# Oracle® Retail Markdown Optimization

Configuration Guide

Release 13.1

July 2009

ORACLE®

Oracle® Retail Markdown Optimization Configuration Guide Release 13.1



Primary Author: Judith Meskill

Contributing Author:

Contributor:

imbedded in Oracle Retail Signs and Oracle Retail Labels and Tags.

(vii) the software component known as **Adobe Flex™** licensed by Adobe Systems Incorporated of San Jose, California, and imbedded in Oracle Retail Promotion Planning & Optimization application.

(viii) the software component known as **Style Report™** developed and licensed by InetSoft Technology Corp. of Piscataway, New Jersey, to Oracle and imbedded in the Oracle Retail Value Chain Collaboration application.

(ix) the software component known as **DataBeacon™** developed and licensed by Cognos Incorporated of Ottawa, Ontario, Canada, to Oracle and imbedded in the Oracle Retail Value Chain Collaboration application.

You acknowledge and confirm that Oracle grants you use of only the object code of the VAR Applications. Oracle will not deliver source code to the VAR Applications to you. Notwithstanding any other term or condition of the agreement and this ordering document, you shall not cause or permit alteration of any VAR Applications. For purposes of this section, "alteration" refers to all alterations, translations, upgrades, enhancements, customizations or modifications of all or any portion of the VAR Applications including all reconfigurations, reassembly or reverse assembly, re-engineering or reverse engineering and recompilations or reverse compilations of the VAR Applications or any derivatives of the VAR Applications. You acknowledge that it shall be a breach of the agreement to utilize the relationship, and/or confidential information of the VAR Applications for purposes of competitive discovery.

The VAR Applications contain trade secrets of Oracle and Oracle's licensors and Customer shall not attempt, cause, or permit the alteration, decompilation, reverse engineering, disassembly or other reduction of the VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.

# Contents

## 10 Understanding the Application (GUI) Configuration

## 11 Configuring the Application (GUI)



## 12 Configuration Properties Files



## 13 Standard Reports

# Preface

Markdown Optimization is an application that provides markdown recommendations and forecasts that allow customers to make informed markdown decisions. In this way, customers can maximize gross margins on seasonal merchandise while clearing inventory to specified levels by defined dates.

## Audience

This document is intended system administrators who configure and manage Markdown Optimization.

## Related Documents

For more information, see the following documents in the Oracle Retail Markdown Optimization documentation set:

- *Oracle Retail Markdown Optimization Installation Guide*
- *Oracle Retail Markdown Optimization User Guide*
- *Oracle Retail Markdown Optimization Administration Guide*
- *Oracle Retail Markdown Optimization Operations Guide*
- *Oracle Retail Markdown Optimization Release Notes*

## Customer Support

- https://metalink.oracle.com

When contacting Customer Support, please provide:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instruction to recreate
- Exact error message received
- Screen shots of each step you take

## Review Patch Documentation

For a base release (".0" release, such as 13.0), Oracle Retail strongly recommends that you read all patch documentation before you begin installation procedures. Patch

documentation can contain critical information related to the base release, based on new information and code changes that have been made since the base release.

## Oracle Retail Documentation on the Oracle Technology Network

In addition to being packaged with each product release (on the base or patch level), all Oracle Retail documentation is available on the following Web site:

http://www.oracle.com/technology/documentation/oracle_retail.html

Documentation should be available on this Web site within a month after a product release. Note that documentation is always available with the packaged code on the release date.

## Conventions

The following text conventions are used in this document:

| Convention | Meaning |
|---|---|
| **boldface** | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| *italic* | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values. |
| `monospace` | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

# 1

# Getting Started

The chapter contains the following:



## Introduction

Markdown Optimization is deployed in a distributed, replicated architecture with a single system image and a single point of control and configuration. The deployment of changes to the configuration is based on the fielding of a comprehensive set of configuration changes. Change management supports the rolling back of changes if undesirable side effects occur.

A number of environments are involved in Markdown Optimization deployments:

- **Development environment**. Used internally by an implementer to try out initial configurations or enhancements.
- **Test environment.** Used internally to verify and validate correct functionality prior to deployment to a staging environment or a production environment.
- **Staging environment.** Used for testing, validating, and verifying changes before they are applied to a production environment.
- **Production environment.** The environment that provides the application to end-users and in which the weekly batch process is run. This environment is change-controlled and monitored.

A typical Markdown Optimization environment consists of the following integrated pieces:

- Oracle database
- Application server: OAS
- Markdown Optimization application, consisting of software, database schema, baseline configuration, and application server setup
- Environment-specific configuration:

  - Front end configuration
  - Database schema updates
  - Custom integration points
- IT Infrastructure
  - Hardware and systems software
  - Networking setup
  - Database instance creation
  - Database clients
  - Application server base installation
  - User accounts
  - User access

# Getting Started with Configuring Markdown Optimization

Once you have installed Markdown Optimization, you are ready to configure it to perform model runs in a production environment. Optimization runs produce forecasting and markdown recommendations.

The best approach to configuring Markdown Optimization is to get a basic production environment up and running. Once that is done, you can customize the application incrementally as needed to meet specific customer requirements and as business requirements change.

## Configuration Process

The basic process, at a high level, consists of the following steps:

1. Plan and prepare the product environment.
2. Collect information about business requirements, including the level of sales data and optimization, the level of worksheets, the contents of the weekly data feed, the content of the weekly sendback files, business rule configuration, markdown validation configuration, model start date configuration, price ladder configuration, promotions configuration, markdown calendar definition, and the GUI configuration (worksheets, columns, and metrics).
3. Install the application. (See Markdown Optimization Installation Guide.)
4. Load historic data from the customer.
5. Analyze the business data and develop parameters for the forecasting model. (Analytical Services)
6. Load weekly production data from customer.
7. Do the first model run, using primarily default application settings.
8. Use the diagnostic tools to assess and troubleshoot the model run and modify the configuration as needed.
9. Perform weekly model runs in a production environment.
10. Configure the application incrementally according to customer requirements.
11. Do additional model runs to test the incremental changes to the configuration.

12. Configure front end metrics.
13. Build front end grids.
14. Configure standard reports.
15. Create user roles and actions.

