy of the same item dimension, and all location levels must belong to the location hierarchy of the same location dimension. For example, consider the following set of item levels:



Here, the **SKU** dimension includes nine hierarchies. If you include the **Life Cycle** level in the forecast tree, that means that the only other levels you can include are **SKU** and **SKU Type**. (A true implementation would have many more levels with more nesting.)

A given level can be included in multiple, adjacent levels of the forecast tree. For example, if the lowest forecast level consists of SKUs and stores, the next level above that could be the SKUs and regions. See "Forecast Tree Example".

After you specify the levels in the forecast tree, you must indicate which levels the Analytical Engine should use for various purposes, during the forecasting process. Specifically, you must indicate the following levels in the forecast tree:

Engine mode	Level	Description	Requirements
Both	Highest fictive level (HFL)	Level at which data is completely aggregated. Includes the item HFL and the location HFL.	Created automatically.

Engine mode	Level	Description	Requirements
PE mode only	<i>Influence range level</i> (IRL)	Defines the influence ranges. Each node of this level is a different influence range. Typically each IR represents a different geographical area.	<p>Must be above the influence group level (IGL).</p> <p>This is usually above the maximum forecast level.</p> <p>Oracle recommends that it is at least two levels above the IGL.</p>
Both	Maximum forecast level	Highest aggregation level at which the Analytical Engine runs.	Must be at or above the minimum forecast level.
PE mode only	Influence group level (IGL)	Defines the influence groups. Each node of this level is a different influence group.	<p>Must be at or above the lowest promotion level (LPL).</p> <p>Must be consistent with the item groups and location groups that you define in "Defining Influence and Competition (PE Mode Only)".</p> <p>Oracle recommends that it is two levels above the LPL.</p>
Both	Minimum forecast level	Lowest aggregation level at which the Analytical Engine runs.	
PE mode only	<i>lowest promotion level</i> (LPL)	Lowest level at which promotions can have different attribute values from other.	Must be at or below the minimum forecast level.

## Guidelines for the Forecast Tree

When creating a forecast tree, it is important to consider the following guidelines.

- The forecast tree should include an appropriate number of levels that can be forecasted.

The forecast tree should contain 3 to 6 levels on which the engine can traverse and forecast. This number does not include any levels below the minimum forecast level and does not include the HFL.

- The forecast levels should be meaningful to the business.

The levels of the forecast tree need to have meaningfully changing data sets per level in order to be effective. A move from level to level should substantially increase the amount of data that is being analyzed by the Analytical Engine while maintaining an aggregation method that makes sense from a business perspective. A good guideline is to have each parent node aggregate between 3 to 12 lower level nodes (on average).

- The minimum and maximum forecast levels should contain reasonable and relevant data.

The minimum forecast level should have enough data to facilitate a forecast desirable by the customer. For instance, if exponential smoothing is not desired, then try to ensure that the lowest level has a long enough sales history for a non-exponential smoothing model to be active.

The maximum forecast level should still be disaggregated enough to maintain some data granularity. As a general rule, none of the maximum forecast level nodes should contain more than five percent of the total data set; this means the maximum forecast level should have at least 20 nodes, and perhaps more.

- It is useful for the forecast tree to include the level on which accuracy is measured, if possible.

Accuracy is often measured at a specific level. Often the best results can be seen if the forecast is also done at this level. This is not always true or possible but the option should be seriously considered.

- The TLMO (the level just below the top level, called top level minus one), affects performance, because it is the level for which the Analytical Engine generates the sales\_data\_engine table. (In the case of the Distributed Engine, Demantra creates multiple, temporary versions of this table.) As a consequence:

- When you are using the Distributed Engine, each engine task (distributed process) receives one or more nodes of the TLMO. In order to take best advantage of the distributed mode, it is advisable for the TLMO to have many nodes and to ensure that none of them contains too many lowest level combinations.
- If the nodes of the TLMO are comparatively small, the Analytical Engine generates sales\_data\_engine more quickly, which reduces run time.
- If the nodes of the TLMO are comparatively small, simulation can run more quickly, for *two* reasons: because the Analytical Engine searches smaller

amounts of data and because sales\_data\_engine is generated more quickly.

- When you plan the forecast tree for PE mode, consider how you will set the LPL, IGL, and IRL. It is generally good to have a large number of influence ranges, each of which has a relatively small number of influence groups. Because the effect of promotions cannot be evaluated above the IRL, that means the IRL should be a fairly high level in the tree. To minimize the number of influence groups per influence range, the IGL should be fairly close to IRL.

## Guidelines for Causal Factors

- It is important to avoid introducing too many causal factors, for mathematical reasons. For a given combination, if Demantra has more causal factors than sales data points, then it is mathematically impossible to calculate the coefficients for that combination. And as you approach the mathematical limits, the computation becomes progressively more difficult.

It is desirable to have a ratio of about 3 to 5 data points per causal factor. For mathematical reasons, you must have at least 2 more data points than causal factors for any given combination.

For example, in a monthly system, if you have two years' worth of data, that represents about 24 data points (maximum) for any combination. It would be desirable to have no more than 8 causal factors for any combination.

It is useful to count up the causal factors you plan to use and to discard any that are not truly needed, if the count is too high. Remember that you typically need the base causal factors (see "Base Causal Factors") in addition to any other causal factors you add, so be sure to include those in your count.

- Using either shape modeling feature adds causal factors, so consider carefully when to use these features. When you model a causal factor as a shape, the data for that causal factor is replaced by as many as eight shapes internally. Each internal shape is a causal factor. You can limit the number of shapes that the Analytical Engine uses internally.
- Shape modeling generally requires continuous data: POS data rather than orders. Each shape that you model should also be multiple time buckets in length; otherwise, there is no real shape to use.
- The causal factors should not be co-linear; that is, they should not have a significant degree of dependence on each other. If the causal factors are co-linear, that introduces numerical instability and the Analytical Engine can produce unreliable results.

## Additional Guidelines for PE Mode Only

- Note that when you transpose a promotional causal factor (such as a qualitative attribute), that creates additional causal factors (one for each value of the attribute). See "How the Analytical Engine Uses Promotions".
- As you create promotional causal factors, consider maintenance issues. You may not have complete control over the original location and form of the promotional data, and you may need to write procedures to maintain the promotional tables that the Analytical Engine uses.
- Pay attention to the order in which the Analytical Engine processes the promotional causal factors, which can have an impact on performance. For example, if you need to filter data, it is better to do so earlier rather than later. See "How the Analytical Engine Uses Promotions".



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## Configuring the Forecast Tree

This chapter describes how to configure the forecast tree. In the case of PE mode, it also describes how to configure the influence relationships, and competition among the combinations.

This chapter covers the following topics:

- Configuring the Forecast Tree
- Defining Influence and Competition (PE Mode Only)
- Specifying Additional Parameters

### Configuring the Forecast Tree

**Caution:** The Promotion Optimization engine uses levels in the Oracle Demantra forecast tree, and uses their names rather than their internal identifiers. This means that if you change the name of a level, you must rebuild the forecast tree to make sure that Promotion Optimization can find the level (because the forecast tree is not automatically synchronized with the level definitions).

If you are not using Promotion Optimization, you would need to rebuild the forecast tree only if you remove a level or add a new level that you want to include in the forecast tree.

See also

"Basic Concepts"

"Guidelines for the Forecast Tree"

#### To configure the forecast tree:

1. Click Engine > Forecast Tree. Or click the Forecast Tree button.

The Forecast Tree Editor displays lists of all the item and location levels that you have created in the system.

**Forecast Tree (page 1)**

**Items**

**Levels for Item Groups**

Item Level	Join Field
Item Package	prod_att1_EP_ID
SKU	prd_att2_EP_ID
ABC Classification	att3_prd_EP_ID
Supplier	att4_prd_EP_ID
Channel	famatt1_EP_ID
Flavor	prodfamily_EP_ID
Item Type	prodgrp_EP_ID
Product	product_EP_ID

**Forecast Order for Items**

Order	Item Level
1	Lowest Item Level
2	Highest Fictive Level

**Location**

**Levels for Location Groups**

Location Level	Join Field
Demand Loc Type	dl_type_EP_ID
Demand Loc Country	dl_country_EP_ID
Demand Loc State	dl_state_EP_ID
Demand Loc City	dl_city_EP_ID
Demand Loc Org	dl_org_EP_ID
Demand Location	dem_loc_EP_ID
Demand Type	dem_type_EP_ID

**Forecast Order for Location**

Order	Location Level
1	Lowest Location Level
2	Highest Fictive Level

**Exit** **Save** **Next >>**

You use this dialog box to select the item levels and location levels to include in the forecast tree.

**Note:** As you select item and location levels in the following steps, add levels from the lowest level to the highest. Business Modeler automatically adds the HFL to each list.

You can have different number of elements in these two lists.

2. Select the item levels to be included in the forecast tree. To do so, use the two lists at the top of the dialog box. Use any of the following techniques:
  - In the left list, double-click a row.
  - Click a row and then click Add.
  - Click Add All to transfer all items.
3. Select the location levels to be included in the forecast tree. Use the two lists at the bottom of the forecast tree, and use any of the methods described in the previous step.
4. When you have finished selecting levels, click Save.

5. Click Next.

The Forecast Tree Editor displays a dialog box that you use to build the forecast tree itself.

Forecast Level	Item Order	Item Level	Location Order	Location Level
1	1	Lowest Item Level	1	Lowest Location Level
2	2	Highest Fictive Level	2	Highest Fictive Level

In this dialog box, each row corresponds to a level in the forecast tree. In turn, a level in the forecast tree consists of one item level and one location level.

**Note:** As you build the forecast tree, add levels from the lowest level to the highest. Business Modeler automatically adds the HFL, if you do not do so explicitly.

6. To create a level in the forecast tree, do the following:
  1. Click Add.
  2. In the drop down list in the Item Order column, select an item level.
  3. In the drop down list in the Location Order column, select a location level.
7. Add more levels to the forecast tree as needed, and then click Save.
8. Click Exit or click Next.

If your system includes Promotion Effectiveness, the Forecast Tree Promotion Levels screen appears. This screen displays the forecast levels as created in the previous screen.

Forecast Level	Item Level	Location Level	Promotion Level Type
1	Lowest Item Level	Lowest Location Level	
2	Lowest Item Level	Account	
3	Family	Account	
4	Highest Fictive Level	Highest Fictive Level	

9. (PE mode only) On this screen, specify the following:

- Level to use as the lowest promotional level (LPL). This is the lowest aggregation level the Analytical Engine will consider when evaluating the effects of promotions.
- Level that defines the influence groups. This is the influence group level (IGL). This indirectly specifies the item groups and location groups.
- Level that defines the influence ranges. This is the influence range level (IRL).

For example, in the row that should corresponds to the influence range level, select Influence Range from the drop down list in Promotion Level Type.

**Note:** To establish the LPL and IGL at the same level, select the option Lowest Promotion Level & Influence Group.

10. Do one of the following:

- Click Next. Business Modeler next displays the Causal Factors dialog box; see "Configuring Global and Local Causal Factors".
- Click Exit. You can return later to configure causal factors.

See also

"Guidelines for the Forecast Tree"

## Defining Influence and Competition (PE Mode Only)

To describe how the item-location combinations affect each other, you specify the following information:

- The level of the forecast tree to use as the IRL; each node within the IRL is an influence range.
- The level of the forecast tree to use as the IGL; each node within the IGL is an influence group. This indirectly specifies the item groups (I) and location groups (L).
- The level of the forecast tree to use as the LPL.

- The levels to use as the competition item groups (CI) and the competition location groups (CL). You specify these via parameters.

For the first three tasks, see "Configuring the Forecast Tree". To define the CI and CL, do the following:

1. For each level you create, Business Modeler creates a row in the group\_tables table for each level. Make a note of the level ID of the levels that you want to use as the CI and CL.
2. Set the values of the following parameters in the Business Modeler. Each value should be a level ID as given in the group\_tables table.

Parameter	Purpose
COMPETITION_ITEM	Specify the level whose members are the competitive item groups.
COMPETITION_LOCATION	Specify the level whose members are the competitive location groups.

The CI and CL should be consistent with the item groups and location groups. Specifically, any lowest level items within a given item group must belong to the same competitive item group. The easiest way to follow this rule is to set the CI equal to an item level that is higher than I and that is within the same hierarchy. A similar rule applies for the locations.

See also

"Switching Effects"

"Guidelines for the Forecast Tree"

## Specifying Additional Parameters

Use the Business Modeler user interface to set the following additional engine parameters, if needed:

Parameter	Purpose
max_fore_level	<p>The maximum level on the forecast tree at which a forecast may be produced. Upon failure at this level, the NAIVE model will be used, if enabled.</p> <p>For PE mode:</p> <ul style="list-style-type: none"> <li>• This level is usually below the IRL.</li> <li>• Sometimes the natural top forecast level does not make a good choice of IRL, and a more aggregated level would be better for the IRL. This new level may be too high for forecasting, but it is useful for calculating indirect effects. In such a case, set max_fore_level to the highest level to use for forecasting, and the IRL to the higher level.</li> </ul>
min_fore_level	<p>Minimum forecast level that the engine will forecast. From that level down, the engine will split the forecast using the precalculated proportions in the mdp_matrix table.</p> <p>The engine does not necessarily create the forecast at this level. If the results are not good at this level (for a portion of the forecast tree), the Analytical Engine moves to a higher node of the forecast tree, creates a forecast there, and splits down to the minimum forecast level. As before, the engine splits using the precalculated proportions in the mdp_matrix table.</p> <p>For PE mode, this level must be at or above the LPL.</p>

For information on these parameters, see "Engine Parameters".

The Forecast Tree Editor displays a dialog box that you use to build the forecast tree itself. The Forecast Tree Editor displays lists of all the item and location levels that you have created in the system.

# Configuring Causal Factors

This chapter describes how to create causal factors, configure them, and populate them with data. It also describes the predefined causal factors provided by Demantra.

This chapter covers the following topics:

- Notes About Causal Factors
- Creating a Global Factor
- Creating a Local Causal Factor
- Configuring Global and Local Casual Factors
- About Activity Shape Modeling
- Enabling Activity Shape Modeling
- Deleting a Causal Factor

## Notes About Causal Factors

For each causal factor, you must provide data for all time buckets, both historical and in the future. Depending on the type of causal factor, this data is stored in different locations in the database.

Causal factor type	Location of data	How to edit the table
Global factors	Column in Inputs table	Business Modeler Third-party database tool
Local causal factors other than activities	Column in the sales_data table or SQL expression that aggregates data from that table	Third-party database tool

Causal factor type	Location of data	How to edit the table
Activities	Column in the sales_data table	Third-party database tool

## Causal Factors and Engine Models

The Analytical Engine uses a set of theoretical models, each of which evaluates some or all of the data. When you configure a causal factor, you specify the following flags to specify which models should consider that causal factor:

Flag *	Meaning
short	For use by the short models (BWINT, IREGR, LOGREGR, LOGISTIC, and REGR). These models use all causal factors that they are given.
long	For use by the long models (ARLOGISTIC, CMREGR, ELOG, ICMREGR, and MRIDGE). These models examine all the causal factors they are given, but choose the ones that give the best results.
non seasonal	For use by the non seasonal models (ARIX and ARX). The only causal factors that should be flagged as non seasonal are ones that are not a predictable function of time. For example, price varies with time, but randomly, so price should be flagged as non seasonal.
multiplicative group 1	For use only by the DMULT model. If you are using this model, each causal factor should use one of these flags.
multiplicative group 2	Typically you place causal factors that vary on a daily basis into one group and place all others in the other group. No causal factor should be in both groups. See "Theoretical Engine Models".
* Name of flag as displayed in the Causal Factors screen.	

Not all models use these flags. Models not listed here do not use causal factors.

## Typical Flags for Causal Factors

Typically you initially flag causal factors as follows:

	Causal Factor	Short	Long	Non-Seasonal	Multiplicative Group 1	Multiplicative Group 2
base (predefined) causal factors	CONSTANT	yes	yes	yes	no	no
	t	yes	yes	no	yes	no
	d1, ... d12* or m1, ... m12**	yes	yes	no	no	yes
	d1, ... d7**	yes	yes	no	yes	no
	price	yes	yes	yes	yes	no
your added causal factors	If factor is a predictable function of time	usually not	yes	no	if factor varies by day	if factor varies by month
	If factor is not a predictable function of time	usually not	yes	yes	no	no
*Included only if time resolution is monthly or weekly.						
**Included only if time resolution is daily.						

**Important:** In many cases, these flags have to be adjusted. Contact Oracle for assistance.

## Creating a Global Factor

A global causal factor has time-varying data that applies in the same way to all items and locations.

### To create a global causal factor:

- Do one of the following:
  - Go into the database and add a column to the Inputs table.

- Create the global causal factor within the Business Modeler user interface, as follows:
  1. Click Data Model > Global Factors > Options to access the global factor user interface.
  2. Click Data Model > Global Factors > New Factor. The New Factor dialog box appears.
  3. Type in the factor name.
  4. Click Add New Factor.
  5. Click Cancel to close the dialog box. The Business Modeler adds a new column to the Inputs table.
- 2. Load data into the new column by using a script, a database tool, or the Business Modeler.

**To use the Business Modeler, do the following**

3. Click Data Model > Global Factors > Options.
4. Click Data Model > Choose Factor. Or click the Choose Factor button.
5. The Choose Factor dialog box appears.
6. Check the check box for each of the causal factors you wish to view. Make sure that Date is selected so that you can see the dates along with the causal factor data.
7. Click OK.
8. Click Data Model > Global Factors > View. Or click the Create View button.

Business Modeler displays a table that shows the value of each global factor over time. This table displays one row for each base time bucket in the planning horizon. Each column corresponds to one global factor.

Date	T	Winter	Summer	January	February	March	April	May	June
01/01/95	1	1	0	1	0	0	0	0	0
01/02/95	2	1	0	0	1	0	0	0	0
01/03/95	3	0	0	0	0	1	0	0	0
01/04/95	4	0	0	0	0	0	1	0	0
01/05/95	5	0	0	0	0	0	0	1	0
01/06/95	6	0	1	0	0	0	0	0	1
01/07/95	7	0	1	0	0	0	0	0	0
01/08/95	8	0	1	0	0	0	0	0	0
01/09/95	9	0	1	0	0	0	0	0	0
01/10/95	10	0	0	0	0	0	0	0	0
01/11/95	11	1	0	0	0	0	0	0	0
01/12/95	12	1	0	0	0	0	0	0	0

9. Select the cell or cells to be edited. The editable cells are colored white. When selected, the cells turn yellow.
10. Click Data Model > Global Factors > Edit Data. Or click the Edit Data button.  
The Edit Data dialog box appears.
11. Type the number required and click OK.  
The data appears in each highlighted cell.
12. Click Save to save your changes.
13. Click Cancel to close the dialog box.
14. Configure the global factor as described in "Configuring Global and Local Causal Factors".

See also

Creating a Local Causal Factor, page 46-5

"Base Causal Factors"

## Creating a Local Causal Factor

A local causal factor has time-varying data that is potentially different for each item-location combination.

**To create data for a local causal factor:**

1. If the sales\_data table does not include a column that contains the data you want to use as a causal factor, go into the database and add the desired column.
2. Load data into the new column by using a script or by a database tool.
3. Configure the new causal factor as described in "Configuring Global and Local Causal Factors".

See also

"Creating a Global Factor"

**Setting up the price causal factor:**

The predefined price causal factor uses the field item\_price in the sales\_data table. You should make sure that this data is available.

## Configuring Global and Local Casual Factors

Here you provide information about how the Analytical Engine should use each global and local causal factor.

**To configure a causal factor:**

1. Click Engine > Forecast Tree. Or click the Forecast Tree button.
2. Click Next repeatedly until you reach the Causal Factors dialog box.
3. If the causal factor is not yet listed here, do the following:
  1. Click Add.  
A new line is displayed.
  2. Describe the new causal factor by specifying the following:

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Factor Name	<p>Depends on the type of causal factor:</p> <ul style="list-style-type: none"> <li>• For a global factor: name of an existing column in the Inputs table.</li> <li>• For a local causal factor, this can be the name of an existing column in the sales_data table. The factor name can also just be a name; in this case, you must specify an expression in the Local Function field.</li> <li>• For an activity: name of a column in the sales_data table. Business Modeler adds this column automatically if it does not yet exist.</li> </ul>
Factor Type	<p>Choose one of the following:</p> <ul style="list-style-type: none"> <li>• global</li> <li>• local</li> <li>• activity (a special kind of local causal factor that supports shape modeling)</li> </ul> <p>Do not use the event choice, which is an older implementation of the more general local choice. The price option is useful only for the predefined price causal factor.</p>

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3. Specify how the Analytical Engine should use the causal factor. To do so, specify the following values:

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Short	Usually you enable this check box only for the following global causal factors: Constant, t, d1, ... d12. See "Typical Flags for Causal Factors".
Long	Usually you enable this check box for all causal factors. See "Typical Flags for Causal Factors".

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Multiplicative Group 1	<p><b>(Renamed in 7.1)</b> Enable this check box to include this causal factor in the first multiplicative group for use by the DMULT model; you should enable this check box for at least one causal factor.</p> <p>Typically you place causal factors that vary on a daily basis into one group and place all others in the other group. No causal factor should be in both groups. see "Theoretical Engine Models".</p> <p>This setting affects only the DMULT model.</p>
Multiplicative Group 2	<p>Enable this check box to include this causal factor in the second multiplicative group for use by the DMULT model; you should enable this check box for at least one causal factor.</p> <p>This setting affects only the DMULT model.</p>
Non Seasonal	<p>Enable this check box if the data associated with this causal factor is not known to be a predictable function of time. For example, price varies with time, but randomly, so price should be flagged as non-seasonal. See "Typical Flags for Causal Factors".</p>
Fill Causals	<p>Specifies whether Demantra should interpolate when values are missing for a date. The missing local causal factor will receive the average of its nearest two non-missing neighbors.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• If the causal values are 1, missing, and 2, then Demantra replaces the missing value with 1.5.</li> <li>• If the causal values are 1, missing, missing, missing, and 2, then Demantra replaces each missing value with 1.5.</li> </ul>
Shape Indicator	<p><b>Only for activities.</b> Specifies whether Demantra should perform shape analysis and calculations on this activity.</p>

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Omit Seasonal

**Only for activities.** This option specifies whether to nullify values of the global seasonal causal factors for the time buckets during which the causal factor occurs. Specifically this refers to the causal factors d1—d12 or d1—d7 and m1—m12. For example, if you have monthly data and you omit seasonal effects for a given causal factor Promo1, that means that Demantra switches off the causal factors for the duration of Promo1.

By omitting seasonal effects, you enable Demantra to capture the shape more clearly for the analysis. This option is suitable only if you expect the effect of this causal factor to be much stronger than the seasonal effects.

If causal factors overlap each other, then Demantra gives precedence to the causal factor that you have flagged to omit seasonal effects.

Local Function

**Only for local causal factors.** An SQL expression that describes how to aggregate causal factor data from the lowest level data. Use one of the following SQL aggregating functions:

- Min
- Max
- Sum
- Avg

Within the expression, refer to the name of the causal factor (the column name in which the causal factor is stored).

Within the expression, you can also refer to fields in the mdp\_matrix table.

You can also include tokens of the form #FORE@<Version>#. See "Server Expression Functions and Operators".

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4. Add comments to the Comments field, if desired.
4. Click Validate to check the validity of the configuration.

5. Click Save to save changes.

6. Do one of the following:

- Click Next.

If you created any activities, Business Modeler displays a message indicating the name of the series that it automatically creates for each activity.

For PE mode, then the Business Modeler displays the Promotional Causal Factors dialog box. See "Configuring Promotional Causal Factors".

- Click Exit.

See also

"Configuring Promotional Causal Factors"

"Base Causal Factors"

## About Activity Shape Modeling

In shape modeling, you capture the profile of the demand over the duration of a promotion. The Analytical Engine models the overall demand as a linear combination of Oracle proprietary shapes, as many as eight shapes; this information replaces the normal causal factor that would have been used instead. The Analytical Engine calculates the coefficients for each shape, for each relevant combination.

Remember that when you enable shape modeling for a causal factor, the single causal factor is replaced by up to eight causal factors. To keep the number of causal factors down, you can specify the maximum number of shapes permitted for activity shape modeling.

**Note:** Shape modeling capabilities are different in the two engine modes:

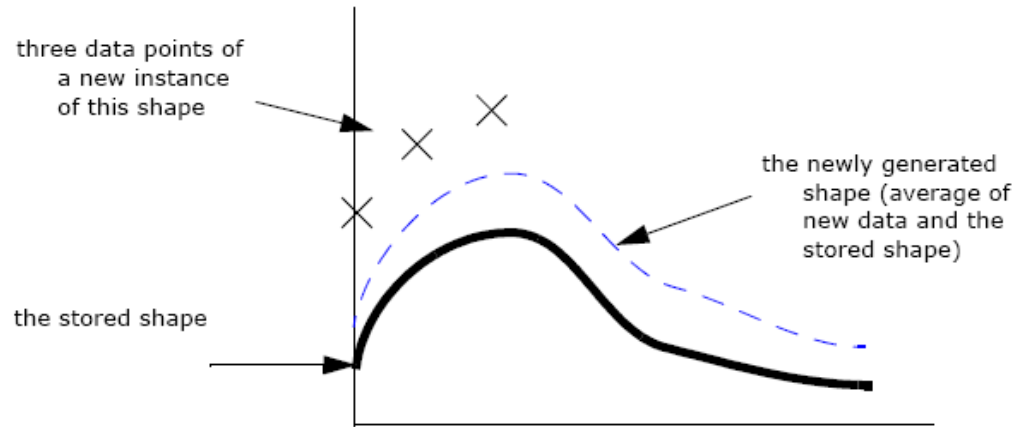
- In DP mode, the engine supports only activity shape modeling.
- In PE mode, the engine supports both activity shape modeling *and* promotional shape modeling. See "About Promotion Shape Modeling".

See "Engine Modes: DP and PE".

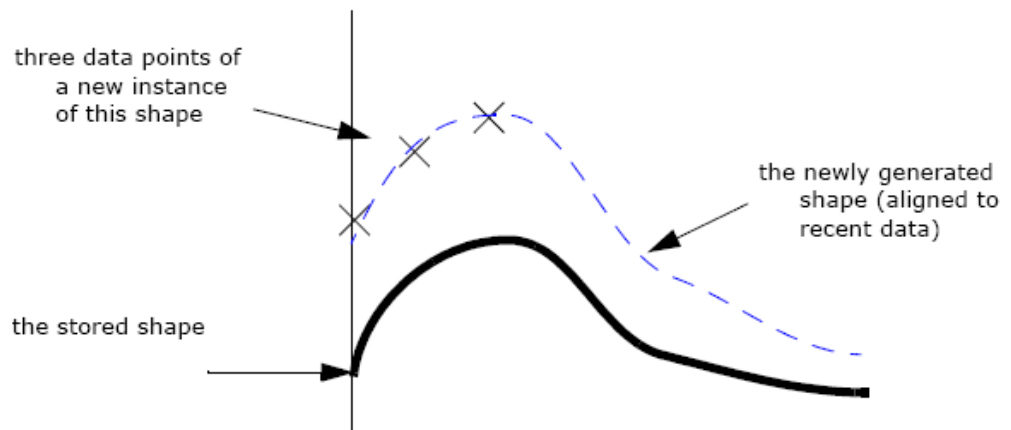
## Shape Alignment

Each stored shape is an average of the past instances of that particular shape. It is important to understand that the stored *information* consists of both the shape and the actual amplitude of the curve.

When the Analytical Engine observes the beginning of a new instance of a given shape, it is necessary to decide how to set the amplitude of the new curve that it generates. By default, the engine assumes that the amplitude of the stored shape should be taken into consideration. Therefore, when the Analytical Engine generates the new shape, it averages the new data together with the stored shape, as follows:



The default behavior is appropriate when the history contains many instances of a given shape. When the shape is new to the system, however, it is more appropriate to force the Analytical Engine to re-scale the generated shape so that it aligns with the most recent observations:



To force this realignment you use the QAD (quantity alignment duration) series associated with the shape. This series specifies the number of time buckets during which this alignment should occur, starting with the beginning of the shape. If you need to align the shape, you generally should align the entire shape; that is, you set the series equal to the expected length of the shape.

## Samples of Activity Shape Modeling

To see samples, use the UPGRADE\_TO\_SHAPE\_MODELLING procedure, which does the following:

- It creates two sample activity causal factors: Product\_launch and Price\_change.
- It creates four series for the benefit of end users:
  - Price\_change
  - Price\_change\_QAD
  - Product\_launch
  - Product\_launch\_QAD

See also

"Enabling Activity Shape Modeling"

## Enabling Activity Shape Modeling

### To enable activity shape modeling:

1. For each specific shape you want to represent, create the causal factor data, as described in "Creating a Local Causal Factor".
2. Configure this causal factor as type Activity, as described in "Configuring Global and Local Causal Factors".

When you configure this causal factor as an activity (named, for example, Product Launch), the Business Modeler automatically creates two series that constitute the user interface for the activity. These series are as follows:

Generic name/ Example name	Purpose
<i>Causal-factor-name/</i> <b>ProductLaunch</b>	Lets the user indicate the start and duration of the activity associated with a specific combination. Within this series, for each date, the user chooses "Start" or "Active" from a dropdown menu to specify the promotion start and continuation dates. The default is "None," meaning no promotion. The user identifies past activities and marks where future activities will occur.

Generic name/ Example name	Purpose
<i>Causal-factor-name_QAD/</i> <b>ProductLaunch_QAD</b>	<p>Controls whether the Analytical Engine rescales the generated shape to align with the amplitude of the most recent observed instance of this shape, for a given combination.</p> <p>By default, this is zero, and the Analytical Engine <i>averages</i> the most recent data with the stored shape, which is an average of all the past observations of this shape.</p> <p>When the shape is "new" to the system, the user should set ProductLaunch_QAD equal to the typical length of the activity, so that the new data takes precedence.</p>

3. Add these series to a worksheet at the appropriate aggregation level.
4. Edit the *Causal-factor-name* series to identify when the activity occurred and when it will occur and save the changes.
5. If appropriate, use the *Causal-factor-name\_QAD* series to control whether to realign the shape. Edit the series and save the changes.
6. To specify the maximum number of Oracle proprietary shapes that the Analytical Engine can use for activity shape modeling, set the NumShapes parameter.
7. Run the Analytical Engine as usual.

See also

"About Activity Shape Modeling"

## Deleting a Causal Factor

### To delete a causal factor:

1. Click Engine > Forecast Tree. Or click the Forecast Tree button.
2. Click Next repeatedly until you reach the Causal Factors dialog box or (PE mode only) the Promotional Causal Factors dialog box.
3. Click the causal factor you want to delete.
4. Click Delete.

5. Business Modeler asks for confirmation. Click Yes or No.

See also

"Configuring Global and Local Causal Factors"

"Configuring Promotional Causal Factors"

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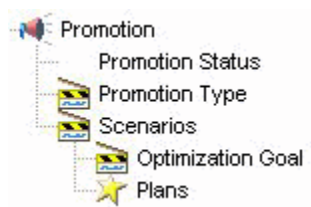
## Configuring Promotions and Promotional Causal Factors

This chapter covers the following topics:

- Base Behavior
- Customizing the Promotion Levels
- Loading Historical Promotions
- How the Analytical Engine Uses Promotions
- Configuring Promotional Causal Factors
- Adjusting the Promotion Dates
- About Promotion Shape Modeling
- Enabling Promotion Shape Modeling

### Base Behavior

The Demantra installer automatically defines the following required promotion levels:



These levels have the following purposes:

Level	Purpose	Permitted Customization
Promotion	<p>Defines the promotions themselves. This level must define all the possible attributes that can be associated with promotions.</p> <p>This level must include the Population attribute, which specifies the item-location combinations and the time span with which the promotion is associated.</p>	Add attributes only.
Promotion Status	<p>Controls the following:</p> <p>Whether the promotion is used in forecasting.</p> <p>Whether users can edit the promotion.</p> <p>How DSM uses the promotion.</p> <p>See "Promotion Status".</p>	
Promotion Type		
Scenarios	Provides optional organizational structure, for the benefit of users, particularly within a worksheet.	Any change is allowed.
Optimization Goal	For use by the Promotion Optimization module only; see the Oracle Demantra Release Notes.	
Plans	Provides optional organizational structure, for the benefit of users, particularly within a worksheet.	Any change is allowed.

## Promotion Status

The values of Promotion Status are as follows:

Meaning			
Status	In forecasts	In worksheets	In DSM
Unplanned	The Analytical Engine does not consider this promotion.	Users can edit the promotion.	DSM considers this promotion to be uncommitted.
Planned	The Analytical Engine does consider this promotion.		
Committed		The user who committed this promotion can edit it.	DSM considers this promotion to be committed
Running		Nobody can edit the promotion.	The promotion is currently running.
Unmatched			The promotion has ended but has not yet been matched to an invoice.
Matched			The promotion has ended and has been matched to an invoice.

For information on DSM, see the *Oracle Demantra Deduction and Settlement Management User's Guide*.

## Customizing the Promotion Levels

You typically customize the promotion levels by adding attributes, although other changes are also permitted; see "Base Behavior". To customize the promotion levels, you use the Business Modeler.

You should also configure the Activity Browser of the worksheets, which displays a hierarchy of promotions. The Activity Browser has the same structure for all worksheets. To configure it, you use the Business Modeler.

For information, see "Configuring the Activity Browser"

## Loading Historical Promotions

To load historical promotions, use the Integration Interface Wizard, described in "Series and Level Integration". Create and execute an integration interface that loads both the

promotion members (via a level profile) and any promotion data (via a data profile).

## How the Analytical Engine Uses Promotions

The Analytical Engine does not directly use the promotions for forecasting. Instead, it converts their attributes to promotional causal factors, which it then converts to normal causal factors.

In this process, it uses the configuration information that you provide in the Business Modeler. For each promotional causal factor, the key options are as follows:

- Column Name Expression
- Filter
- Transpose by Column
- Merge Function
- Aggregation Function

It is important to understand how the Analytical Engine uses these options. The following sections describe how the Analytical Engine starts with promotions and converts them to causal factors. For more details on the engine flow, see "Engine Details".

These options use expressions that refer to promotion data. Note that these expressions can refer only to the tables that are used by the levels within the hierarchy of the analytical general level (promotion). For example: `promotion_data` or `promotion`.

For information on setting these options, see "Configuring Promotional Causal Factors".

## Kinds of Attributes

In this discussion, it is useful to consider the general kinds of promotional attributes that the Analytical Engine can use:

- *Quantitative attributes* such as discount. These attributes have numeric values that the Analytical Engine can use in their present form. The Analytical Engine assumes that the effects of these attributes is correlated with the value of the attribute. For example, if `discount1` is larger than `discount2`, then `discount1` has a larger effect on demand than `discount2`.

The Analytical Engine does not assume that the correlation has a positive sense.

- *Boolean attributes*, where the attribute either has a value or does not have a value.
- *Qualitative attributes*, where the attribute can have one value from a given set of values. The set of values is unordered, which means that even if the values are

numeric, there is no intrinsic meaning in the relative sizes. For example, you might use numeric color codes 4 and 5, but color 5 does not have a larger effect on demand than color 4.

Demantra converts this kind of attribute into a set of unrelated causal factors. For example, color code 4 is one causal factor and color code 5 is another. For any given promotion, this causal factor either has a value or does not have a value.

## Step 1: Aggregate Promotion Attributes to the LPL

The lowest promotion level (LPL) is a level in the forecast tree. Specifically, it is the lowest level at which promotions can have different attribute values from other, and it must be at or below the minimum forecast level.

The Analytical Engine retrieves the promotional causal factor data and aggregates it to the LPL, as specified by the Column Name Expression. You use an aggregating expression like the following example:

```
max(promotion_data.discount)
```

**Note:** As with all the options discussed here, the expression can refer only to tables that are used by the levels within the hierarchy of the analytical general level (promotion). For example: promotion\_data or promotion.

As a general rule, an expression that uses the max function is probably appropriate in most cases, because promotions should have the same attribute values below the LPL, by definition.

## Step 2: Applying Filters

Sometimes you need to convert one set of promotional causal factor data into multiple causal factors. To do so, you use a Filter expression, an aggregating expression that evaluates to true or false. The promotional causal factor uses only the data for which the expression is true. You typically create multiple promotional causal factors, each with a different filter expression that uses a different part of the source data.

For example, consider the following promotional data. This table contains one row for each promotion for a given combination and time bucket. (For simplicity, the table shows only one combination, one time bucket, and three promotions.) The promotion\_data table shows values of attributes (promo\_type and discount) associated with those promotions.

Item	Location	Date	Promotion	Promo_type	Discount
100	333	1	214	1	15

Item	Location	Date	Promotion	Promo_type	Discount
100	333	1	296	2	5
100	333	1	340	3	10

Suppose that we have configured the following promotional causal factors:

Factor Name	Column Name Expression	
Special Discount	max(promotion_data.discount)	max(promotion_data.promo_type=3)
Discount	max(promotion_data.discount)	max(promotion_data.promo_type<3)

Internally, Demantra would convert the promotion attributes to the following promotional causal factors:

Item	Location	Date	Promotion	Special Discount	Discount
100	333	1	214	0	15
100	333	1	296	0	5
100	333	1	340	10	0

### Step 3: Transposing Promotion Attributes

Next, the Analytical Engine considers the Transpose by Column setting, which you use for qualitative promotion attributes. This setting converts a single promotion attribute into multiple causal factors. For quantitative or Boolean attributes, specify 0, which means that Promotion Effectiveness can use the attributes as casual factors in their present form.

For example, suppose that promotions use different "delivery types," which correspond to different mechanisms such as circulars, extra product samples, coupons, and so on. Each of these mechanisms might have a different affect on sales. Suppose we have the following example data in the promotion\_data table:

Item	Location	Date	Promotion	Delivery_type
150	344	1	214	4
150	344	1	296	5
150	344	1	340	6

Because delivery\_type is a qualitative attribute, it is generally appropriate to transpose it. We could configure a Delivery Type promotional causal factor, as follows:

Factor Name	Column Name Expression	Filter	Transpose by Column
Delivery Type	max(promotion_data.Delivery_type)	null	max(promotion_data.Delivery_type)

Note that Transpose by Column must be an aggregating expression.