# Markdown Optimization Required Skill Sets

The following skill sets are required to run Markdown Optimization.

### Operations

The Operations staff is responsible for the daily operation of the application. Skills include:

- Basic UNIX knowledge. Markdown Optimization provides a UNIX command line interface to all jobs that require scheduling.
- An understanding of relational database management systems and the use of SQL.
- An understanding of enterprise schedulers. The weekly batch process consists of large number of jobs with complex dependencies that are best managed using a scheduler.

### Systems Administration

The systems administration staff is responsible for daily UNIX administration. Skills include:

- Familiarity with volume management.
- Setting up enterprise backups for file systems and databases. Performing nightly hot backups. An understanding of relational database software. Tape backups and restores.
- Tape rotation.
- Operating system installation.
- Patch application.
- Security-hardened OS configurations.
- Kernel parameter tuning for DBMS and J2EE servers.
- Installation and configuration of ssh, rsync, bash, Gnu utilities, Python, and sudo.
- Creation and integration of System V init scripts.
- Scheduling of cron jobs.
- SAN storage configuration and management.
- Shell scripting.

### Database Administration

The database administration staff is responsible for critical daily RDBMS management and troubleshooting. Skills include:

- Management of large databases (50 GB - 500GB).
- Database backup and recovery, including monitoring, backups, and restores.
- Data migration between test and production environments.

- Database tuning in response to problems or to enhance performance.
- Database layout, including creating tablespaces and partitioning.
- Storage management, including data volumes, log volumes, and index volumes.

#### Network Administration

The network administration staff is responsible for managing network equipment. Skills include:

- TCP/IP.
- Hardware load balancing for high availability and horizontal scalability.
- If SSL is being used to encrypt data, SSL Hardware Acceleration.
- Configuration of services on Cisco content switches or F5 BigIP switches.
- Managing routers with traditional ACLs.
- Managing firewalls for granular ACLs.
- Managing VPN tunnels.
- Understanding interoperability issues.

#### Storage Administration

The storage administration staff is responsible for managing a SAN environment and should be familiar with basic LUN management.

#### Application Server Administration

The application server administration staff should be familiar with the management of OAS. Skills include:

- Deploying and managing Java applications in a J2EE environment.
- Installing and configuring application server software.
- Configuring and tuning JDBC drivers and connection pools.
- Configuring JMS server and JMS queues.
- Administering multiple servers and clusters from a J2EE console.
- Deploying Web applications and EJB applications in the J2EE server.
- Configuring and tuning threads and message-driven beans.
- Monitoring and troubleshooting J2EE servers.
- Database development experience with Oracle.
- XML knowledge.
- Familiarity with shell scripts, Perl, and UNIX/AIX environments.

## Configuration Points

The following are the specific aspects of Markdown Optimization that can require configuration. Inference rules are views into the database and are used, for example, to provide information to the Calc Engine, calculate KPIs, and configure the UI. The standard load is used to load customer data, as specified in the standard interface, into the application. Load_statements.sql is used for setting eligibility criteria and loading data into ITEM_DATA. Sendbacks specify the user markdown information that is sent

to customers. The application UI displays information specific to a customer. Reports can be customized to a customer's requirements.

***Table 1–1 Inference Rules***

| Inference Rule Name | Description |
|---|---|
| *Inference Rules Used by the KPI Process* | |
| IR_FORECAST_METRICS | A list of calculated forecast metrics |
| IR_HISTORIC_METRICS | A list of calculated historic metrics |
| IR_METRICS | Metric calculations |
| IR_O_USER_DATES | For post-model run metric calculations |
| IR_O_USER_FLOATS | For post-model run metric calculations |
| IR_O_USER_TEXTS | For post-model run metric calculations |
| IR_PROJ_MKDNS | Forecasted markdown information |
| IR_ROLLUPS | Aggregations of calculated metrics |
| IR_SEASON_METRICS | Historic metric calculations |
| IR_USER_DATES | For pre-model run calculations |
| IR_USER_FLOATS | For pre-model run calculations |
| IR_USER_TEXTS | For pre-model run calculations |
| IR_WAREHOUSE | Provides warehouse-based inventory information |
| *Inference Rules Used by the Calc Engine* | |
| IR_ACTIVITY_DATA | Provides weekly sales data |
| IR_BLOCKED_MARKDOWN | Reasons for blocking markdowns on effective dates |
| IR_BUSINESS_POLICY | Customization of business rules |
| IR_COLLECTION_INFO | Pricing group pricing rules |
| IR_ELIGIBLE | Items and pricing groups eligible for the optimization |
| IR_FORCED_MARKDOWNS | Defines the required markdown level for an item at a specified date |
| IR_ITEM_DATES | Defines intervals from start date to out date for items |
| IR_ITEM_DATES_C | Defines intervals from start date to out date for pricing groups |
| IR_ITEM_IDS | A set of IDs associated with an item |
| IR_ITEM_IDS_C | a set of IDs associated with a collection |
| IR_ITEM_PARAMETERS | Provides analytical parameters |
| IR_ITEM_PRICES | Basic set of prices for an item |
| IR_ITEM_PRICES_C | Basic set of prices for a pricing group |
| IR_MARKDOWN_CALENDAR | Valid calendar of calendar markdown dates |
| IR_MARKDOWN_CALENDAR_EX | Markdowns excluded from the calendar |
| IR_MISSING_WEEKS | Weeks that do not have sales activity information |

*Table 1–1 (Cont.) Inference Rules*

| Inference Rule Name | Description |
|---|---|
| IR_MODEL_START | Custom model start configuration |
| IR_MODEL_START_OPTION | Which of five model start options used |
| IR_MODEL_VALUES | Model-related analytical parameters |
| IR_PAST_TICKET_PRICES | Historic information used to determine the number of markdowns that have occurred |
| IR_PENDING_MARKDOWNS | Markdowns accepted but not yet in effect in stores |
| IR_PLANNED_PROMOS | Planned promotions and expected lift |
| IR_PRICE_LADDER | Candidate markdown prices |
| IR_PRIOR_DISTRIBUTION | Values for modeling demand |
| IR_SEASONALITY_ATTRIBUTE | Used to look up seasonality values |
| *Inference Rules Used by the UI* | |
| IR_P4P_ITEMS_CONFIG | All markdown information |
| IR_WORKSHEET_IDS | Used to set the worksheet level and the grouping of items in the worksheet |
| IR_DISPLAY_PROMOS | Promotion information displayed in the UI |
| IR_FE_WAREHOUSE | Provides warehouse-based inventory information to the UI |
| *Inference Rules Used by the Standard Load* | |
| IR_ITEM_COLLECTION | Defines how items are grouped |
| IR_ITEM_COLLECTION_OPTION | Level of pricing group management |
| *Inference Rules Used by the POSTRUN* | |
| IR_FORECAST_METRICS_POSTRUN | Updates ITEM_DATA during POSTRUN |