Using this configuration data, Demantra would internally convert the preceding promotion attributes into the following set of promotional causal factors:

Item	Location	Date	Promotion	Delivery Type(4)	Delivery Type(5)	Delivery Type(6)
150	344	1	214	4	0	0
150	344	1	296	0	5	0
150	344	1	340	0	0	6

You may want to transpose by a promotion attribute (as in this example) or by members of a level in the promotion hierarchy.

**Note:** If you use the members of a level to transpose an attribute, be sure to first filter out the default member (which has an ID of 0) of that level.

## Step 4: Merging Across Promotions

Next the Analytical Engine uses the Merge Function setting, which describes how to

merge promotional causal factors that occur on the same date at the same item-location combination (thus merging across all the promotions for that combination and date).

For Merge Function, you can choose one of the functions provided by Business Modeler.

The way that you merge depends upon the meaning of the data in the promotional causal factor. For example, if you have multiple discounts on the same date, you would want to merge them by the compound rule (so that 10% and 20% are merged to 28%).

## Step 5: Aggregating Attributes within the IGL

The influence group level (IGL) is another level in the forecast tree. The Analytical Engine uses this level to simplify the computational problem. It creates the following three historical promotional causal factors for each node in the forecast tree:

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self	Influence on this node caused by attributes on this node
own	Influence on this node caused by other nodes within the same IG
other	Influence on this node caused by all other IGs within the IR

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In this last step, the Analytical Engine uses the Aggregation Function option, which describes how to aggregate the promotional causal factor to the IGL.

**Note:** The Analytical Engine uses the same option whenever it needs to aggregate to higher levels for forecasting purposes.

For Aggregation Function, you can choose one of the functions provided by Business Modeler.

## Configuring Promotional Causal Factors

This section describes how to configure promotional causal factors. You can do most of the work within the Business Modeler, but it is necessary to go into the database for the final steps.

### To configure promotional causal factors:

1. Click Engine > Forecast Tree. Or click the Forecast Tree button.
2. Click Next repeatedly until you reach the Promotional Causal Factors screen.

Each row in this screen specifies a promotional causal factor.

3. To add a new promotional causal factor for Promotion Effectiveness, click Add.  
A new line is added.
4. Describe the promotional causal factor by specifying the following:

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Factor Name	Name of the promotional causal factor. This name should consist only of alphanumeric characters.
Column Name Expression	<p>An expression that retrieves the causal factor (promotional attribute) data and aggregates it to the LPL. For example:</p> <pre>max(promotion_type.is_ad)</pre> <p>An expression that uses the max function is probably appropriate in all cases, because promotions should have the same attribute values below the LPL, by definition. See "Step 1: Aggregate Promotion Attributes to the LPL".</p>
Filter	An aggregating expression that returns the true or false value. This expression filters out promotion data that should not be used for this promotional causal factor; that is, the promotional causal factor uses only the rows for which this expression returns true. See "Step 2: Applying Filters".
Transpose by Column	<p>An aggregating expression that returns the values by which the data is to be transposed. You usually transpose an attribute only if it is qualitative. To avoid transposing, use the value 0.</p> <p>See "Step 3: Transposing Promotion Attributes".</p> <p><b>Note:</b> If you use the members of a level to transpose an attribute, be sure to first filter out the default member (which has an ID of 0).</p>

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Merge Function	<p>Specifies how Oracle Demantra should internally merge promotions of the same kind that apply to the same item, location, and time. Click one of the following:</p> <ul style="list-style-type: none"> <li>• Compound (Use only for numeric causal factors. All values must be greater than or equal to 0 and less than 1; otherwise, this function throws an error.)</li> <li>• WAVR (Weighted average. Use only for numeric causal factors. If you use this option, also specify Merge Function Column.)</li> <li>• Boolean (Use for boolean causal factors or for transposed causal factors.)</li> </ul> <p>See "Step 4: Merging Across Promotions".</p>
Merge Function Column	<p>Applies only if you select WAVR for the merge function. Specifies the weights to use when performing a weighted average.</p> <p>The preceding expressions can refer only to the tables that are used by levels within the hierarchy of the analytical general level (promotion). For example: promotion_data or promotion</p>
Aggregation Function	<p>Specifies how Demantra should internally aggregate this promotional causal factor across combinations, whenever it is necessary do so. Click one of the following:</p> <ul style="list-style-type: none"> <li>• WAVR (Weighted Average. For the weights, Demantra uses the stored proportions of the combinations)</li> <li>• Boolean (Typically you use this if you have transposed a causal factor.)</li> <li>• Sum</li> </ul> <p>See "Step 5: Aggregating Attributes within the IGL".</p>
Priority	<p>Ignore this field.</p>

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Influence	<p>Specifies the effect of this promotional causal factor on other members. Click one of the following options:</p> <ul style="list-style-type: none"> <li>• Has effect on other members (this causal factor can affect other combinations, in addition to the combinations with which it is associated)</li> <li>• Has direct effect only (this causal factor affects only the specific combinations with which it is associated)</li> <li>• Has only indirect effect (this causal factor affects only the combinations with which it is not associated)</li> </ul>
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5. Describe how the Analytical Engine should use this promotional causal factor. To do so, specify the following values:

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Short	Usually you enable this check box only for the following global causal factors: Constant, t, d1, ... d12. See "Causal Factors and Engine Models".
Long	Usually you enable this check box for all causal factors. See "Causal Factors and Engine Models".
Multiplicative Group 1, Multiplicative Group 2	Ignore these options, which do not affect promotional causal factors.
Non Seasonal	Enable this check box if the data associated with this causal factor is not known to be a predictable function of time. For example, price varies with time, but randomly, so price should be flagged as non-seasonal. See "Causal Factors and Engine Models".
Self Shape Indicator	Enable this check box if this promotion causal factor should be represented as a shape. See "About Promotion Shape Modeling".
IG Shape Indicator	Enable this check box if this promotion causal factor should be represented via shape modeling when it is aggregated to the IGL.

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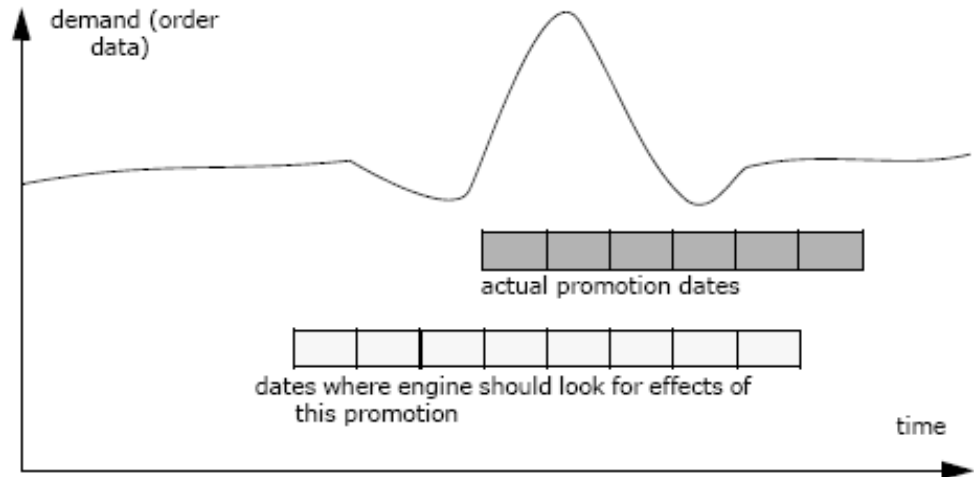
Omit Seasonal	<p>Enable this check box if you want to nullify values of the global seasonal causal factors for the time buckets during which the causal factor occurs. Specifically this refers to the causal factors d1—d12 or d1—d7 and m1—m12. For example, if you have monthly data and you omit seasonal effects for a given causal factor Promo1, that means that Demantra switches off the causal factors for the duration of Promo1.</p> <p>By omitting seasonal effects, you enable Demantra to capture the promotion shape more clearly for the shape analysis. This option is suitable only if you expect the effect of this causal factor to be much stronger than the seasonal effects.</p> <p>If causal factors overlap each other, then Demantra gives precedence to the causal factor that you have flagged to omit seasonal effects.</p>
Num Shapes	<p>Specify the maximum number of allowed shape causal factors for the engine to use for a given node in the forecast tree, for this promotional causal factor. Use an integer from 0 to 8, inclusive.</p>

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6. Click Validate to check the validity of the configuration.
7. Click Save.
8. Now you can return to previous dialog boxes to make further changes. Or click Finish to exit.

## Adjusting the Promotion Dates

By default, Promotion Effectiveness assumes that a promotion has an effect between its start and end dates, as provided to Oracle Demantra. Typically the promotion has an actual effect in a slightly different span of time, as in the following example:



You can adjust the dates used by the Analytical Engine in two complementary ways:

- To specify the number of days to add to the sales date for any given promotion, set the `ShiftDynPromoDate`, which is typically an expression that varies by promotion and that returns a negative number. In the preceding example, `ShiftDynPromoDate` equals -1 for the promotion shown here.

**Note:** Alternatively, to specify an overall shift in time for all promotions, set the `ShiftPromoCausals` parameter.

- To stretch a promotion by adding time buckets to the beginning or end, do the following.
  - Decide which attribute or attributes have pre and post-promotional effects.
  - Enable shape modeling for those promotional causal factors; see "About Promotion Shape Modeling".
  - For those promotional causal factors, set Num Shapes equal to 1.
  - The user must change the `pre_effect` and `post_effect` settings of the combination, which default to zero. These settings (in `mdp_matrix`) specify the number of buckets to search backwards and forwards outside the promotion dates. In the preceding example, we set `pre_effect` equal to 2.

Typically you also set the `ShiftPromoMaxValue` parameter, to make sure that you adjust the dates of promotions in the near future (rather than adjusting only historical promotions).

See also

"How the Analytical Engine Uses Promotions"

"Configuring Global and Local Causal Factors"

"Deleting a Causal Factor"

## About Promotion Shape Modeling

In shape modeling, you capture the profile of the demand over the duration of a promotion. The Analytical Engine models the overall demand as a linear combination of Oracle proprietary shapes, as many as eight shapes; this information replaces the normal causal factor that would have been used instead. The Analytical Engine automatically associates a different shape with each value of the promotional attribute that uses shape modeling. The Analytical Engine calculates the coefficients for each shape, for each relevant combination.

**Note:** The feature described here is available *in addition to* activity shape modeling; see "About Activity Shape Modeling".

## When to Enable Shape Modeling

You should enable shape modeling only if the following are all true:

- The demand data is continuous (point-of-sale data rather than order data).
- The typical length of a promotion is more than one time bucket.
- You need to search for pre and post effects of promotions.

## Other Considerations

Remember that when you enable shape modeling for a promotional causal factor, the single promotion causal factor is replaced by up to eight causal factors. If the promotional causal factor is transposed, that adds even more causal factors: up to eight for each column that the transpose creates.

To keep the number of causal factors down, you can specify the maximum number of shapes permitted for any given promotional causal factor.

## Enabling Promotion Shape Modeling

**To enable promotion shape modeling:**

1. Identify the promotional causal factors that you want to represent as shapes.
2. On the Promotional Causal Factors screen, make sure to check the Self Shape

Indicator option for each of those promotional causal factors.

3. Consider also setting the following options.

- IG Shape Indicator
- Omit Seasonal
- Num Shapes



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## Tuning the Analytical Engine

It is usually necessary to adjust some parameters to configure the Analytical Engine correctly before running it the first time. Other adjustments can be made later to optimize the behavior and performance.

This chapter covers the following topics:

- Editing Engine Parameters
- Creating or Renaming Engine Profiles
- Tuning Analytics
- Tuning Performance
- Reconfiguring the sales\_data\_engine Table
- Enabling Engine Models Globally
- Configuring the Engine Mode
- Advanced Analytics (Nodal Tuning)

### Editing Engine Parameters

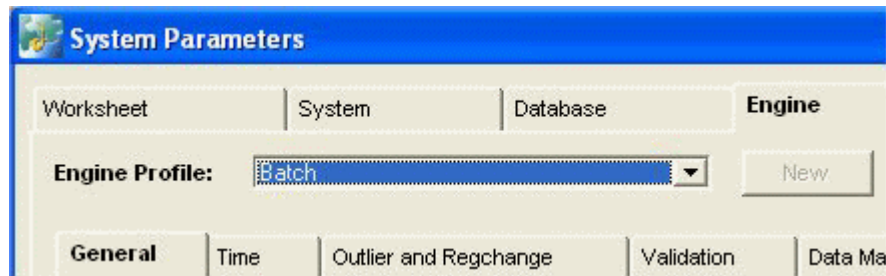
To tune the Analytical Engine, you modify values of two types of engine parameters:

- Global parameters that apply to the engine or to most or all of the forecasting models. For convenience, you define *engine profiles* (**added in 7.0.**), which are sets of engine parameters with specific values. Demantra provides some predefined profiles for different purposes, and you can define additional engine profiles, as needed.
- Parameters that apply to specific forecast models.

#### To edit the global engine parameters:

1. Log onto the Business Modeler.

2. Click Parameters > System Parameters. The System Parameters dialog box appears.
3. Click the Engine tab.



4. From the Engine Profile dropdown, select the engine profile whose parameter settings you want to adjust.
5. Find the parameter of interest. The dialog box provides find, sort, and filter capabilities to help you with this. See "Engine Parameters".
6. To change the value of the parameter, click the Value field for that parameter. Type the new value or select a value from the dropdown menu.
7. Click Save to save your changes to this profile.
8. Click Close.

#### **To edit specific model parameters:**

To edit most model-specific parameters, you must work directly within the Demantra database. For information on the parameters and their locations in the database, see "Engine Parameters".

See also

"Creating or Renaming Engine Profiles"

"Tuning Analytics"

"Enabling Engine Models Globally"

## **Creating or Renaming Engine Profiles**

#### **To create or rename an engine profile:**

1. Log onto the Business Modeler.
2. Click Parameters > System Parameters. The System Parameters dialog box appears.

3. Click the Engine tab.
4. Do one of the following:
  - To rename an existing profile, click the profile from the Engine Profiles list and then click Edit.
  - To create a new profile, click New.
5. Enter a (new) name for the profile.

See also

"Editing Engine Parameters"

"Tuning Analytics"

## Tuning Analytics

For basic parameters related to the forecast tree, see "Specifying Additional Parameters". For information on all parameters (including default values), see "Engine Parameters".

## Analytical Parameters

The following parameters control analytics:

Parameter	Purpose
UseNonNegRegr	<p>Specifies whether to allow negative coefficients. Most of the models use this parameter.</p> <p>In cases with multiple, possibly co-varying causal factors, the Analytical Engine sometimes finds a solution that includes a large positive coefficient for one causal and a large negative coefficient for another causal factor, so that they nearly cancel one another.</p> <p>Mathematically, this solution may be good. But a negative coefficient means that the demand acts in the opposite sense to the causal factor; that is, demand drops when the causal factor increases. And a negative coefficient does not make sense in the vast majority of cases. This means that it is generally good practice to disable negative coefficients.</p>
ShapeSign	<p>Specifies the signs for the shape causal factors when using them in non-negative regression.</p>

Parameter	Purpose
NumShapes	Specifies the maximum number of allowed shape causal factors for the engine to use for a given node in the forecast tree. Use an integer from 0 to 8, inclusive. This applies to activity shape modeling (rather than to promotional shape modeling).
CannibalizationIgnore	Controls whether the Analytical Engine will calculate switching effects (cannibalization). You can use this parameter to switch off that calculation in order to check that the Analytical Engine is calculating the basic lift appropriately.

## Parameters Related to Promotional Causal Factors (PE Mode Only)

The following parameters are related to promotional causal factors:

Parameter	Purpose
PromotionStartDate	Earliest date for which promotion data can be considered reliable.
ShiftDynPromoDate	<p>SQL expression that returns the number of days to <i>add</i> to the sales date for any given promotion; typically this is a negative number. If this expression is null, then the default promotion dates are used.</p> <p>Alternatively, to specify an overall shift in time for all promotions, set the ShiftPromoCausals parameter.</p>
See "Adjusting the Promotion Dates".	

## Parameters Related to Validation (PE Mode Only)

The Analytical Engine applies different forecasting models to each node of the forecast tree, calculates the uplift for each node, and uses that uplift to check whether the model is appropriate for that node. If not, the model is not used for the node.

The Analytical Engine can discard a model for a given node for either of two reasons:

- The model generated an uplift that was beyond the upper allowed bound, as specified by the UpperUpliftBound parameter.
- The model generated too many exceptional uplifts. An uplift is considered

"exceptional" if it exceeds the lower bound specified by the LowerUpliftBound parameter. The AllowableExceptions parameter controls how many exceptional uplifts are permitted.

## Parameters Related to Output (PE Mode Only)

The following parameters control the output of Promotion Effectiveness forecast values:

Parameter	Purpose
NormalizeResults	Specifies whether to normalize the historical engine results so that the observed baseline values are preserved. If you normalize the engine results, note that the Analytical Engine writes these results to different fields in promotion_data than it does otherwise. See "Key Tables".
WriteMissingDatesUplift	Specifies whether to write uplifts for dates that are missing from sales_data. If you specify no, then the Analytical Engine writes uplifts only for dates that already have sales. However, the uplifts will not necessarily add up to the total uplift.
UpliftThresholdValue	Specifies a threshold for uplift values. If the Analytical Engine calculates uplift values below this threshold, those values are dropped rather than being written to the database.
UpliftThresholdMethod	Specifies whether the previous threshold is expressed as an absolute value or as a percentage of baseline.

See also

"Editing Engine Parameters"

"Creating or Renaming Engine Profiles"

## Tuning Performance

To improve the performance of the Analytical Engine, check the settings of the following parameters. To access these parameters in Business Modeler, click Parameters > System Parameters and then click the Database tab.

## Basic Engine Parameters for Performance

The following engine parameters are critical to good performance. Make sure they are set appropriately for your configuration.

Parameter	Purpose
min_fore_level	Minimum forecast level that the engine will forecast. For PE, this must be at or above the lowest promotional level (LPL). Make sure this is defined appropriately for your forecast tree.
start_new_run	Specifies whether to start a new Analytical Engine run or to perform an engine recovery. Use yes or prompt.
node_forecast_details	Specifies whether the Analytical Engine should write forecast data for each node (the NODE_FORECAST table), before splitting to lower levels. Writing to this table slows the engine, so you should switch off this option unless you have tested that the impact is acceptable.
WriteIntermediateResults	Specifies whether to enable the advanced analytics function, which is available only on the desktop. Make sure this option is off unless you have tested that it does not interfere unduly with performance.
BulkLoaderBlockSize	Specifies the minimum number of rows that Analytical Engine loads at one time, when writing to the database. The larger this is, the more quickly the data is loaded, but there is greater risk if the database connection is lost.  For a high-volume system, use 2000.
BulkLoaderEnableRecovery	Specifies whether Oracle Bulk Loader should perform recovery after a lost database connection. For a high-volume system, use 0.

## Parameters That Can Speed Performance

The following parameters can help the Analytical Engine run more quickly by omitting processing steps. You should change these only if you are sure that doing so will not cause problems.

Parameter	Purpose
ForecastGenerationHorizon	Specifies what historical fit data the engine will write to the database. If this parameter is 0, the engine writes the forecast only. If this parameter is a positive integer N, the engine writes the last N historical fit values.
ResetForeVals	<p>Specifies whether the engine should clear out previous forecast data before generating the forecast.</p> <p>If yes, then Demantra clears the previous forecast for all combinations with prediction status equal to 99. (The other combinations are left alone, because the engine will overwrite their forecast anyway.)</p> <p>Normally, ResetForeVals should be yes, but in some cases, you may want to set this parameter to no in order to improve engine performance.</p>
RunInsertUnits	<p>Specifies whether the Analytical Engine calls the INSERT_UNITS procedure at the start of an engine run. This procedure makes sure the engine has rows to write into when generating the forecast.</p> <p>For information on all procedures, see "Database Procedures".</p>
BatchRunMode	<p><b>Applies to PE mode, and applies to both batch run and simulation run.</b> Specifies the kind of forecasting to do:</p> <ul style="list-style-type: none"> <li>• 0=run the forecast against only the learning (estimation)</li> <li>• 1=run the promotion forecast (the normal setting)</li> <li>• 2=perform an estimation and promotion forecast run (fast simulation; this option uses previously cached data)</li> </ul> <p>For options 0 and 2, the Analytical Engine performs fewer scans. (For details on the engine flow, see "Promotion Effectiveness Engine Phases".)</p>

Parameter	Purpose
align_sales_data_levels_in_loading	<p>Specifies whether to adjust the sales_data table for direct use by the engine (instead of the sales_data_engine table).</p> <ul style="list-style-type: none"> <li>• 0=no (do not adjust the sales_data table for direct use by the engine)</li> <li>• 1=yes (adjust the sales_data table)</li> </ul> <p>For information on this parameter, see "Non-Engine Parameters".</p>

## Database Partitioning for the Engine

You can partition the database so that the Analytical Engine can access data more rapidly. Specifically, you can place different parts of the sales\_data, mdp\_matrix, and promotion\_data tables on different partitions, so that each partition corresponds to a potentially different item and/or location.

The overall process is as follows:

1. Create the partitions and move rows to them as needed. This is beyond the scope of this documentation.
2. To partition only by item, choose a database column that you can use to subdivide the records by item. This column must exist in the sales\_data, mdp\_matrix, and (in the case of Promotion Effectiveness) promotion\_data tables and must have the same name in each of these tables.

For example, it might be suitable to partition by brand. The brand information is available in mdp\_matrix as (for example) the t\_ep\_p2a\_ep\_id field. You would have to replicate this column to the sales\_data and promotion\_data tables as well, perhaps by a database trigger.

Similarly, to partition only by location, choose a database column that you can use to subdivide the records by location.

To partition by item and by location, choose a database column that you can use to subdivide the records by item and another column that subdivides them by location.

3. Set the following parameters so that the Analytical Engine can find the partition on which any combination resides:

Parameter	Purpose
PartitionColumnItem	Specifies the name of the column that partitions the data by item.
PartitionColumnLoc	Specifies the name of the column that partitions the data by location.

## Other Database Considerations

Pay attention to the indexes of sales\_data and mdp\_matrix tables.

Also, for Oracle databases, Demantra writes to multiple tablespaces, as specified during installation. The tablespace assignments are controlled by parameters, which you can edit through the Business Modeler. Make sure that these parameters refer to tablespaces within the appropriate database user, and make sure each has enough storage.

**Note:** Oracle recommends that you use the standard names for these tablespaces, as documented in the Oracle Demantra Installation Guide. Then it is easier for you to share your database with Demantra Customer Support in case of problems.

Additional parameters control the default initial sizes and how much storage is added.

Parameter	Description
initial_param	Default initial size of system tablespaces.
next_param	Incremental amount of storage that is added to a tablespace when more space is needed.
tablespace	Tablespace used for the sales table.
indexspace	Database index space that stores the forecast table indexes, as specified during installation.
simulationspace	Tablespace used for simulation data.
simulationindexspace	Tablespace used for simulation index data.
sales_data_engine_index_space	Tablespace used for the index of sales_data_engine.

Parameter	Description
sales_data_engine_space	Tablespace used for sales_data_engine table.
*For information on these parameters, see "Non-Engine Parameters".	

## Reconfiguring the sales\_data\_engine Table

The Analytical Engine creates and uses a table (or view) called sales\_data\_engine. You can control how the Analytical Engine does this, in order to improve performance.

- You can adjust the sales\_data table for direct use by the Analytical Engine, so that the sales\_data\_engine table is not needed.
- Normally, the Analytical Engine internally creates the sales\_data\_engine table for its own use, and creating this table can be time-consuming. You can speed up the engine by configuring it to use the sales\_data table instead of the sales\_data\_engine table.
- Normally, when the Analytical Engine runs, it joins sales\_data\_engine (or its synonym) with the mdp\_matrix table. This is not always necessary, and you can prevent this join to speed up the Analytical Engine.

The following table lists the key parameters and some typical settings:

Parameter	Description	Normal batch run	Normal simulation	Faster engine run*	Fast simulation*
align_sales_data_levels_in_loading**	Specifies whether to adjust the sales_data table for direct use by the engine (instead of the sales_data_engine table). <ul style="list-style-type: none"> <li>• 0=no (do not adjust sales_data)</li> <li>• 1=yes</li> </ul>	0	0	1	1

Parameter	Description	Normal batch run	Normal simulation	Faster engine run*	Fast simulation*
SdeCreateSwitch	<p>Specifies whether to use external logic in order to create the sales_data_engine table.</p> <ul style="list-style-type: none"> <li>0=no (default behavior)</li> <li>1=yes (use external logic)</li> </ul>	0	0	1	1
SdeAnalyzeSwitch	<p>Specifies whether to use external logic in order to analyze the sales_data_engine table.</p> <ul style="list-style-type: none"> <li>0=no (default behavior)</li> <li>1=yes (use external logic)</li> </ul>	1	1	0	0
SdeCreateJoin	<p>Specifies whether the Analytical Engine should join sales_data_engine (or its synonym) and mdp_matrix during its run.</p> <ul style="list-style-type: none"> <li>0=no (do not join these tables)</li> <li>1=yes (join these tables)</li> </ul>	0	0	0	1
<p>*See "Additional Steps". Also note that fast simulation forecasts future uplift only. **For information on this parameter, see "Non-Engine Parameters".</p>					

### Additional Steps:

1. Configure the forecast tree as you normally would. See "Configuring the Forecast

Tree".

2. In the database, create a synonym for sales\_data. The name of synonym should be sales\_data\_engine or whatever synonym you plan to use.
3. Rewrite the following database procedures as needed:
  - create\_process\_temp\_table
  - create\_object
  - drop\_object
4. Consult Demantra for assistance.
5. Test that you have configured the engine correctly.
  1. Add new records to sales\_data, in any of the following ways: by loading via the Data Model Wizard, by running integration, or by chaining.
  2. Run the engine.
  3. Check the sales\_data table and make sure of the following:
    - This table should have a column for every level in the forecast tree,
    - This table should have a column named do\_aggri.
    - This table should have should include non-null data in these columns for at least some of the records.

## Enabling Engine Models Globally

Demantra provides a set of theoretical engine models that the Analytical Engine uses when it creates a forecast. Usually you do not make changes, but you can specify which models to use, as well as set basic parameters for each model.

**Caution:** Only advanced users should make these changes.

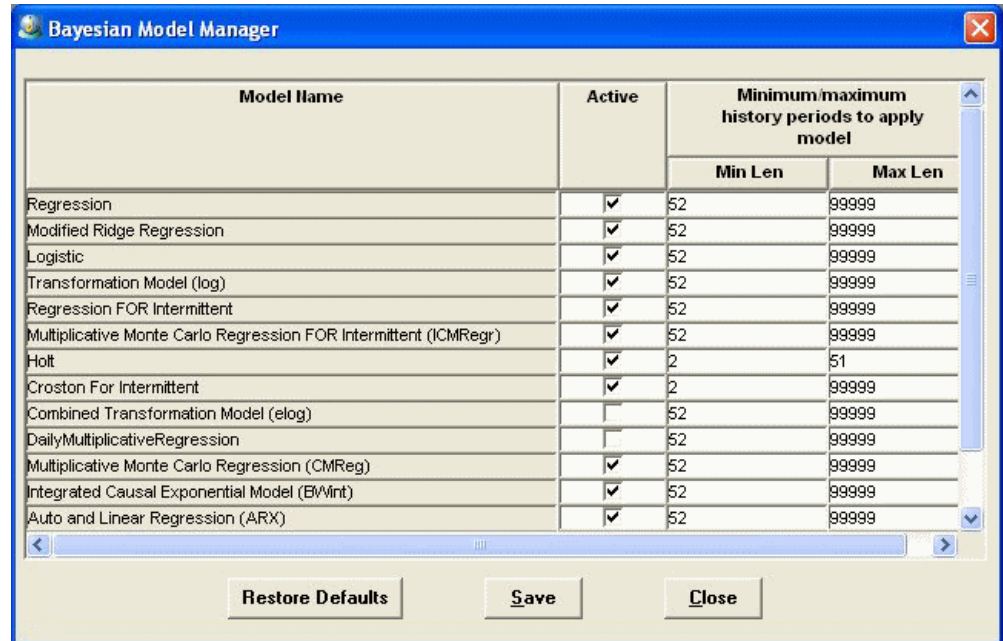
When the Analytical Engine runs, it may use a subset of these models on any particular combination. The engine tests each model for applicability; see "The Forecasting Process".

### To enable models for the Analytical Engine to use:

1. Log onto the Business Modeler.

2. Click Engine > Model Library.

The following dialog box appears.



3. For each model, do the following:

- To enable the Analytical Engine to use this model, make sure the Active check box is checked. For details on these models, see "Theoretical Engine Models". Note that not all models are supported with any given Analytical Engine.
- The other two settings control the minimum and maximum number of non-zero observations that a combination must have in order for the Analytical Engine to consider using this model for this combination. To specify these values, type integers into the Min Len and Max Len fields.

**Note:** Min Len must be equal to or greater than the number of causal factors in the forecast, except for the HOLT and FCROST models, which do not use causal factors.

4. Click Save and then click Close.

## Configuring the Engine Mode

Oracle provides two different modes of the Analytical Engine:

- The DP mode is for use with Demand Planner or other planning products.

- The PE mode is for use with Promotion Effectiveness.

## To specify the engine mode

The RUNMODE parameter specifies the mode of the Analytical Engine to use:

- Use 1 to specify the PE mode.
- Use 0 to specify the DP mode.

If you use this setting, also be sure that you have defined the forecast tree appropriately. In particular, make sure that the LPL (PROMO\_AGGR\_LEVEL) is the same as the minimum forecast level. To set this, use the forecast tree editor in the Business Modeler.

See also

"Troubleshooting"

## Advanced Analytics (Nodal Tuning)

Normally, the Analytical Engine uses the same options for every node in the forecast tree, but you can make certain adjustments for individual nodes, if necessary. This task is recommended only for advanced users in conjunction with Oracle Support.

Of the models you specify for a given node, when the Analytical Engine runs, it may use a subset of these models, as described in "The Forecasting Process". The Analytical Engine indicates (in the models column of mdp\_matrix) the models that it used.

### To enable advanced analytics :

1. Set the usemodelspernode and UseParamsPerNode parameters to yes.
2. Then for each node of the forecast tree, you can specify engine models and engine parameters for different nodes in the forecast tree. To do so, you use the Analytics window, described in the Oracle Demantra Demand Management User's Guide.

---

## Using the Engine Administrator and Running the Engine

Before you run the Analytical Engine for the first time, it is useful to ensure that you have configured it correctly:

This chapter covers the following topics:

- Before Running the Analytical Engine
- General Notes about Running the Analytical Engine
- Registering the Analytical Engine
- Starting the Engine Administrator
- Configuring Engine Settings
- Running the Engine from the Engine Administrator
- Running the Engine from the Start Menu
- Running the Engine from the Command Line
- Troubleshooting
- Viewing the Engine Log
- Examining Engine Results
- Running the Engine in Recovery Mode
- Stopping the Engine

### Before Running the Analytical Engine

Before you run the Analytical Engine for the first time, it is useful to ensure that you have configured it correctly.

- Make sure that you have installed the correct version of the Analytical Engine and that you have set the RUNMODE parameter correctly; see "Configuring the Engine

Mode".

- Make sure the engine is registered on all the machines where you want to use it. See "Registering the Analytical Engine."
- Make sure that you have enough (and not too many) observations for every node in your forecast tree, as needed by the engine models you plan to use.

If a node is left with no suitable model, the Analytical Engine will not forecast on that node. Instead it will forecast at a higher level, if possible.

- Various configurable fields contain parts of SQL queries used by the engine during run and may fail the engine if configured incorrectly. Common reasons for failures are misspellings, references to non-existent columns, or using functions or syntax not compatible with the database server.

To check all your engine-related SQL, check the following tables:

- In the `Init_Params_*` tables, check the parameters `quantity_form` and `UpTime`.
- In the `causal_factors` table, the `Local_Funct` column uses SQL.
- (For PE mode) In the `m3_causal_factors` table, many settings here use SQL.
- Make sure that the database is configured correctly, specifically the table extents. Also, if you have loaded the Demantra schema from a dump file, make sure that the current database contains table spaces with the same names as in the original database.
- Determine the best number of branches for the Analytical Engine to use for the current forecast tree. See "Viewing Branch Information".

## General Notes about Running the Analytical Engine

- The first engine run takes longer than later runs. This is because the Analytical Engine must set up internal tables on its initial run. You can reduce the length of time of the first engine run; see "Reconfiguring the sales\_data\_engine Table".
- You cannot run the Analytical Engine in batch mode unless the Business Logic Engine is closed and no simulation is running.
- On older Windows NT versions, you may get errors on running the Analytical Engine (2K DLL missing). To solve this, run the file `mdac_typ.exe` before running the Analytical Engine. (This executable is located in the `bin` directory under the Analytical Engine directory)

Also see

## Registering the Analytical Engine

The installer registers the Analytical Engine for you, but in case of problems, you can register the engine manually. To do so, run the batch file Demantra\_root/Demand Planner/Analytical Engines/bin\RegEngine.bat.

If your system includes the Distributed Engine, you can run the engine on multiple machines. You do not need to install it on every machine; you need only to register it on them. These machines must also be running the appropriate database client software, so that they can communicate with the Demantra database.

For information on choosing the machines to run the engine, see "Choosing Machines to Run the Engine".

## Starting the Engine Administrator

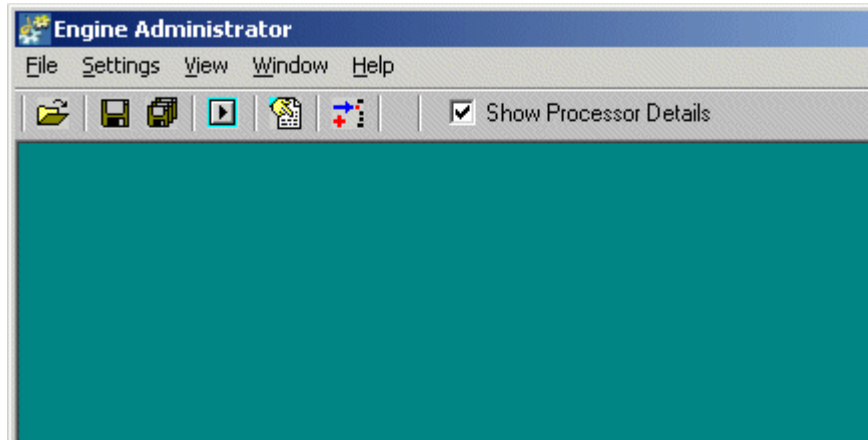
The Engine Administrator is a desktop-based user interface that lets you perform the following general tasks:

- Specify settings for the Analytical Engine. You save the settings in an XML file for convenience. You can open and use settings files that you have previously saved.
- Run the Analytical Engine itself.
- View the engine log.

### To start the Engine Administrator:

1. On the Start menu, click Programs.
2. Click Demantra > Demantra Spectrum release > Engine Administrator.

The Engine Administrator screen appears.



3. Here you can do the following:
  - Specify settings for the Analytical Engine. You save the settings in an XML file for convenience.
  - Run the Analytical Engine itself.
  - View the engine log.

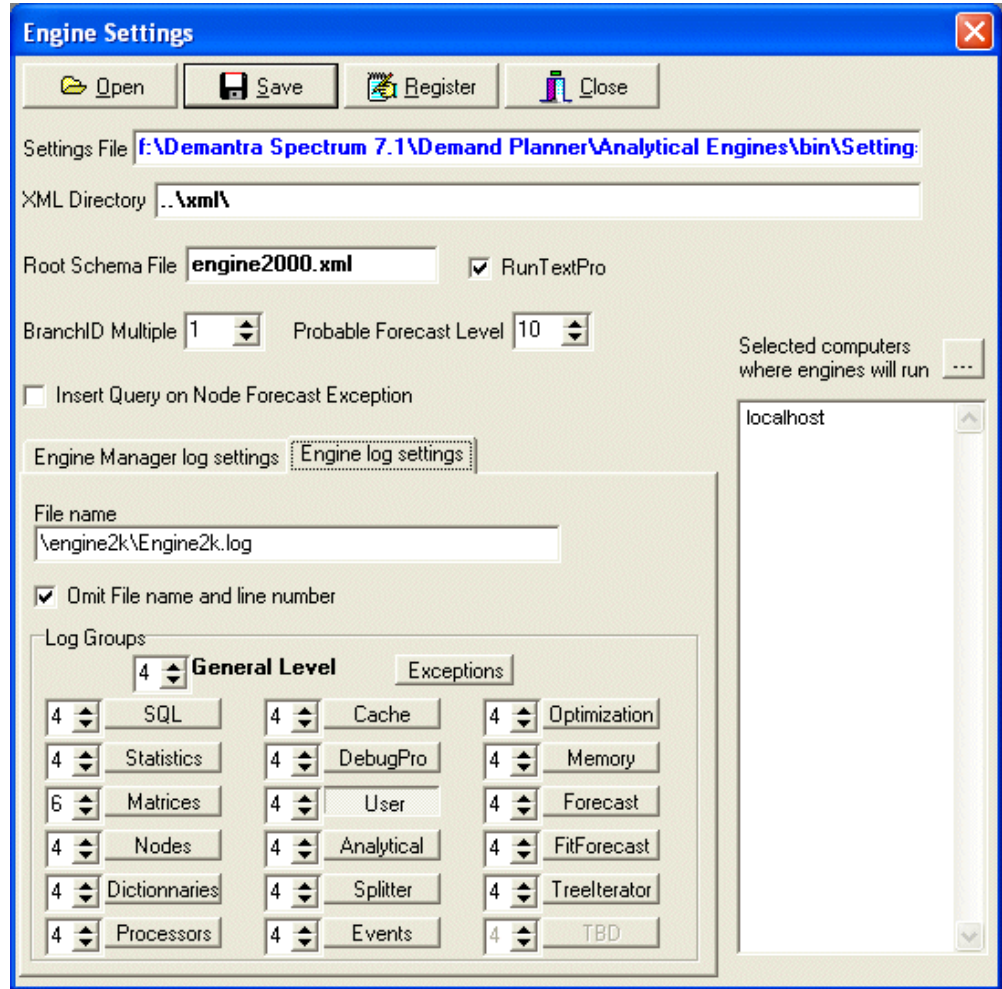
## Configuring Engine Settings

Engine configuration settings are edited in the Engine Settings window and saved in the file named settings.xml. When the engine starts, it reads the settings from this file.

### To open the Engine Settings window:

1. Start the Engine Administrator.
2. Click Settings > Configure Engine Settings. Or click the Configure Engine Settings button.

The Engine Settings window appears.



### To load settings:

1. Click Open.
2. Select settings.xml from the bin directory of the Analytical Engine.  
The Settings File field displays the location of settings.xml.
3. Complete the fields as needed; see "Engine Settings".
4. Optionally choose different machine(s) to run the engine; see "Choosing Machines to Run the Engine".
5. To save your settings, click Save.
6. To register your settings, click Register.

## Engine Settings:

You can configure the following settings.

Setting	Meaning
Run TextPro	If this option is checked then a database preprocessing step will take place where SQL statements (sql_def) will be prepared and parameters will be initialized.
BranchID Multiple	<p>Specifies how to divide the forecast tree, as described in "Engine Components" and "Viewing Branch Information".</p> <p>The Engine Manager divides the forecast tree into smaller tasks, by updating one column in the mdp_matrix table that links each node with a task ID. The number of the tasks is the number of engine servers that were initialized successfully, multiplied by the number in the BranchID Multiple field.</p>
Selected computers where engines will run	<p>The Engine Manager tries to create and initialize all the engine servers specified in this list.</p> <p>You can choose one or more machines on which the Analytical Engine has been installed. These machines must also be running the appropriate database client software, so that they can communicate with the Demantra database.</p> <p>In order to run the Analytical Engine on multiple machines, your system must include the Distributed Engine.</p>
Probable Forecast Level	Insert Query on Node Forecast Exception

### Engine Manager Log Settings

File name	Path and filename of the log file that will record errors from the Engine Manager.
Output Target	<p>Select either stdout or File.</p> <p>If you choose stdout, the output is sent to the Log File window. In this case, you can still save the log to a file, from the Run Engine window.</p>
Log Groups	Specifies the types of errors to log.

### Engine Log Settings

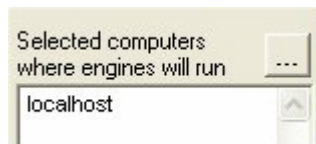
Setting	Meaning
File name	Path and filename of the log file that will record errors from the engine itself.
Log Groups	Specifies the types of errors to log.

### Choosing Machines to Run the Engine:

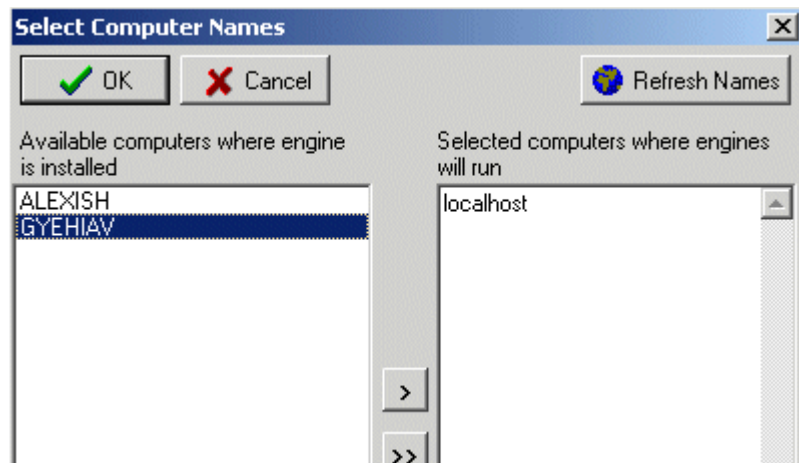
If your system includes the Distributed Engine, you can run the engine on multiple machines; see "Registering the Analytical Engine". Otherwise, Oracle Demantra runs the Analytical Engine on only one machine.

#### To choose the machines to run the engine:

1. Click the button next to the Selected computers field, shown here.



The Engine Administrator displays the following screen:



The left list shows the machines on which the Analytical Engine has been installed. The right list shows the machines where the Analytical Engine will run.

2. Click the arrow buttons to move machine names to and from the right list.
3. Click OK.

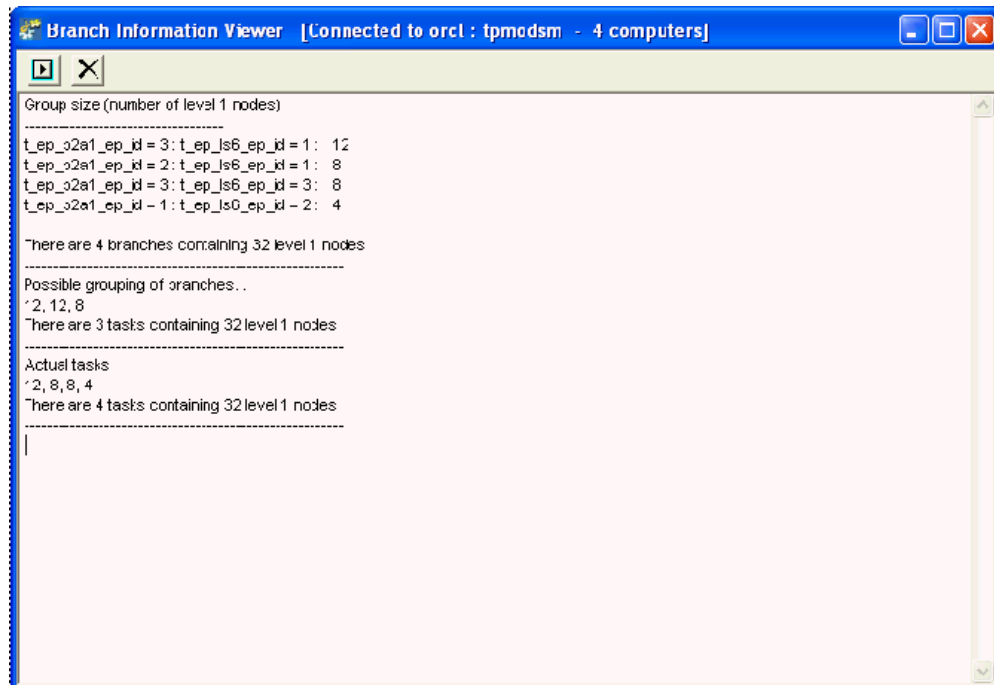
### Viewing Branch Information:

Internally, the Analytical Engine divides up each forecast tree into multiple branches and sends each branch to a different engine server. On one hand, it is useful to declare many branches, so that each engine will have less work. On the other hand, it is useless to declare more tasks than the forecast tree can possibly include. Therefore it is useful to understand what the branches of a given forecast tree would be like.

### To view branch information for a given forecast tree:

1. Click View > Branch Information.

The Branch Information Viewer window appears.



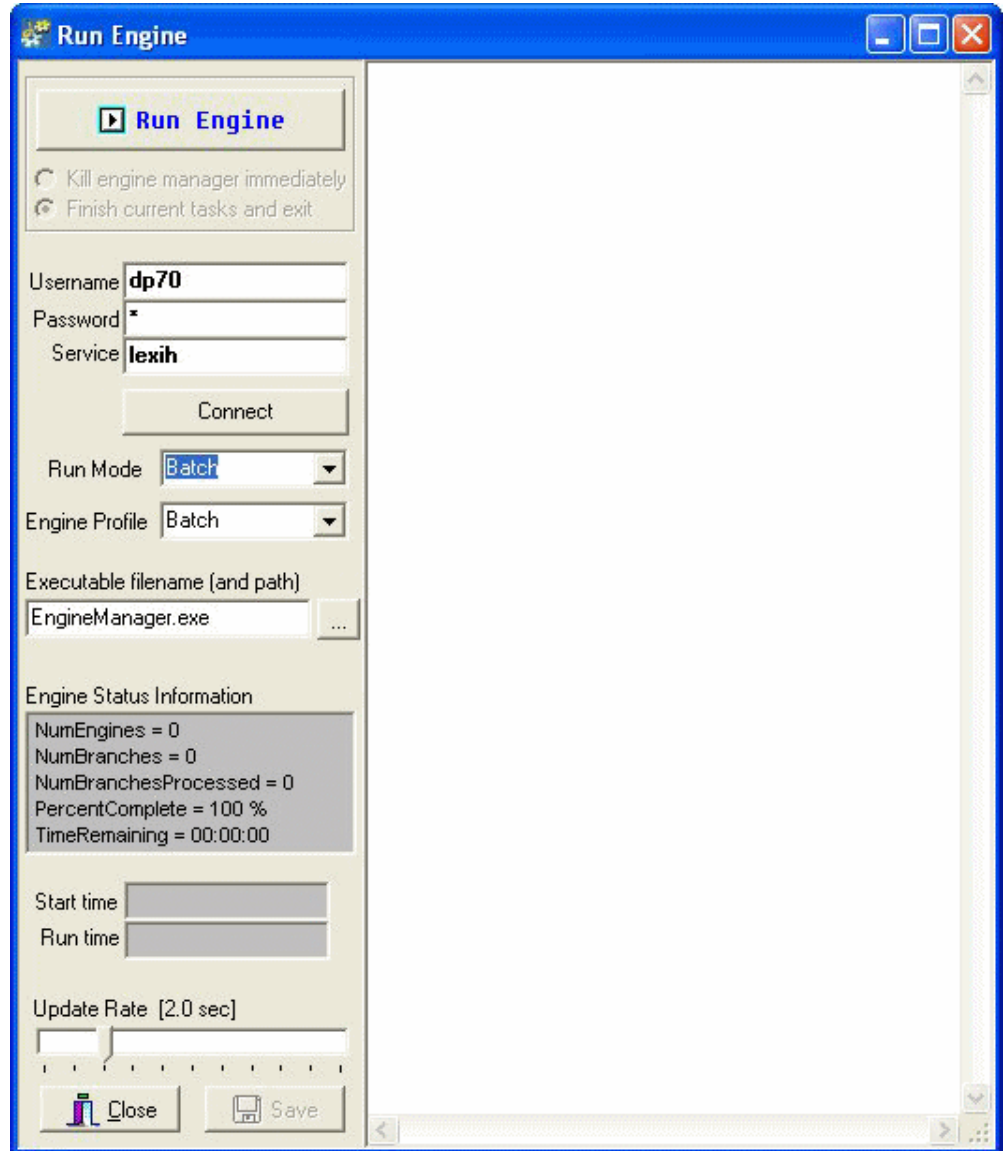
## Running the Engine from the Engine Administrator

Before running the Analytical Engine, make sure that there are no old engine processes running in the chosen host machines.

### To run the engine:

1. Start the Engine Administrator.
2. Click File > Run Engine. Or click the Run Engine button.

The Run Engine window appears.



3. Complete the fields Username, Password, and Service.  
If you are using Microsoft SQL Server, the database name and server name must be entered into the Service field separated by a @ symbol. For instance, if the database is called db1 and the server is named Plan, Service must contain db1@Plan.
4. Click Connect.
5. Change the Run Mode to Batch or Simulation.
6. For Engine Profile, choose an engine profile, which specifies the parameter settings to use during this engine run.

7. Enter EngineManager.exe in the Executable Filename (and path) field. This executable resides within the bin directory of the Analytical Engine.

8. Click Run Engine.

The Engine Status Information area displays the following:

- Number of engines running
- Number of branches (you use multiple branches when you have a large database)
- Number of branches processed
- Percent complete
- Start time of the engine run, time remaining (if any), and end time (if finished)

The white text area in the right side of the Run Engine window displays the log.

9. To adjust the rate at which the log area is filled with data, drag the Update Rate slide to the left (slower) or to the right (faster).
10. The log shown in the text area can be saved to a file by clicking Save to file.

### **To stop the engine run:**

1. Under Terminate Engine Manager, select one of the following:
  - Finish current tasks and exit. This clears the queue of branch IDs (the messages sent by the Engine Manager to the engine servers). This allows the engine servers to complete their current processes. When they do not receive any further branch IDs, they shut down in an organized fashion. This is the recommended shutdown method in most circumstances. It is possible to continue processing at a later time.
  - Kill Engine Manager Immediately. This stops the Engine Manager immediately. The engine servers will continue for a while but when they notice that the Engine Manager has stopped, they will cease operation. Use this method when a quick shutdown is required, such as during debugging.

**Note:** Do not restart the Engine Manager if one or more engine servers are still running. Wait until they stop or close them using Windows Task Manager.

2. Click Stop.

See also

"Running the Engine from the Start Menu"

"Running the Engine from the Command Line"

## Running the Engine from the Start Menu

### To run the Analytical Engine from the Start menu:

1. To run the engine in batch mode: on the Start menu, click Programs. Then click Demantra > Demantra Spectrum release > Analytical Engine.
2. To run the engine in simulation mode: on the Start menu, click Programs. Then click Demantra > Demantra Spectrum release > Simulation Engine.

See also

"Running the Engine from the Command Line"

"Running the Engine from the Engine Administrator"

## Running the Engine from the Command Line

### To run Analytical Engine from the DOS window:

It is useful to be able to run the Analytical Engine from the command line, which you may want to do from within a workflow, for example.

1. In a DOS window, change to the following directory: Demantra\_root/Demand Planner/Analytical Engines/bin
2. In this directory, enter one of the following commands:
  - To run the Analytical Engine with a specific engine profile: `EngineManager.exe mode profile`
  - To run the Analytical Engine on Oracle with a different database: `EngineManager.exe server-name DB userID password mode profile`
  - To run the Analytical Engine on SQL Server with a different database: `EngineManager.exe server-name DB userID password mode profile`
3. Notice that the parameters are order-dependent; this means that you must use one of the syntax variants given here, with all the parameters as shown for that variant. These parameters have the following meanings:

---

<i>server-name</i>	Server on which the Oracle database is running.
<i>DB</i>	Name of the database that Oracle is using. This is for SQL Server only.
<i>userID</i>	Identifier of the database user that Oracle is using. <ul style="list-style-type: none"> <li>• For Oracle, this is the database ID.</li> <li>• For SQL Server, this is the database user.</li> </ul>
<i>password</i>	Corresponding password for that database user.
<i>mode</i>	An integer that specifies the run mode: <ul style="list-style-type: none"> <li>• 1=batch mode</li> <li>• 99=simulation</li> </ul>
<i>profile</i>	An integer that specifies the engine profile to use, from the ENGINE_PROFILES table.

---

**Tip:** You can create a Collaborator Workbench menu item that runs these commands; see "Configuring Links in Collaborator Workbench".

See also

"Running the Engine from the Start Menu"

"Running the Engine from the Engine Administrator"

## Troubleshooting

This section contains tips that address specific error conditions that you could encounter:

- If the Analytical Engine fails to run, see the list in "Before Running the Analytical Engine".
- If the engine failed while running an SQL statement, check the following logs:
  - manager.log

- engine2k.log

Find the offending SQL and try running it within a third-party database tool to identify the problem.

If the engine iterator failed, resulting in the error "node not found in map," that indicates a problem in the mdp\_matrix table. Usually, this means that you need to set the align\_sales\_data\_levels\_in\_loading parameter to true and then run the MDP\_ADD procedure. (For information on this parameter, see "Non-Engine Parameters".)

- If the Analytical Engine run does not finish and gives a message saying that it is stacked at some node or that it "does not have a usable number of observations," this means that the mdp\_matrix table is not in a good state. To correct the problem, run the MDP\_ADD procedure.
- If the Engine Administrator displays the message "Can not initialize caches," that may mean that your database is too large for the given number of branches. Reconfigure the engine to run on more branches and try running it again. See "Running the Engine from the Engine Administrator".
- If the Analytical Engine crashes, that can be due to a memory leak in the third-party software that it uses. To avoid the problem, force the Analytical Engine to create new engine tasks earlier. To do so, set the MaxTasksForEngine, which specifies how many engine tasks the engine server sends to each engine, before it kills the engine and starts a new one.
- **PE only:** If you receive a message like "ERROR Node not found in map", that means that something is wrong with synchronization between sales\_data and mdp\_matrix. To correct the problem, truncate mdp\_matrix and run the MDP\_ADD procedure.
- **Oracle only:** If the Analytical Engine takes an unreasonably long amount of time to create the sales\_data\_engine or the promotion\_data table, make sure that you have done an analyze table on these tables.
- **Oracle only:** If you receive a message such as "Description: ORA-00959: tablespace 'TS\_SALES\_DATA' does not exist," that typically means the dump file you installed refers to different table spaces than you have in the current database. Reassign the Demantra table spaces by changing the parameters that control them:
  - indexspace
  - sales\_data\_engine\_index\_space
  - sales\_data\_engine\_space
  - simulationindexspace

- simulationspace
- tablespace

For information on these parameters, see "Non-Engine Parameters".

## Validating Input Parameters

Validating engine and model input parameters is used to identify the source of errors caused by configuration issues and errors. This streamlines and shortens the troubleshooting process and reduces the need for support.

- **Parameters:**
  1. The Analytical Engine loads the 'Parameters' data from the PARAMETERS table.
  2. The engine then loads the 'Parameters' data from 'Parameters Daily.xml', 'Parameters Monthly.xml', or 'Parameters Weekly.xml' depending on 'timeunit'.
- **InitParams:**
  1. The Analytical Engine loads the 'InitParams' data from INIT\_PARAM\_0 table.
  2. Then the engine loads the 'InitParameters' data from 'Init Params 0 Daily.xml', 'Init Params 0 Monthly.xml', or 'Init Params 0 Weekly.xml' values.

The Analytical Engine loops through parameters from xml, validates them against the database parameters, fixes the collected parameters, or adds the missing parameters in the database.

The validation rules are configurable. If they belong to the current run, you can specify the parameter group, and the restrictions by which the parameters are compared.

If any of the input parameters fails the validation, the system replaces the erroneous parameters with the default value if the restriction does not contain '?'. Otherwise, the system simply generates a warning message to inform the user of the erroneous input parameter.

**Note:** Demantra supports only the following type "double" validations for parameters:

- 1 - All the groups - always validate
- 2 - DP batch
- 3 - PE batch

- 4 - DP simulation
- 5 - PE simulation

### Example 1

```
<Entry>
  <Key argument="AllowNegative"/>
  <Value type="double" argument="0"/>
  <Validate group="1" restrict="=1,=0"/>
</Entry>
```

The above-mentioned validation means "Allow Negative" parameter of type "double" with default value "0". The validation belongs to group "1" thereby run during all engine runs and its value can either be "1" or "0"

### Example 2

```
<Entry>
  <Key argument="lead"/>
  <Value type="double" argument="52"/>
  <Validate group="3,4" restrict=">0,?<=100"/>
</Entry>
```

The above-mentioned validation means "lead" parameter of type "double" with default value "52" belongs to group 3 and 4, for which the value must be greater than "0" and less or equal to "100". The "?" means that it is not mandatory to fix the parameter if it is greater than "100". If under 0 the parameter would warn the user and replace the value with 52 while if greater than 100 a warning will be generated but not override would occur.

### Example 3

```
<Entry>
  <Key argument="PROMO_AGGR_LEVEL"/>
  <Value type="double"/>
  <Validate group="3,5" restrict=""/>
</Entry>
```

The above-mentioned validation means "PROMO\_AGGR\_LEVEL" parameter of type double with no default parameter belongs to group 3 and 4, and the validation is done through custom function. The engine will quit running if the validation fails

To add the custom function to the process, you should add your function to *..\Common\Util\Validation Functions.cpp*.

Then add the name and address of this function to the array of function pointers, so that the application can execute this function dynamically:

```
m_mPoint2Function["PROMO_AGGR_LEVEL"]=
PromoAggrLevel;m_mPoint2Function["PROMO_AGGR_LEVEL"]= PromoAggrLevel;
```

## Viewing the Engine Log

The log viewer helps you debug the engine run. The log for the Analytical Engine appears in a text file in the directory *Demantra\_root/Demand Planner/Analytical*

Engines/bin.

**To open the log file viewer:**

1. Start the Engine Administrator.
2. Click the View log file button.

**To view a log file as it is:**

1. Click the Open with Tree View button.
2. When the Processors check box is chosen in Log Groups, you can view the log file with processors tree assistance. If you click on a processor in the right side of the Log File window, you are brought to the corresponding line in the log file.

## Examining Engine Results

This section contains assorted tips on viewing and understanding the engine results from a more technical point of view.

### Seeing What Level the Forecasting Was Done

When forecasting, the Analytical Engine writes information to the mdp\_matrix table to indicate where it performs the forecast. For each combination, it writes this information to the following columns:

- level\_id is the level of the forecast tree where the forecast for this combination was generated.
- item\_node is the item member in that level.
- loc\_node is the location member in that level.

### Seeing if Any Nodes Were Not Forecasted

To see if any nodes failed to receive a forecast, run the following SQL:

```
SELECT level_id, COUNT(*) FROM MDP_MATRIX WHERE prediction_status=1  
GROUP BY level_id
```

Explanation: At the start of the run, the engine iterates through all forecastable nodes and sets their level\_id to the fictive level. As it forecasts the nodes, it resets the level\_id back to normal. At the end of the run, if you have nodes with a level\_id = fictive level, those nodes did not get a forecast.

Possible reasons:

- The forecast tree might not be well formed.
- There might not be any models that can work on at the Top Forecast Level.
- There might be nodes that do not have the correct number of observations for the models.
- Naive forecasting might be off; see "Forecast Failure".

## Writing Intermediate Results

In a batch run, the Analytical Engine can write intermediate results to the database, to help you determine the source of a problem. To enable this, set the `WriteIntermediateResults` parameter to yes (1) and then run the engine. When this flag is enabled, the Analytical Engine writes intermediate results to the `INTERM_RESULTS` table.

**Warning:** Use this feature only with help of Oracle consulting. This feature may greatly inflate the engine run time.

You can also configure the engine to write forecast data for each node, before splitting to lower levels. This data is written to the `NODE_FORECAST` table, which includes information on how each model was used for that node. To enable this, set the `node_forecast_details` parameter to forecast is written with model details (1) before running the engine.

To edit these parameters, use the Business Modeler.

## Running the Engine in Recovery Mode

Internally, the Analytical Engine records information to indicate its current processing stage. As a result, if the previous engine run did not complete, you can run recovery, and the Analytical Engine will continue from where it was interrupted.

### To run the engine in recovery mode:

1. In the Business Modeler, set the `start_new_run` parameter to either No or Prompt.
2. Start the Analytical Engine as described in "Running the Engine from the Engine Administrator" or "Running the Engine from the Start Menu".

## Stopping the Engine

Normally the Analytical Engine stops on its own when it has completed processing.

If you are automating processes, you may want to make sure that the Analytical Engine

is not running, before starting it again.

In the directory Demantra\_root/Demand Planner/Analytical Engines/bin, there is a batch file that you can use to kill the engine manager (and therefore the engine as well). This is called KillEngine.bat.

**Tip:** After killing the Analytical Engine, it is advisable to wait about 10 seconds before starting a new one.

---

## Engine Details

This chapter provides details on the Analytical Engine, for the benefit of advanced users.

This chapter covers the following topics:

- Preparing the Database
- Promotion Effectiveness Engine Phases
- The Forecasting Process
- Comparison of Batch and Simulation Modes
- Engine Components and High-Level Flow
- Details of the Distributed Engine

### Preparing the Database

At the start of an engine run, the Analytical Engine prepares the database, to make sure that the appropriate tables contain rows into which the Analytical Engine can write results. To do so, the Analytical Engine calls the `INSERT_UNITS` procedure, which is controlled by the `RunInsertUnits` parameter and can do several things, depending on the value of that parameter:

- Makes sure the engine has rows to write into when generating the forecast. In particular, for *all non-dead* combinations, this procedure does the following:
  1. Checks to see if the database contains records for this combination for all dates in the span of time from `max_sales_date` to `max_sales_date + lead`.
  2. For any dates when the combination does not have records, this procedure inserts records with zero sales, into which the Analytical Engine can then write the forecast.
  3. Records with dates in the past are ignored.

- Runs the EXECUTE\_PROFILES procedure, which executes the active rolling data profiles.

## Additional Details for PE Mode

For Promotion Effectiveness, if the DeleteIsSelfRows parameter is 1, the Analytical Engine also performs a cleaning step. In this step, it removes unneeded rows from the promotion\_data, which otherwise can grow to an unreasonable size. (If this table contained a row for every item, every location, every promotion, and every date, performance would suffer.) Specifically, the Analytical Engine deletes rows that have is\_self is 0 and that have zero lift values (details below).

In some cases, users may enter override values, and the Analytical Engine should not delete rows that contain those values. The DeleteIsSelfCondition parameter specifies other fields in promotion\_data that should be checked before this cleaning occurs. The Analytical Engine deletes only the rows that have is\_self is 0 and zero values for all of the following fields: uplift, pre and post-effect, switching effects, and the field or fields specified by DeleteIsSelfCondition.

## Promotion Effectiveness Engine Phases

In PE mode, the Analytical Engine runs in multiple phases (the last of which actually generates the forecast), and it caches data at critical points, for better performance. The earlier phases map the promotion attributes internally into causal factors, so that they can be used in the same way as the other causal factors.

This section describes these engine phases.

## Global Preparations

This phase uses the following settings from the Promotional Causal Factor screen; see "Configuring Promotional Causal Factors":

---

Column Name Expression	An expression that retrieves and aggregates the promotion attribute.
Filter	An aggregating expression that returns the true or false value, filtering the source data of this promotional causal factor. You can use this expression to create multiple causal factors from a single set of source data.

---

When the Analytical Engine runs, the first step is to perform the following global preparations:

- Create the promotion\_data\_engine table, which is analogous to the

sales\_data\_engine used in demand planning.

- In memory, aggregate the promotion attribute data to the lowest promotional level, as defined in the forecast tree. Here the Analytical Engine uses the Column Name Expression option.
- Apply filters as defined by the Filter option.

## Initial Phase

This phase uses the following settings from the Promotional Causal Factor screen; see "Configuring Promotional Causal Factors":

---

Transpose by Column	Optionally converts a qualitative promotion attribute into multiple unrelated causal factors.
Merge Function	Specifies how Demantra should internally merge promotions of the same kind that apply to the same item, location, and time.
Aggregation Function	Specifies how Demantra should internally aggregate the promotional causal factor above the LPL.

---

After making global preparations, the Analytical Engine performs the first scan of the forecast tree, as follows:

1. Read from the database and load the forecast tree into memory.
2. Calculate the absolute and relative addressing within each influence group, for internal use. In this step, the Analytical Engine uses the COMPETITION\_ITEM and COMPETITION\_LOCATION parameter settings.
3. Creating promotional causal factors at the LPL. In this step, the engine does the following:
  1. Transpose the promotion attributes, according to the Transpose by Column option.
  2. Merge the attributes across promotions, according to the Merge Function option.
  3. Cache the data for nodes of this level.
4. Creating promotional causal factors at the IGL. In this step, the engine does the following:

1. Aggregate the promotional causal factors within each IG, according to the Aggregation Function field. (If a given promotional causal factor is represented by shapes, those shapes are summed instead.)
2. Cache the data for the IGs.
5. Cache the data for the IRs.

## Learning Phase

After the first scan of the forecast tree, the Analytical Engine performs the learning phase, which consists of the following steps:

1. Iterate through the forecast tree, starting at the minimum forecast level.
2. Create the following three historical promotional causal factors for each node in the forecast tree:

---

self	Influence on this node caused by promotions on this node
own	Influence on this node caused by other nodes within the same IG
other	Influence on this node caused by all IGs within the IR

---

3. Perform processing to clean up historical data, as specified by various parameters:
  - CutTailZeros
  - ShiftPromoCausals
  - PromotionStartDate
4. Combine the promotional causal factors with the baseline causal factors.
5. Estimate the fit for baseline and promotion coefficients (self, own, and other). If necessary, discard groups of causal factors for specific combinations.
6. Separately validate the fits for baseline and uplifts.
7. Perform the baseline forecast. This forecast represents the sales without any promotions.
8. Validate the baseline forecast.
9. For any node where the promotion coefficients were validated, partition the uplifts

to the promotion attributes that caused them, taking into account the attribute values.

10. Split the baseline and promotional uplifts to the LPL. For lifts, the splitting mechanism does not use the proposit mechanism; instead it considers the attribute values, as appropriate. For baseline, proposit is used as usual.
11. Decompose the promotional uplifts. In this step, the Analytical Engine associates the uplifts with the specific promotions, rather than the attributes.
12. Compact the promotional uplifts for each combination (combining effects of different promotions).The direct and cannibalization effects are treated separately.
13. For past data, split the fit uplifts to the lowest forecast level (using the normal proposit mechanism) and write them to the database.
14. For past data, split the baseline fit and forecast to the lowest forecast level and write them to the database. This step also uses the normal proposit mechanism.
15. Cache the forecast level node data.
16. Cache the IDs of relevant forecast nodes to the database.

## Promotion Forecast Phase

After the learning phase, the Analytical Engine performs the promotion forecast phase, which consists of the following steps:

1. Iterate the forecast tree, this time only on relevant nodes.
2. Load the forecast node data from the cache.
3. From the cached data, create the future promotional causal factors (self, own, and other) for each node in the forecast tree.
4. Complete the coefficients for future promotional causal factors.
5. Combine the promotional causal factors with the baseline causal factors.
6. Generate the promotional forecast. See "The Forecasting Process".
7. Validate the uplifts. (The baseline has already been validated.)
8. Partition the uplifts, as in the learning phase.
9. Split the baseline and promotional uplifts to the LPL, as in the learning phase.
10. Decompose the promotional uplifts.

11. Compact the promotional uplifts.
12. Split the forecast uplift series to the lowest forecast level and write them to the database.

## The Forecasting Process

This section describes the overall forecasting process.

**Note:** For PE mode, this section describes the process that is performed within the final phase of the engine run; see "Promotion Forecast Phase"

The topics here are as follows:

- Summary of the Forecasting Process
- Preprocessing
- Estimation
- Fit and Residuals
- Validation of Fit
- Causal Factor Testing (Envelope function)
- Forecast
- Engine Split for Future Forecasting
- Validation of Forecast
- Bayesian Blending
- Adjustment
- Forecast Failure
- Intermittent Flow

## Summary of the Forecasting Process

The preprocessing module performs the following functions:

1. Cutting leading zeros.
2. (PE mode only) Checking to see whether this node is a promotional node, that is, a

combination that has promotions.

3. Deciding whether the node should be treated by the intermittent flow module.

- (PE mode) First, the node is classified as either promotional or non-promotional, based on whether it has any associated promotions. If the node is promotional, no checking is done for intermittency. If the node is non-promotional, the node is then checked for sparse data; if the node has sparse data, it is flagged for use by the intermittent flow module.

**Note:** In later processing, promotional nodes are treated differently from non-promotional nodes in two other ways:

- The ARIX and ARX models are never used on promotional nodes.
  - The HOLT model is used on promotional nodes only if no other models can be used.
- (DP mode) If the node has sparse data, it is flagged for use by the intermittent flow module.

4. Treating missing values.

5. Performing preliminary outlier and regime change detection.

6. Removing obvious (gross) outliers, if requested. (This feature is not recommended for use with the engine in PE mode.)

7. Transforming data for use in specific models.

After preprocessing, if appropriate (see Step 3, above), the node is now treated by the Intermittent flow module, which uses special model types; see "Intermittent Flow".

Otherwise, the Analytical Engine applies and tests models as follows:

1. Checking that the number of data points exceeds the number of causal factors by at least two. This is done to ensure that no overfitting will occur, and so that coefficients for all causal factors can be determined.

The check is valid only for models IREG, LOG, BWINT, and DMULT. If a model fails this check, it is rejected and a message is written to the log.

2. Estimation. Statistical algorithms are implemented to data and their parameters are calculated.

3. Fit and residuals calculation. The fit reflects the ability of the model to reproduce the actual historical data. The residuals describe the deviation of the fit from the

actual data. The results are used later, in the *Bayesian blending method*.

Then residual outliers are removed, if this option is requested.

4. To check the ability of a model to mimic the actual series, a fit validation is performed (if enabled by the `EnableFitValidation` parameter). In fit validation, the residuals undergo multiple statistical tests.
5. *Forecast* performs identical calculation to *Fit*, only for the future period, lead.
6. For a given model, if the forecasting is occurring at the highest forecast level, the Analytical Engine applies a more liberal treatment of models. During forecast validation, models undergo three tests:
  - A test for an unusual zigzag-type jump.
  - A test for abnormal divergence of forecast relative to fit (this is done by building a funnel-shaped envelope and ensuring that the forecast is confined entirely within it).
  - A statistical comparison of forecast and fit means.

Forecast validation is performed only if it is enabled (via the `EnableForecastValidation` parameter).

7. If at this stage there are no valid models, the time series will be treated by the `forecast_failure` procedure, where either the control will be passed over to the shell and data accumulated to the next level on the forecast tree, or, if we are already at the top forecast level, the HOLT model will be attempted, if it has not been tried previously as a regular model (and obviously failed). If it has, or if it fails this time, the NAIVE model is fitted (if enabled by the `NaiveEnable` parameter).
8. On the other hand, if there are valid models, the Analytical Engine applies the *Bayesian blending method*. This combines the results of all the models, taking two factors into account:
  - The variance of the residuals for each model
  - The complexity of each model (models that use more causal factors can be overfitted and thus should receive less weighting).
9. It may be necessary to adjust it to pick up the recent trend. The `EnableAdjustment` parameter directs the flow to the adjustment processor, where trend adjustment is performed, using a set of user-specified parameters.

## Preprocessing

The preprocessing stage consists of the following steps:

1. Removing leading zeros. If a series begins with leading zeros, that part of data may be omitted. This is controlled by the CutTailZeros parameter.
2. Intermittency detection and processing. Before checking a series for intermittency, its trailing zeros are temporarily truncated.
  - If there are not enough remaining non-zero elements (as measured by the TooFew parameter), the forecast failure module is activated.
  - Otherwise, the IntermitCriterion parameter is checked. This parameter specifies the minimum percentage of zero data points that a series must have to be considered intermittent.
3. Missing values treatment. The Analytical Engine checks the parameter FillParameter. Depending on this parameter null values are replaced by zeros or by the method specified by the FillMethod parameter, which supports the following choices
  - Filling in values by linear interpolation of nearest neighbors.
  - Omitting the values, at the same time adjusting the time scale of causal factors and trends of the Holt procedure. This is useful if you do not want these values not to be accounted for in the estimation procedures. Furthermore, this is the only way to have exact zero "forecasts" in time points where it is known that no demand is expected, like holidays and vacations. Be careful to mark these time points by means of the UpTime parameter.
4. Preliminary outlier detection (if outlier detection is enabled, via the detect\_outlier parameter). Outliers are "unusual" data points, that may distort the result of the forecasting process and lead to erroneous decisions. Detecting them is a nontrivial problem. Often what seems to be an outlier turns out to be a result of expected behavior. Even more frequent are cases in which seemingly sound data are in reality outliers.

**Note:** Outlier detection should be used cautiously with the engine in PE mode. You should not use *gross* outlier detection at all in this mode.

If outlier detection is overused, the engine discards promotions and cannot learn from them. Future promotions will then have no lift.

- The MinLengthForDetect parameter specifies the minimum number of data points needed to perform outlier detection (the default is a year's worth of data).
- Demantra computes a range of "normal" values and counts the number of data

points that lie outside that range. If a relatively small number of data points lie outside the range, they are considered outliers and are discarded. On the other hand, if a relatively large number of data points lie outside the range, then Demantra considers all of them to be real data points, and does not discard any of them as outliers. The `OutliersPercent` parameter controls the threshold for this test.

5. Preliminary outlier handling, of only obvious (gross) outliers. This step is performed only if gross outlier handling is enabled via the `GrossRemove` parameter. The `OutlierStdError` parameter controls the sensitivity of the gross outliers detection. The smaller the value, the more aggressively the procedure will detect outliers.

**Note:** At this stage, only the gross outliers are removed. Other outliers are retained, because they may later be attributed to assignable causes, which will be revealed only at the model building stage.

Gross outlier detection is not recommended for use with the engine in PE mode.

6. Gross outliers are permanently filled by linear interpolation.
7. Preliminary regime change detection (if enabled by the `detect_cp` parameter). In the preliminary stage, this procedure finds points of change in the level or trend. The `RegimeThreshold` parameter controls the sensitivity of detection regime change. The smaller the value, the more aggressively the procedure will detect regime changes.

**Note:** There is no outlier or regime change detection for intermittent data.

8. If `TrendPreEstimation` is yes (1), the Analytical Engine performs trend detection.

**Note:** If you have disabled negative regression (via `UseNonNegRegr`), then it is difficult for the Analytical Engine to detect downward trends. In such cases, you should enable trend detection via `TrendPreEstimation`.

Trend detection works as follows. The history is divided into two segments: the long segment, which is followed by the short segment. The short segment is assumed to have a trend. Demantra automatically generates a new trend causal factor for each segment (by fitting to the general shapes of those segments) and passes those new causal factors to the engine, to replace the existing trend causals.

You can specify the following settings to control the specific behavior:

- First, the TrendPeriod parameter specifies the boundary between the long segment and the short segment. This parameter specifies this boundary in terms of latest, most recent time buckets.
- The TrendDampPeriod and TrendDampStep parameters specify how this trend should be dampened (toward the future), which is useful particularly with an upward trend (which, when extrapolated, would give unrealistic values). The TrendDampPeriod parameter specifies a block of time (as a number of buckets) over which the dampening is applied. The TrendDampStep parameter specifies the dampening factor, which is applied n times to the nth block of time. The result is exponential dampening.
- The TrendModelForShort parameter specifies which engine model to use in order to generate the trend causal factor in the short segment (either REGR or HOLT).
- The TrendOutlierRatio and TrendShortRatio parameters specify how to treat points found as outliers during trend pre-estimation. Each of these is a numeric weight to apply to the outliers. The TrendOutlierRatio parameter controls the weighting of outliers in the long segment, and the TrendShortRatio controls the weighting of outliers in the short segment.

#### 9. Data transformations for use in specific models.

## Estimation

The Analytical Engine uses different estimation procedures for each engine model. See "Theoretical Engine Models".