*Table 1–2 Standard Load*

| Standard Load Configuration Points | Description |
|---|---|
| Loading one-time data into ASH_CP_TBL, ASH_MHL_TBL, ASH_LHL_TBL, and (optionally) ASH_CSHL_TBL. | These tables are populated by data feeds but are also configuration points. |
| Load Procedures | The standard load procedures are generally not modified; however, examining the source code can help in troubleshooting. |
| Load Dependencies | pl_load_client.sh specifies the list of standard procedures that can be called |
| Load Procedure Parallelism | |
| Error Threshold | The number of errors acceptable in the standard load can be configured. |
| SQL Loader Control Files | This should not be configured; however, client requirements sometimes necessitate changes. |

***Table 1–3 Load_Statements.sql***

| Load Statement Configuration Points | Description |
|---|---|
| Eligibility | Defines the subset of the ITEM_DATA table used in the model run and is used during FELOAD. |
| Worksheet Definition | Defines the worksheet level in the ITEM_ DATA table and is used during FELOAD. |
| ISC Procedures | SQL procedures can contain custom hooks. |

***Table 1–4 Sendback Files***

| Sendback Configuration Points | Description |
|---|---|
| PL_MARKDOWN_SENDBACK<br>Markdowns accepted in the application | Internal sendback: clients can send accepted markdowns in a data feed. Forecast recommendations are taken from the application. |
| external_sendback_views.sql<br>P4P_Sendback_Outdt | Clients may want to receive sendbacks containing information such as forecasts or outdates, which are not part of a standard sendback file. |
| HIST_MARKDOWNS | Files from clients may need to be cleaned up. |

***Table 1–5 Markdown Optimization UI***

| UI xml File/Feature | Description |
|---|---|
| *Defining Custom Metrics Seen in the UI* | |
| p4p-custom-columns.xml | Used to override columns in p4p-column-list.xml and to define new columns to be used in grids. |
| *Worksheet* | |
| p4p-wksht-summary-grid.xml | Used to configure the columns for the Worksheet Summary grid. |
| p4p-loose-items-grid.xml | Used to configure Item Worksheet View 1. |
| p4p-items-grid-flat.xml | Used to configure Item Worksheet View 2. |
| p4p-price-groups-grid.xml | Used to configure Item Worksheet View 3. |
| p4p-price-groups-items-grid.xml | Used to configure Item Worksheet View 4. |
| p4p-aggregated-grid.xml | Used to configure Item Worksheet View 5. Additional configuration may be required out-of-the-box. Does not show leaf-level data. |
| p4p-edit-items-wksht-grid.xml | Used to configure Add/Remove Items grid. |
| p4p-edit-group-grid.xml | Used to configure grid for editing items in a pricing group. |
| *UI Pop-ups* | |

***Table 1–5 (Cont.) Markdown Optimization UI***

| UI xml File/Feature | Description |
|---|---|
| p4p-promo-details-grid.xml | Used to configure the grid for promotion details in What If and worksheets. |
| item-details-layout.xml | Fully configurable popup for Item Details. |
| *What If UI display* | |
| p4p-what-if-scenario-variables.xml | Used to configure the Scenario Variables display of What If. |
| *Maintenance* | |
| p4p-maint-grid-groups.xml | Used to configure the Merchandise Maintenance grid for groups. |
| p4p-maint-grid.xml | Used to configure the columns for the Maintenance grid. |
| p4p-maint-grid-flat.xml | Used to configure the columns for the Maintenance grid. |
| *p4pgui-config.xml* | |
| Worksheet Summary Metrics | Used to configure the columns for the worksheet summary metrics in p4pgui-config.xml and p4p-columnlist.xml. |
| What-If | Used to configure the What If grid and the forecasts grid in p4pgui-config.xml. |
| Find Key | Used to configure the field to match "Find" in p4pgui-config.xml. |
| Application Cut-off Time | Used to configure the application cut-off time. |
| Sendbacks | Used to configure the sendback view to file mappings. |
| Grid Visibility | Which views are available in Item Worksheets. |
| *Other* | |
| Merchandise Maintenance | Used to configure which business rules are editable in Merchandise Maintenance and for validation for outdates. Accessed through rules_definition.xml and p4pgui-config.xml. |

***Table 1–6 Reports***

| Report xml File | Description |
|---|---|
| p4p-custom-columns.xml | Used to configure custom columns for reports |
| sample-price-change-report-1.xml | Sample report |
| sample-md-analysis-report-1.xml | Sample report |
| sample-plugin-report.xml | Sample plug-in report that is used for custom reporting |

# Change Management

The following table details the types of changes that can occur to the configuration after it has been implemented.

***Table 1–7 Typical Markdown Optimization Configuration Changes***

| Change | Example |
|---|---|
| Business rules that are managed by end users or administrators | Changing the outdate for an item. |
| Data feeds that are not part of the standard weekly load | Changes or additions to price ladders |
| Patches or hot fixes | Correcting a defect or adding a new feature |
| Changes to scheduled processes resulting from a client business need | Change to arrival time for weekly data feed.<br>Change to database backup schedule.<br>Change to sendback schedule. |
| Changes to hardware or software infrastructure | OS security patch.<br>Hardware replacement or addition.<br>Application server patch.<br>DBMS software patch. |
| Changes or enhancements to the application configuration | New custom metric added as column to a worksheet.<br>New business rule value. |
| Changes to data hierarchies that impact the functional or analytical configuration | Major merchandise reclassification.<br>Major changes to climate zones. |
| Updates to analytical parameters | Changes to seasonality parameters to reflect recent history of sales data. |

## Implementing and Deploying Changes

The following process is considered the best practice when changing the configuration.