If UseWeightedRegression is yes (1), then the Analytical Engine applies a weight to each observation when fitting each model. The OBS\_ERROR\_STD field (in sales\_data) specifies the weights for each observation; the default value is 1.

## Fit and Residuals

Fit and residual procedures are also model-specific. They calculate values fitted by the model to historical data and evaluate the residuals. Non-positive fitted values are set to zero (depending on the setting of the AllowNegative parameter).

For the logarithmic models (LOG and ELOG), the operation of antilog, to convert results back to original metric, must consider the form of the expectation of a lognormal variable. To use this corrected conversion, activate the LogCorrection parameter.

The Analytical Engine sorts the residuals by size and removes the largest residuals. The parameter RemoveResidOutlier specifies how many residuals to remove, as a percentage of the total number of residuals.

## Validation of Fit

Although fit validation is model-specific, it is activated globally by the parameter `EnableFitValidation`.

This procedure consists of the following steps:

1. **Outliers.** Check the influence of outliers on the residuals. The `Quantile` parameter specifies a standard normal percentile for detecting outliers at a prescribed significance level. If an outlier affects the residuals, no further validation is needed, and we proceed to the problem correction stage. Otherwise, the Analytical Engine tests the goodness of fit.
2. **Valid\_fit.** Here a battery of four statistical tests are performed. Failure of one of them leads to rejection of fit validity.
  - `Mean_check` is a test for comparison of means of fitted and actual data. The `MeanRelativeDistance` parameter is the maximum MAPE (Mean Absolute Percentage Error) allowed in a model that is `MeanValid`.
  - `Std_check` is a test for comparison of standard deviations of two parts of the residuals. The division into parts (earlier and later) is controlled by the `TestPeriod` parameter. The `StdRatio` parameter is the maximum allowed ratio of the standard deviation of the later part to the standard deviation of the earlier part.
  - `Bjtest` is the Bera-Jarque test for normality of residuals. Normal distribution of errors is a desired feature, assuring randomness, independency and lack of bias in the errors, thus indicating that the model was successful in catching and removing all systematic variability in data.
  - Finally, residuals are checked for presence of large deviations, by comparing them to a multiple of standard deviation, as specified by the `DeviationFactor` parameter.
3. If fit validation fails, the following occurs:
  1. Detect outliers.
  2. Replace the outlying values by values calculated by linear interpolation.
  3. Refit. Re-estimation of model parameters for the series corrected for outliers, recalculation of fit and residuals, followed by revalidation.

## Causal Factor Testing (Envelope Function)

For some of the engine models (`CMREGR`, `ELOG`, `LOG`, `MRIDGE`, and `REGR`),

Demantra can choose random sets of causal factors, which it then tests. Demantra can then either use the set of causal factors that gives the best result or use a mix of causal factors.

This operation is known as the *envelope* function, because it is performed as an envelope around the main engine flow. This operation is controlled by the UseEnvelope parameter, which can equal any of the following:

- 0 (Do not use the envelope function).
- 1 (Use the envelope function on five groups of causal factors: base plus direct and the four switching groups).
- 2 (Use the envelope function on the causal factor groups defined in Estimation\_groups table)

Additional parameters further control the behavior for specific engine models:

- ENVELOPE\_RESET\_SEED specifies whether to reset the randomization seed for the envelope function, which evaluates different sets of causal factors for different engine models.
- ENVELOPE\_CHAIN\_LENGTH specifies the number of variations of causal factors to try, for each model.
- BestOrMix specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).

## Forecast

The forecast is calculated in almost the same way as the fit; see "Fit and Residuals". The key difference is that the Analytical Engine does not analyze causal factors when computing the forecast. Instead, the engine uses its learning, combined with the future values of the causal factors. The lead parameter specifies the length of time (in the future) for which the forecast is generated. If negative values are disallowed, the Analytical Engine sets them to zero.

## Validation of Forecast

At this point, the forecast is validated. The purpose of this validation is to avoid abnormalities in the projected result of a model. The validation is identical for all models, except HOLT, which does not use it. The EnableForecastValidation parameter controls the applicability of forecast validation.

Forecast validation includes three tests:

1. Jump test. This test detects up-and-down or down-and-up zigzag-like jumps. The magnitude of upward jumps is controlled by the Quantile parameter. The larger the

value of this parameter, the more liberal is the jump test.

2. Envelope test. This test spreads a funnel-like envelope over the forecast. The shape of the envelope is a function of the behavior of the underlying time series. There is no external control over the sensitivity of envelope test.
3. Mean test is a test on means of the forecast and the later part of the time series of length given by the `test_samp_len` parameter.

The `ForecastMeanRelativeDistance` parameter controls the sensitivity of forecast validation. The larger its value, the more liberal is the test.

## Bayesian Blending

First, the Analytical Engine checks the setting of the `DetectModelOutliers` parameter, which specifies whether to detect model outliers for each forecast node. A model outlier is an engine model that does not give good enough results for that node. The `ModelValidationBound` parameter controls the sensitivity of the test, which proceeds on each node as follows:

1. For each model, a Demantra proprietary algorithm computes an index that indicates the goodness of fit for that model at that node. Small values are considered good.
2. The Analytical Engine sorts these indexes by value and computes the difference in value between each successive pair of indexes.
3. If none of these differences are greater than the value of `ModelValidationBound` (whose default is 0.2), the Analytical Engine considers *all* the models good enough and does not look for outliers.
4. If any of the differences are greater than `ModelValidationBound`, then the Analytical Engine fits a line through the indexes and uses it to determine which models to discard. Any models with points that lie too far above the line are discarded.

For each forecast node, the Analytical Engine discards any model outliers and then combines the results for all models using the Bayesian blending method. This combines the results of all the models, taking two factors into account:

- The variance of the residuals for each model.
- The complexity of each model (models that use more causal factors can be overfitted and thus should receive less weighting).

It is often necessary to enhance models that perform better on most recent historical data, as opposed to models that show close fit to the remote history. This is achieved by assigning decaying weights to residuals, so that recent residuals have greater weights

than the remote ones. The DampStep parameter specifies the rate of weights decay, and the DampPeriod parameter specifies the number of periods in which the residuals will receive the same weights. The dampening of weights is done between each successive period, so that the result is exponential decay.

## Adjustment

In the adjustment phase, the Analytical Engine performs a final tuning of the forecast, enabling the user to adjust the forecast to the recent trend in the historical data. Not recommended, unless it is known that a change in trend happened recently, which is likely to be missed by the models. The following parameters are used for adjustment:

- EnableAdjustment enables the adjustment.
- TrendPeriod specifies the period for trend estimation; if zero then no adjustment will be made.
- DownTrend (a value from 0 to 1, inclusive) specifies the degree of descending trend adjustment.
- UpTrend (a value from 0 to 1, inclusive) specifies the degree of ascending trend adjustment.
- PercentOfZeros specifies the maximum percent of zero values in the estimation part to enable trend adjustment.

## Forecast Failure

If all participating models fail one of the preceding validations, the control is transferred to the engine shell in order to aggregate to the next level on the forecast tree.

If the model HOLT has not been previously applied at the last level and if there are enough data points, then HOLT is attempted. (HOLT is usually configured for short time series, less than one season). One can optimize its parameters by requesting *Optimally*. The model follows the usual path of estimation, fit and residuals calculation, fit validation, forecast calculation and forecast validation.

If HOLT fails, or if it has been used on this level before, or if there are very little data, an attempt is made to obtain a last resort forecast. Here, the parameter NaiveEnable controls the choice of how to proceed; this parameter has one of the following values:

- no (0): Do not enable either NAIVE or Moving Average models. Do not generate a forecast.
- yes (1): Enable use of the NAIVE model.
- 2 or higher: Enable use of the Moving Average model. In this case, the setting of NaiveEnable specifies the number of recent time buckets to use in calculating the

moving average.

If you are using the Analytical Engine in PE mode, note that the NAIVE and Moving Average models do not generate any lift.

## Intermittent Flow

First:

- For PE mode, if a given node has an associated promotion, no checking is done for intermittent data. If it does not have a promotion and if it has as intermittent (sparse) data, it is treated by the Intermittent flow module, which uses special model types.
- For DP mode, if a node has intermittent (sparse) data, it is treated by the Intermittent flow module, which uses special model types.

In the intermittent flow module, the Engine Administrator handles series that were found to be intermittent at the preprocessing stage, according to the `IntermitCriterion` parameter. Basically, it has many common features with the main flow.

In contrast to the case with non-intermittent models, if there are too many causal factors in comparison with the length of time series, a warning message will be issued, but the model will still be estimated.

The fit validation of intermittent models is simplified and brought down to a comparison of means.

No real forecast validation is done for intermittent models.

If there is a decline in demand at the end of the historical period, then the engine will update the fit after the last spike in history accordingly. To control the intensity of the forecast, you use the `IntUpdate` parameter.

If the final result is asked for in the form of spikes (as specified by the `need_spread` parameter), the `unspread` processor is activated.

The Analytical Engine can run with a minimal set of causal factors. There is no prerequisite for causals in both global and local causal groups. If no global or local causal factors are available, then the Constant global causal factor is used. If the constant causal factor is set to 0, the model could fail with the following message:

```
"Constant should be chosen for both groups of causals. This is strongly recommended for estimation results, unless sales should be zero for particular time."
```

The Analytical Engine adheres to the following steps for each causal driven model:

1. Before launching the model, the Analytical Engine builds the matrix `ModelGroupCausal` from local, global, and PE causal factors. The causal factors are stored in the `GroupCausal` matrix, and the Analytical Engine picks up only those rows that belong to given model.

2. If no causal factors are available, the model fails with the message "No Causals Available".
3. If the number of available causal factors is more than the number of data points for the forecasted combination, the model fails with the message "Does not have a usable number of observations (too few or too many)."

## Comparison of Batch and Simulation Modes

For reference, this section compares how the Analytical Engine runs in batch mode and in simulation mode.

### Batch Mode Characteristics

In a batch run, the Analytical Engine does the following:

1. Traverses a large forecast tree, described in a database. Each node in this tree represents a time-based data series that is a subject to forecast.
2. Performs statistical model calculations on a large subset of the data series (tree nodes). The order of the processing the nodes is important, and is derived from the forecast tree, defined by a few business rules and performance limitations. The forecast tree is traversed using a recursive tree scan.
3. Writes the processed data series to the forecast table in the database.
4. Runs a database procedure that scans and updates the fore-cast table.

### Simulation Mode Characteristics

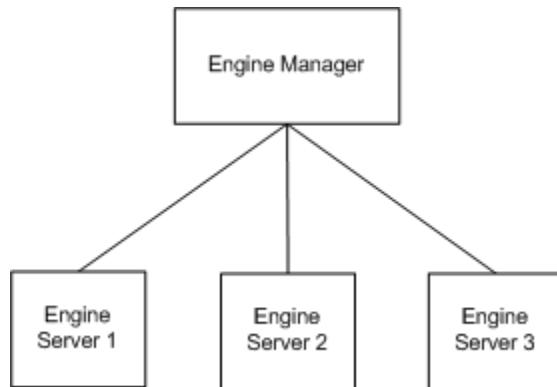
In a simulation run, the Analytical Engine performs 'what if' scenarios, in which some of the forecast data is changed or different models are run to see how this influences the final results. The four steps related to the batch engine run are also applied here, but on a much smaller section of the forecast tree. The number of data series modeled is much smaller compared to a batch engine run.

## Engine Components and High-Level Flow

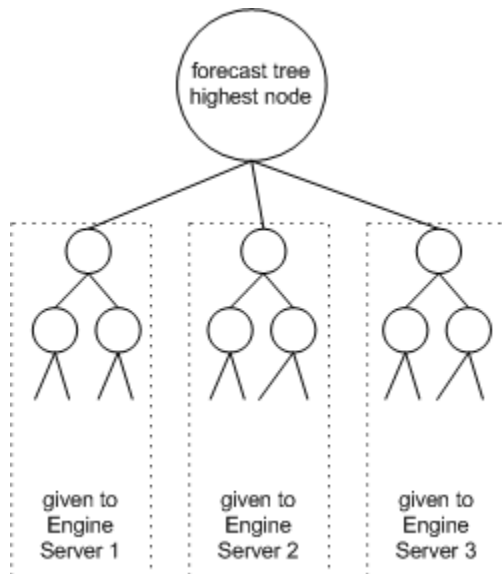
At a higher level, it can be useful to understand how the Analytical Engine divides and processes its work.

### Engine Components

Internally, the Analytical Engine consists of one Engine Manager and multiple engine servers.



The engine server scans a portion of the forecast tree, and sends the output to the report mechanism. The engine server masks the mdp\_matrix table and processes only the nodes that are in the part of the tree relevant to its task. The ID of the task is received from the Engine Manager, which is responsible for dividing the forecast tree into smaller sub trees (called tasks).



The Engine Manager is responsible for controlling the run as a whole. Communication between the various engine modules is achieved by using the COM protocol.

## Engine Components and Batch Run

The following steps describe the responsibilities of each component during a batch run of the Analytical Engine.

1. The Engine Manager creates and initializes the engine servers. Initialization includes the following steps:
  - The Engine Manager passes a callback interface to the engine servers. The

engine servers will use this interface in order to make requests for new tasks to process, or to return status completion information to the Engine Manager.

- The Engine Manager passes the database settings and all other settings to the engine servers.
  - The engine servers connect to the database and load parameters.
  - The engine servers initialize themselves using the xml schema files and request the Engine Manager for tasks to process.
2. The Engine Manager checks if the run is a recovery run or a new run, and acts accordingly. If it is a recovery run, the Engine Manager retrieves unfinished tasks. If it is a new run, the Engine Manager resets the mdp\_matrix table and allocates a forecast column. The Engine Manager divides the forecast tree into smaller tasks by updating one column in mdp\_matrix that links each node with a task ID. The number of the tasks that the Engine Manager attempts to create is the number of engine servers that were initialized successfully, multiplied by a configurable factor.
  3. The Engine Manager executes all the engine servers and waits for them to return a final completion status.
  4. When an engine server is executing, it uses the Engine Manager callback interface in order to get task IDs to process (pull approach). The data flow between the Engine Manager and the engine servers is very low volume, containing only settings, task IDs and statuses. The data that flows between the engine servers and the database includes the sales (input) and forecasted (output) data (very high volume), forecast tree configuration information, database parameters, and certain other information.
  5. The engine server uses the task ID to create a sales\_data\_engine table (or view) with the records for that task and then scans the forecast tree, operating select and update queries on the mdp\_matrix table. During the processing of a task, an engine server filters mdp\_matrix according to the task ID and operates only the subtree relating to that task. It uses two threads, one for scanning the tree and performing calculations, and one for the proport mechanism.
  6. When the engine server gets a null task ID from the Engine Manager, it knows that no more task IDs are available, and it sends a completion notification to the Engine Manager.
  7. When the Engine Manager has received a completion status indicator from all the engine servers, it updates the run status, executes the post process procedure, and the engine run is completed.

## Details of the Distributed Engine

Your system may include the Distributed Engine, which is a mode in which the Analytical Engine automatically distributes its work across multiple machines simultaneously.

**Note:** For the Distributed Engine to work, the Analytical Engine must be registered on multiple machines, all of which have database client software in order to access the Demantra database.

The Distributed Engine drastically shortens the run time for a single batch engine run by processing the engine tasks in parallel, on *different machines*, for improved engine processing time. Also, multiple simulation requests can be handled simultaneously.

In a batch run, the Distributed Engine starts by reading a settings file that lists the machines on the network where the Analytical Engine is installed. The Engine Manager tries to instantiate an engine server on the machines in this list. Processing then continues with Step 1.

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## Engine Parameters

This chapter describes the Analytical Engine parameters that you can see in Business Modeler and lists their default values, if any.

This chapter covers the following topics:

- About Engine Parameters
- Analytical Engine Parameters

### About Engine Parameters

For each parameter, this chapter indicates which engine variations that parameter can be used with. This chapter also indicates which parameters can be used with nodal tuning. Some of the Promotion Effectiveness (PE) parameters are useful only if your system also includes Promotion Optimization.

Oracle provides two different modes for the Analytical Engine:

- In PE mode, the engine is suitable for use with Promotion Effectiveness.
- In DP mode, the engine is suitable for use in demand planning applications.

As indicated, most parameters are visible to all users; a few are visible only if you log in as the owner of the component.

See also

"Theoretical Engine Models"

### Analytical Engine Parameters

Parameter	Location	Default	Engine Mode*	Details	Tuning
<b>A</b>					
add_zero_combos_to_mdp	Engine > Data Manipulation	yes	Both**	<p><b>Visible only to owner.</b> Specifies the Proportional mechanism handles combinations whose historical data consists of zeros. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes: Add these combinations to mdp_matrix even if their historical data consists of zeros.</li> <li>no: Do not add these combinations.</li> </ul>	Global setting only
AllowableExceptions	Engine > Validation	10	PE only	<p><b>Visible only to owner.</b> Specifies the permissible amount of exceptional uplifts, as a percentage of total number of uplifts. The LowerUpliftBound parameter controls the threshold for exceptional uplifts.</p> <p>The engine discards a model (for a given forecast node) in either of two cases:</p> <ul style="list-style-type: none"> <li>If the model generates too many exceptional uplifts (as specified by the LowerUpliftBound and AllowableExceptions parameters).</li> <li>If any uplift exceeds the bound given by the UpperUpliftBound parameter.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
AllowNegative	Engine > Adjustment	no	Both	<p>This parameter is used by the fit and residuals module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Negative values of fit and forecast are allowed.</li> <li>• no: Any non-positive fitted and forecasted values are set to zero.</li> </ul>	Can be tuned by node
AnalyzeMdp	Engine > Shell	Full analyze	Both	<p><b>Visible only to owner.</b> Specifies how to analyze the mdp_matrix table after the Engine Manager divides the forecast tree into tasks. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• 5 columns analyze: Enable a partial analysis using the five most important fields: prediction_status, prop_changes, branch_id, do_aggri, and do_fore.</li> <li>• Full analyze: Enable a full analysis.</li> <li>• No analyze: Disable the analysis.</li> </ul> <p><b>Note:</b> The branch_id field is for internal use only.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
AverageHorizon	Engine > Data Manipulation	12 for monthly 52 for weekly 7 for daily	PE only	<p><b>Applies only to Promotion Optimization; parameter is visible only to owner.</b></p> <p>Specifies the length of time to be used in calculating the average baseline forecast. This window of time starts at the date given by the StartAverage parameter.</p> <p>For information on configuring Promotion Optimization, see "Configuring Promotion Optimization for PTP".</p>	Global setting only
B					
BatchRunMode	Engine > Shell	estimation and forecast run	PE only	<p><b>Read-only.</b> Specifies the kind of forecasting to do:</p> <ul style="list-style-type: none"> <li>run the forecast against only the learning (0; estimation)</li> <li>run the promotion forecast (1; recommended setting)</li> <li>estimation and promotion forecast run (2; fast simulation), using previously cached data. If no cached data is found, the Analytical Engine gives a message and calculates the needed data.</li> </ul> <p>This parameter applies to both batch run and simulation run.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
BottomCoefficientLevel	Engine > Data Manipulation	1	PE only	<p><b>Applies only to Promotion Optimization; parameter is visible only to owner.</b></p> <p>Specifies the lowest forecast tree level for which the Analytical Engine will calculate coefficients. Use any forecast tree level between the lowest promotional level and the InfluenceRangeLevel, inclusive.</p> <p>For information on configuring Promotion Optimization, see "Configuring Promotion Optimization for PTP".</p>	Global setting only
BulkLoaderBlockSize	Engine > Shell		Both	<p><b>Oracle only; visible only to owner.</b> Specifies the minimum amount of number of rows that the Analytical Engine loads at one time, when writing to the database. The larger this is, the more quickly the data is loaded, but there is greater risk if the database connection is lost. Use a value between 100 and 10000.</p>	Global setting only
BulkLoaderEnabledRecovery	Engine > Shell		Both	<p><b>Oracle only; visible only to owner.</b> Specifies whether Oracle Bulk Loader should perform recovery after a lost database connection. Oracle Bulk Loader is used by the Analytical Engine.</p>	Global setting only
C					

Parameter	Location	Default	Engine Mode*	Details	Tuning
CachePath		Null	Both	<p>Specifies the path to the directory into which the Analytical Engine should write its caching files. This can be any of the following:</p> <ul style="list-style-type: none"> <li>• A relative path (relative to Demantra_root/Demand Planner/Analytical Engines/bin).</li> <li>• An absolute path.</li> <li>• Null. In this case, the Analytical Engine creates its caches in Demantra_root/Demand Planner/Analytical Engines/bin/cache.</li> </ul> <p>You should create the directory manually if it does not yet exist.</p>	Global setting only
CalcOptimizationInput	Engine > Data Manipulation	no	PE only	<p><b>Applies only to Promotion Optimization; parameter is visible only to owner.</b></p> <p>Specifies whether the Analytical Engine should calculate inputs needed for Promotion Optimization. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes (1): See "Configuring Promotion Optimization for PTP". Make sure to set the IS_OPTIMIZATION flag equal to 1 for at least one of the linear engine models.</li> <li>• no (0)</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
cannibalism	Engine > Data Manipulation		Both**	<p>Specifies the default values for aggri_98 and aggri_99, which are combination-specific fields.</p> <p>If equal to 0 or 1, the defaults for both fields are 1.</p> <p>If equal to 2, the default for aggri_98 is 1, and the default for aggri_99 is 0.</p>	Global setting only
CannibalizationIgnore	Engine > Data Manipulation		PE only	<p>Controls whether the Analytical Engine will calculate switching effects (cannibalization). You can use this parameter to easily switch off that calculation when needed, for example, when running specific simulations.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
COMPETITI ON_ITEM	Engine > Shell		PE only	<p><b>Visible only to owner.</b> Specifies the level (from the group_tables table) that defines the competitive item (CI) groups. Each node of this level represents a different item group.</p> <p>The CI should be consistent with the item groups (I). Specifically, two items within a given item group must also belong to the same competitive item group. The easiest way to follow this rule is to set the CI equal to an item level that is higher than I and that is within the same hierarchy. A similar rule applies for the locations.</p> <p><b>Note:</b> You specify the item groups indirectly when you specify the IGL in the forecast tree. see "Configuring the Forecast Tree".</p>	Global setting only
COMPETITI ON_LOCATI ON	Engine > Shell		PE only	<p><b>Visible only to owner.</b> Specifies the level (from the group_tables table) that defines the competitive location (CL) groups.</p> <p>See the notes for COMPETITION_ITEM.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
CutTailZeros	Engine > Data Manipulation	yes	Both	<p><b>Visible only to owner.</b> Specifies how the preprocessing module (of the Analytical Engine) should handle series that start with zero values. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Delete the leading zeros.</li> <li>• no: Retain them as actual zero values.</li> </ul>	Can be tuned by node
D					
DampPeriod	Engine > General	0	Both	<p>This parameter is used by the Bayesian blending module of the Analytical Engine. It specifies the length of periods in which the residuals will receive the same weights. The dampening of weights is done between each successive period.</p> <p>This parameter lets you put greater weight on models that perform better on most recent historical data, as opposed to models that show close fit to the remote history.</p>	Can be tuned by node
DampStep	Engine > General	0	Both	<p>This parameter is used by the Bayesian blending module of the Analytical Engine. It specifies the rate of weights decay. By setting this parameter to 0 (or 1), you set all weights to be equal to 1 (equal weights).</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
def_delta	Engine > Proport	0.75	Both**	<p>Specifies the default value for the delta field in the mdp_matrix table. If delta equals null for a given combination, the system uses the value of this parameter instead.</p> <p>All new combinations created through data loading, member management, and/or chaining will have a null value in their delta column, thus indicating that they will also take the default delta value from this parameter.</p> <p>In turn, the delta field is used in the proposit calculation as in the following example:</p> <p><math>P1 = glob\_prop * delta + (monthly\ demand) * (1 - delta)</math></p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
DeleteIsSelfRows			PE only	<p>Specifies whether the Analytical Engine deletes unneeded promotion_data records. Use one of the following values:</p> <ul style="list-style-type: none"> <li>0 means that the Analytical Engine does not delete records in promotion_data.</li> <li>1 means that the Analytical Engine deletes unneeded records.</li> </ul> <p>A record is considered unneeded if all the following conditions are true:</p> <p>It is flagged as is_self = 0</p> <p>All lifts (uplift, pre and post effect, and switching effects) equal 0</p> <p>The condition specified by DeleteIsSelfCondition is true</p> <p>Also see "Is_Self".</p>	Global setting only
DeleteIsSelfCondition			PE only	<p>Specifies an additional true/false condition that must be met to delete unneeded records in promotion_data. Used only if DeleteIsSelfRows is 1.</p> <p>This parameter is used as an SQL extra where clause. The Analytical Engine uses it to restrict the deletion.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
detect_cp	Engine > Outlier and Regchange	yes	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: The engine should attempt to detect a regime change in the level or trend. If it finds a change point, it performs the analysis on the leveled out series. The threshold for change points is controlled by the RegimeThreshold parameter.</li> <li>• no: The engine should not attempt to detect change points. The RegimeThreshold parameter is ignored.</li> </ul>	Can be tuned by node
detect_outlier	Engine > Outlier and Regchange	yes	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: The engine should attempt to detect outliers. If it finds outliers, it considers them in the analysis.</li> <li>• no: The engine should not attempt to detect outliers.</li> </ul> <p>Also see GrossRemove. To disable all outlier detection, both these parameters must be switched off.</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
DetectModel Outliers			Both	<b>Visible only to owner.</b> Specifies whether to check for outlier models for each forecast node. Outlier models are models that do not fit well enough. The sensitivity of the test is controlled by the ModelValidationBound parameter.	Global setting only
DeviationFactor	Engine > Validation	5	Both	<b>Visible only to owner.</b> This parameter is used by the fit validation module of the Analytical Engine, and it controls the sensitivity of one of the fit validation tests. In this test, residuals are checked for presence of large deviations, as specified by DeviationFactor. This parameter specifies the maximum number of standard deviations that the residuals are allowed to attain. A model is rejected if it fails this test.	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
DownTrend	Engine > Adjustment	0.2	Both	<p>This parameter is used by the adjustment module of the Analytical Engine, if that module is enabled (via EnableAdjustment). It controls the forecast adjustment for downward trend. Specifically, it specifies the amount by which the forecast is rotated to align with recent trend in data.</p> <p>Use a value from 0 to 1, inclusive.</p> <p>Enabling adjustment is not recommended, unless it is known that a change in trend happened recently, which is likely to be missed by the models.</p>	Can be tuned by node
dying_time	Engine > Proport	0.5 season (1 season in media)	Both**	<p>If no sales occurred during the length of time specified by this parameter, the combination is marked as dead. See prediction_status.</p>	Global setting only
E					

Parameter	Location	Default	Engine Mode*	Details	Tuning
EnableAdjustment	Engine > Adjustment	no	Both	<p>This parameter controls the adjustment module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Enable the adjustment module, which performs a final tuning of the forecast, adjusting the forecast to the recent trend in the historical data.</li> <li>• no: This is the recommended setting, unless you are sure that a change in trend happened recently, which is likely to be missed by the models.</li> </ul>	Can be tuned by node
EnableFitValidation	Engine > Validation	yes	Both	<p><b>Visible only to owner.</b> This parameter controls the fit validation module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Perform a normal validation for the fit.</li> <li>• no: Perform only a weak validation.</li> </ul>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
EnableForecastValidation	Engine > Validation	yes	Both	<p><b>Visible only to owner.</b> This parameter is used by the forecast validation module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Perform a normal validation for the forecast.</li> <li>• no: Perform only a weak validation.</li> </ul>	Can be tuned by node
EnableModifiedVariance	Engine > General	no	Both	<p><b>Visible only to owner.</b> This parameter is used by the fit validation module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Perform the modified variance, which specifies how the variance is calculated in determining weights for Bayesian blending.</li> <li>• no</li> </ul>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
EnableSimGLFilter	Engine > General	yes	PE only	<p><b>Visible only to owner.</b> Specifies whether simulation should respect or ignore any general-level filtering applied to the worksheet. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes: Respect the general level filter and run the simulation only on combinations in the worksheet and only on the general level members that is included in the filter. This option ignores, for example, any other general level members associated with those combinations.</li> </ul> <p>This setting should be used for fast simulations only. If used on promotions or scenarios, only the selected member will receive a regeneration of uplift. All other members—even if they would normally interact with each other—will be excluded. If learning is run using this setting, there is a very good chance that engine results will be wrong due to inclusion of only a part of history.</p> <ul style="list-style-type: none"> <li>no: Ignore the general level filter and potentially run the simulation on combinations that are not included in the worksheet. This is the previous behavior.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
				This parameter has no effect if the worksheet is not filtered by a general level.	
F					
FillMethod	Engine > Data Manipulation	linear interpolation	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine (if FillParameter equals 1). The FillMethod parameter specifies how to fill any null (missing) values. Use one of the following values:</p> <ul style="list-style-type: none"> <li>linear interpolation: Fill in values by linear interpolation of nearest neighbors.</li> <li>omitting missing values: Omit the null values and adjust the time scale of causal factors and trends of the Holt procedure; also see the UpTime parameter.</li> <li>This parameter is ignored if FillParameter equals 0.</li> </ul>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
FillParameter	Engine > Data Manipulation	0	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. It specifies how to handle null (missing) values. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes:</li> <li>• no:</li> <li>• If equal to 0, null values are replaced by zeros and FillMethod is ignored.</li> <li>• If equal to 1, null values are filled as specified by FillMethod.</li> </ul>	Can be tuned by node
ForecastGenerationHorizon	Engine > Time	0	Both	Specifies what historical fit data the engine will write to the database. If this parameter is 0, the engine writes the forecast only. If this parameter is a positive integer N, the engine writes the last N historical fit values.	Global setting only
ForecastMeanRelativeDistance	Engine > Validation	3.5	Both	<b>Visible only to owner.</b> This parameter is used by the forecast module of the Analytical Engine. It specifies the sensitivity of forecast validation. The smaller the value, the stricter the test.	Can be tuned by node
G					

Parameter	Location	Default	Engine Mode*	Details	Tuning
GrossRemove	Engine > Outlier and Regchange	yes	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes: The engine should process gross outliers. Enable this feature only if there is a clear reason to remove obviously unreasonable values. The threshold for gross outliers is controlled by the OutlierStdError parameter.</li> <li>no</li> </ul>	Can be tuned by node
H					
HighestSquaring	Engine > Validation	4	Both	<p><b>Visible only to owner.</b> This parameter is used by the fit validation module of the Analytical Engine. It specifies the number of residual standard deviations, beyond which the residuals participate in the sum of squares calculation in their absolute value, rather than squared.</p>	Can be tuned by node
hist_glob_prop	Engine > Proport	1 season	Both**	<p>Maximum number of base time buckets to use in calculating glob_prop, the running average demand for any given item-location combination. This parameter is used by the proport mechanism.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
HistoryLength	Engine > Time	0	Both	The number of base time buckets to consider for fit estimation and for the proportion mechanism. Must be a non-negative integer. If equal to 0, the length of the history is set by the start_date parameter instead.	Can be tuned by node
I					
InfluenceGroupLevel	Engine > Shell		PE only	<b>Read-only.</b> Specifies which level (from the group_tables table) is used as the influence group level of the forecast tree. To specify this parameter, you use the Forecast Tree Editor within the Business Modeler.	Global setting only
InfluenceRangeLevel	Engine > Shell		PE only	<b>Read-only.</b> Specifies which level (from the group_tables table) is used as the influence range level of the forecast tree. To specify this parameter, you use the Forecast Tree Editor within the Business Modeler.	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
IntermitCriterion	Engine > General	99	Both	<p>This parameter is used by the preprocessing and intermittent flow modules of the Analytical Engine. It specifies the minimum percentage of zero data points that a series must have to be considered intermittent.</p> <p>In this test, leading zeros may or may not be considered (depending on the setting of CutTailZeros). Trailing zeros are ignored in either case.</p> <p>In the extreme case where this parameter equals 0, all series are treated as intermittent.</p>	Can be tuned by node
IntUpdate	Engine > Adjustment	0.5	Both	<p>This parameter is used by the intermittent flow module of the Analytical Engine. It specifies the degree to which the Analytical Engine will update the fit after the last spike in history, in the case where there is decline in demand at the end of historical period.</p> <p>Use a number between 0 and 1, inclusive.</p> <p>The value 1 means that the change in fit is to be carried forward fully to the forecast.</p> <p>On the other extreme, the value 0 means that no change is to be applied.</p> <p>A value between 0 and 1 will be used as a weight for combining past and updated behavior.</p>	Can be tuned by node
L					

Parameter	Location	Default	Engine Mode*	Details	Tuning
last_date	Engine > Time	1/1/1900	Both	Last date of actual sales, to be used by the Analytical Engine and the proposit mechanism. No dates after this are used towards the forecast or the proposit calculation. If this parameter equals 1/1/1900, the system instead uses last_date_backup.	Global setting only
last_date_backup	Engine > Time		Both	Specifies a backup value to use for the last sales date, in case last_date is 1/1/1900.  Sometimes, when you load sales data, you need to change this parameter so that you can ignore a recent subset of history.  The proposit mechanism makes sure that this parameter is never later than max_sales_date.  See "max_sales_date".	Global setting only
lead	Engine > Time	12 for monthly data, 52 for yearly, 30 for daily	Both	The number of base time buckets to predict. The Analytical Engine generates a forecast for the base time buckets in the span from max_sales_date to max_sales_date + lead.  See "max_sales_date".	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
LogCorrection	Engine > General	no	Both	<p>This parameter is used by the fit and forecast modules of the Analytical Engine. The issue is that logarithmic models use log-transformed demand data, which can give inaccurate results if that transformed data is near to 1 in value. In such a case, you may want to use this parameter to make an internal adjustment. Use one of the following values:</p> <p>yes: Use correct form of the expectation of a lognormal variable.</p> <p>no: Do not perform the log correction.</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
LogLevel				<p>Controls the amount of detail that is written into the Analytical Engine log. Use one of the following values:</p> <ol style="list-style-type: none"> <li>1. Critical</li> <li>2. Error</li> <li>3. Warning</li> <li>4. Message</li> </ol> <p><b>Note:</b> This corresponds to the amount of detail that the log has contained in past releases.</p> <ol style="list-style-type: none"> <li>5. Info</li> <li>6. Detail</li> </ol> <p>This setting applies to all log groups chosen through the Engine Administrator:</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
LowerUpliftBound	Engine > Validation	3	PE only	<p><b>Visible only to owner.</b> Specifies the limit beyond which an uplift value is considered "exceptional." This limit is specified as a proportion of baseline. For each model, the Analytical Engine compares the absolute value of the uplift, divided by baseline, to this parameter.</p> <p>The engine discards a model (for a given forecast node) in either of two cases:</p> <ul style="list-style-type: none"> <li>• If the model generates too many exceptional uplifts (as specified by the LowerUpliftBound and AllowableExceptionsparameters).</li> <li>• If any uplift exceeds the bound given by the UpperUpliftBound parameter.</li> </ul>	Global setting only
M					
mature_age	Engine > Data Manipulation	2	Both**	<p>Controls the mature_date of each combination, which is calculated backwards from the current date using the mature_age parameter.</p> <p>A combination is young (rather than active) if it does not have any non-zero sales data on or before the mature_date.</p> <p>See prediction_status.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
max_accept_num				<p>Maximum absolute value that is permitted for the forecast results. If the Analytical Engine generates a result larger than this in absolute value, it substitutes this maximum (or minimum, if applicable).</p> <p><b>Tip:</b> Make sure the forecast columns are large enough to accommodate a number of this size, and be sure to account for a possible negative sign. Errors occur if the Analytical Engine cannot write the forecast because the database columns are not large enough.</p>	Global setting only
max_fore_level	Engine > Shell	Level just below the highest fictive level	Both	<p>The maximum level on the forecast tree at which a forecast may be produced. Upon failure at this level, the NAIVE model will be used (if NaiveEnable is yes).</p> <p>In Promotion Effectiveness, this must be at or below the influence range level (IRL); see InfluenceRangeLevel.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
MaxTasksForEngine	Engine > Shell		Both	<p><b>Visible only to owner.</b> Specifies how many engine tasks the engine server sends to each engine, before it kills the engine and starts a new one. If you receive "out of memory" errors when running the engine, try reducing this parameter to force the memory to be reallocated earlier, before such errors occur.</p> <p>If you specify 0, the number of engine tasks is unlimited. That is, the engine server never creates a new engine process.</p>	Global setting only
MeanRelativeDistance	Engine > Validation	0.5	Both	<p><b>Visible only to owner.</b> This parameter is used by the fit validation module of the Analytical Engine, and it controls the sensitivity of one of the fit validation tests. A model is rejected if its MAPE (Mean Absolute Percentage Value) is greater than this threshold.</p> <p>The smaller the value, the stricter is the validation.</p>	Can be tuned by node
min_fore_level	Engine > Shell	1	Both	<p>Minimum forecast level that the engine will forecast. From that level down, the engine will split the forecast using the precalculated proportions in the mdp_matrix table.</p> <p>For PE, this must be at or above the lowest promotional level (LPL).</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
MinLengthForDetect	Engine > Outlier and Regchange	12 for monthly data, 52 for weekly, 14 for daily	Both	This parameter is used by the preprocessing module of the Analytical Engine. It specifies the minimum number of data points needed in order for the engine to try to detect outliers and regime changes.	Can be tuned by node
ModelValidationBound		0.2	Both	Specifies the sensitivity of the test used to detect "outlier" models for a given node. Outlier models are models that do not fit well enough. This parameter is used only if model outlier detection is enabled (via the DetectModelOutliers parameter.)	Global setting only
N					
NaiveEnable	Engine > General	yes	Both	<p>Specifies what to do at the highest forecast level, upon failure of all models. Use one of the following values:</p> <ul style="list-style-type: none"> <li>no (0): Do not enable either NAIVE or Moving Average models. Do not generate a forecast.</li> <li>yes (1): Enable use of the NAIVE model.</li> <li>2 or higher: Enable use of the Moving Average model. In this case, the setting of NaiveEnable specifies the number of recent time buckets to use in calculating the moving average.</li> </ul>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
need_spread	Engine > Adjustment	produce continuous forecast	Both	<p>This parameter is used by the intermittent flow module of the Analytical Engine, and it controls whether the final result should be given in the form of spikes. Use one of the following values:</p> <p>produce forecast with spikes</p> <p>produce continuous forecast</p> <p>This applies only to intermittent models.</p>	Can be tuned by node
node_forecast_details	Engine > Shell	forecast is written to node_forecast_q	Both	<p><b>Visible only to owner.</b> Specifies whether the Analytical Engine should write forecast data for each node, before splitting to lower levels. Use one of the following values:</p> <ul style="list-style-type: none"> <li>forecast is written with model details (1): The Analytical Engine writes intermediate forecast data for each node, to the NODE_FORECAST table. The table includes information on how each model was used for that node. The Analytical Engine will run more slowly because of the additional work in writing to this table.</li> <li>forecast is written to node_forecast_q (0): The Analytical Engine writes the forecast as usual.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
NonNegRegr MaxTolMult				<p>Specifies the maximal multiplier to be used in order to increase the tolerance value in nonnegative regression. When you disable negative coefficients (via UseNonNegRegr) and are unable to acquire a solution, it may be helpful to increase this tolerance.</p> <p>Recommended value range: 30 - 2000</p> <p>Default value: 30</p>	Global setting only
NormalizationFactor	Engine > Data Manipulation	0	PE only	<p><b>Parameter is visible only to owner.</b> Specifies the degree of normalization to perform, if NormalizeResults is yes. Use a number from 0 to 1, inclusive. The ends of this range have the following meanings:</p> <ul style="list-style-type: none"> <li>• 1 means preserve the baseline fit. In this case, all residuals are added to the uplift.</li> <li>• 0 means that both the baseline and uplift are modified according to the normalization algorithm. This is the recommended setting.</li> </ul> <p>This normalization is applied only to historical data (where the baseline is known).</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
NormalizeResults	Engine > Data Manipulation	no	PE only	<p><b>Parameter is visible only to owner.</b> Specifies whether to normalize the historical engine results so that the observed baseline values are preserved. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes (1): Normalize historical engine results so that the observed baseline values are preserved. In this case, the Analytical Engine writes these results into the columns fore_a_normal, etc. This setting is recommended for use when historical analysis is of importance. Will cause Base + Lift to exactly match demand (quantity_form). The results are written in different column from base and lift to enable ease of comparison. No normalized results are available for future dates, because of the lack of normalization number; this potentially makes the connection between historical and future forecast not smooth.</li> <li>no (0): Do not perform normalization.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
NumShapes	Engine > Validation	8	Both	<b>Parameter is visible only to owner.</b> Specifies the maximum number of allowed shape causal factors for the engine to use for a given node in the forecast tree. Use an integer from 0 to 8, inclusive. Applies to activity shape modeling (rather than to promotional shape modeling).	Global setting only
O					
oracle_optimization_mode	Engine > Shell	cost	Both	<b>Oracle only; visible only to owner.</b> Optimization mode of the database.	Global setting only
OutliersPercentage	Engine > Outlier and Regchange	25	Both	This parameter is used by the preprocessing module of the Analytical Engine. A set of points, suspicious as outlying, will be regarded as such only if its size does not exceed this given percentage of data.	Can be tuned by node
OutlierStdError	Engine > Outlier and Regchange	2.5	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine, if gross outlier processing is enabled (via the GrossRemove parameter).</p> <p>The OutlierStdError parameter specifies the sensitivity of gross outlier detection. The greater this value, the less sensitive (more liberal) is detection of gross outliers. The value 0 is not allowed.</p>	Global setting only
P					

Parameter	Location	Default	Engine Mode*	Details	Tuning
PartitionColumnItem			Both	<p>Specifies the name of the column that partitions the data by item. This column must exist in sales_data, mdp_matrix, and (for Promotion Effectiveness) promotion_data.</p> <p>If this is null, data is not partitioned by item.</p> <p>See "Database Partitioning for the Engine".</p>	Global setting only
PartitionColumnLoc			Both	<p>Specifies the name of the column that partitions the data by location. This column must exist in sales_data, mdp_matrix, and (for Promotion Effectiveness) promotion_data.</p> <p>If this is null, data is not partitioned by location.</p> <p>See "Database Partitioning for the Engine".</p>	Global setting only
PercentOfZeros	Engine > Adjustment	0.2	Both	<p>This parameter is used by the adjustment module of the Analytical Engine, if that module is enabled (via the EnableAdjustment parameter). It specifies the maximum fraction of zero values in data beyond which no forecast adjustment is performed. Use 0.2 for 20 percent, for example.</p> <p>Enabling adjustment is not recommended, unless it is known that a change in trend happened recently, which is likely to be missed by the models.</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
PROMO_AG GR_LEVEL	Engine > Shell		PE only	<b>Read-only.</b> Specifies which level is used as the lowest promotional level of the forecast tree. To specify this parameter, you use the Forecast Tree Editor within the Business Modeler.	Global setting only
Pro motionStartD ate	Engine > Time		PE only	<b>Parameter is visible only to owner.</b> Earliest date for which promotion data can be considered reliable. The Analytical Engine ignores any promotion data before this date. This parameter applies only to combinations that have promotions.	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
proport_missing	Engine > Proport	treated as zero observations	Both**	<p>Specifies how missing dates are treated. Use one of the following values:</p> <ul style="list-style-type: none"> <li>treated as zero observations: The missing dates are set equal to zero. That is, suppose that you have three months worth of data as follows: 30, null, 60. If <code>proport_missing</code> equals 0, the average of these three months is calculated as 30 (or <math>[30+0+60]/3</math>)</li> <li>treated as missing: The missing dates are assumed to have average values. Using the previous example, if <code>proport_missing</code> equals 1, the average of these three months is calculated as 45 (or <math>[30+60]/2</math>). This is mathematically equivalent to assuming that the missing month has average sales (45).</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
proport_spread	Engine > Proport	receive 0 proportions/global proportions	Both**	<p>Specifies how months that are missing from historical data are filled. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• receive zero proportions: For each missing month, set the proportions equal to 0.</li> <li>• receive global proportions: For each missing month, set the proportions equal to glob_prop. In this case, Demantra checks the value of the proport_missing parameter and then does the following: <ul style="list-style-type: none"> <li>• If proport_missing equals 0, then missing months receive glob_prop*delta.</li> <li>• If proport_missing equals 1, then missing months receive the rolling average (glob_prop).</li> </ul> </li> <li>• receive 0 proportions/global proportions: For missing months that would have occurred after the first sale for this combination, assign 0 proportions. For months that could not occur in the range of first sale- end of sales, use glob_prop. In this case, for months that could not</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
				<p>have been included, Demantra checks the value of the <code>proport_missing</code> parameter and then does the following:</p> <ul style="list-style-type: none"> <li>• If <code>proport_missing</code> does not equal 1, then missing months receive the rolling average (<code>glob_prop</code>).</li> <li>• If <code>proport_missing</code> equals 1, then missing months receive <code>glob_prop*delta</code>.</li> </ul>	

Parameter	Location	Default	Engine Mode*	Details	Tuning
proport_threshold	Engine > Proport	0	Both**	<p>Specifies how many different months of the year must include data in order for Demantra to calculate proportions for the individual months (P1 - P12, PW1-PW6, etc.). Use any integer from 0 to 12, 24, inclusive.</p> <p>For each combination, the number of unique observable buckets is found (having 3 different observations of January counts as only one month).</p> <p>If not enough months have non-null values, Demantra checks the value of the proport_missing parameter and then does the following:</p> <p>If proport_missing equals 0, then missing months receive glob_prop*delta.</p> <p>If proport_missing equals 1, then missing months receive the rolling average (glob_prop).</p>	Global setting only
Q					
Quantile	Engine > Outlier and Regchange	2.5	Both	<p><b>Visible only to owner.</b> This parameter is used by the validations module of the Analytical Engine, when checking the influence of outliers. It specifies a standard normal percentile for detecting outliers at a prescribed significance level.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
quantity_for m	Engine > Data Manipulation	See details.	Both	<p><b>Visible only to owner.</b> Expression that the Analytical Engine uses to compose the historical demand from the sales_data table; the result of this expression is the data that the engine receives as input.</p> <p>This expression should return 0, null, or a numeric quantity for any date. A date with 0 is treated as if there were no sales. A date with null is treated as a missing date; in this case, the system can interpolate a value or just ignore the date.</p> <p>On Oracle, the default is as follows:</p> <pre>nvl(pseudo_sale,actual_quantity)*(1 + nvl(demand_fact,0)) + nvl(demand_lift,0)</pre> <p>On SQL Server, the default expression uses isnull rather than nvl.</p>	Global setting only
R					
RegimeThres hold	Engine > Outlier and Regchange	5	Both	<p><b>Read-only.</b> This parameter is used by the preprocessing module of the Analytical Engine. It specifies the sensitivity of regime change detection. The smaller the value, the more aggressively the engine will detect regime changes.</p> <p>This parameter is used only if regime change is enabled (via the detect_cp parameter).</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
RemoveResid Outlier		0	Both	Specifies the percentage of residuals (by number) to remove before validating the fit. The residuals are sorted by size and the largest residuals are removed.	Can be tuned by node
ResetForecast	Engine > Shell	yes	Both	<p><b>Visible only to owner.</b> Specifies whether the engine should clear out previous forecast data before generating the forecast. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Demantra clears the previous forecast for all combinations with prediction status equal to 99. (The other combinations are left alone, because the engine will overwrite their forecast anyway.)</li> <li>• no: Demantra does not clear out the previous forecast. This is less ideal but runs more quickly.</li> </ul>	Global setting only
resetmat	Engine > Shell	yes	Both	<p><b>Visible only to owner.</b> Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Reset loc_node, item_id, and location_id in mdp_matrix.</li> <li>• no: Do not reset these fields.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
R unInsertUnits			Both	<p>Specifies the behavior of the INSERT_UNITS procedure, which Demantra calls at the start of an engine run. This procedure makes sure the engine has rows to write into when generating the forecast. This parameter also controls whether Demantra runs the active rolling data profiles when it runs this procedure. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• 0 means that Demantra does not insert rows and does not execute the rolling data profiles.</li> <li>• 1 means that Demantra insert rows and executes the active data profiles (by running the EXECUTE_PROFILES procedure).</li> <li>• 2 means that Demantra does not insert rows, but does execute the active data profiles.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
RUNMODE			Not applicable	<p><b>Read-only; parameter is visible only to owner.</b> Specifies which version of the Analytical Engine to use.</p> <ul style="list-style-type: none"> <li>• Use 1 to specify the Promotion Effectiveness version.</li> <li>• Use 0 to specify the demand planning version (not supported). This mode may not even run, depending on your configuration, but is sometimes useful. If you use this setting, also be sure that you have defined the forecast tree appropriately. In particular, make sure that the LPL is the same as the minimum forecast level.</li> </ul>	Global setting only
S					
SdeAnalyzeS witch	Engine > General	yes	Both	<p>Specifies how the Analytical Engine should analyze the sales_data_engine table. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Use external logic to analyze this table. See "Reconfiguring the sales_data_engine Table".</li> <li>• no: Analyze the sales_data_engine table as usual.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
SdeCreateJoin	Engine > General	no	Both	<p>Specifies whether the Analytical Engine should join sales_data_engine (or its synonym) and mdp_matrix during its run. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes: Join sales_data_engine and mdp_matrix.</li> <li>no: Do not join these tables.</li> </ul> <p>See "Reconfiguring the sales_data_engine Table".</p>	Global setting only
SdeCreateSwitch	Engine > General	internal logic	Both	<p>Specifies whether to use external logic to create the sales_data_engine table. Use one of the following values:</p> <ul style="list-style-type: none"> <li>use external logic (1): Use external logic, as specified by the consultant. If you use this option, you must rewrite the create_process_temp_table, create_object, and drop_object procedures. See "Reconfiguring the sales_data_engine Table".</li> <li>use internal logic (0): Create the sales_data_engine table as usual.</li> </ul>	Global setting only
season	Engine > Time	season length	Both	<b>Read-only.</b> Season length (52 for weekly systems, 12 for monthly, 7 for daily).	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
set_rb	Engine > Shell	SET transac tion use rollback segment RB1	Both**	<b>Oracle 8i only; visible only to owner.</b> Set Rollback Segment command for the database. This is database dependent. See your database documentation.	Global setting only
ShapeSign	Engine > Data Manipulation		Both	<p>Specifies the signs for the shape causal factors when using them in non-negative regression. Use one of the following values:</p> <ul style="list-style-type: none"> <li>0 means that after the preliminary estimation, the signs are kept as is.</li> <li>1 means that after the preliminary estimation, the shape casual factors are made positive.</li> </ul> <p>This parameter is ignored if UseNonNegRegr is set to prevent negative coefficients.</p>	Can be tuned by node
ShiftBaseCausals	Engine > Shell	0	PE only	<b>Parameter is visible only to owner.</b> Specifies the number of base time buckets by which the baseline causal factors should be shifted; this applies to the causal_factors in the causal_factors table. Specify an integer (can be negative). The default setting (0) is recommended.	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
ShiftDynPro moDate			PE only	<p>SQL expression that returns the number of days to add to the sales date for any given promotion; typically this is a negative number. If the resulting dates are already in the Inputs table, the Analytical Engine inserts those dates into sales_data with is_self equal to 0.</p> <p>If this expression is null, then the default promotion dates are used.</p> <ul style="list-style-type: none"> <li>• If the expression aggregates multiple rows from promotion_data, then be sure to use an aggregate function such as DISTINCT.</li> <li>• Dates are compared to the dates in the Inputs table. If a newly generated date does not match a date in that table, then the date is deleted.</li> <li>• You can apply filters on the resulting dates, via the Promotional Causal Factor window in the Business Modeler.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
ShiftPromoCausal	Engine > Shell	0	PE only	<p><b>Parameter is visible only to owner.</b> This parameter is a global setting that applies to all promotions. You may want to use ShiftDynPromoDate instead, because that gives a greater amount of control.</p> <p>This parameter specifies the number of base time buckets by which the promotional causal factors should be shifted; this applies to the causal factors in the m3_causal_factors table. Specify an integer that can be negative. For example, to make the promotional causal factors active one week after the promotions occur, specify 1 (in a weekly system).</p>	Can be tuned by node
ShiftPromoMaxValue			PE only	<p>Specifies the number of additional future time buckets to bring into history, when shifting promotions to the dates given by ShiftDynPromoDate.</p> <p>By default, the Analytical Engine considers only historical promotions and ignores any future promotions. If you shift promotion dates, that typically means you need to shift promotions that are planned for the very near future. This parameter specifies how many time buckets of the future the Analytical Engine should consider when it shifts the promotion dates.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
SimSdeAsView	Engine > General	view	Both	<p>Specifies whether simulation should build treat sales_data_engine as a table or as a view. Use one of the following values:</p> <ul style="list-style-type: none"> <li>view: Create sales_data_engine as a view, which can be created rapidly. In this case, set resetmat to no (0).</li> <li>table: Create sales_data_engine as a table, which takes longer to create than the view. However, in this case, selecting from sales_data_engine is faster.</li> </ul>	Global setting only
start_date	Engine > Time	1-1-1995	Both	<p>First sales date, the start date as it appears in the Inputs table. Can be changed according to the length of history needed for fit estimation and for the proportion mechanism. See also the HistoryLength parameter.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
start_new_run	Engine > Shell	prompt	Both	<p>Specifies whether to start a new Analytical Engine run or to perform an engine recovery. Internally, the engine records information to indicate its current processing stage. As a result, if the previous engine run did not complete, you can run recovery, and the Analytical Engine will continue from where it was interrupted.</p> <p>Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: Always start a new run, regardless of the status of the last run.</li> <li>• no: Detect whether the previous run was complete and perform a recovery if the previous run did not complete.</li> <li>• prompt: Detect whether the previous run was complete and ask whether to perform a recovery run or a new run.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
StartAverage	Engine > Data Manipulation	-12 for monthly -52 for weekly -7 for daily	PE only	<p><b>Promotion Optimization only; parameter is visible only to owner.</b> Controls the starting date of the time span used to calculating the average baseline forecast. You specify this date relative to last_date.</p> <p>The length of this span of time is controlled by the AverageHorizon parameter.</p> <p>For information on configuring Promotion Optimization, see "Configuring Promotion Optimization for PTP".</p>	Global setting only
StdRatio	Engine > Validation	3	Both	<p>This parameter is used by the fit validation module of the Analytical Engine, and it controls the sensitivity of one of the fit validation tests. In this test, the residuals are split into two parts (earlier and later) controlled by TestPeriod. The parameter StdRatio is the maximum allowed ratio of the standard deviation of the later part to the standard deviation of the earlier part. A model is rejected if it fails the test.</p>	Can be tuned by node
T					
test_samp_len	Engine > Validation	6 for monthly data, 26 for weekly 7 for daily	Both	<p>This parameter is used by the fit validation module of the Analytical Engine. It specifies the length of data for forecast validation.</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
TestPeriod	Engine > Validation	6 for monthly data, 26 for weekly 7 for daily	Both	This parameter is used by the fit validation module of the Analytical Engine, and it controls the sensitivity of one of the fit validation tests. In this test, the residuals are split into two parts (earlier and later) controlled by TestPeriod. The parameter StdRatio is the maximum allowed ratio of the standard deviation of the later part to the standard deviation of the earlier part. A model is rejected if it fails the test.	Can be tuned by node
TooFew	Engine > General	2	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. It specifies the minimum number of non-zero data points that a series must have in order for the Analytical Engine to consider it model-feasible. In this test, leading zeros may or may not be considered (depending on the setting of CutTailZeros). Trailing zeros are ignored in either case.</p> <p>Must be 1 or greater.</p> <p>If the series has too few data points, the forecast failure module is run.</p>	Can be tuned by node
top_level	Engine > Shell		Both	<b>Visible only to owner; read-only.</b> Indicates the highest level of the forecast tree (the highest fictive level, HFL). This indicates the number of levels that the forecast tree contains.	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
TopCoefficientLevel	Engine > Data Manipulation		PE only	<p><b>Applies only to Promotion Optimization; parameter is visible only to owner.</b></p> <p>Specifies the highest forecast tree level for which the Analytical Engine will calculate coefficients. Use any forecast tree level between BottomCoefficientLevel and the InfluenceRangeLevel, inclusive.</p> <p>For information on configuring Promotion Optimization, see "Configuring Promotion Optimization for PTP".</p>	Global setting only
TrendDampPeriod			New	<p>Used during trend detection, this parameter specifies a block of time (as a number of buckets) over which the dampening is applied. The time that contains trend is divided into blocks, as specified by this parameter. For the nth block, the Analytical Engine applies a dampening factor n times. The result is exponential dampening.</p>	Global setting only
TrendDampStep			New	<p>Used during trend detection, this parameter specifies the dampening factor, which is applied n times to the nth block of time within the trend. The result is exponential dampening. Use a value between 0 and 1, inclusive; smaller values cause dampening to happen more quickly.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
TrendModelForShort			New	<p>Used during trend detection, this parameter specifies which engine model to use in order to generate the trend causal factor.</p> <ul style="list-style-type: none"> <li>• 1 means use the REGR model.</li> <li>• 2 means use the HOLT model.</li> </ul>	Global setting only
TrendOutlierRatio			New	<p>Used during trend detection, this parameter specifies how to treat outliers during model fit. It specifies a numeric weight to apply to the outliers within the long segment.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
TrendPeriod	Engine > Adjustment		Both	<p>This parameter is used in two parts of the Analytical Engine.</p> <p>The adjustment module uses it as follows:</p> <ul style="list-style-type: none"> <li>• If EnableAdjustment is yes (1), then TrendPeriod specifies how far back in history the trend is measured for adjustment.</li> <li>• If zero, then no adjustment is performed. Enabling adjustment is not recommended, unless it is known that a change in trend happened recently, which is likely to be missed by the models.</li> </ul> <p>This parameter is also used by trend detection as discussed in "The Forecasting Process" on page 589. If you have disabled negative regression (via UseNonNegRegr), then it is difficult for the Analytical Engine to detect downward trends. In such cases, you should enable trend detection.</p>	Can be tuned by node
TrendPreEstimation			New	Specifies whether to perform trend detection as described in "The Forecasting Process".	Global setting only
TrendShortRatio			New	Used during trend detection, this parameter specifies how to treat outliers during model fit. It specifies a numeric weight to apply to the outliers within the short segment.	Global setting only
U					

Parameter	Location	Default	Engine Mode*	Details	Tuning
update_dead_comb			Both**	<p>Specifies whether the MANUALS_INS procedure considers dead combinations. (A combination is dead if its prediction_status setting is 99; see "Mdp_matrix".) Use one of the following values:</p> <ul style="list-style-type: none"> <li>0 means that MANUALS_INS ignores the dead combinations (this is the typical setting).</li> <li>1 means that MANUALS_INS splits aggregated data to the dead combinations and saves it to those combinations.</li> </ul>	Global setting only
UpliftThresh oldMethod	Engine > Validation	1	PE only	<p>Specifies how to determine the uplift threshold:</p> <ul style="list-style-type: none"> <li>0 means use absolute values</li> <li>1 means use percent of baseline</li> </ul>	Global setting only
UpliftThresh oldValue	Engine > Validation	.5	PE only	<p>Uplift and cannibalization values lower than this threshold are automatically set to null. This number must be greater than 0.</p>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
UpperUpliftBound	Engine > Validation	20	PE only	<p><b>Visible only to owner,</b> Specifies the upper allowed limit for uplifts, as a proportion of baseline. For each forecasting model, the Analytical Engine calculates the lift for each node of the forecast tree. For any given node and model, if the absolute value of the uplift is greater than this limit, then that model is not used for this node.</p> <p>The engine discards a model (for a given forecast node) in either of two cases:</p> <ul style="list-style-type: none"> <li>• If any uplift exceeds the bound given by the UpperUpliftBound parameter.</li> <li>• If the model generates too many exceptional uplifts (as specified by the LowerUpliftBound and AllowableExceptionsparameters).</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
UpTime	Engine > Data Manipulation	nvl(su m(nvl( UP_TI ME,1)), 1)	Both	<p>This parameter is used by the preprocessing module of the Analytical Engine. It is used to flag whether each date in sales_data should be considered a sales date or not. Use an SQL expression that returns one of the following values:</p> <ul style="list-style-type: none"> <li>• 0 (to indicate a no-sales date)</li> <li>• 1 (to indicate a date on which sales could theoretically happen)</li> </ul> <p>On SQL Server, the default expression uses isnull rather than nvl.</p>	Global setting only
UpTrend	Engine > Adjustment	0.2	Both	<p>This parameter is used by the adjustment module of the Analytical Engine, if that module is enabled (via EnableAdjustment). It controls forecast adjustment for upward trend. Specifically, it represents the amount the forecast is rotated to align with recent trend in data.</p> <p>Use a value from 0 to 1, inclusive.</p> <p>Enabling adjustment is not recommended, unless it is known that a change in trend happened recently, which is likely to be missed by the models.</p>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
UseBusinessFilter	Engine > Data Manipulation	no	Both	<p>Specifies whether the Analytical Engine distinguishes business and non-business days. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: The Analytical Engine uses only business days (as indicated by business_day_filter series in the Inputs table).</li> <li>• no: The Analytical Engine uses all days.</li> </ul>	Global setting only
UseEnvelope					

Parameter	Location	Default	Engine Mode*	Details	Tuning
UseExternalS DUpdate	Engine > Shell	no	Both	<p><b>Visible only to owner.</b> Specifies how to update the sales_data table with the current forecast. Use one of the following values:</p> <p>yes: Use an external procedure (<code>create_process_temp_table</code>).</p> <p>no: Use an internal dynamic procedure.</p> <p>The <code>create_process_temp_table</code> procedure is a template that creates the dynamic stored procedure that will be executed by the engine for the update. By default, this procedure creates the same SP that as the engine creates, but this can be overridden. The interface to this SP is as follows:</p> <ul style="list-style-type: none"> <li>• <code>is_proc_name</code> (VARCHAR2) specifies the name of the dynamic SP that the engine will execute.</li> <li>• <code>is_tmp_tbl</code> (VARCHAR2) specifies the temptable name.</li> <li>• <code>is_fore_col</code> (VARCHAR2) specifies the column name in sales_data that will be updated with the new forecast.</li> <li>• <code>is_last_date</code> (VARCHAR2) specifies a date to update mdp_matrix with.</li> </ul>	Global setting only

Parameter	Location	Default	Engine Mode*	Details	Tuning
usemodelspe rnode	Engine > Data Manipulation		Both	Specifies whether you can specify the forecasting models to use for specific nodes in the forecast tree, via the File > Analytics menu option in Promotion Effectiveness.	Global setting only
UseNonNeg Regr	Engine > Validation	yes	Both	<b>Visible only to owner.</b> Specifies whether to use non negative constraint estimation for all regression-based engine models. Use one of the following values: <ul style="list-style-type: none"> <li>yes: The coefficients are prevented from being negative.</li> <li>no</li> </ul>	Can be tuned by node
UseParamsPe rNode	Engine > Data Manipulation		Both	Specifies whether you can specify the engine parameters to use for specific nodes in the forecast tree, via the File > Analytics menu option in Promotion Effectiveness.	Global setting only
UseWeighted Regression		0	Both	Specifies whether the Analytical Engine applies a weight to each observation when fitting each model. <ul style="list-style-type: none"> <li>If this parameter is set to 1 (yes), the OBS_ERROR_STD field (in sales_data) specifies the weights for each observation.</li> <li>If this parameter is 0 (no), that field is ignored.</li> </ul>	Global setting only
W					

Parameter	Location	Default	Engine Mode*	Details	Tuning
WriteIntermediateResults	Engine > Shell	no	Both	<p><b>Applies only to the desktop products; parameter is visible only to owner.</b> Specifies whether to enable the advanced analytics function, which is available only on the desktop. Use one of the following values:</p> <ul style="list-style-type: none"> <li>yes: Retain intermediate results (coefficients for causal factors) to enable advanced analytics. The results are written to the INTERM_RESULTS table. This information includes the coefficients for each model, and the weight of each model in the forecast.</li> </ul> <p><b>Warning:</b> The Analytical Engine will run much more slowly.</p> <ul style="list-style-type: none"> <li>no</li> </ul>	Can be tuned by node

Parameter	Location	Default	Engine Mode*	Details	Tuning
WriteMissing DatesUplift	Engine > Shell	no	PE only	<p><b>Parameter is visible only to owner.</b> Specifies whether to write uplifts for dates that are missing from sales_data. Use one of the following values:</p> <ul style="list-style-type: none"> <li>• yes: The Analytical Engine writes uplifts for any dates where it calculates them, even if no sales occurred. However, the uplifts will add up to the total uplift calculated by the engine.</li> <li>• no: The Analytical Engine writes uplifts only for dates that have sales. This means that the uplifts will not necessarily add up to the total uplift.</li> </ul>	Global setting only
<p>* <b>PE only</b> means PE mode only; <b>Both</b> means both PE and DP modes. ** This parameter is not used directly by the engine and thus is available for use with either engine mode.</p>					

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## Theoretical Engine Models

This chapter contains reference information for the theoretical models that the Analytical Engine uses.

This chapter covers the following topics:

- Introduction
- Flags on Causal Factors
- ARIX
- ARLOGISTIC
- ARX
- BWINT
- CMREGR
- DMULT
- ELOG
- FCROST
- HOLT
- ICMREGR
- IREGR
- LOG
- LOGISTIC
- Moving Average
- MRIDGE
- NAIVE
- REGR

## Introduction

**Note:** Oracle provides two different modes for the Analytical Engine:

- In PE mode, the engine is suitable for use with Promotion Effectiveness.
- In DP mode, the engine is suitable for use in demand planning applications.

For each model, this chapter indicates which engine modes that model can be used with.

## Flags on Causal Factors

You use the Business Modeler to apply the following flags to the causal factors; see "Configuring Global and Local Causal Factors" and "Configuring Promotional Causal Factors":

Flag*	Meaning
short	For use by the short models (BWINT, IREG, LOGREG, LOGISTIC, and REG). These models use all causal factors that they are given.
long	For use by the long models (ARLOGISTIC, CMREG, ELOG, ICMREG, and MRIDGE). These models examine all the causal factors they are given, but choose the ones that give the best results.
non-seasonal	For use by the non -seasonal models (ARIX and ARX). The only causal factors that should be flagged as non-seasonal are ones that are not a predictable function of time. For example, price varies with time, but randomly, so price should be flagged as non-seasonal.
multiplicative group 1	For use only by the DMULT model. If you are using this model, each causal factor should use one of these flags.
multiplicative group 2	See "DMULT".
*Name of flag as displayed in the Causal Factors screen or in the Promotional Causal Factors screen.	

Models not listed here use other mechanisms to choose their causal factors or do not use

causal factors at all.

## ARIX

ARIX includes integrated auto-regression terms at lag 1 and an unknown seasonal lag  $k$ , and linear causal factors.

The value of  $k$  is chosen from set of possible seasonal indexes to produce the best fit. Causal factors include the constant and events (without seasonal causal factors and without time).

### Availability

ARIX can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes*
DP mode	Yes
*The ARIX model is never used on promotional nodes. See "Summary of the Forecasting Process".	

### Causal Factors Used by This Model

ARIX uses the non-seasonal causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
Possible Season*	<b>For daily data:</b> 2, 3, 4, 5, 6, 7, 14, 30, 31, 90, 91, 92, 182, 365 <b>For weekly data:</b> 2, 4, 5, 13, 14, 26, 52 <b>For monthly data:</b> 3, 6, 12.	A vector of possible seasonal patterns of the series.  The parameter is of type vector (other parameters are defined as double in PARAM_TYPE column), with an increasing index (PARAM_INDEX) for each new PARAM_VALUE.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.

Parameter	Default	Description
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

The ARIX parameters also apply to the ARX model.

## ARLOGISTIC

ARLOGISTIC is an extension of the LOGISTIC model and includes auto-regression and logistic regression terms.

### Availability

ARLOGISTIC can be used with the following engine modes:

Engine Mode	Supported?
PE mode	No (disable model if using this mode)
DP mode	Yes

### Causal Factors Used by This Model

ARLOGISTIC uses the long causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

ARLOGISTIC uses the same parameters as LOGISTIC; see "Parameters Used by This Model".

## ARX

This model includes auto-regression terms at lag 1 and an unknown seasonal lag k, and linear causal factors. The value of k is chosen from set of possible seasonal indexes to produce the best fit. Causal factors include the constant and events (without seasonal causal factors and without time).

### Availability

ARX can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes*
DP mode	Yes
*The ARX model is never used on promotional nodes. See "Summary of the Forecasting Process".	

#### Causal Factors Used by This Model

ARX uses the non-seasonal causal factors; see "Flags on Causal Factors".

#### Parameters Used by This Model

ARX uses the same parameters as ARIX; see "ARIX".

## BWINT

BWINT (the Multiplicative Regression-Winters model) runs multiplicative regression on the causal factors, then exponentially smooths the resulting residuals in HOLT manner and then runs multiple regression of the smoothed residuals. BWINT models trend, seasonality and causality.

#### Availability

BWINT can be used with the following engine modes:

Engine Mode	Supported?
PE mode	No (disable model if using this mode)
DP mode	Yes

#### Causal Factors Used by This Model

BWINT uses the short causal factors; see "Flags on Causal Factors".

#### Parameters Used by This Model

Parameter	Default	Description
Alpha*	0.1	The manually set level renovation coefficient, valid only when OptimizedBwint* = 0.

Parameter	Default	Description
Gamma*	0.3	The manually set trend renovation coefficient, valid only when OptimizedBwint* = 0.
OptimizedAlphaIter*	3	The number of values on the Alpha grid for parameters optimization.
OptimizedBwint*	0	Specifies whether the parameter values (Alpha & Gamma) of the Holt procedure used here are to be optimized (1) or preset (0).
OptimizedGammaIter*	10	The number of values on the Gamma grid for parameters optimization.
Phi*	0.9	The trend damping coefficient, always set manually.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## CMREGR

CMREGR (the Markov Chain Monte-Carlo model) fits to data an assortment of linear functions of the form:  $\text{Series} = \text{Causals} * \text{Coeff} + \text{Resid}$ .

Where:

- Causals are various subsets of causal factors, chosen by a random process from all possible combinations of factors.

The first set of causal factors consists of a collection of factors along with the lagged time series. Then, for a given length, a chain of that length is generated, and that path of that Markov chain is traveled. The states of the chain are subsets of factors, the transition probabilities for neighboring states are based on the ratio of BICs (Bayesian Information Criteria) and are zero for non- neighboring states. Neighboring states are

states that differ only by one member. At each pass, a new factor is chosen randomly. If the current model does not contain this factor, it joins, with the calculated transition probability, the group to form the next model. Thus, the greater the improvement in the model (as measured by BIC), the more probability has the model to be employed. If the current model already contains this factor, then, with the calculated transition probability, it leaves the group.

Also, a special causal factor Lag is used; this is merely the original series lagged back by one time period. When the procedure finds this causal factor useful for modeling, the meaning is that there is a significant autoregressive component in the data, which indicates the presence of random trends. If the influence of Lag is dominant over other factors, which is indicated by a large Lag coefficient, the fit will inhere the lagging effect and when plotted on the same graph as the original series, will seem to "echo" previous observations. This means that the model was unable to pick up any systematic behavior in the series, and the best it can do is to highly correlate fitted values with lagged data.

### Availability

CMREGR can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

CMREGR uses the long causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
Reset_Seed*	1	Specifies whether to reset the seed for random numbers generation at each run or simulation. If the seed is not reset, there will be different results for each run; also the simulation results will differ from batch results. 1= reset_seed; 0 = do not reset seed.  Theoretically the model assumes that the seed is not reset.
ChainLength*	500	Number of models considered for averaging.

Parameter	Default	Description
Need_Lag*		Specifies whether to use the Lag as a causal factor. Lag - the previous actual observation explains the next one.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
UseEnvelope	no	Specifies whether Demantra will use the envelope function described in "Causal Factor Testing (Envelope Function)".
ENVELOPE_RESET_SEED*	0	Specifies whether to reset the randomization seed for the envelope function, which evaluates different sets of causal factors for different engine models.
ENVELOPE_CHAIN_LENGTH*	50	Specifies the number of variations of causal factors to try, for each model.
BestOrMix*	0	Specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## DMULT

DMULT, the Multiplicative Multi-Seasonal Regression model, divides causal factors into two groups and combines them in a multiplicative linear function of the following form:

*(sum of values in causal factor group 1) \* (sum of values in causal factor group 2)*

This function can be used, for example, to combine daily and monthly seasonality.

### Availability

DMULT can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

When you define causal factors and promotional causal factors, the Causal Factors screen and the Promotional Causal Factors screen enable you to place each factor into multiplicative group 1 or multiplicative group 2.

These options correspond to the DAILY\_VAL (multiplicative group 1) and MONTHLY\_VAL (multiplicative group 2) columns in the causal\_factors and the promotional\_causal\_factors tables.

Typically, one group contains daily causal factors such as the days of the week D1,D2,...,D7. The other group contains the remaining causal factors. Each group should include at least one causal factor, and each causal factor should be in only one group.

### Parameters Used by This Model

Parameter	Default	Description
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
MAX_ITERATIONS*	3	Specifies the maximum number of iterations used by this model. This parameter must be a whole number greater than or equal to 3. If it less than 3, the Analytical Engine uses the value 3.
SET2_COEFF_INI*	0	Specifies the initial values for the coefficients in multiplicative group 2.  The default is 0, which means that the initial values for these is zero, except for the coefficient for the constant causal factor.

Parameter	Default	Description
* This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## ELOG

ELOG (the Logarithmic CMREGR model) performs the CMREGR procedure on the log-transformed time series.

As with the CMREGR model, this model uses a special causal factor (Lag); see "CMREGR".

### Availability

ELOG can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

ELOG uses the long causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
ChainLength*	500	Length of the generated Markov Chain, that is number of models considered for averaging.
need_lag*		Specifies whether to use the Lag as a causal factor. Lag - the previous actual observation explains the next one.

Parameter	Default	Description
reset_seed*	1	<p>Specifies whether to reset the seed for random numbers generation at each run or simulation. If the seed is not reset, there will be different results for each run; also the simulation results will differ from batch results.</p> <p>1= reset_seed; 0 = do not reset seed.</p> <p>Theoretically the model assumes that the seed is not reset.</p>
LogCorrection	1	Specifies whether to use (1) or not (0) the correct form of the expectation of a lognormal variable.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
UseEnvelope	no	<b>Added in 7.1.</b> Specifies whether Demantra will use the envelope function described in "Causal Factor Testing (Envelope Function)".
ENVELOPE_RESET_SEED*	0	<b>Added in 7.1.</b> Specifies whether to reset the randomization seed for the envelope function, which evaluates different sets of causal factors for different engine models.
ENVELOPE_CHAIN_LEN GTH*	50	<b>Added in 7.1.</b> Specifies the number of variations of causal factors to try, for each model.
BestOrMix*	0	<b>Added in 7.1.</b> Specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## FCROST

FCROST (the Croston Model for Intermittent Demand) is useful for intermittent demand, which can be viewed as the demand by a distributor that supplies the product to end customers. What is visible to the demand planner is the bulk demand by the distributor, while the periodic demand of retailers is unknown. Thus, the quantities most probably reflect replenishment orders, rather than demand. Visually the data consists of peaks of random height with random intervals between the peaks.

This model is useful for data involving substantial number of zeros, and is particularly relevant for forecasting demand of slow moving parts. The model utilizes the Holt procedure for forecasting both quantities and inter-event times.

### Availability

FCROST can be used with the following engine modes:

Engine Mode	Supported?
PE mode	No (disable model if using this mode)
DP mode	Yes

### Causal Factors Used by This Model

None.

### Parameters Used by This Model

Parameter	Default	Description
AlphaQ*	0.1	Level innovation coefficient for quantities, manually set.
AlphaT *	0.1	Level innovation coefficient for inter-event times, always manually set.
GammaQ*	0.3	Trend innovation coefficient for quantities, manually set.
GammaT*	0.3	Trend innovation coefficient for inter-event times, always manually set.