1. Refresh a segregated development environment with a recent copy of the production environment. This should include:
   - restoring the database from a backup, export, or disk image
   - installing all configuration files as they are in the production environment
   - verifying the correct functioning of the application in the production environment. A performance baseline should be captured if changes are being made that could impact the performance of the standard load or the model run.
2. Ensure that the configuration prior to the change is saved to source control.
3. Make changes in the production environment and unit test to verify that they are functioning correctly.
4. To test the configuration changes adequately, execute a full weekly cycle, including loading data, running the model, taking markdowns in the application, and running sendbacks. Multiple weekly cycles may be appropriate.
5. After changes have been verified in the development environment, they should be checked into source control.
6. Create a staging environment with the most recent copy of the production environment and capture performance baseline data.

7. Apply the changes checked into source control to the test environment, using the same method that will be used to apply the changes to the production environment.
8. Perform integration testing of the changes. A general smoke test of the application function and model run should be performed. The performance should be evaluated relative to the baseline data.
9. Most production changes should be applied in the interval between the final weekly sendback and the upcoming data load and model run. A full backup of the production database and application environment should be taken prior to applying any changes to production.

It can occasionally be necessary to revert a configuration if the implemented change does not work as expected. To do this, restore the backup image.

## Applying Patches

Oracle makes changes to the application available as a configuration build. This build should be stage prior to being applied to a production environment. The build file should be copied to the INSTALL_BASE directory of the environment to be updated.

Use the following command to apply the new build:

INSTALL_BASE/integration/tools/field.sh <path_to_build_file>/<build_name>.tgz

This command executes the following steps:

- Backup
- Cleans up old files
- Unpacks the tar archive
- Specialization
- Expands templates
- Automatic editing changes
- Stops servers
- Cleanup and synch
- Updates database
- Applies one-time and regular schema updates
- Updates the BRM configuration
- Restarts the servers
- Updates user roles
- Automation set-up
- Cron set-up

# Concepts

This section contains Markdown Optimization concepts that you should be familiar with.

## Common Start Dates

Markdown Optimization supports a set of five standard dates, as follows:

- First Receipt Date – defines the beginning of an activity cycle for an item. Since item numbers are reused, the receipt date is used to differentiate between the last activity cycle and the current one. If the value is null, the application assumes all activities are significant. This date is provided by the retailer. This date is part of the Standard Load (FIRST_RECEIPT_DATE).
- Planned Start Date – the date that the retailer plans to begin selling an item. It is primarily used in reporting and can be null. This date is provided by the retailer. It is defined in the Business Rule Manager (PLANNED_START_DT) or through the application UI (if set – plannedstartdate is set to true in p4pgui-config.xml).
- First Inventory Date – the date for an item when inventory first appears in the store. It is derived from activities data and the first receipt date. It is used during optimization to determine whether or not zero sales are significant.
- First Sale Date – the date on which the first item is sold. It is derived from activities data and the first receipt date and may be used in calculating the model start date.
- Model Start Date – the date on which an item is considered to be available for sale. This date is derived from other application data.

# 2

# User Management

This chapter contains the following sections:



## Introduction

User Management is a utility that lets you create, modify, and remove user accounts from a central location. The User Management utility is installed automatically when you install the application.

Each user who accesses the application must have a user account. Each user account is assigned one or more roles that determine the types of functions the user can perform with the application.

Single sign-on is supported so that users can access the entire suite of products, if they are available, without additional authentication.

## About User Roles and User Actions

Roles are defined by a specific set of user actions. The actions that define each role serve to delimit the activities a user can perform. All actions are self-contained. For example, Write does not imply Read. So a role must include all the actions that are necessary for complete functionality. If a role is assigned at a specific level in the hierarchy and that hierarchy level is removed, then the role is removed.

Markdown Optimization comes with a default set of roles, loaded into ROLE_ ACTION_TBL. Default action are assigned to the roles. These cannot be deleted. For more information on Business Rule Manager roles and actions and Seasonality Manager roles and actions, see those respective chapters.

The following table lists the MDO roles and the default actions assigned to those roles.

*Table 2–1 MDO Roles and Default Actions*

| Role | Default Action |
|---|---|
| PRICE_APPROVER | PRICE_APPROVE |
| PRICE_SUBMITTER | PRICE_SUBMIT<br>PRICE_COMMENTS_EDIT |
| PRICE_USER | PRICE_MARKDOWNS_VIEW<br>PRICE_MAINTAINING_MERCHANDISE_VIEW<br>PRICE_BRM_VIEW<br>PRICE_USER_PROFILE_VIEW<br>PRICE_REPORTS_VIEW<br>PRICE_GUARD<br>PRICE_ITEM_INFO_VIEW |
| PRICE_VIEWER | PRICE_VIEW |
| BRM_PRICE_EDIT | BRM_PRICE_EDIT<br>PRICE_SEASONALITY_EDIT |
| BRM_PRICE_VIEW | BRM_PRICE_VIEW<br>PRICE_SEASONALITY_VIEW |
| BRM_PROFITLOGIC_EDIT | BRM_PROFITLOGIC_EDIT |
| BRM_PROFITLOGIC_VIEW | BRM_PROFITLOGIC_VIEW |
| WHAT_IF_SERVICE_USER | MDO_WHAT_IF_SERVICE_EXEC |

The MDO roles are defined as follows.

- PRICE_APPROVER – has read-only access to worksheets and can approve submitted worksheets at the specified level in the hierarchy, but cannot submit worksheets.
- PRICE_SUBMITTER – can submit worksheets at the specified level in the hierarchy.
- PRICE_USER – allows access to the UI.
- PRICE_VIEWER – has read-only access to worksheets at the specified level in the hierarchy.
- BRM_PRICE_EDIT – can edit a business rule through the UI at the item level or higher.
- BRM_PRICE_VIEW – can view a business rule through the UI at the item level or higher.
- BRM_PROFITLOGIC_EDIT – can edit administrative business rules.
- BRM_PROFITLOGIC_VIEW – can view administrative business rules.
- WHAT_IF_SERVICE_USER – similar to the PRICE_USER role, but for the web service.