Parameter	Default	Description
OptimizedAlphaIter*	3	The number of values on the Alpha grid for parameter optimization.
OptimizedFcrost*	0	For forecasting the inter-event times only. Parameter specifies whether the parameter values (AlphaQ & GammaQ) of the quantities-forecasting Holt procedure used here are to be optimized (1) or preset (0).  For forecasting the inter-event times only,
OptimizedGammaIter*	10	The number of values on the Gamma grid for parameter optimization.
Phi*	0.9	Trend damping coefficient for inter-event times, always manually set.
PhiQ*	0.9	Trend damping coefficient for quantities, always manually set.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## HOLT

HOLT (the Double Exponential Smoothing model) provides realization for the Holt damped two-parameter exponential smoothing algorithm. The forecast is a projection of the current level estimate shifted by damped trend estimate. The level estimates are computed recursively from data as weighted averages of the current series value and the value of the previous one-step-ahead forecast. The trend (change of level) estimates are computed as weighted averages of the currently predicted level change and damped previously predicted trend. The weights and the damping coefficient are either user-supplied or can be optimized. If the optimization of parameters is chosen, they will be set so that the MAPE (Mean Square Percentage Error) is minimized.

The HOLT model is suitable for modeling time series with a slowly changing linear trend. It is usually used only to model short series (for example, 52 or fewer data points for a weekly system).

## Availability

HOLT can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes*
DP mode	Yes

\*The HOLT model is used on promotional nodes only if no other models can be used. See "Summary of the Forecasting Process".

## Causal Factors Used by This Model

None.

## Parameters Used by This Model

Parameter	Default	Description
Alpha*	0.1	The manually set level renovation coefficient, valid only when OptimizedHolt* = 0.
Gamma*	0.3	The manually set trend renovation coefficient, valid only when OptimizedHolt* = 0.
OptimizedAlphaIter*	3	The number of values on the Alpha grid for parameters optimization.
OptimizedGammaIter*	10	The number of values on the Gamma grid (default) for parameters optimization.
OptimizedHolt*	0	Specifies whether the parameter values (Alpha & Gamma) are to be optimized (1) or preset (0).
Phi*	0.9	The trend damping coefficient, always set manually.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.

Parameter	Default	Description
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## ICMREGR

ICMREGR (the Intermittent CMREGR model) is an extension of both CMREGR and IREGR models.

### Availability

ICMREGR can be used with the following engine modes:

Engine Mode	Supported?
PE mode	No (disable model if using this mode)
DP mode	Yes

### Causal Factors Used by This Model

ICMREGR uses the long causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
ChainLength*	500	Length of the generated Markov Chain, that is the number of models considered for averaging.
need_lag*		Specifies whether to use the Lag as a causal factor. Lag - the previous actual observation explains the next one.

Parameter	Default	Description
reset_seed*	1	<p>Specifies whether to reset the seed for random numbers generation at each run or simulation. If the seed is not reset,</p> <p>there will be different results for each run; also the simulation results will differ from batch results. 1= reset_seed; 0 = do not reset seed.</p> <p>Theoretically the model assumes that the seed is not reset.</p>
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
<p>*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.</p>		

## IREGR

IREGR (the Intermittent Regression model) is useful because the Croston model fails to consider the obvious interdependency between quantities and times between occurrences of demands in intermittent series. Moreover, due to the nature of the Holt model used by Croston, causalities and seasonality are not modeled. IREGR spreads the data into a continuous series and fits to it a regression model with unequal variances. The resulting fit and forecast may be lumped back to form spikes, after being processed by the Bayesian blending procedure.

### Availability

IREGR can be used with the following engine modes:

Engine Mode	Supported?
PE mode	No (disable model if using this mode)
DP mode	Yes

### Causal Factors Used by This Model

IREGR uses the short causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.

## LOG

LOG (the Multiple Logarithmic Regression model) performs a logarithmic regression. Using logarithms is often a good way to find linear relationships in non-linear data.

This model fits to data a linear function of the form:

$$\ln(\text{Series} + \text{ones} * \text{Shift}) = \text{Causals} * \text{Coeff} + \text{Resid}$$

Where:

- Resid is the vector of residuals.
- ones is a column vector of ones.
- Shift is a calculated value to shift the series away from non-positive values, before the logarithmic transformation.

Forecast values are obtained by back-transforming the projected regression, while considering the theoretical form of the expectation of a log-normal random variable

### Availability

LOG can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

LOG uses the short causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
LogCorrection	1	Specifies whether to use (1) or not (0) the correct form of the expectation of a lognormal variable.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
UseEnvelope	no	<b>Added in 7.1.</b> Specifies whether Demantra will use the envelope function described in "Causal Factor Testing (Envelope Function)".
ENVELOPE_RESET_SEED*	0	<b>Added in 7.1.</b> Specifies whether to reset the randomization seed for the envelope function, which evaluates different sets of causal factors for different engine models.
ENVELOPE_CHAIN_LENGTH*	50	<b>Added in 7.1.</b> Specifies the number of variations of causal factors to try, for each model.
BestOrMix*	0	<b>Added in 7.1.</b> Specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).

\*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.

## LOGISTIC

LOGISTIC runs logistic regression on the causal factors.

### Availability

LOGISTIC can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

LOGISTIC uses the short causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

The LOGISTIC parameters also apply to the ARLOGISTIC model.

Parameter	Default	Description
Potential*	1.5	Specifies the upper bound of market effort effect, as a multiple of maximum historical sales.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

## Moving Average

The Moving Average model considers the most recent time buckets, computes the average, and uses that for the forecast, resulting in a flat line. This forecast is generally suitable only in the near future.

This model is provided as a possible substitute for the NAIVE model, for use when all other models have failed. It does not generally interact well with other models and so is recommended only for use if no other forecast models have worked.

See "Forecast Failure", and also see "NAIVE".

### Availability

The Moving Average model can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes (no lift is generated, however)
DP mode	Yes

### Causal Factors Used by This Model

None.

### Parameters Used by This Model

Parameter	Default	Description
NaiveEnable		<p>Specifies what to do at the highest forecast level, upon failure of all models.</p> <ul style="list-style-type: none"><li>no (0): Do not enable either NAIVE or Moving Average models. Do not generate a forecast.</li><li>yes (1): Enable use of the NAIVE model.</li><li>2 or higher: Enable use of the Moving Average model. In this case, the setting of NaiveEnable specifies the number of recent time buckets to use in calculating the moving average.</li></ul>

## MRIDGE

MRIDGE (the Modified Ridge Regression model) produces regression coefficients of moderate magnitude, thus assuring that lifts associated with events are of moderate size. This is equivalent to imposing a set of constraints on the coefficients in a spherical region centered at zero. In the literature, this model is of the shrinkage family.

### Availability

MRIDGE can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

MRIDGE uses the long causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
RIDGEK*	1	The larger the value of RIDGEK, the more shrinkage occurs. When RIDGEK=0, the model is equivalent to REGR.
METRIC NORM*	2	Chooses the norm for scaling the input causal factors.
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
UseEnvelope	no	<b>Added in 7.1.</b> Specifies whether Demantra will use the envelope function described in "Causal Factor Testing (Envelope Function)".
BestOrMix*	0	<b>Added in 7.1.</b> Specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).

\*This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.

## NAIVE

The NAIVE model is used only at the highest forecast level, and is used only if all other models (including HOLT) have failed. See "Forecast Failure", and also see "Moving Average".

It uses a simple averaging procedure.

### Availability

NAIVE can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes (no lift is generated, however)
DP mode	Yes

### Causal Factors Used by This Model

None.

### Parameters Used by This Model

Parameter	Default	Description
NaiveEnable		<p>Specifies what to do at the highest forecast level, upon failure of all models.</p> <p>no (0): Do not enable either NAIVE or Moving Average models. Do not generate a forecast.</p> <p>yes (1): Enable use of the NAIVE model.</p> <p>2 or higher: Enable use of the Moving Average model. In this case, the setting of NaiveEnable specifies the number of recent time buckets to use in calculating the moving average.</p>
AllowNegative	no	<p>Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.</p>

## REGR

REGR (the Multiple Regression model) fits to data a linear function of the form:

$$\text{Series} = \text{Causals} * \text{Coeff} + \text{Resid}$$

Where:

- Causals is a matrix with the independent variables (causal factors) as its columns.
- Coeff is a column vector of regression coefficient.
- Resid are the (additive) residuals (errors).

Using this additive model, we are assuming that a linear relationship exists. The dependent variable is linearly related to each of the independent variables.

The regression parameters estimates are obtained by using the method of least square error.

Regression coefficients that are not statistically significant are identified by special tests and assigned the value 0.

**Note:** All regression-based models use REGR implicitly.

### Availability

REGR can be used with the following engine modes:

Engine Mode	Supported?
PE mode	Yes
DP mode	Yes

### Causal Factors Used by This Model

REGR uses the short causal factors; see "Flags on Causal Factors".

### Parameters Used by This Model

Parameter	Default	Description
UseNonNegRegr	no	Specifies whether to constrain the regression coefficients to nonnegative values, within the core least squares estimation.

Parameter	Default	Description
AllowNegative	no	Specifies whether negative values of fit and forecast are allowed. If negative values are not allowed, then any non-positive fitted and forecasted values are set to zero.
UseEnvelope	no	Specifies whether Demantra will use the envelope function described in "Causal Factor Testing (Envelope Function)".
ENVELOPE_RESET_SEED*	0	Specifies whether to reset the randomization seed for the envelope function, which evaluates different sets of causal factors for different engine models.
ENVELOPE_CHAIN_LENGTH*	50	Specifies the number of variations of causal factors to try, for each model.
BestOrMix*	0	Specifies whether to use the best set of causal factors (0) or to use a mix of the causal factors (1).
* This parameter is model-specific and is not displayed in the Business Modeler; see the Parameters table.		

# Part 7

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## Administration



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## Administering Demantra

This chapter briefly introduces the tasks that the system administrator for Demantra would perform. It also lists all the URLs that Demantra uses.

This chapter covers the following topics:

- Keeping the System Running
- Periodic Maintenance Tasks
- Demantra URLs
- Log Files and Tables
- Illegal Characters in Demantra
- Required Third-Party Software

### Keeping the System Running

Depending on how Demantra is configured, it needs some or all of the following items to be running:

Component	When needed	Details
Database	Always	See information for Oracle or SQL Server.
Web server*	If solution uses any Web-based components	See documentation for the Web server.
Workflow Engine	If workflows are being used	See "Managing Workflows".

Component	When needed	Details
Database procedures listed in "Recommended Procedure Scheduling"	Always	Usually run from within workflows; see "Managing Workflows"
Possible other background processes	Varies	Contact the implementors of your Demantra system.
*For best performance, run the server without any logging.		

You should also make sure you have details on the following topics:

- The specific automated processes that the solution uses
- How often the Analytical Engine runs
- Any workflows that are in the solution
- How many components have been defined and who owns them

## Periodic Maintenance Tasks

You may periodically need to make adjustments in the following areas:

Area	Tool used	See
Maintaining users and user groups	Business Modeler	"Managing Security"
Maintaining security of menus in all Web-based products	Collaborator Workbench Administrator	"Managing Security"
Managing workflows	Workflow Manager	"Managing Workflows"
Changing ownership of worksheets and deleting unused worksheets	Business Modeler	"Managing Worksheets"

**Note:** For information on tuning the performance of the Analytical

Engine, see "Tuning the Analytical Engine".

**Note:** For information on other software configuration settings that affect performance, see the Oracle Demantra Installation Guide.

## Demantra URLs

You can log into any Web-based Demantra product if you have the URL and if you have the appropriate access. These URLs are based upon information provided during installation. Make sure all users know the URLs that they will need.

Item	Example URL
Collaborator Workbench	<a href="http://frodo/demantra/portal/loginpage.jsp">http://frodo/demantra/portal/loginpage.jsp</a>
Collaborator Workbench Administration	<a href="http://frodo/demantra/portal/adminLogin.jsp">http://frodo/demantra/portal/adminLogin.jsp</a>
Web client	<a href="http://frodo/demantra/portal/partnerLogin.jsp">http://frodo/demantra/portal/partnerLogin.jsp</a>
Demantra Anywhere version of Collaborator Workbench	<a href="http://frodo/demantra/portal/remoteloginpage.jsp">http://frodo/demantra/portal/remoteloginpage.jsp</a>
Demantra Anywhere version of Web client	<a href="http://frodo/demantra/portal/anywhereLogin.jsp">http://frodo/demantra/portal/anywhereLogin.jsp</a>
Workflow Manager	<a href="http://frodo/demantra/workflow/login.jsp">http://frodo/demantra/workflow/login.jsp</a>
Dynamic Open Link (DOL) access for third-party reporting tools	<a href="http://frodo/demantra/portal/DOL_HTML.htm">http://frodo/demantra/portal/DOL_HTML.htm</a>
Offline access to Demantra worksheets	<a href="http://frodo/demantra/portal/launchDPWeb.jsp">http://frodo/demantra/portal/launchDPWeb.jsp</a>

### Notes:

Here frodo is an example server name. Substitute the name of the server that is running the Demantra Web software.

Also, demantra is an example virtual directory. Substitute the name of the virtual directory that is the root of the Demantra Web software.

## Log Files and Tables

For your reference, Demantra writes the following log files and tables:

Table or file	Purpose
Unmapped Character Style: Literalimport.log	Information on the import process of the dump file.
Unmapped Character Style: LiteralDB_EXCEPTIONS_LOG	Errors detected when stored procedures are run; this information is displayed in the Business Modeler.
Unmapped Character Style: Literalbuild_procedure.log	Information on the loading of the procedures into the new user.
Unmapped Character Style: Literalupgrade.log	Information on the database upgrade process.

These files are in 'Demantra\_root'Unmapped Character Style: Literal\Demand Planner\Database Objects\Oracle or 'Demantra\_root'Unmapped Character Style: Literal\Demand Planner\Database Objects\SQL, depending on the database you are using.

If you are using JRun as the Web server, note that all the Jrun logs are in the directory ..Unmapped Character Style: Literal\JRun4\logs. All Demantra exceptions are written to Unmapped Character Style: Literaldefault-err.log. You should delete all these log files before restarting the application server. You may want to back up the files first to another folder.

**Note:** If the server is running, you will not be able to delete some of the files because they are in use. You can instead clear the log files as follows: open each file, select all text with ctrl+A, and delete the text and save the file.

## Illegal Characters in Demantra

Within Demantra, do not use the following special characters:

Single quote (')

Double quote (")

Ampersand (&)

If you use these characters, unexpected results may occur.

## **Required Third-Party Software**

The *Oracle Demantra Installation Guide* lists third-party software with which Demantra works. It may be useful to review this information.



---

## Managing Security

The Demantra data and features are secured, so that not all users have access to the same data and options. This chapter describes how to maintain security:

This chapter covers the following topics:

- Data Security
- Feature Security
- Creating or Modifying a Component
- Deleting a Component
- Creating or Modifying a User
- Copying a User
- Deleting a User
- Creating or Modifying a User Group
- Deleting a Group
- Providing Access to the Workflow Editor
- Logging onto the Collaborator Workbench Administrator
- Defining a Program Group
- Redefining a Program Group
- Deleting a Program Group
- Specifying Permissions for Menu Items
- Logging Out Users

### Data Security

Demantra data is secured as follows:

- The data is partitioned into components, which generally correspond to organizational roles, which can overlap. Each component has an owner, who acts as the administrator and who can create additional users. (See "Creating or Modifying a Component".)
- Each user is authorized for one component. In addition, you can further restrict a specific user's access to data by applying filters so that the user can see only specific level members as well as only certain series.
- Users can belong to groups, and group members can collaborate, inside or outside of workflows. When a user creates a note, he or she can control access to that note by user or by group.

The following table summarizes how Demantra controls access to data elements.

<b>Data Element</b>	<b>Options</b>	<b>Controlled by</b>		
Series	Visible or not visible	Yes	No	Yes
Series indicators (which indicate the presence of a note or promotion within the worksheet table.)	Visible or not visible	Yes	No	No
Levels	Visible or not visible	Yes	No	No
Level members	Full control, including ability to delete members  Read/write existing members  Read existing members  No access	Yes	No	Yes
Units of measure	Visible or not visible	Yes	No	No

Data Element	Options	Controlled by		
Indexes and exchange rates	Visible or not visible	Yes	No	No
Notes	Similar to level member options	No	As specified by creator of note	

It is useful to remember that each user of a component sees a subset of the data associated with that component. You cannot give user access to data that is not contained in the component.

## Feature Security

Demantra features are secured as follows:

- Permission levels control access to administrative tools and to menu items. Demantra provides four predefined permission levels that you can customize. You can control access to all of the Demantra menus:
  - Menus on the Collaborator Workbench menu bar
  - Menus on the DSM menu bar
  - Menus on the Promotion Effectiveness menu bar
  - Menus on the Demand Management menu bar
  - Right-click menus associated with each level in your system
- You can also control access to all the same menu items at the group and user ID level.

For convenience, you control access to individual menu items, to predefined collections of menu items, or to your own collections of menu items (your own program groups).

### Permission Levels

Demantra defines four permission levels, as follows:

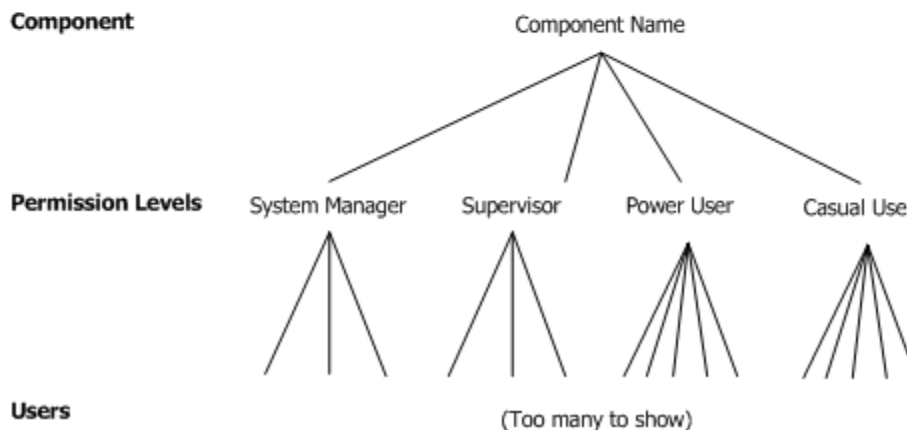
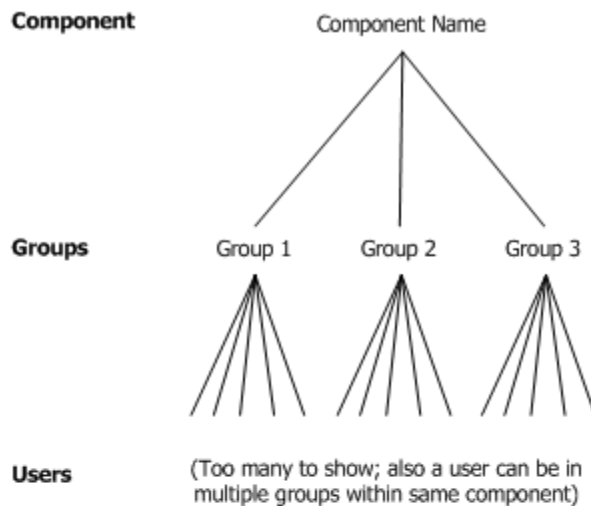
- System Manager
- Supervisor
- Power user
- Casual user

A user must have the System Manager permission level in order to log onto the administrative tools (such as the Business Modeler). Apart from that (and a few differences noted in "Other Security Features"), these permission levels provide the same access to menu items. You can redefine them as needed by assigning access to different menu items or sets of menu items.

### Permission Hierarchies

In order to understand how Demantra determines a given user's access to a given menu item, it is necessary to understand the permission hierarchies and how Demantra combines them.

Demantra has two independent permission hierarchies. In the first hierarchy, each component includes groups, and each group includes users. A user can belong to multiple groups, provided that all those groups belong to the same component. In the second hierarchy, each component includes four permission levels, and each user has one permission level.



### Explicit and Implicit Permissions

You can display or hide any menu item. You can also display but disable a menu item, which can provide a useful clue about advanced features that are available to other users. Each permission is either explicit or implicit (inherited).

You define permissions in an expandable hierarchy like the following. For now, let's focus on the three check boxes:

Program Type Filter: All		Level Filter: All		
	Program Object	Hidden	Disabled	Inherited Permission
		Select All	Select All	Select All
	[-] Settlement Management			
	[-] File	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Worksheet	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Edit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] View	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Options	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Help	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	[-] Program Groups			
	[-] Object Menu			

The following table describes how to use these check boxes:

Desired outcome	Hidden	Disabled	Inherited Permission
Menu option is explicitly hidden	Checked	Irrelevant	Unchecked
Menu option is explicitly displayed but disabled	Unchecked	Checked	Unchecked
Menu option is explicitly displayed and enabled	Unchecked	Unchecked	Unchecked
Use implicit permissions for this menu item	Unchecked	Unchecked	Checked

### How Demantra Combines Multiple Permissions

For a given user and a given menu item, Demantra checks for all the following permission descriptions:

- For the component
- For each group to which the user belongs
- For the permission level that the user has
- For the user ID
- For each program group to which the menu item belongs

To determine whether a user has access to a given menu item, Demantra searches for and combines the permission descriptions as follows.

1. Demantra checks to see if the user has an explicit permission setting (for a given menu item). If so, that setting is used, and all others are disregarded.
2. If the user does not have an explicit permission setting for a given menu item, then Demantra looks at the settings for the groups to which the user belongs, the permission level that the user has, and each program group that the menu item is in. Here, the following rules apply:
  - An explicit permission takes precedence over an implicit permission.
  - Among explicit permissions, the most liberal permission takes precedence.
  - Among implicit permissions, the most liberal permission takes precedence.
3. If no explicit permission setting for the menu item has been found so far, then Demantra uses the permission setting at the component level, if any.
4. If there is no setting at the component level, Demantra displays and enables the menu item.

See Also

"Data Security"

"Specifying Permissions for Menu Items"

## Creating or Modifying a Component

### **To create or modify a component:**

1. Click Components > Create/Open Component. Or click the Create/Open Component button.

**Note:** This option may not be available, depending on the user name with which you logged onto Business Modeler.

The Create/Open Component dialog box appears.

2. Now do one of the following:
  - To create a new component, click the New Component button and then click OK. Or double-click the New Component icon.

**Note:** This option is available only if you log into Business Modeler as the user with the highest permission.

- To open an existing component, double-click the icon corresponding to the component. Or click the icon and then click OK.

The Component Configuration Wizard displays its first dialog box.

3. Enter or edit general information for the user interface, as follows:

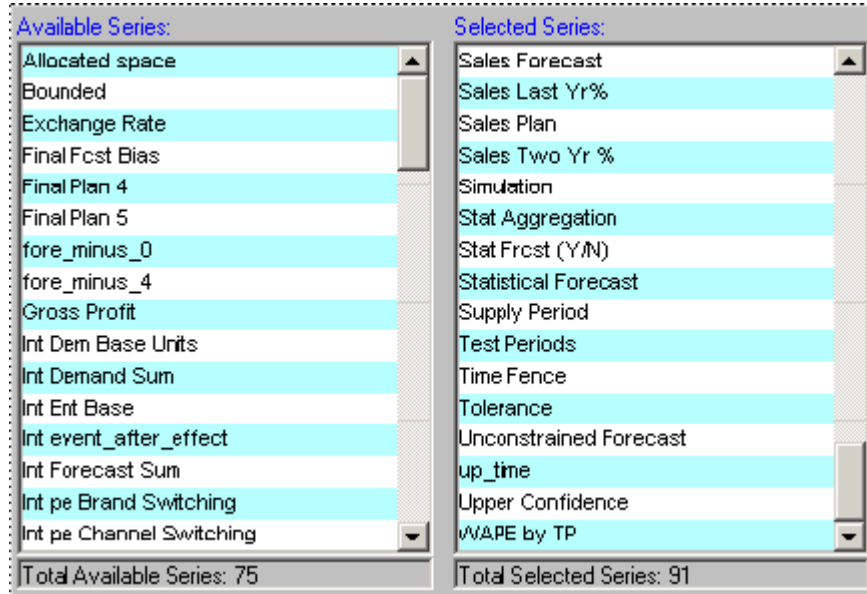
---

Component Name	Unique name for this component.
Component Description	Description
About Window Description	Optional description to include in the About page of this component.

---

4. Click Next.

The Business Modeler displays the Available Series and Selected Series lists.



5. Select the series that should be available in the component.
  1. Move all series that you want into the Selected Series list, using any of the techniques in "Working with Lists".
  2. Remove any unwanted series from the Selected Series list.
  3. When you are done specifying series, click Next.

**Note:** By default, this configuration affects all users of this component. To hide additional series for a given user, see "Creating or Modifying a User".

6. Click Next.

The Business Modeler displays the Select Component Indicators for Series window. Here you specify which series should have indicators to indicate associated promotions or notes.

**Select Indicator:** Promotion

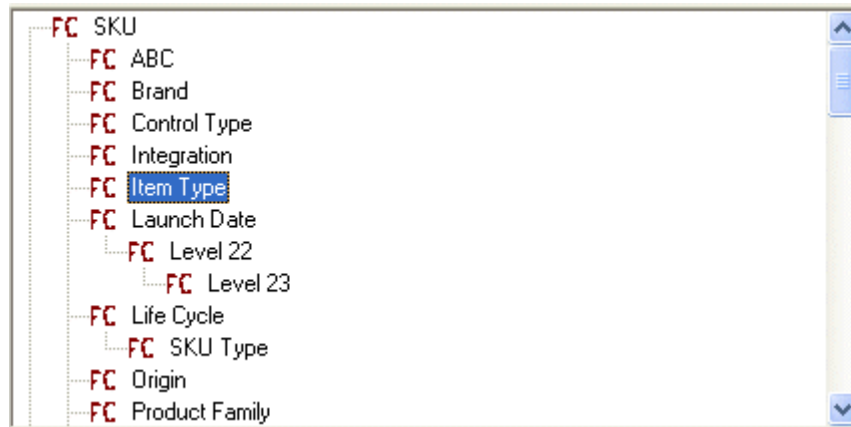
Available Series:	Selected Series:
Outlier A	Final Plan
Outlier Full	
Partner % in Fcst	
Partner 1 Acc	
Partner 2 Acc	
Partner 3 Acc	
Partner Fcst Override	
Partner Fcst	
Partner Plan 1	
Partner Plan 2	
Partner Plan 3	
Plan Dif	
POS	
Price \$	
Price change	
Price change Duration indicator	
Total Available Series: 85	Total Selected Series: 1

Within a worksheet, a user can attach a promotion (in the case of Promotion Effectiveness) or a note to a given item-location combination, at a given date. If a series has been configured as using an indicator for that particular promotion or note, the series will be displayed with an indicator in all worksheet cells that correspond to that item-location combination and date.

- You can associate an indicator for any general level at the lowest level (that is, any general level that do not have child levels).
  - The default associations are different for different kinds of series. Sales series have notes indicators by default. Promotion series have both notes and promotion indicators by default.
  - This configuration affects all users of this component. No further fine tuning is possible.
7. To associate indicators with different series, do the following for each general level:
    1. In Select Indicator, select the general level, either Note or Promotion.
    2. Move all series that should use the associated indicator into the Selected Series list, using any of the techniques in "Working with Lists".
    3. Remove any unwanted series from the Selected Series list.

8. Click Next.

The system displays all the levels and indicates the current permission settings in this component.



The following icons indicate the permissions:

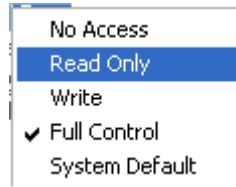
---

FC	Full control (including permission to delete members)
W	Read/write access
R	Read access
X	No access

---

9. For each level that you want to change, right-click the level and select the appropriate permission:

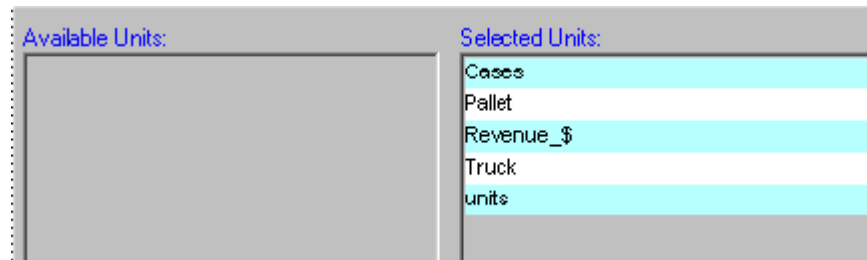
- No Access (the user does not have access to this member; this option is equivalent to not including this member in the filter)
- Read Only (the user can view this member but cannot make any changes)
- Write (the user can view or edit this member)
- Full Control (user can view, edit, create, and delete within this member)
- System Default (use the default permission controlled by the DefaultLevelSecurityAccess parameter.



**Note:** By default, this configuration affects all users of this component. To fine tune permissions for a given user, see "Creating or Modifying a User".

10. Click Next.

The system displays the Available Units and Selected Units lists.








11. Select the units of measure that should be available in the component.

1. Move all units that you want into the Selected Units list, using any of the techniques in "Working with Lists".
2. Remove any unwanted units from the Selected Units list.

**Note:** This configuration affects all users of this component. No further fine tuning is possible.

12. Click Next.

- The system displays the Available Indexes and Exchange Rates and Selected Indexes and Exchange Rates lists.

Available Indexes / Exchange Rates:	Selected Indexes / Exchange Rates:
	 Consumer Price Index  Dollar \$  Euro ?
Total Available Indexes: 0	Total Selected Indexes: 3
<b>Legend:</b>  Index  Exchange Rate	

13. Select the indexes and exchange rates that should be available in the component.
  1. Move all indexes and exchange rates that you want into the Selected Indexes and Exchange Rates list, using any of the techniques in "Working with Lists".
  2. Remove any unwanted indexes and exchange rates from the Selected Indexes and Exchange Rates list.

**Note:** This configuration affects all users of this component. No further fine tuning is possible.

14. Click Next.

The next dialog box allows you to associate public worksheets with levels.

Select Level:	Available Queries:	Selected Queries:	Default Query:
City	000. Introduction 000B. Middle out Enterprise Plan 001. Store Plan 002. Creating a strategic plan 004. New Product Launch 005. Analyze historical Statistical perform 006. Clustering Report update 007. Analyze Historical Plan performance 008. Middle out Enterprise Plan 009. Store Manager Plan 010. Consensus Plan 011 Consensus Plan Cross tab analysis 012. Budget Exception Analysis 013. Lifecycle Management 014. Wall Management 015. Coupon Program		
	Total Available Queries: 39	Total Selected Queries: 0	

This association is used in two ways:

- Within the Members Browser, a user can use the right-click menu to open any of these associated worksheets directly from a member of the level (via the Open With menu option). In this case, Demantra opens the associated worksheet. The worksheet is filtered to show only data relevant to the member.
- A worksheet can include an embedded worksheet that shows details for the member that is currently selected in the worksheet. Specifically, within the worksheet designer, users can add a subtab to a worksheet. The subtab consists of any of the worksheets that are associated with a level included in the main worksheet. The embedded worksheet is filtered to show only data relevant to the member.

**Note:** This configuration affects all users of this component. No further fine tuning is possible.

15. At this point, do one of the following:

- To continue without associating any worksheets and levels, click Next.
- To associate a worksheet with a level, do the following:
  1. Click the level in the Select Level dropdown menu.
  2. Double-click the worksheet in Available Queries list, which moves it to the Selected Queries list.
  3. Move other worksheets from the Available Queries list to the Selected Queries list, as needed.
  4. Decide which worksheet in the Selected Queries list should be the default worksheet for this level. For that worksheet, click the Default check box. When the user right-clicks and selects Open, this is the worksheet that will be used.
  5. When you are done on this screen, click Next.

If you are using the PE Analytical Engine, the system displays engine profiles that could potentially be used within this component. The Business Modeler displays the Available Engine Profiles and Selected Engine Profiles lists.

Available Engine Profiles:	Selected Engine Profiles:
	Base
	Batch
	DP simulation profile
	Fast PE simulation profile
	Full PE learning simulation profile
	Simulation
Total Available Engine Profiles: 0	Total Selected Engine Profiles: 6

16. Select the engine profiles that should be available in the component. Profiles can be used only with the Promotion Effectiveness engine.
  1. Move all profiles that you want into the Selected Engine Profiles list, using any of the techniques in "Working with Lists".
  2. Remove any unwanted profiles from the Selected Engine Profiles list.
    1. When you are done specifying profiles, click Next.

**Note:** This configuration affects all users of this component.  
No further fine tuning is possible.

In the next step, you specify the user name and password of the user who owns the component. This user will be able to log into the Business Modeler and create additional users for this component.

**Define Component User.**

User Name:

User Password:

17. To specify the owner of the component:
  - In the User Name box, type the user name.

- In the User Password box, type the user password.
18. To exit and save the configuration, click OK.
  19. Modify the newly created user so that it has access to the appropriate Demantra modules. To do so, use the Security menu; see "Creating or Modifying a User".

## Deleting a Component

### To delete a component:

1. Click Components > Create/Open Component. Or click the Create/Open Component button.

**Note:** This option may not be available, depending on the user name with which you logged onto Business Modeler.

The Create/Open Component dialog box appears.

2. Click the icon corresponding to the component.
3. Click Delete.
4. Click Yes to confirm the deletion.

## Creating or Modifying a User

You can create additional users to work within the component you own.

### To create or modify a user:

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler".
2. Click Security > Create/Modify User. Or click the Create/Modify User button.

The Create/Modify User dialog box appears.

3. Next:

- To create a new user, click the New User button, and then click OK.
- To modify a user, click the button of that user then click OK. Or double-click the icon of the user whose details you want to modify.

The User Details dialog box appears.

**Enter User Details**

User : Jeff\_Wilson

Password: \*\*\*\*\* Integrate User: ☐

Permission Level: Supervisor

Language: English

First Name: Jeff

Last Name: Wilson

Company Name: Rory's International

Phone Number:

Fax Number:

E-Mail Address: jwilson@rorys.com

4. Specify basic user details as follows:

- Under Enter User Details, type the following information in the appropriate boxes (or select from the drop down lists):
- The user name, password, permission level, and the language in which the system will be operated. Each user name must be unique within your Demantra implementation.
- The first and last name of the user, the company name, phone and fax number, and the email address. If you set up automated email within workflows, it is important to make sure the email address is correct here.

1. For Permission Level, see "Permission Levels".
2. If this user also needs to work with Inventory Optimizer and Demantra Replenisher, click the Integrate User check box.

**Note:** This check box may or may not be displayed, depending on how Demantra was installed.

**Note:** Inventory Optimizer and Demantra Replenisher are licensed and documented separately from the core Demantra products.

3. Click Next.

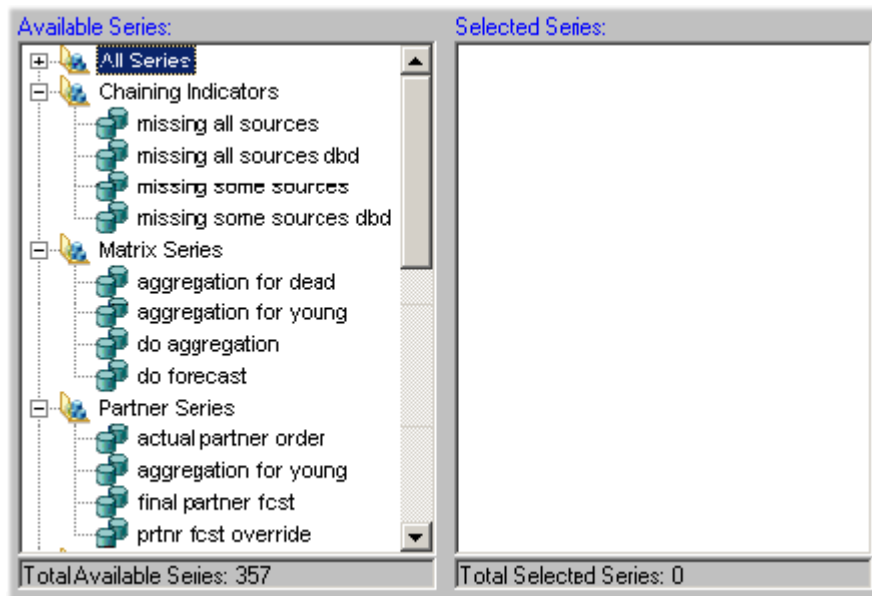
The User Modules dialog box appears. Here you specify which Demantra user

interfaces this user can access.

Name	Status	Available Named Users	Defined Concurrent Users
Demantra Administrative Tools	<input checked="" type="checkbox"/>	9983/9999	9999
Demantra Demand Planner	<input checked="" type="checkbox"/>	9982/9999	9999
Demantra Demand Planner Web	<input checked="" type="checkbox"/>	9982/9999	9999
Demantra Collaborator Workbench	<input checked="" type="checkbox"/>	9981/9999	9999
Demantra Anywhere	<input checked="" type="checkbox"/>	9990/9999	9999
Demantra Promotion Effectiveness	<input checked="" type="checkbox"/>	9981/9999	9999
Settlement Management	<input type="checkbox"/>	9999/9999	9999
Demantra Promotions Optimization	<input type="checkbox"/>	9999/9999	9999

5. Click the check box next to each module that the user needs to work with. Then click Next.

The New User - Select User Series dialog box appears. This dialog box allows you to determine what data series will be active for the new user, from the entire set of series in this component. Each list is a collapsible list of series groups and the series in them.



If a series is not active for a user, it is not available when the user creates worksheets and is not viewable in existing worksheets to which the user has access.

6. Specify the series that a user can see, as follows:
  1. Move all series that you want into the Selected Series list. To do so, either double-click each series or drag and drop it.