Significant MDO actions are defined as follows.

- PRICE_COMMENTS_EDIT – can edit tool tips.
- PRICE_GUARD – guards against illegal access to the application.
- MDO_WHAT_IF_SERVICE_EXEC – provides access to the web service.
- PRICE_MAINTAINING_MERCHANDISE_VIEW_NO_PG_EDIT – provides read-only access to the Pricing Group Manager (only the action is available by default).

- PRICE_ITEM_INFO_VIEW – can view item information
- PRICE_SEASONALITY_VIEW – can view seasonality curves but cannot override or change mappings.
- PRICE_SEASONALITY_EDIT – can edit seasonality curves. This permission only applies to hierarchies that the user has permissions to edit.

Roles are assigned to users with restrictions that are defined at or above a specific node of the merchandise hierarchy and the location hierarchy. The scope of actions can be across the merchandise and location hierarchies. The scope must be defined at or above the class planning level.

The sample file, "Role Assignment Sample xml File" provides an illustration of defining the scope.

### About User Management Roles

User accounts with user management roles have access to features such as creating users, assigning roles, removing user accounts, resetting passwords.

When a user with a user management role logs on, a link to the User Management utility appears on the Main Menu.

The following list describes the default User Management roles:

- UM_READ_ONLY_ADMIN – This role allows read-only access to the User Management utility. This role has privileges to view the list of users and their roles and hierarchy levels, but not to create new user accounts or modify or inactivate existing ones.
- UM_ROLE_ASSIGN_ADMIN – This role allows assigning new roles (and related hierarchy levels) to existing user accounts, but it does not allow the creation of new user accounts.
- UM_USER_ADMIN – This role allows creating new user accounts, but it does not allow the assignment of roles to the new accounts.

## User Management Bulk Loader Utility

If you are creating a small number of user accounts using the default roles, you can create those accounts using the application UI. (For more information on using the User Management utility, consult the Markdown Optimization Online Help.) However, if you want to create user accounts for a group of users all at one time, you can use the User Management bulk loader utility.

Prior to running the User Management bulk loader utility, you must:

- Set the jndi.properties. The jndi.properties file, which is located in <installed>/modules/tools/conf/jndi.properties, specifies the initial context factory and the url where the JNDI lookups are carried out.

  For OAS, typical values are:

  app.server.home={oracle.home}
  java.naming.factory.initial=oracle.j2ee.rmi.RMIInitialContextFactory
  java.naming.security.principal={oracle.admin.userid}
  java.naming.security.credentials={oracle.admin.password}
  java.naming.provider.url=opmn:ormi://{oracle.server.address}:{oracle.admin.port}:{oracle.instance.name}/UserManagement

- Make sure that usermanagement.ear, suiteproperties.ear, and common4p.ear are deployed on the running application server.

## Users and Roles

You need to create and validate (using a tool like XML Spy) three xml files containing entries for Users, Roles, and Role Assignments.

Note that the actions associated with roles must be created, using brmadmin.sh in order for the roles to be successfully created.

- The user file contains user names. All user names must be unique. The schema includes a flag that indicates whether or not the password should be hashed.
- The Roles file contains the possible roles that can be assigned. All role keys must be unique. The action key attributes must be loaded into the database before the bulk loader utility can be used. All elements and attributes must be lower case.
- The Role Assignment file contains user names and the role or roles associated with the user name. The user names must be loaded into the database before this file can be processed by the bulk loader utility. All elements and attributes must be lower case. The merchandise ID and the Location ID are provided by a pipe-delimited string of CLIENT_LOAD_ID, as found in the MERCHANDISE_HIERARCHY_TBL or LOCATION_HIERARCHY_TBL. For example, to assign a user to a certain department of merchandise:

  CHAIN COMPANY DIVISION DEPARTMENT merchandise attribute in .xml
  ---
  0 1 123 8765 1 | 123 | 8765
  0 1 22 789 1 | 22 | 789

The information in the three files is loaded into database tables by the bulk loader. (Users and Role Assignments can be added or modified via the application UI. Roles can only be added or modified via the bulkloader.)

## The xml Files

The xml schemas and samples of the three required xml files can be found in <installed>/config/Price/security.

***Table 2–2 User Management xml Files***

| Schema | Sample | Database Table |
|---|---|---|
| user-set.xsd | price_user_set.xml | USERS_TBL |
| role-set.xsd | price_role_set.xml | ROLES_TBL |
| role-assignment-set.xsd | price_assignment_pricedataset.xml | USER_RESOURCE_ROLE_TBL |

## Standard Load Prerequisites

Before you run the bulk loader, you must have run the standard load so that the merchandise hierarchy table (ASH_MH_TBL) and the location hierarchy table (ASH_LH_TBL) have been populated. (For more information on the standard load, see the Markdown Optimization Operations Guide).

## Shell Script

The shell script for running the User Management bulk loader utility is located in <installed>/modules/tools/bin/bulkloader.sh.

Usage:

| | |
|---|---|
| -apphome <directory> | application server home directory |
| -assignfile <filename> | file for loading role assignments |
| -rolefile <filename> | file for loading roles |
| -userfile <filename> | file for loading users |
| -verbose | print debug information |

To run the shell script (an example):

Note that the three files can be loaded separately or at the same time.

$bash **bulkloader.sh** -apphome /usr/local/bin/bea/weblogic10/server -assignfile ../conf/price_assignment_set.xml -rolefile ../conf/price_role_set.xml -userfile ../conf/price_user_set.xml

$bash **bulkloader.sh** -apphome /<oracle_home>/j2ee/home -assignfile ../conf/price_assignment_set.xml -rolefile ../conf/price_role_set.xml -userfile ../conf/price_user_set.xml

The bulk loader will display error messages if problems occur. For more details, you can use the -verbose argument.

You can update Users and Roles with the bulk loader. The existing tables in the database will be overwritten. You cannot modify the Role Assignment table; however, you can add new Role Assignments.

# User Management Security

In order to ensure the security of the application, the following security features are available in User Management:

- The AUTOCOMPLETE attribute in configurable on forms where passwords or user names are entered. By default, AUTOCOMPLETE is set to ON, so that sensitive information is stored.

  <ConfigRoot>/suite/suite.properties/suite.loginform.autocomplete = ON

- The session time out value is set in suite.httpsession.timeout. By default, it is set to 1800 seconds.

  <ConfigRoot>/suite/suite.properties/suite.httpsession.timeout = 1800

- The configure login time out value is independent of the session time out and should be of a shorter time period than the session time out. If configure time out value is not set, it defaults to the session time out value. By default, it is set to 1800 seconds.

  <ConfigRoot>/suite/suite.properties/suite.userlogin.timeout = 1800

- The attribute on the session ID cookie is set for secure deployments only so that the cookie can be transmitted via HTTPS and over an encrypted network. The default value is FALSE.

  <ConfigRoot>/suite/suite.properties/suite.cookie.secure = FALSE

- The application can be configured so that the logout page can either be displayed to the user or not. If the logout page is displayed, the user clicks **Login** to return to the Login page and **Close** to close the browser. The default setting is not to show the logout page but to return the user to the login page after logout.

  <ConfigRoot>/suite/suite.properties/suite.logoutpage.show = FALSE

# Setting Up the Password Policies and Account Lockouts

Use the useraccount.properties file, located in <install-dir>/config/UserManagement, to set up the following password policies for the user accounts:

- Password expression and length
- Previous password check
- Password expiration period
- Maximum allowed unsuccessful login attempts

# Setting Up the Access to Merchandise and Location Hierarchy

Use the usermanagement.properties file, located in <install-dir>/config/UserManagement, to specify the lowest merchandise and location hierarchy level accessible to the user accounts.

Enter an appropriate hierarchy levels in the **merchandizeMaxRoleAssignmentDepth** and **locationMaxRoleAssignmentDepth** fields

# Markdown Optimization Sample xml Files

This section provides sample input files for adding or updating users and roles.

## User Sample xml File

```
  <?xml version="1.0" encoding="UTF-8"?>
- <user-set hash-passwords="true" xmls:xsi="http://www.w3.org/2001/XMLSchema-
   instance" xsi:noNamespaceSchemaLocation="user-set.xsd">
   <user username="view" password="view" last-name="Viewer" first-name="Joe"
    middle-initial="R" employeeID="1" title="El Presidente"/>
   <user username="submit" password="submit" last-name="Submitter" first-
    name="Jane" middle-initial="Y" employeeID="2" title="serf"/>
   <user username="approve" password="approve" last-name="Approver" first-
    name="Nancy" middle-initial="R" employeeID="3" title="El Presidente"/>
   <user username="titusten" password="titusten" last-name= "user" first-
    name="test" middle-initial="U" employeeID="4" title="serf"/>
   <user username="chain" password="chain" last-name="Franklin" first-
    name="Aretha" middle-initial="A" employeeID="5" title="Respect"/>
   <user username="brm_price" password="brm_price" last-name="ruler" first-
    name="business" middle-initial="P" employeeID="6" title="fool"/>
    <user username=”markdown_approve” password=”markdown_approve” last-
    name=”Approver” first-name=”Exception” middle-initial=”X” employeeID=”7”
    title=”Price Markdown Approver”/>
 </user-set>
 <!-- This XML supports adding/replacing "users" for the User Management
 subsystem. -->
-<!--
Note:
1. All role keys must be unique among all applications. Names like
```

```
PRICE_APPROVER, PLAN_EDITOR, and PLACE_READER are expected. They
must match those persisted into the DB.
2. The Users with a given username must be present in the DB prior to
this file being processed by the bulkloader.
3. The location and merchandise attributes are pipe delimited strings
of client load IDs. The first node is just below the root (Chain Level)
node. An empty attribute represents a chain level assignment.
4. All elements and attributes are case sensitive and all are lowercase.
5. The values of the Merchandise and Location hierarchy client load IDs are
based on Markdown Optimization dataset.
```

## Roles Sample xml File

```
 <?xml version="1.0"encoding="UTF-8"?>
-<role-set xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="role-set.xsd">
 -<role key="PRICE_APPROVER">
    <action key="PRICE_APPROVE"/>
  </role>
 -<role key="PRICE_MARKDOWN_APPROVER">
    <action key="PRICE_MARKDOWN_APPROVE"/>
  </role>
 -<role key="PRICE_SUBMITTER">
    <action key="PRICE_SUBMIT"/>
  </role>
 -<role key="PRICE_VIEWER">
    <action key="PRICE_VIEW"/>
  </role>
 -<role key="BRM_PRICE_VIEW">
    <action key="BRM_PRICE_VIEW"/>
  </role>
 -<role key="BRM_PRICE_EDIT">
    <action key="BRM_PRICE_EDIT"/>
  </role>
 -<role key="BRM_PROFITLOGIC_VIEW">
    <action key="BRM_PROFITLOGIC_VIEW"/>
  </role>
 -<role key="BRM_PROFITLOGIC_EDIT">
    <action key="BRM_PROFITLOGIC_EDIT"/>
  </role>
</role-set>
<!-- This XML supports adding/updating "roles" in the User Management
     subsystem. -->
-<!--
Note:
1. All role keys must be unique among all applications. Names like
PRICE_APPROVER, PLAN_EDITOR, and PLACE_READER are expected. They
must match those persisted into the DB.
2. The Users with a given username must be present in the DB prior to
this file being processed by the bulkloader.
3. The location and merchandise attributes are pipe delimited strings
of client load IDs. The first node is just below the root (Chain Level)
node. An empty attribute represents a chain level assignment.
4. All elements and attributes are case sensitive and all are lowercase.
5. The values of the Merchandise and Location hierarchy client load IDs are
based on Markdown Optimization dataset.
```