2. Remove any unwanted series from the Selected Series list.

**Note:** You can also move an entire series group from one list to the other in the same way.

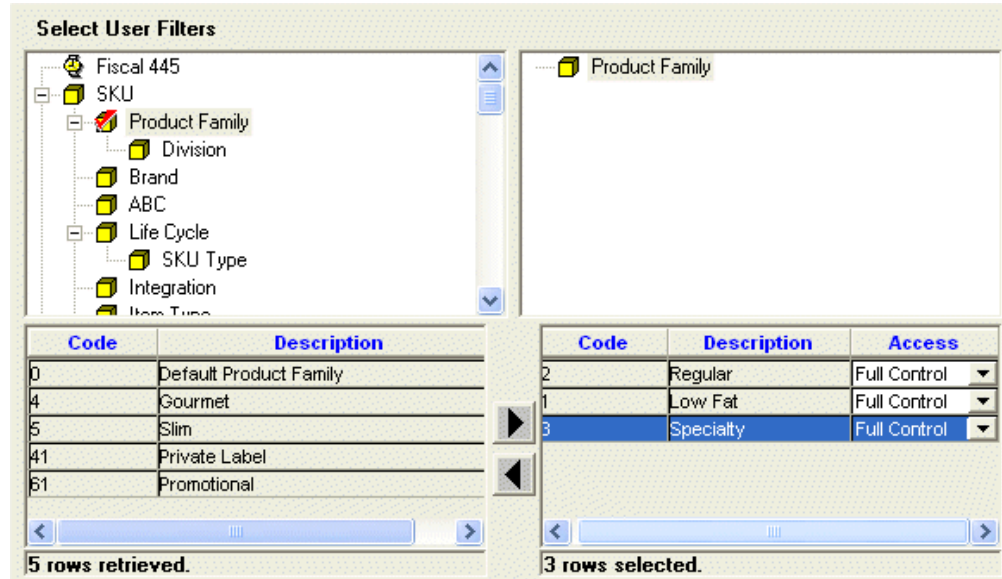
3. When you are done specifying series, click Next.

The New User - Select User Filters dialog box appears. This dialog box lets you filter the data that the user can see; specifically, you control which levels and which members of those levels the user can see.



7. Filter the data that the user can see, as follows:
  1. Click a level in the left side of the dialog box and drag it to the box on the right. Or double-click a level in the left side.
  2. Now specify which members of this level the user can see. To do so, click a member in the list, and then click the right arrow button. Or double-click the member you want to filter out.

The system moves the selected members to the box on the lower right side, as in this example:



8. Now the user can see only the selected members of this level. In the preceding example, the user can see only data that is associated with the Rainbow brand.

**Note:** The Selected Members list cannot include more than 200 members.

In the lower right, refine the security settings that control the access that the user has to each member. To do so, in the Access column, click one of the following:

1. Full Control (user can view, edit, create, and delete within this member)
  2. Read & Write (the user can view or edit this member)
  3. Read only (the user can view this member but cannot make any changes)
  4. No access (the user does not have access to this member; this option is equivalent to not including this member in the filter)
  5. System Default (use the default permission controlled by the DefaultContentSecurityAccess parameter)
9. Repeat the preceding steps for each filter you want to add. Each filter automatically limits the choices available in subsequent filters.

When you have appropriately filtered data for the user, click Next.

The New User - Select User Groups dialog box appears. This dialog box allows you to select the group or groups to which the new user will belong.

10. Specify the collaboration groups to which a user belongs, as follows:
  1. Move all groups to which the user should belong into the Selected Groups list. To do so, either double-click each group or drag and drop it.

**Note:** You can also select and move multiple groups with the standard Ctrl+click or Shift+click actions.

2. Remove any unwanted groups from the Selected Groups list.
  3. Click Next.
11. Click Finish.

See also

"Copying a User" "Deleting a User"

## Copying a User

If you need to create multiple similar users, it is useful to create one of those users and then copy it to create the other users.

### To copy a user:

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Security > Create/Modify User. Or click the Create/Modify User button. The Create/Modify User dialog box appears.
3. Click the button of the user you want to copy, and then click Create Copy. The User Details dialog box appears. Some of the information, such as user name, is blank. Other details, such as the company name, are copied from the original user.
4. Specify the user name and password for the new user.
5. Make other changes as needed.
6. Do one of the following:
  - Click Next to continue editing information for the new user. Demantra initially uses all the same values as for the original user.
  - Click Finish.

Demantra also copies menu permissions of the original user; see "Specifying Permissions for Menu Items".

See also

"Creating or Modifying a User"

## Deleting a User

### To delete a user:

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Security > Create/Modify User. Or click the Create/Modify User button. The Create/Modify User dialog box appears.
3. Click the button of the user you want to delete, and then click Delete. A question box appears, inquiring if you are sure you want to delete the selected user.
4. To delete the selected user, click Yes.

See also

"Creating or Modifying a User"

## Creating or Modifying a User Group

Demantra uses user groups for several purposes:

- Group members can collaborate, within Collaborator Workbench.
- The Workflow Engine can send tasks to groups (as well as to users).
- Groups can be authorized to view and edit notes attached to worksheets.
- Groups can be authorized to use menu items.

Groups are visible in all components. Note that the users in a group can belong to different components.

### To create or modify a group:

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler."

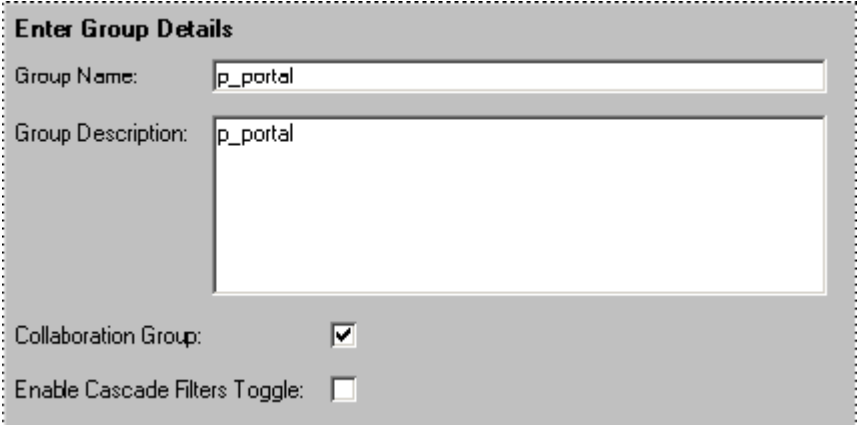
2. Click Security > Create/Modify Group. Or click the Create/Modify User Group button.

The Create/Modify Group dialog box appears.

3. Next:

- To create a new group, double-click the New Group button.
- To modify a group, click the button of that group then click OK. Or double-click the icon of the group whose details you want to modify.

The system prompts you for information about the group.



**Enter Group Details**

Group Name:

Group Description:

Collaboration Group: ☒

Enable Cascade Filters Toggle: ☐

4. Specify group details as follows:

1. Under Enter Group Details, type a name and optional description in the appropriate boxes. Each group name must be unique within your Demantra implementation.
2. If users of this group should be able to see either other in the Who's Online pane in Collaborator Workbench, make sure the Collaboration Group check box is checked.

The users will also be able to send tasks to each other.

If you clear this check box, users of the group will not see one another.

3. Check or clear the Enable Cascade Filters Toggle check box.

Click this option to enable users in the group to toggle between cascade and non-cascade filter modes. If not selected, the user will have cascade filtering only.

In cascade mode, users see only members that have combinations with the previously selected members. Members that do not have combinations will not be available in the list. It is generally easier to work with filters in cascade

In non-cascade mode, users see all the members of the selected level regardless of the previously selected members from other levels.

- The New Group - Select Group Users dialog box appears. This dialog box allows you to select existing users who will belong to the new group.

Move all users that should be in this group into the Selected Users list. To do so, either double-click each user name or drag and drop it.

2. Remove any unwanted users from the Selected Users list.

- 6.** Click Finish.

"Data Security"

"Deleting a Group"

## Deleting a Group

### **To delete a group:**

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Security > Create/Modify Group. Or click the Create/Modify Group button.  
The Create/Modify Group dialog box appears.
3. Click the button of the group that you want to delete.  
A box appears, inquiring if you are sure you want to delete the selected group.
4. Click Delete.

See also

"Data Security"

"Creating or Modifying a User Group"

## Providing Access to the Workflow Editor

In order for a given user to log into the Workflow Editor, that user must be configured a specific way.

### **To provide access to the Workflow Editor:**

1. Log on to the Business Modeler as described in "Logging onto the Business Modeler."
2. Create a group that includes all users who need to log into the Workflow Editor.  
See "Creating or Modifying a User Group".
3. Click Parameters > System Parameters.
4. Click the Application Server > Workflow tab.
5. Edit the workflow.group parameter. Specify the name of the group you set up; if you have multiple such groups, separate them with commas.

See also

"Managing Workflows"

## Logging onto the Collaborator Workbench Administrator

You use the Collaborator Workbench Administrator to control access to menu items.

### To log onto the Collaborator Workbench Administrator:

1. Open the administration login page:

`http://server name/virtual directory/portal/adminLogin.jsp`

For example:

`http://frodo/demantra/portal/adminLogin.jsp`

2. Enter the user name and password and click Log on.

Demantra displays the Administration page, which includes the following choices:



[Define Menus](#)  
[Define Program Groups](#)  
[Define Program Permissions](#)  
[Define Content Security](#)  
[Default Pane Layout](#)  
  
[Logout](#)  
[Login to Collaborator Workbench](#)  
[Login to Demantra Anywhere](#)

See also

"Defining a Program Group"

"Specifying Permissions for Menu Items"

"Customizing Demantra Web Pages"

## Defining a Program Group

A program group is a collection of menu items, typically related to each other in some way. You create program groups so that you can easily control access to all the menu items in the group; see "Specifying Permissions for Menu Items".

Demantra provides several predefined program groups, for convenience. These program groups contain only menu items from the right-click menus.

Program group	Menu items in this group, by default
Add	New <i>member</i> right-click menu option for every level in the system.
Edit	Edit <i>member</i> Unmapped Conditional Text: HelpOnly right-click menu option for every level in the system.
Delete	Delete <i>member</i> right-click menu option for every level in the system.
View	View <i>member</i> right-click menu option for every level in the system.
Copy	Copy, Paste, and Paste from Clipboard right-click menu options for every applicable level in the system. (Note that this option is available only for promotional-type levels.)
Open	Open and Open With right-click menu options for every level in the system.

### To define a program group:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".  
The Administration page appears.
2. Click Define Program Groups.  
The system displays a page that lists the existing program groups.

Program Group Name	Action	
<a href="#">Add</a>		
<a href="#">Edit</a>		
<a href="#">Delete</a>		
<a href="#">View</a>		
<a href="#">Copy</a>		
<a href="#">Open</a>		



3. Click the Add Program Group button.

Demantra displays a page where you can define a new program group:

Name:

Description:

Program Type Filter:  Level Filter:

	Program Object	Selected
		<input type="button" value="Select All"/>
	<b>Object Menu</b>	
	<b>ABC</b>	<input type="checkbox"/>
	New ABC	<input checked="" type="checkbox"/>
	Edit ABC	<input type="checkbox"/>
	Delete ABC	<input type="checkbox"/>
	View ABC	<input type="checkbox"/>
	Open	<input type="checkbox"/>
	Open With	<input type="checkbox"/>
	Add Note	<input type="checkbox"/>
	<b>Account</b>	<input type="checkbox"/>

4. For Name and Description, specify a name and optional description for this program group.
5. Optionally select an item from the Program Type Filter selection list, to reduce the number of menus and menu items shown on this screen.
  - To display only options on the right-click menus, click Object Menu.
  - To display only options on the menu bars, click Menu.
6. Optionally select a level from the Level Filter selection list, to reduce the number of menus and menu items shown on this screen. (This filtering is available only if you are viewing right-click menus.)
7. In the table, expand the menus as needed.
8. In the Selected column, select the check box for each menu item to include within this program group.
9. Click OK.

You are now ready to define permissions for this program group; see "Specifying Permissions for Menu Items".

See also

## Redefining a Program Group

### To redefine a program group:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".

The Administration page appears.

2. Click Define Program Groups.

The system displays a page that lists the existing program groups.

3. In the row corresponding to the group you want to redefine, click the Edit Program Group button.

Demantra displays a page where you can edit this program group.

4. Optionally edit the Name and Description.

5. Optionally select an item from the Program Type Filter selection list, to reduce the number of menus and menu items shown on this screen.

- To display only options on the right-click menus, click Object Menu.
- To display only options on the menu bars, click Menu.

6. Optionally select a level from the Level Filter selection list, to reduce the number of menus and menu items shown on this screen. (This filtering is available only if you are viewing right-click menus.)

7. In the table, expand the menus as needed.

8. In the Selected column, select the check box for each menu item to include within this program group.

9. Click OK.

See also

"Deleting a Program Group"

## Deleting a Program Group

### To delete a program group:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator."  
The Administration page appears.
2. Click Define Program Groups.  
The system displays a page that lists the existing program groups.
3. In the row corresponding to the group you want to delete, click the Delete Program Group button. No confirmation message is displayed; the group is deleted immediately.

See also

"Defining a Program Group"

## Specifying Permissions for Menu Items

### To specify permissions for menu items:

1. Log into the Collaborator Workbench Administrator. See "Logging onto the Collaborator Workbench Administrator".  
The Administration page appears.
2. Click Define Program Permissions.  
The system displays a page where you specify the category upon which to apply the menu availability.

**Security Scope**

☒ Current Component

☐ User Permission    System Manager

☐ Group    p\_portal

☐ User    dp

Module Name:    Settlement Management

3. To define the scope, check one of the following radio buttons and select an item from the associated drop down list:

---

Current Component	Use this option to enable or disable menu items for all users of the component that you own.
User Permission	Use this option to enable or disable menu items for a specific permission level. See "Permission Levels".
Group	Use this option to enable or disable menu items for a specific user.
User	Use this option to enable or disable menu items for a specific user group.
Module Name	Use this option to specify if the changes you make should apply to all modules or to specific modules.

---

4. Click Next.

Demantra displays an expandable hierarchy that shows all the menu items you chose, like the following example:

Program Type Filter: All Level Filter: All

Program Object	Hidden	Disabled	Inherited Permission
<b>Settlement Management</b>	<b>Select All</b>	<b>Select All</b>	<b>Select All</b>
<b>File</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Worksheet</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Edit</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>View</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Options</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Data</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Help</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Program Groups</b>			
<b>Object Menu</b>			

Initially, the Inherited Permission check boxes are all checked, which means that the permissions that will be used are inherited from higher in the security hierarchies. Likewise, the Hidden and Disabled check boxes display the current inherited settings.

5. Optionally select an item from the Program Type Filter selection list, to reduce the number of menus and menu items shown on this screen.
  - To display only options on the right-click menus, click Object Menu.
  - To display only options on the menu bars, click Menu.
6. Optionally select a level from the Level Filter selection list, to reduce the number of menus and menu items shown on this screen. (This filtering is available only if you are viewing right-click menus.)
7. In the table, expand the menus as needed.
8. For each item in this table, specify permissions as follows:

Desired outcome	Hidden	Disabled	Inherited Permission
Menu option is explicitly hidden	Checked	Irrelevant	Unchecked
Menu option is explicitly displayed but disabled	Unchecked	Checked	Unchecked

Desired outcome	Hidden	Disabled	Inherited Permission
Menu option is explicitly displayed and enabled	Unchecked	Unchecked	Unchecked
Use implicit permissions for this menu item	Unchecked	Unchecked	Checked
<b>Note:</b> To understand how multiple permissions are combined, see "How Demantra Combines Multiple Permissions".			

9. Click Finish. The settings are saved.

See also

"Configuring Menus in Collaborator Workbench"

## Logging Out Users

Demantra provides a tool that you can use to log out users whose sessions have hung due to network or other problems. This applies only to the users of the Web-based products

**Note:** A user with permission level below System Manager can log into this tool and end his or her own session. Other users will not be visible.

### To log a user out of Demantra:

1. Browse to the following case-sensitive URL:

`http://server name/virtual directory/portal/userManagement.jsp`

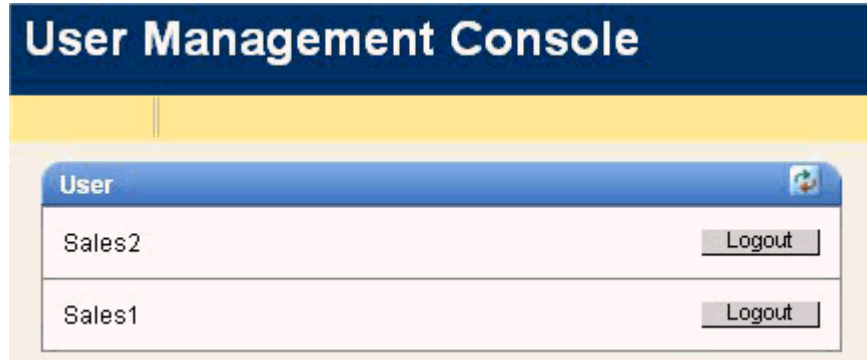
For example:

`http://frodo/demantra/portal/userManagement.jsp`

A login page appears.

2. Type your username and password and then click Log on.

Demantra displays the following screen:



3. Click Logout in the row corresponding to the user you want to log out.

---

## Managing Workflows

This chapter describes how to use the Workflow Manager to start, stop, and view workflow instances and to manage schema groups.

This chapter covers the following topics:







- Viewing Workflow Status
- Starting Workflow Instances
- Scheduling Workflow Instances
- Stopping Workflow Instances
- Creating or Editing a Schema Group
- Deleting a Schema Group
- Viewing the Workflow Process Log
- Recovery and the Workflow Engine

### Viewing Workflow Status

You can view all the status of all public workflow schemas and all private workflow schemas that you created. This means that you can see how many instances of those schemas are running, as well as the status of each instance.

#### **To view overall status of the workflows:**

The Workflow Manager displays the overall status information for the workflows, for the currently selected schema group (All in this case).

View according to Schema Groups							<a href="#">New</a> <a href="#">Modify</a> <a href="#">Delete</a>			
All										
Schema ID	Schema name	Owner	Creation Date	Last Modified	Instances	Status	Action			
1	<a href="#">Partner Plan collaboration</a>	dp	Feb 28 20:10:02 2002	Aug 21 16:56:46 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
2	<a href="#">Space_consumption_Alert</a>	guy_yehiav	Apr 14 21:21:45 2003	May 07 18:05:45 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
22	<a href="#">Stockout_Alert</a>	guy_yehiav	Apr 14 22:40:47 2003	Sep 22 16:31:00 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
23	<a href="#">CPFR_Step_1</a>	guy_yehiav	Apr 29 17:46:04 2003	Apr 29 17:46:34 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
43	<a href="#">Stockout_Alert_Per_Store</a>	guy_yehiav	May 08 13:05:53 2003	May 08 13:05:53 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
63	<a href="#">Export Dynamic Data</a>	Inv	May 16 09:59:59 2003	May 16 10:00:14 2003	0		<a href="#">Edit</a>	<a href="#">Start</a>	<a href="#">Schedule</a>	<a href="#">Delete</a>
							<a href="#">Process Log</a> <a href="#">New Schema</a> <a href="#">Refresh</a>			

Each row corresponds to a workflow schema. The Instances column indicates how many instances of this workflow schema are currently running, if any. The Status column uses the following color codes:

Green	The workflow schema is live and you may execute it, creating a workflow instance.
Red	The workflow schema is archived and cannot be executed.
Yellow	There is a data error or other fault within this schema.

### To specify which workflow schemas to display:

1. To see all workflow schemas, select All in the Schema Groups drop-down list. Then click View.
2. To see a subset of the schemas, select a group in the Schema Groups drop-down list. Then click View.

### To refresh the display:

1. Click Refresh.

### To view the currently running instances of a schema:

1. If the workflow schema is not visible, use the drop-down menu and select the name

of a schema group to which it belongs. Or select All.

2. Click the Instances link in the row corresponding to that workflow.

The Workflow Manager lists all the instances of that schema that are currently running.

Process ID	Started at	Initiator	Current step	Action
7	Mon Dec 08 14:53:16 EST 2003	dp	ExportMasterData	<a href="#">Terminate</a>
				<a href="#">Back</a> <a href="#">Refresh</a>

3. When you are done, click Back.

See also

"Logging into the Workflow Manager"

"Viewing the Workflow Process Log"

## Starting Workflow Instances

You can start an instance of any public workflow schema or any private workflow schema that you created.

### To start a workflow instance:

1. If the workflow schema is not visible, use the drop-down menu and select the name of a schema group to which it belongs. Or select All.
2. Click Start next to the schema that you want to start.

The Workflow Engine starts an instance of the workflow and increments the number of instances in the Instances column by one.

**Note:** Although you can generally run as many instances of a workflow as you want at the same time, be careful not to activate conflicting processes and tasks.

See also

"Logging into the Workflow Manager"

"Stopping Workflow Instances"

"Creating Workflows"

## Scheduling Workflow Instances

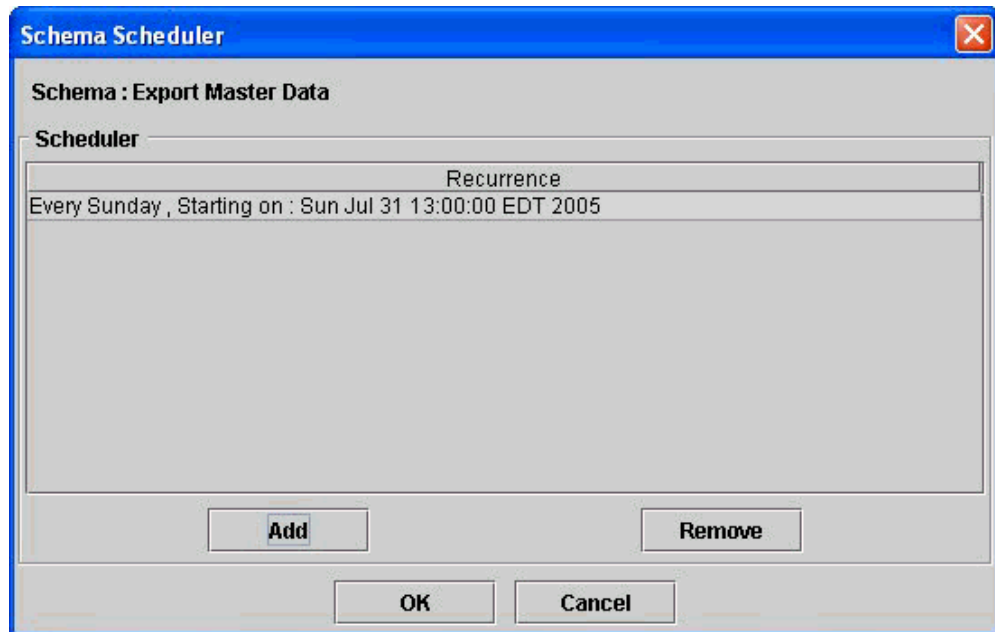
If you are the owner of a workflow, you can schedule an instance to start at a specific

time or times. If you are not the owner, you cannot schedule it, although you can start it manually, as described in "Starting Workflow Instances".

**To schedule a workflow instance:**

1. If the workflow schema is not visible, use the drop-down menu and select the name of a schema group to which it belongs. Or select All.
2. Click Schedule in the row corresponding to that workflow.

The system displays the Schema Scheduler page, which lists all the times when Workflow Engine will start an instance of this schema.



The screenshot shows a dialog box titled "Schema Scheduler" with a blue header bar and a red close button. The main content area is titled "Schema : Export Master Data" and contains a section labeled "Scheduler". Inside the Scheduler section, there is a table with one row. The table has two columns: "Recurrence" and "Starting on". The "Recurrence" column contains the text "Every Sunday , Starting on : Sun Jul 31 13:00:00 EDT 2005". Below the table, there are two buttons: "Add" and "Remove". At the bottom of the dialog box, there are two buttons: "OK" and "Cancel".

Recurrence
Every Sunday , Starting on : Sun Jul 31 13:00:00 EDT 2005

Buttons: Add, Remove, OK, Cancel

3. Click Add.

The system displays the following page.

**Recurrence**

Schema : Export Master Data

Recurrence

Schedule Schema :      At :      Start On :

Daily      05:59 PM      07/28/2005

Schedule Schema Daily

Every 1 day(s)

OK      Cancel

4. In the Schedule Schema drop-down list, select the option that specifies how often to start an instance of this workflow:
  - Daily
  - Weekly
  - Monthly
  - Once
  - At Startup (This option launches the workflow whenever the Web server is started.)
  - Periodic (in this option, you can start a workflow at periodic intervals (measured in seconds, minutes, hours, days, weeks, months, or years. Note that you cannot choose the starting time.)

Depending on the choice you make here, the system displays additional scheduling options in the bottom part of the page.
5. In the rest of the page, finish specifying the schedule.

6. Click OK.

#### To unschedule a workflow instance:

1. On the Workflow Management page, click Schedule in the row corresponding to that workflow.

The system displays the Schema Scheduler page. This page displays one row for each scheduling entry for this workflow.

2. Click the row corresponding to the scheduling entry you want to remove.
3. Click Remove.

See also

"Starting Workflow Instances"

"Stopping Workflow Instances"

## Stopping Workflow Instances

You can stop any workflow instance that you started. You cannot stop a workflow instance started by another user.

#### To stop a workflow instance:

1. If the workflow schema is not visible, use the drop-down menu and select the name of a schema group to which it belongs. Or select All.
2. Click the number in the Instances column that corresponds to that workflow.

The system lists all the instances of that schema.

Process ID	Started at	Initiator	Current step	Action
7	Mon Dec 08 14:53:16 EST 2003	dp	ExportMasterData	<a href="#">Terminate</a>

[Back](#) [Refresh](#)

**Note:** Instances that show in red are instances of Fail-To-Execute Step steps. For more information, see "Fail-To-Execute Step".

3. Click Terminate next to the instance that you want to stop.
4. Click OK.

The instance is stopped and is removed from the list of instances.

**Note:** Terminate stops only the workflow instance itself. It does not cancel any work that the instance may have initiated (such as tasks that were sent or requests placed in the Simulation Engine or Business Logic Engine queues). These items must be cancelled manually.

See also

"Creating Workflows" "Starting Workflow Instances"

"Scheduling Workflow Instances"

## Creating or Editing a Schema Group

Schema groups affect only the display within the Workflow Manager. A schema can belong to multiple groups. Also, a schema group can be public (viewable by all users who log into Workflow Manager) or private (viewable only by you).

You can edit any schema group that you created; this has no effect on the workflow schemas themselves. You cannot edit schema groups created by other users.

### To create or edit a schema group:

1. On the Workflow Management page, do one of the following:
  - To create a new schema group, click New at the top of this page.
  - To edit a schema group, select the group from the dropdown list at the top of this page. Then click Modify.

The Workflow Manager displays the following page:

**Name** \* DF/DR schemas

**Description**

**Available Schemas**

- Partner Plan collaboration
- Space\_consumption\_Alert
- Stockout\_Alert
- CPFR\_Step\_1
- Stockout\_Alert\_Per\_Store
- Export Dynamic Data
- Export Master Data
- Create Division
- CreateCombinations
- Create User

**Selected Schemas**

- Import Replenishment Proposal
- Import Replenishment Requirements
- Import Stock Data from DF
- Run Immediate Batch in DF/DR
- Run Scheduled Batch In DF/DR
- Upload data to DF/DR

**Permission** Public

\* - Mandatory fields

Cancel X OK ✓

2. For Name, type a unique name for this schema group.
3. For Description, type an optional description.
4. Specify the workflow schemas to include in this group. To do so, move schemas from the left list to the right list.
5. For Permission, click Public or Private, depending on whether you want other users to be able to see this schema group.
6. Click .

See also

"Creating Workflows"

## Deleting a Schema Group

You can delete any schema group that you created; this has no effect on the workflow schemas themselves. You cannot delete schema groups created by other users.

### To create or edit a schema group:

1. On the Workflow Management page, select the group from the drop-down list at

the top of this page.

2. Click Delete.
3. Click OK to confirm the deletion.

## Viewing the Workflow Process Log

The workflow process log displays information on all the workflow instances that have run or that are running.

### To view the process log:

1. On the bottom of the Workflow Management page, click Process Log.

The Process Log page appears.

View Processes: <span>All</span> <span>View</span>						
PID	Schema Id	Initiator	Start Time	End Time	Last Step	Status
1	72	dp	2003-12-08 14:51:41.0	2003-12-08 14:51:42.0	RunBatch	Completed
2	72	dp	2003-12-08 14:51:53.0	2003-12-08 14:51:53.0	RunBatch	Completed
3	72	dp	2003-12-08 14:52:30.0	2003-12-08 14:52:30.0	RunBatch	Completed
4	72	dp	2003-12-08 14:52:33.0	2003-12-08 14:52:33.0	RunBatch	Completed
5	72	dp	2003-12-08 14:52:36.0	2003-12-08 14:52:36.0	RunBatch	Completed
6	65	dp	2003-12-08 14:53:19.0	2003-12-08 14:53:19.0	CreateDivision	Completed
8	67	dp	2003-12-08 14:54:51.0	2003-12-08 14:54:53.0	Compos	Completed
9	66	dp	2003-12-08 14:55:07.0	2003-12-08 14:55:07.0	DataAlignment	Completed

Back Refresh

### To filter process log entries:

1. Select the required filter from the View Processes drop-down menu.
2. Click View.

The filtered processes are shown.

See also:

"Viewing Workflow Status"

## Recovery and the Workflow Engine

Each time it starts up, the Workflow Engine checks to see if there are any workflow instances that are running, that is, an instance whose status is not completed or terminated. For each instance that is currently running, the engine performs a recovery procedure.

An instance is considered to be in mid-step and therefore running, even when it is between steps. The current step is the last step that was running when the crash happened.

For information on standard workflow messages, see "Tips and Troubleshooting".

---

## Managing Worksheets

Worksheets are created within the user interfaces, but you can manage them from the Business Modeler.

This chapter covers the following topics:

- Viewing the Worksheets
- Changing Worksheet Ownership
- Changing Worksheet Access
- Deleting a Worksheet

### Viewing the Worksheets

There may be a large number of worksheets within your system. You can use the Worksheet Manager to view the worksheets, change their ownership, and delete worksheets. The Worksheet Manager also keeps track of changes made to the worksheets.

#### To view the worksheets:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Tools > Worksheet Management.

The Worksheet Manager is displayed. In this window, a table displays a row for each worksheet with the following information:

---

Owner	Demantra user who has permission to modify this worksheet. By default, this is the user who created the worksheet.
-------	--------------------------------------------------------------------------------------------------------------------

---

Permission Type	Specifies whether this worksheet is private (seen only by its owner) or public (visible to all users).
Open	Indicates whether this worksheet is currently being used.
Last Access	Indicates when this worksheet was last opened.
Accessed By	Indicates the user who last opened this worksheet.

## Changing Worksheet Ownership

Only the owner of a worksheet can edit it.

### To change who owns a worksheet:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Tools > Worksheet Management.  
The Worksheet Manager is displayed.
3. In the row corresponding to the worksheet, click the Owner field.
4. Select a new owner and click OK.

## Changing Worksheet Access

If a worksheet is private, it can be seen only by its owner. If it is public, it is visible to all users.

### To change who can access a worksheet:

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler."
2. Click Tools > Worksheet Management.  
The Worksheet Manager is displayed.

3. In the row corresponding to the worksheet, click the Permission Type field.
4. Click Private or Public and click OK.

## Deleting a Worksheet

### **To delete a worksheet:**

1. Log onto the Business Modeler as described in "Logging onto the Business Modeler" .
2. Click Tools > Worksheet Management.  
The Worksheet Manager is displayed.
3. Click the row corresponding to the worksheet.
4. Click Delete.  
Demantra asks for confirmation.
5. Click OK.



---

## Other Administration

Demantra provides a Web-based interface to perform other, less common administrative tasks, described here. This chapter contains the following sections:

This chapter covers the following topics:

- Other Web-based Administration Tools
- Logging Messages of the Application Server
- Managing Level Caching
- Viewing and Modifying Cache Properties

### Other Web-based Administration Tools

Browse to the following case-sensitive URL:

`http://server name/virtual directory/admin`

For example:

`http://frodo/demantra/admin`

The following page appears:

# Admin Tools

1. [DB Connection Pool Status](#)
2. [Thread Pool Status](#)
3. [JVM Memory Status](#)
4. [Cache Manager](#)
5. [Logger Manager](#)

Ignore options 1, 2, and 3, which are currently non-functional.

## Logging Messages of the Application Server

By default, the Application Server writes logs into the directory `Demantra_root/Collaborator/virtual_directory/portal/logs`. These logs record activity of the server and clients.

To change the behavior of this logging, edit the file `Demantra_root/Collaborator/virtual_directory/portal/conf/logconf.lcf`. In this file, you can specify items such as the following:

- Name and location of the log file
- Maximum size of the log file
- Number of log files to keep

For details, see the comments in `Demantra_root/Collaborator/virtual_directory/portal/conf/logconf.lcf`.

## Managing Level Caching

Because caching is a trade-off between memory and speed, a new caching mechanism allows you to specify the needed caching policy on a level-by-level basis, depending on the size and usage patterns of your levels.

## Specifying Level Caching Policies

To specify how to cache a given level, edit the `group_tables_cache` table, as follows:

Field	Purpose
GROUP_TABLE_ID	Specifies the ID of the level, as given in the group_tables table.
CACHE_CAPACITY	Specifies the maximum number of members of this level that will be cached at any time, if CACHE_TYPE is LRU.
CACHE_IS_LAZY	Specifies whether the cache for this level is completely loaded upon server startup: <ol style="list-style-type: none"> <li>1. (cache is loaded on startup)</li> <li>2. (cache is not loaded on startup)</li> </ol>
CACHE_TYPE	Specifies the caching policy for this level. Use one of the following values: <ul style="list-style-type: none"> <li>• SIMPLE (the cache is unlimited for this level)</li> <li>• LRU (whenever the server loads a member beyond this limit of CACHE_CAPACITY, the least recently used member is flushed from memory.)</li> </ul>
CHE_LOAD_EXTRA_FROM	Used to filter startup initialization. See CACHE_LOAD_EXTRA_WHERE.
CACHE_LOAD_EXTRA_WHERE	Used to filter startup initialization. This field and CACHE_LOAD_EXTRA_FROM allow you to define SQL criteria for loading the cache. For example, if the implementation works mostly on current year promotions, then you can add the From part "promotion_dates" and to the Where part "promotion_dates.from_date > '1/1/2006'". In this way, the cache will be initially loaded with promotions from 2006. This does not mean that the cache will be in any way limited to 2006 after its initial load.
ENABLE_STATISTICS	* Specifies whether the server should collect statistics on use of this cache. 0 = false; 1 = true

Field	Purpose
ENABLE_DEBUG	* Specifies whether the server should record information for possible use in debugging issues related to this cache. 0 = false; 1 = true
* Can be changed later through a Web-based interface.	

By default, Demantra uses the following caching policy for each level:

- CACHE\_IS\_LAZY is false
- CACHE\_TYPE is simple (and CACHE\_CAPACITY is ignored)
- ENABLE\_STATISTICS is false
- ENABLE\_DEBUG is false

## Viewing and Modifying Cache Properties

1. Browse to the following case-sensitive URL:

`http://server name/virtual directory/admin`

For example:

`http://frodo/demantra/admin`

2. Click Cache Manager.

A page like the following appears.

---

## Cache Manager

Debug: [true](#)

#	Level Name	Objects Type	Cache Type
1	<a href="#">District</a>	members	SIMPLE
2	<a href="#">Promotion Group</a>	members	SIMPLE
3	<a href="#">Brand</a>	members	SIMPLE
4	<a href="#">Category</a>	members	SIMPLE
5	<a href="#">Plans</a>	members	SIMPLE
6	<a href="#">Sales Area</a>	members	SIMPLE
7	<a href="#">Aggregation User Status</a>	members	SIMPLE
8	<a href="#">Optimization Goal</a>	members	SIMPLE
9	<a href="#">Division</a>	members	SIMPLE
10	<a href="#">Scenarios</a>	members	SIMPLE

This page lists each level in your system, along with the CACHE\_TYPE setting for that level.

3. Click a level.

A page like the following appears.

---

# Cache Promotion.members

Level Id: 232

Lazy: false

Size: 500

Statistics: [false](#)

Debug: [false](#)

Capacity:

Memory Size:   Bytes.

## Cache Manager

This screen shows the following details:

---

Level ID	Internal Demantra identifier for the level.
Lazy	Indicates whether the cache for this level is completely loaded upon server startup.  If true, the cache is not loaded on startup.
Size	Indicates the maximum number of members in the cache.
Statistics	Specifies whether the server should collect statistics on use of this cache. Click the true/false link to change this setting.
Debug	Specifies whether the server should record information for possible use in debugging issues related to this cache. Click the true/false link to change this setting.

---

---

Capacity

Specifies the maximum number of members of this level that the cache can include.

You can enter a new value and click Update to save the new value.

This option is shown only if the `CACHE_TYPE` is LRU.

Memory Size

Click the Calculate button to see how much memory this cache is currently using.

---



---

## Tips and Troubleshooting

For reference, the first section describes the first-time login procedure for Demantra applications, followed by several sections of tips. After that, this chapter lists possible errors that users may encounter and describes how to resolve them. The errors are listed alphabetically by message text or general description.

See Also

Oracle Demantra Release Notes Oracle Demantra Installation Guide

This chapter covers the following topics:

- Initial Logon to Demantra
- About Demantra Configuration Settings
- Key Settings Controlled by the Installer
- Redirecting Demantra to a Different Database
- Java Tips
- Tomcat Tips (Demos Only)
- Error Messages or Trouble Descriptions

### Initial Logon to Demantra

The first time you log onto Demantra Web applications, Demantra downloads and installs software. For reference, this section repeats and expands on the details from the user guides.

#### **Initial Logon to Collaborator Workbench:**

This operation is necessary only once for each computer.

1. Open Microsoft Internet Explorer.
2. Enter the URL for Collaborator Workbench:

<http://server name/virtual directory/portal/loginpage.jsp>

3. In the Log On dialog box, enter your user name and password.
4. Click Login.
5. If the toolbar includes a link labeled Click here to install Java Web Start, click that link.

This installs Java Web Start 1.4.2\_10.

Demantra prompts you to install JRE.

6. When you are prompted to install JRE, do so. Choose the Typical installation and accept all the default values, or follow your own site practices.

After you install this software, Collaborator Workbench comes up, displaying your personal page.

Demantra displays a dialog box that asks if you want to trust the signed application distributed by Oracle. The dialog box is slightly different depending on the setting of `client.activationMethod`.

**Note:** This dialog box is sometimes displayed as soon as Collaborator Workbench comes up. In other cases, you do not see it until you click a worksheet name.

7. Click Yes, (or Always) or Start, depending on which dialog box is displayed.

### Initial Logon to the Web Client:

This operation is necessary only once for each computer.

1. Open Microsoft Internet Explorer.
2. Enter the web address for the Web client:

<http://server name/virtual directory/portal/partnerLogin.jsp>

3. Type your name and password and click Login.

Demantra prompts you to install JRE.

4. When you are prompted to install JRE, do so. Choose the Typical installation and accept all the default values, or follow your own site practices.

Demantra next displays a dialog box that asks if you want to trust the signed application distributed by Oracle. The dialog box is slightly different depending on the setting of `client.activationMethod`.

5. Click Yes (or Always) or Start, depending on which dialog box is displayed.

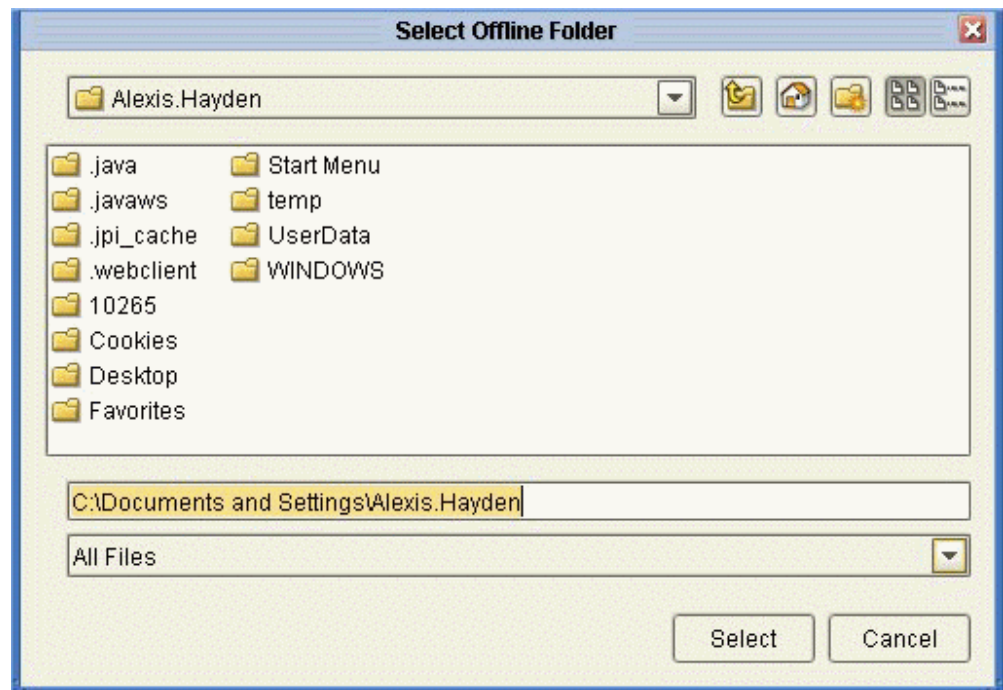
### Initial Setup and Logon of Offline Environment:

This operation is necessary only once for user on a given computer.

**Note:** When you perform these steps, you must have network access to the Demantra server, which must be running.

1. Within a normal Demantra worksheet, click File > Export for Offline Use.

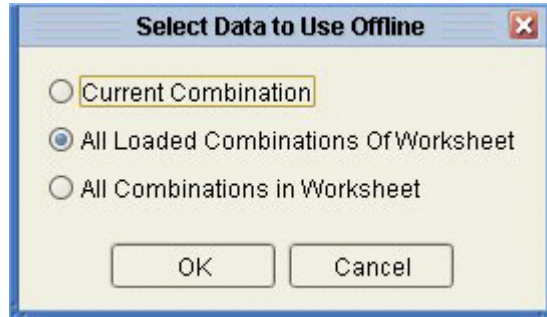
Demantra displays the following screen:



Here you specify the directory where Demantra will store your offline information. By default, this is c:/Documents and Settings/username, but you can choose a different location. The offline directory itself is always named Demantra.

2. Specify the offline directory location and click OK.

Demantra then displays the following screen:



Here you specify which data to take offline. You might want to work with only a single combination, for example.

3. Choose one of the options and click OK.
4. Log off Demantra.
5. Enter the web address supplied by your system administrator for offline access.

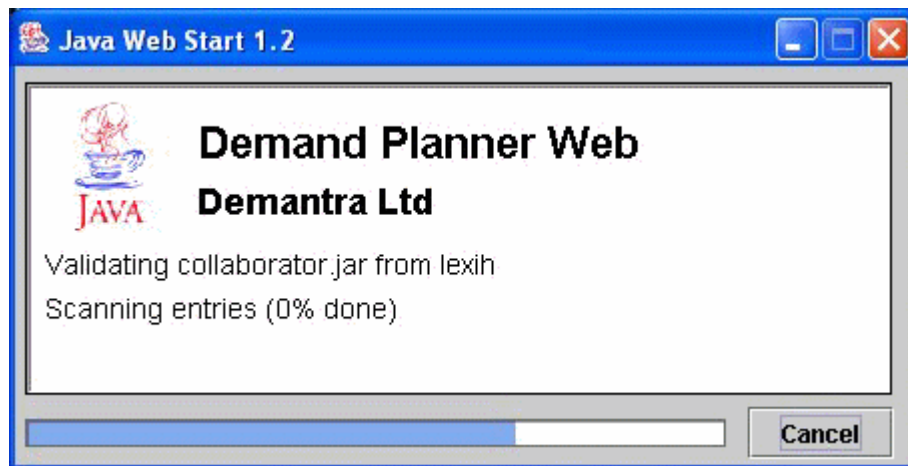
This URL probably has the following format:

`http://server name/virtual directory/portal/launchDPWeb.jnlp`

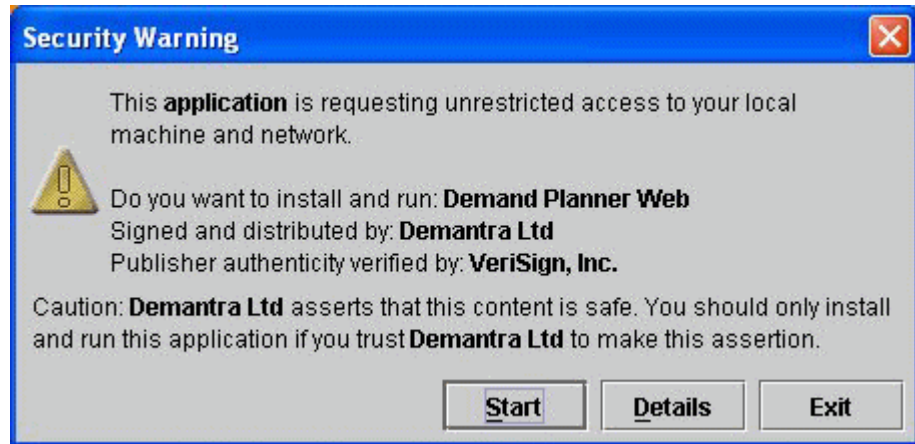
For example:

`http://frodo/demantra/portal/launchDPWeb.jnlp`

Depending on what is already installed on this computer, Demantra then briefly displays a screen titled Java Web Start, which shows its progress in scanning and downloading the required JAR file.



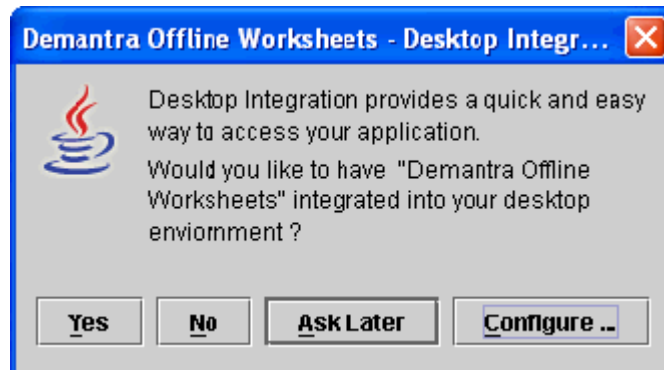
After that, Demantra displays a dialog box that asks if you want to trust the signed application distributed by Oracle:



**Note:** If Demantra does not display this screen, that means that you have already downloaded the applet to this machine. You do not need to download it again.

**Note:** Depending your system configuration, the screen might be slightly different, with the following options instead: Yes, Always, and No.

6. Click Start or Yes (or Always), depending on which dialog box is displayed. Next, Demantra displays the following prompt:



7. Click Yes.

Demantra creates a shortcut labeled Demantra Offline Worksheets, which you use to access your offline worksheets in the future. This shortcut is on your desktop and on your Start menu.

This user is now configured to use worksheets offline on this machine.

## About Demantra Configuration Settings

The core Demantra configuration details are stored in multiple locations:

- The desktop executables (Business Modeler, Demand Planner, Analytical Engine, and so on) get the configuration information from the following file:

*Demantra\_root*\Demand Planner\Security Management\ds.ini

Parts of this are encrypted and must be edited with a utility provided by Demantra (encryption.exe); see "Redirecting Demantra to a Different Database".

- The Web-based products get configuration information from the following file, which is on the machine where the Web server is installed:

*Demantra\_root*

/Collaborator\demantra\WEB-INF\classes\com\demantra\applicationServer\services\AppServer.properties

**Note:** Almost all the parameters of this file can be edited from within the Business Modeler, and it is better to use the Business Modeler to make changes so that the audit trail can record them. The Business Modeler also provides dropdown menus of possible options, where applicable.

**Note:** To access these parameters within Business Modeler, click Parameters > System Parameters.

- Other settings are stored in the Demantra database, in the form of parameters. These can be edited through the Business Modeler, as well.
- The Web-based products also use configuration information in the XML files.

## Key Settings Controlled by the Installer

This section summarizes the key settings that the installer controls and indicates where those settings are stored.

Installer Screen	Installer Option	In AppServer.properties	In ds.ini
DBA Information	DBA username (to access database as DBA and load data)	Not saved in this file.	Not saved in this file.

Installer Screen	Installer Option	In AppServer.properties	In ds.ini
	Password		
	TNS Name		Tnsname
Configure Oracle Database User	Database type	DBType	DBType
	User (to store Demantra data)	DBUser	LogID**
	Password	DBPassword	LogPassword**
	Database (SQL Server only*)	DBName	Database
Configure JDBC Connection	Server name (host machine or IP address on which database resides)	ServerName	ServerName
	Port	DBPort	DBPort
	Oracle SID (Oracle only)*	DBName	Database
Specify Web Address	Root address and virtual directory	AppServerURL server.generalurl	Not saved in this file.
*Notice that the DBName/Database parameter is used differently for Oracle than for SQL Server.			
**Encrypted in the ds.ini file.			

## APSMoDe Parameter

The APSMoDe parameter (stored only in the ds.ini file) controls whether to use the Stand-Alone Integration Tool (aps.exe). This tool consists of a subset of the APS, packaged as an executable file.

The installer automatically sets this parameter. This parameter has the following effect:

- 0: do not use Stand-Alone Integration Tool. When you use encryption.exe to edit ds.ini, only General tab is displayed.

- 1: use the Stand-Alone Integration Tool (Demantra\_root/Demand Planner/Integration/aps.exe). Also, when you use encryption.exe to edit ds.ini, the ASP Stand Alone tab is displayed, in addition to the General tab.

For information on using aps.exe, see "Executing an Integration Interface".

## Other Parameters

The installer also sets parameters for the following purposes:

- The tablespaces Demantra should use
- The configuration of the administrator email account

For these parameters, see "Database" and "Email".

## JAVA\_HOME System Environment Variable

Tomcat requires JDK, which means that the JAVA\_HOME system environment variable must be set (not a user environment variable). The installer automatically installs JDK if appropriate and sets this environment variable. JAVA\_HOME should be set equal to the directory that contains the bin directory of JDK.

## Other Configuration Files

The installer also makes edits to the following files. If you make a change to a port or protocol or other, you must be sure to make the change in the following files:

- Demantra\_root/Collaborator/virtual\_directory/WEB-INF/web.xml
- If you are using Tomcat: Demantra\_root/Collaborator/Tomcat/conf/server.xml (refers to the Demantra host and port, as well as the path to the Demantra virtual directory).

**Note:** When you start Tomcat, Tomcat creates or updates the file Demantra\_root/Collaborator/Tomcat/conf/Catalina/localhost/virtual\_directory.xml, as needed.

- If you are using WebSphere:
  - *WAS\_HOME/installedApps/host\_name/demantra.war/demantra.war/WEB-INF/web.xml*
  - *WAS\_HOME/config/cells/host\_name/applications/demantra.war/deployments/demantra/demantra.war/WEB-INF/web.xml*

Back up any file before making edits, and then carefully search and replace as needed.

## Redirecting Demantra to a Different Database

To point Demantra to a different database without rerunning the installer, complete the following steps:

1. Make a backup copy of the AppServer.propertiesfile.
2. Edit the AppServer.propertiesfile as follows:

---

ServerName	Specify the host on which database resides (as in the TNSNAMES.ora file), preceded by an at sign (@).
DBUser	Username that stores the Oracle data.
DBPassword	Corresponding password
DBName	For Oracle, this is the SID of the database. For SQL Server, this is the name of the database.

---

3. Restart the Web server. All the Web products are now directed to the new database.
4. Back up the ds.ini file.
5. Run the following executable:  
*Demantra\_root*\Demand Planner\Security Management\encryption.exe
6. On the General tab, make the following changes:

---

Server Name	Specify the host on which database resides (as in the TNSNAMES.ora file), preceded by an at sign (@).
User Name	Username that stores the Oracle data.
Password	Corresponding password

---

7. Save the changes. All the desktop user interfaces are now directed to the new

database.

## Java Tips

This section contains background information about how Demantra uses Java. The Demantra Web client (Demand Planner Web, Promotion Effectiveness, or Settlement Management) uses JRE. Each machine that runs the Web client should have JRE, which Demantra automatically downloads when necessary.

**Note:** JDK is needed only if you are using Tomcat (which is not supported and which should be used only for demos). JDK is needed on the machine that runs Tomcat, not on the client machines. For information on Tomcat, see the Oracle Demantra Installation Guide.

## Java Versions and Older Demantra Installations

JRE versions are generally backwards compatible. If you are using an older version of the Web client, you can use the same JRE as the current Demantra. This means that, from a single machine, you can log into different Demantra installations, even if they use different versions of Java.

In such a case, each Demantra is likely to have a different version of the jar files. To prevent collisions, be sure to set `client.activationMethod` to use Java Web Start rather than Sun Java Plug-in. With Java Web Start, you can log into different Demantra versions, and Java correctly manages the Demantra jar files.

## Tips for a Clean Java Installation

It is possible, but tricky, to keep multiple versions of Java running on a single machine. Oracle recommends that you carefully remove all Java versions other than the current version used by Demantra; to remove them, use the Add or Remove Programs control panel.

It is also useful to check your PATH system environment variable. Java is added to this, and you should make sure it includes only the Java that you intend to use. Note that Oracle provides Java as well; you do not need to uninstall these, but you should probably remove those versions from the PATH system environment variable.

Finally, you should make sure that Internet Explorer is configured to use the correct Java version:

1. Click Tools > Internet Options.
2. Click the Advanced tab.
3. Within the Java item, make sure that the correct version of Java is selected for use

with applets, as specified in the Oracle Demantra Installation Guide.

## Tomcat Tips (Demos Only)

For demos, you can use Tomcat as the Web server, and the installer supports this option for convenience. Oracle has tested with both Apache Jakarta Tomcat 5.x and Apache Jakarta Tomcat 4.0.x.

**Caution:** Demantra is not supported on Tomcat. This configuration is not recommended for production systems.

If you use Java Web Start rather than Sun Java Plug-in, you will need the later version of Tomcat. (To specify how to start the Web client, you set the `client.activationMethod` parameter; see "Worksheet Applet Download".)

## Installing with Tomcat

This section briefly notes the differences between a demo installation and the usual installation.

1. Apache Jakarta Tomcat 5.x requires Sun JDK 1.4.1 (This can be obtained free at [www.sun.com](http://www.sun.com).) You do not have to pre-install this, but you should make sure you do not have an earlier version of JRE on the machine. If so, uninstall that.
2. Run the installer like usual, except choose Demo for Web Server type.
3. If prompted, specify the desired value for the `JAVA_HOME` system environment variable. The installer prompts you for this if more than one Java is installed on the machine.

## Changing the Default Tomcat Port

The Tomcat default port is 8080. The installer does not change the default configuration for the port. This must be done manually in the file `Demantra_root/Collaborator/Tomcat/conf/server.xml`.

**Note:** If you do use the 8080 port, note that the Oracle XDB database user tries to use that port. See "Port Collision with Oracle XDB User".

## Starting the Server if Using Tomcat

If you chose the Demo Web Server type, the installer adds Start menu options to start and stop Tomcat.

1. In Windows, click Start and click Programs.
2. Click Demantra > Demantra Spectrum release > Start Web Server.

## Clearing the Tomcat Cache

To clear the Tomcat cache, delete the directory **Demantra\_root** /Collaborator/Tomcat/work/standalone/localhost.

You may need to do this if you receive the "Object Error" message; see "Object Error".

## Renaming the Installation Root Directory

It is safest to reinstall Demantra rather than to rename the root directory where it is installed. However, if you are using Tomcat, you can rename the Demantra root directory and redirect Tomcat. To redirect Tomcat, edit the file *Demantra\_root* /Collaborator/Tomcat/conf/server.xml. In this file, edit the parameter docBase. This parameter should specify the full path to the Demantra virtual directory.

## Writing the Tomcat Log to a File

By default, the Tomcat log is written to the console. To reconfigure Tomcat to write its log to a file, edit the file *Demantra\_root*/Collaborator/Tomcat/conf/server.xml.

Find the Logger section and edit it as follows:

```
<Logger name="tc_log"
  path="logs/tomcat.log"
  verbosityLevel = "INFORMATION" /> f
```

## Error Messages or Trouble Descriptions

### Cannot Connect to Database

#### Scenario

A user tries to log into a Demantra desktop product but receives the following message:

```
Cannot connect to database
```

This message is also displayed in the DOS window on the server.

#### Explanation

The database is not running.

#### Resolution

Start the database.

## Cannot Connect to Server

### Scenario

A user receives the following message when trying to run a worksheet in one of the Web products:

Cannot connect to server

The worksheet is not displayed.

### Explanation

There is a Java problem on this user's machine.

### Resolution

1. Stop the Web server.
2. On the user's machine, open the Java Plug-in control panel, clear the Java cache, and remove the certificate.
3. Restart the Web server.
4. When the user next opens a worksheet, he or she should accept a new certificate as usual.

## Cannot Run Java Web Start Installer

### Scenario

The user logs onto Collaborator Workbench for the first time and sees the following message:



The user clicks the link and a new page is displayed with the following message:

- Installing Java Web Start... The Worksheet that you requested cannot be launched automatically. After the Java Web Start installation finishes you will be redirected back to the Collaborator Workbench. Then you should click on the Worksheet link again in order to launch the Worksheet.

Then a dialog box is displayed that asks if the user wants to install the Demantra Plugin Installer. The user clicks Install, the dialog box goes away, but nothing happens, and the user cannot access the worksheet.

### Explanation

JRE is already installed on this machine, and that interferes with the installation of Java

Web Start.

#### **Resolution**

1. Uninstall JRE on the user's machine. To do so, use Add/Remove Programs and restart the machine if prompted to do so.
2. Log onto Collaborator Workbench.
3. Follow the steps in "Initial Logon to Collaborator Workbench".

## **Could Not Allocate Space**

#### **Scenario**

When you started the Web server, you received a message complaining that Demantra could not allocate space.

#### **Explanation**

The tablespaces assigned to Demantra are not large enough.

#### **Resolution**

Contact the database administrator and increase all the Demantra tablespaces.

## **Data Is Exported as Text, Not Currency**

#### **Scenario**

In the Web products, the user exports to Excel, and some of the values are formatted as text (General) rather than as currency.

#### **Explanation**

When receiving data from an external source, Microsoft Excel uses the Regional Options in the Windows Control Panel to determine whether a given cell should be formatted as Currency or General (as is or text).

#### **Resolution**

Later versions of Excel provide an option for converting problematic cells that it recognizes. If Excel does not provide any such option, do the following:

1. Open the Windows Control Panel.
2. Double-click Regional and Language Options.
3. On the Regional Options tab, make sure that the Currency setting uses the same currency symbol as Demantra.
4. Export again from Demantra.

## Date Dialog Boxes Behave Strangely

### Scenario

In the Web products, date dialog boxes switch between month and day.

### Explanation

Collaborator Workbench supports only English. This error occurs when a computer's default language is not English.

### Resolution

1. Open the Windows Control Panel.
2. Open Regional Options.
3. On the General tab in the Your Locale (location) dropdown list, select English.
4. Click the Input tab and specify the default as English.

## DOL Link to Excel Uses Wrong Link

### Scenario

The user tries to link Demantra data into Excel via DOL, but the wrong link is provided.

Specifically, in Excel, the user clicks Data > Get External Data > New Web Query, and then browse to the file DOL\_HTML.htm. The user then logs in and selects the query. When the user returns to Excel, the link shown is the wrong one.

### Explanation

This problem is caused by a defect in older versions of Excel.

### Resolution

Copy and paste the link from the web page directly.

## Error in Process Execution

See "Workflow Process Has Failed".

## Error Loading Tasks, Error on Page

### Scenario

In the My Tasks area of Collaborator Workbench, a user sees one of the following messages:

```
error on page error  
loading tasks
```

### Explanation

On this machine, the Regional Settings are not US English.

### Resolution

Change the Regional Settings to US English., as described in "Date Dialog Boxes Behave Strangely".

## Error When Opening a Worksheet from the Members Browser

### Scenario

The user tries to use the Open or Open With menu options to open a worksheet from the Members Browser (or a content pane that uses the Members Browser). An error occurs.

### Explanation

There may be an underlying problem with the Java plug-in.

### Resolution

1. Make sure that only the correct version of JRE is installed on your machine (see "Initial Logon to Demantra").
2. If you are using Tomcat (not supported officially), clear the Tomcat cache on the server by deleting the directory **Demantra\_root** /Collaborator/Tomcat/work/standalone/localhost.
3. Restart the Web server and try again to open the worksheet.
4. If this does not fix the problem, then uninstall JRE from the user's machine. To do so, use Add/Remove Programs and restart the machine if prompted to do so.
5. Then complete the steps in "Initial Logon to Demantra".

## Error While Running Worksheet Window: Object Error

See "Object Error".

## File Download When Using launchDPWeb.jnlp or partnerLogin.jsp

### Scenario

When the user accesses either of these URLs (http://server name/virtual directory/portal/partnerLogin.jsp or http://server name/virtual directory/portal/launchDPWeb.jnlp), the following dialog box is displayed:

File download

Do you want to save or open this file

Name: partnerLogin.jsp [or launchDPWeb.jnlp]

### **Explanation**

This message is displayed if Web Start is not installed on this computer. Normally, Java Web Start 1.4.2\_10 is installed automatically along with JRE when you first run Collaborator Workbench or any of the Web client interfaces.

### **Resolution**

1. Log into Collaborator Workbench and check to see if it has a link labeled Click here to install Java Web Start.
  1. If so, click that link.
  2. This installs Java Web Start 1.4.2\_10.
  3. Demantra next prompts you to install JRE.
2. On the other hand, if JRE is already installed on this computer, uninstall it. To do so, use Add/Remove Programs and restart the machine if prompted to do so.
3. Log onto Collaborator Workbench.
4. Follow the steps in "Initial Logon to Collaborator Workbench".

## **Internal Error: Please Check Database and Network Connections**

See "Workflow Internal Error".

## **Invalid Argument to Function**

### **Scenario**

When a user tries to run a specific worksheet in the desktop (Demand Planner), the following message is displayed:

Invalid argument to function

### **Explanation**

There is an error in the client expression of at least one series used in this worksheet.

### **Resolution**

1. Make a list of all the series in the affected worksheet.
2. Within the Business Modeler, check the client expressions of those series. You can click the Verify Expressions button in the toolbar to verify all server and client expressions.
3. Correct the client expression, save the changes, and reload the changes to Demand Planner.

## Java Applet Is Downloaded Repeatedly

### Scenario

Every time the user logs into the Web products, the Java plug-in is downloaded again.

### Explanation

For the Java plug-in, there is conflict between versions 1.4.2.x, 1.4.1.x and 1.3.1, which is a problem if the 1.4.2 plug-in is already installed on a machine.

### Resolution

1. Go to the 1.4.2 installation directory. Run the executable jpicpl32 and remove the Microsoft Internet Explorer browser association.
2. Go to the Java Control Panel, run the Java Plug-in application, and re-enable Microsoft Internet Explorer browser association.

## Java Out of Memory

### Scenario

The user receives a message from Java saying that it is out of memory.

### Possible Resolutions

- Increase the amount of memory allowed for Java. To do so, go to the Java Plug-in control panel. Click the Cache tab and increase the cache size setting.
- Reduce the amount of memory that Java requires. To do so, use fewer worksheets simultaneously and reduce the amount of data in any worksheet. The main way to reduce the size of a worksheet is to filter it, but you can also remove unneeded series.
- If necessary, enable Demantra's memory checking feature. To do so, set the client.MaxWorksheetMemoryUse parameter (**new for 7.0**), which specifies the maximum percentage of memory that the Web client (for example, Demand Management or Promotion Effectiveness) can use. If this limit is exceeded, Demantra displays a message, stops building the worksheet, and clears out the memory. (This message allows you to continue, unlike the message that Java displays when it is out of memory.)

## License File Has Expired

### Scenario

After logging into a Demantra Web product, a user receives the following message:

Your Security License File has expired

The user is not able to proceed further.

### **Possible Explanations**

This message can occur for several reasons:

- The Demantra license is expired.
- The user tried to log onto Workflow Manager but is not a member of the workflow group.
- The Demantra database is not running.
- Demantra is configured incorrectly. Specifically, the DBName parameter has not been set correctly.

### **Resolution**

1. If the user tried to log onto Workflow Manager, make sure that the user is a member of the workflow group, as specified by the workflow.group parameter; see "Providing Access to the Workflow Editor".
2. Make sure that the database is running.
3. Make sure that the DBName parameter has been set correctly. Typically, with an Oracle installation, the problem is that you have set this parameter to the host name of the database machine, rather than the Oracle SID. See the Oracle Demantra Installation Guide.
4. Contact Oracle and get a new license.

## **No Option to Install Java Web Start**

### **Scenario**

The user logs onto Collaborator Workbench for the first time, but does not see an option to install Web Start.

### **Explanation**

It is necessary to treat Web Start and JRE together as a single unit. Normally, you install both of these at the same time. If you uninstall one of them alone, you will not have the reinstall it.

### **Resolution**

1. Uninstall JRE on the user's machine. To do so, use Add/Remove Programs and restart the machine if prompted to do so.
2. Log onto Collaborator Workbench.

3. Follow the steps in "Initial Logon to Collaborator Workbench".

## No Shortcut to Access Offline Worksheets

### Scenario

A user is trying to log into an offline worksheet but does not have a shortcut set up on the machine to do this.

### Explanation

The user either deleted the shortcuts or failed to create them when prompted.

### Resolution

First make sure that the following directory exists on this user's machine:

C:\Documents and Settings\*username*\.javaws\cache\indirect\

This directory should include a file with a name such as indirect46519.ind. The filename will include a different number.

- If this file does not exist, probably the user has not performed the setup steps to configure offline access. See "Initial Setup and Logon of Offline Environment".
- If this file does exist, then create a shortcut as follows:

Detail	Value to Use
Title	Demantra Offline Worksheets
Target type	Application
Target location	Java Web Start
Target	"C:\Program Files\Java Web Start\javaws.exe" "@C:\Documents and Settings\ <i>username</i> \.javaws\cache\indirect\ind_file_as_above"
Start in	leave blank
Run	Normal window

## No Suitable Driver (Integration)

### Scenario

A user tries to perform import or export via the Stand-Alone Integration Tool (Demantra\_root/Demand Planner/Integration/aps.exe), but gets the following message in the DOS shell:

```
java.lang.ClassNotFoundException:  
...  
Error in Connection to Database, No suitable driver.  
Retrying to Connect...
```

- .

### Explanation

This error occurs if you have the incorrect setting of the ApsMode parameter.

### Resolution

See the Oracle Demantra Installation Guide.

## Object Error

### Scenario

A user receives the following message when trying to launch a worksheet in one of the Web products:

```
error while running Worksheet Window: object error
```

### Possible Explanations

This message can occur for several reasons:

- There may be an incorrect setting in an XML file on the Web server.
- There may be a problem on this user's machine.
- It may be necessary to clean the Tomcat cache on the Web server. (Note that Tomcat is used only for demo situations and is not supported.)

### Resolution

1. First make sure that the Web server is pointing to the correct location.
  1. On the server, open the following file:  
*Demantra\_root/Collaborator/virtual\_directory/WEB-INF/web.xml* For example:  
*Demantra\_root/Collaborator/demantra/WEB-INF/web.xml*
  2. In this file, check the value of the parameter `electric.http.url`. This parameter should have the following format and value:  
`http://server name/virtual_directory/glue`  
For example: **http://frodo/demantra/glue**

3. Edit the file if necessary, save the changes, and then restart the Web server.
2. Then try to resolve a Java problem on the user's machine:
  1. Make sure that the browser option "Use Java2 v1.4.1\_03 for applet" is unchecked. To access this option in the browser, click Tools > Internet Options...and click the Advanced tab.
  2. Stop the Web server, clear the user's Java cache and certificate, and restart the Web server, as described in "Cannot Connect to Server".
  3. If this does not fix the problem, then uninstall JRE. To do so, use Add/Remove Programs and restart the machine if prompted to do so.
4. Then see "Initial Logon to Demantra".
3. Clear the Tomcat cache on the server. To do so, delete the directory **Demantra\_root** /Collaborator/Tomcat/work/standalone/localhost.

## Page Cannot Be Displayed

### Scenario

A user accesses one of the Demantra URLs and receives the following message:

The page cannot be displayed

### Explanation

The Web server is not running.

### Resolution

Start the Web server.

## Please Handle Recovery

### Scenario

A user receives an email message that includes the following text:

Please handle recovery for the following process

### Explanation

This error message is the default message that the Workflow Engine sends when asking a user how to recover from a failed workflow instance. (The message itself is controlled by the mail.strings.recovery parameter.)

### Resolution

Identify the workflow instance that failed. The Workflow Manager shows all workflows and all workflow instances.

Recovery depends on the workflow and on your environment.

## Port Collision with Oracle XDB User

### Scenario

When the user tries to log on, he or she receives the following message:



### Explanation

In Oracle 9i, the XDB database user tries to use port 8080. If you use port 8080 for Demantra, then users will encounter the message described above.

### Resolution

Reconfigure the Oracle XDB user to use a different port, as follows:

1. Open the Oracle Enterprise Manager and log in as a DBA.
2. On the left side of the screen, expand the XML Database item and click the Configuration item.
3. On the right side of the screen, edit the http-port field and change the value from 8080 to another four-digit number.
4. Save the change.
5. To verify the fix, try to access <http://localhost:8080>. You should get a blank page.

## Possible Jar Problem

### Scenario and Explanation

If Java is not using the correct jar files on a user's machine, different errors can occur, specifically:

- The Demantra Web pages seem wrong.
- Error messages occur.
- You suspect that the correct jar files were not downloaded.

#### **Resolution**

1. Check the dates of the jar files that Demantra is using:
  1. Start the Web server.
  2. Note the messages that the APS writes into the DOS window. Look for the line that is similar to the following example:  
Starting Service Demantra Application Server/7.0.0 (27)
  3. The number in parentheses indicates the jar version that the APS is using.
2. Check the dates of the jar files that Java is actually using, as follows:
  1. Open the Java plug-in control panel.
  2. Click the Cache tab.
  3. Click View.

## **Process Is Terminated**

#### **Scenario**

A user receives an email message with the following subject line:

The following process is terminated

#### **Explanation**

This error message is the default message that the Workflow Engine sends when a workflow instance is terminated. (The message itself is controlled by the mail.strings.processterminated parameter.)

#### **Resolution**

Ask your Demantra administrator if he or she terminated the workflow instance.

## **Tasks Timed Out**

#### **Scenario**

A user receives an email message that includes the following subject line:

Task(s) timed out in workflow

Depending on the workflow, the text of the message includes one of the following lines:

```
Treatment period for this task(s) was finished and one or more of the
group members haven't respond. The process moved to alternative
treatment.
```

```
Treatment period for this task(s) was finished and the process moved to
alternative treatment
```

### **Explanation**

These error message are the default message that the Workflow Engine sends when a User Step or a Group Step times out. (The messages themselves are controlled by the mail.strings.taskstimedoutsubject, mail.strings.timeout.user, and mail.strings.timeout.group parameters.)

The workflow definition defines the timeout periods and the timeout behavior.

### **Resolution**

Identify which workflow step was timed out, and consult your Oracle implementors for details on that workflow. Depending on how the workflow was defined, the alternative treatment may be sufficient for your needs.

## **Treatment Period Was Finished**

See "Tasks Timed Out".

## **Unable to Launch Desktop from Collaborator**

### **Scenario**

A user tries to launch the desktop from Collaborator Workbench, but encounters an error.

### **Explanation**

There may be a problem with the TNS configuration.

### **Resolution**

Make sure the TNS name matches the server name. To do so:

1. Make sure you have no spaces in your path to dp.exe OR put dp.exe in your path (able to launch it from a command prompt). The menu should be set up correctly as follows:  
  
Program Target: dp.exe  
  
Type: desktop initiation
2. Set up a TNS on your machine whose name is the same as the database server name. For example, if your database server is WYSIWYG, create a TNS named WYSIWYG. Make sure the corresponding TNS exists on the database server.

3. Edit the ServerName parameter in the Business Modeler. This parameter is on the Application Server > App Server tab.

## Unable to Log into Collaborator After Expired Session

### Scenario

A user has logged into Collaborator Workbench and the session has expired. Now the user cannot log in again.

### Explanation

The browser has not been updated correctly with the user status.

### Resolution

Close the browser window and open a new browser. In the new browser, the user will be able to log on again.

## User Does Not Receive Email

### Scenario

A user fails to receive an email message, either from an automated workflow or from another user of Collaborator Workbench.

### Explanation

Demantra uses the email addresses configured in the Business Modeler.

### Resolution

In the Business Modeler, make sure that the email address is configured correctly for this user. See "Creating or Modifying a User".

Also check with IT department to make sure that the Demantra administrative user is configured with the appropriate permissions on the mail server.

## User Is Already Active

### Scenario

A user tries to log into one of the Web products and receives the following message:

User is already active

### Explanation

Any given user can open only one session at a time. This applies whether or not the user is trying to log on from the same computer.

### Resolution

Either wait for the user session to time out or manually end the user session. Contact Demantra Customer Support for details.

## Workflow Internal Error

### Scenario

A user receives an email message with the following subject line:

`Workflow internal error`

The text of the message itself includes the following:

`Internal error: please check database and network connections.`

### Explanation

This error message is the default message that the Workflow Engine sends when an internal error occurs in the workflow module. (The message itself is controlled by the `mail.strings.internalerror.subject` and `mail.strings.internalerror.message` parameters.)

### Resolution

First try to determine if the error was caused by a database communication failure, lost network connection, or unavailability of the Web server. Correct the situation and re-execute the workflow instance.

If you cannot determine the cause of the error, gather as much information as possible and contact Demantra Customer Support.

## Workflow Process Has Failed

### Scenario

A user receives an email message with the following subject line:

`Workflow process has failed`

The text of the message itself includes the following:

`Error in process execution`

### Explanation

This error message is the default message that the Workflow Engine sends to the initiator of a workflow when it fails to execute any step in that workflow. (See "Fail-To-Execute Step". (The message itself is controlled by the `mail.strings.taskfailuresubject` and `mail.strings.processfailuresubject` parameters.)

In such cases, the Workflow Engine also sends a selection task to the My Tasks module for the same user. This task provides options for continuing.

### Resolution

1. Identify the workflow that failed and try to identify the cause of the failure.

A failure can happen for a variety of reasons, for example, an invalid worksheet or user, a database communication error, the Web server being down, or failure of an invoked external application. Check for such error conditions.

2. The user who initiated the workflow should log onto Collaborator Workbench, go to My Tasks, and specify how to proceed.
  - If you have corrected the underlying problem and you want to rerun the step that failed, click Retry.
  - If you have corrected the underlying problem and have performed the failed step manually, click Continue.
  - If you want to cancel execution of this workflow instance, click Abort.

Then click the Save & Refresh link at the bottom of the task list.

3. If you cannot determine the cause, gather as much related information as possible, and contact Demantra Customer Support.

## Worksheet Is Empty

### Scenario

A user opens a worksheet, but the worksheet is empty.

### Explanation

The worksheet contains no data. There are multiple possible reasons:

- The user may not have access to the specific data. For example, a worksheet shows data for a specific account, but the user is not authorized for that account.
- The user may not be not permitted to see data at the aggregation levels in the worksheet.
- The user may not have access to the series shown in the worksheet.
- There may be no data within the span of time that the worksheet uses.
- There may be an exception-type filter applied to the worksheet, but no data meets the exception condition.

### Resolution

1. Try increasing the span of time of the worksheet.
2. Check the user's permissions.
3. Check the worksheet's filter and exception filter. Remember that if you launch a worksheet via the Open With menu option, the worksheet is filtered by the member from which you started. This additional filter is not visible in the worksheet designer.

## Worksheet Runs Slowly

### Scenario

Your system has a large number of series, and worksheets take a long time to run.

### Explanation

The tables that store the series might benefit from being rebuilt.

### Resolution

Run the REBUILD\_TABLES procedure, which rebuilds the sales\_data and mdp\_matrix tables by default. You can pass a table name as an argument to the procedure.

## Zero Length Column Error

### Scenario

When working with a cached worksheet, the following error is encountered:

Zero length column

### Explanation

For technical reasons, a worksheet cache cannot be created if any server expressions in that worksheet return null or zero-length values.

### Resolution

Check the server expressions for all series and modify them if any return such values. Use the expression to\_number(null,0) to express null values that can be cached.



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