## Role Assignment Sample File

```
Role Assignment Sample xml File (For MDO Config Guide)
<?xml version="1.0"encoding="UTF-8"?>
-<role-set xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="role-assignment-set.xsd">
<!-- This role guards the entire application -->

<role key="PRICE_USER">
<!-- Implicitly prevent "root" user from using Price -->
 <user-assignment username="approve">
  <node location="" merchandise=""/>
  </user-assignment>
 <user-assignment username="submit">
  <node location="" merchandise=""/>
  </user-assignment>
 <user-assignment username="view">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="titusten">
  <node location="" merchandise="1|1|11"/>
  <!-- worksheet 1, merchandise 85639-->
  <node location="" merchandise="1|1|12"/>
  <!-- worksheet 2, merchandise 86555-->
  <node location="" merchandise="1|1|14"/>
  <!-- worksheet 3, merchandise 87205-->
  <node location="" merchandise="1|1|15"/>
  <!-- worksheet 4, merchandise 87397-->
 </user-assignment>
 <user-assignment username="chain">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="markdown_approve">
  <node location="" merchandise=""/>
 </user-assignment>
</role>

<role key="PRICE_APPROVER">
 <user-assignment username="approve">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="titusten">
  <node location="" merchandise="1|1|11"/>
  <!-- worksheet 1, merchandise 85639-->
  <node location="" merchandise="1|1|12"/>
  <!-- worksheet 2, merchandise 86555-->
  <node location="" merchandise="1|1|14"/>
  <!-- worksheet 3, merchandise 87205-->
  <node location="" merchandise="1|1|15"/>
  <!-- worksheet 4, merchandise 87397-->
 </user-assignment>
 <user-assignment username="chain">
  <node location="" merchandise=""/>
 </user-assignment>
</role>

<role key="PRICE_SUBMITTER">
 <user-assignment username="submit">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="titusten">
  <node location="" merchandise="1|1|11"/>
```

```
  <!-- worksheet 1, merchandise 85639-->
  <node location="" merchandise="1|1|12"/>
  <!-- worksheet 2, merchandise 86555-->
  <node location="" merchandise="1|1|14"/>
  <!-- worksheet 3, merchandise 87205-->
  <node location="" merchandise="1|1|15"/>
  <!-- worksheet 4, merchandise 87397-->
</user-assignment>
<user-assignment username="markdown_approve">
 <node location="" merchandise=""/>
</user-assignment>
</role>

<role key="PRICE_VIEWER">
 <user-assignment username="view">
   <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="titusten">
  <node location="" merchandise="1|1|11"/>
  <!-- worksheet 1, merchandise 85639-->
  <node location="" merchandise="1|1|12"/>
  <!-- worksheet 2, merchandise 86555-->
  <node location="" merchandise="1|1|14"/>
  <!-- worksheet 3, merchandise 87205-->
  <node location="" merchandise="1|1|15"/>
  <!-- worksheet 4, merchandise 87397-->
 </user-assignment>
</role>

<role key="BRM_PRICE_EDIT">
 <user-assignment username="root">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="chain">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="approve">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="submit">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="view">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="titusten">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="brm_price">
  <node location="" merchandise=""/>
 </user-assignment>
</role>

<role key="BRM_PROFITLOGIC_EDIT">
 <user-assignment username="root">
  <node location="" merchandise=""/>
 </user-assignment>
 <user-assignment username="chain">
  <node location="" merchandise=""/>
 </user-assignment>
```

```
<user-assignment username="approve">
 <node location="" merchandise=""/>
</user-assignment>
<user-assignment username="submit">
 <node location="" merchandise=""/>
</user-assignment>
<user-assignment username="view">
 <node location="" merchandise=""/>
</user-assignment>
<user-assignment username="titusten">
 <node location="" merchandise=""/>
</user-assignment>
</role>
</role-assignment-set>

Note:
1. All role keys must be unique among all applications. Names like
PRICE_APPROVER, PLAN_EDITOR, and PLACE_READER are expected. They
must match those persisted into the DB.
2. The Users with a given username must be present in the DB prior to
this file being processed by the bulkloader.
3. The location and merchandise attributes are pipe delimited strings
of client load IDs. The first node is just below the root (Chain Level)
node. An empty attribute represents a chain level assignment.
4. All elements and attributes are case sensitive and all are lowercase.
5. The values of the Merchandise and Location hierarchy client load IDs are
based on Markdown Optimization dataset.
```

# 3

# Business Rule Manager

This chapter contains the following sections:



## Introduction

Once you have completed the initial installation and configuration of Markdown Optimization, you must load all the data required by the application, in a format specified by the standard interface specifications and using the standard load procedure. (See the Markdown Optimization Operations Guide for information about the standard load.) You can then configure the application to match the retailer's specific business requirements. This chapter explains how to configure the business rules, using the Business Rule Manager.

The model run updates the forecasts, recommendations, and metrics that are displayed in the Markdown Optimization application through the UI. You can perform an initial model run using the default values provided with the application. This will allow you to get the system up and running. It will also provided you with a baseline configuration that you can use when planning your advanced configuration.

The advanced configuration is necessary in order to obtain meaningful markdown recommendations and forecasts from Markdown Optimization.

# Business Rule Manager

The Business Rule Manager (BRM) is a Markdown Optimization utility that is used to view and change business rule settings. Business rules determine which data is used by the application for an optimization. In effect, business rules specify client constraints that are used by the application to determine markdowns and forecasting.

The application provides a file that contains the business rule definitions. The business rule definitions specify the constraints that apply to business rule instances (mappings between location and merchandise hierarchy levels and business rule values). The definitions are configurable; however, most of the business rules have default values that can be used to perform any initial application work.

The Markdown Optimization business rules are implemented through the inference rules, using values managed in the BRM. Both the inference rules and the business rules are points of customization for the application.

The BRM is accessed through the application Main Menu. A user's ability to view and change business rule settings is specified by the permissions attached to the user role(s) assigned to them. These roles are assigned using the User Management utility. (For more information, see the Markdown Optimization Online Help.) The actions used by BRM roles are defined in the business rule definition file (discussed later in this chapter).

The BRM is used to:

- view current business rule settings for specific items
- change business rule settings in time for the next optimization
- change business rule settings when problems occur during a model run, so that the problem can be fixed and the model run restarted
- view the history of business rule changes

For more information on the user interface to the BRM, see the application User Guide.

# Getting Started

In order to do a model run, you must configure the business rule definitions and load them into Markdown Optimization. The default business rule definitions are contained in /modules/tools/conf/DefaultRules/rule_definitions.xml. An editable copy of the business rule definitions can be found in config/businessrulemgr/rule_definitions.xml. Once you have edited this file, you can use /modules/tools/bin/brmadmin.sh to load the file into the application.

The default settings, are, in general, sufficient for an initial model run. These default values are set at the highest level for everything in the system. The exceptions are Outdates and Planned Start Dates, which are installed without default values assigned. Prior to the model run, you should enter Outdates, using either the BRM or through the application UI (Maintaining Merchandise). If you are going to use Planned Start Date as your Model Start Date, you should enter that value as well, using either the BRM or through the application UI (Maintaining Merchandise). (Note that set-plannedstartdate in p4pgui-config.xml must be set to true in order to configure the Planned Start Date via the application UI. Excluded days for the planned start date can also be configured in p4pgui-config.xml.)

For more information on the model run, see the Markdown Optimization Operations Guide.

# Default Business Rules

Markdown Optimization is configured, by default, with 16 default business rules accessible through the BRM. The values for the business rules are fetched by the IR_BUSINESS_POLICY inference rule and used by that inference rule as well as others. The default business rules are, in effect, a subset of the default set of inference rules.

Certain of the default rules are only used by administrators for system-level configuration.

The default Business Rules are:

***Table 3–1 Default Business Rules***

| Business Rule Name and UI Display Name | Business Rule Description | Default Value |
|---|---|---|
| NO_TOUCH_AFTER_LAND<br><br>No Touch 1st | The minimum number of weeks after the model start date before the item is eligible for a markdown. | 7 |
| NO_TOUCH_AFTER_MKDN<br><br>No Touch Between | The minimum number of weeks between markdowns (after the first one).<br>Note that 0 is not a valid value. | 7 |
| MAX_MKDN_NO<br><br>Max # | The maximum number of markdowns permitted for an item during its entire life cycle. | 3 |
| MIN_FIRST_MKDN<br><br>Min Initial | The minimum amount for the first markdown, which is the lowest percentage drop allowed from the current ticket price at the time of the initial markdown. | 0 |
| MIN_OTHER_MKDN<br><br>Min Other | The minimum amount for any markdown after the first one. The lowest percentage drop allowed from the current ticket price at the time of the markdown. | 0 |
| MAX_FIRST_MKDN<br><br>Max Initial | The maximum amount for the first markdown, which is the highest percentage drop allowed from the current ticket price at the time of the initial markdown. | 1 |
| MAX_OTHER_MKDN<br><br>Max Other | The maximum amount for any markdown after the first one. The highest percentage drop allowed from the current ticket price at the time of the markdown. | 1 |
| PLANNED_START_DT<br><br>Start Date | The date when an item will first be sold. | - |

*Table 3–1 (Cont.) Default Business Rules*

| Business Rule Name and UI Display Name | Business Rule Description | Default Value |
|---|---|---|
| OUT_DT<br><br>Out Date | The date planned for the end of inventory or by which a specific sell-through target is to be reached. | - |
| INVENTORY_TARGET<br><br>Sell Thru % | The planned percentage of sell-through for an item at the outdate. Expressed as a value between 0 and 1. | 1 |
| SALVAGE_WITHIN_TARGET<br><br>Salv Within | The salvage value of remaining items if the target inventory is met. This is a percentage of the full price. Expressed as a value between 0 and 1. | 1 |
| SALVAGE_ABOVE_TARGET<br><br>Salv Above | The salvage value of the remaining items if the target inventory is above the expected amount. This is a percentage of the full price. Expressed as a value between 0 and 1. | 0 |
| NO_TOUCH_BEFORE_OUT (Administrative Business Rule)<br><br>No Touch EOL | The number of weeks before the outdate when markdowns are no longer permitted. | 14 |
| MIN_MKDN_FROM_FULL (Administrative Business Rule)<br><br>Min % of Full | The minimum markdown, expressed as a percentage of the original full retail price. Used to narrow the list of possible prices for optimization. | 0 |
| MAX_MKDN_FROM_FULL (Administrative Business Rule)<br><br>Max from Full | The maximum markdown, expressed as a percentage of the original full retail price. Used to narrow the list of possible prices for optimization. | 1 |
| MKDN_DAY_OF_WEEK Administrative Business Rule)<br><br>Day of Week | A global setting for the day of the week on which markdowns occur. (Sunday = 1, Monday = 2, Tuesday = 3,....) | 2 |
| TEMP_MARKDOWNS_BLOCK | Defines whether TEMP markdowns are counted during the enforcement of the MinMarkdownInterval and MaxNumber-Markdowns (IR_BUSINESS _POLICY). When value is 1, TEMP markdowns count. | 1 |

*Table 3–1 (Cont.) Default Business Rules*

| Business Rule Name and UI Display Name | Business Rule Description | Default Value |
|---|---|---|
| POS_MARKDOWNS_BLOCK | Defines whether POS markdowns are counted during the enforcement of the MinMarkdownInterval and MaxNumber-Markdowns (IR_BUSINESS _POLICY). When value is 1, POS markdowns count. | 1 |
| MSD_FORCED_START_DT<br><br>Forced Model Start Date | This is only used if the MODEL_START_OPTION in IR_MODEL_START_ OPTION is set to sellThrough. (See the Inference Rule chapter for more information.) The value is an override date that forces the Model Start Date to be the first fiscal day of the week of the Forced Model Start Date. | NONE |
| MSD_SELLTHROUGH_PCT<br><br>Model Start Sell Through Pct | This is only used if the MODEL_START_OPTION in IR_MODEL_START_ OPTION is set to sellThrough. (See the Inference Rule chapter for more information.) The value is a threshold that triggers the assignment based on a ratio of sold units to total inventory. | 2.00% |
| MSD_MAX_DELAY_WKS<br><br>Max Model Start Delay | This is only used if the MODEL_START_OPTION in IR_MODEL_START_ OPTION is set to sellThrough. (See the Inference Rule chapter for more information.) The value is the maximum number of weeks to wait before automatically assigning the Model Start Date. | 2 |

## Business Rule Definitions

You may want to configure the business rules to meet the needs of your business. The sample file (rule_definitions.xml), located in /modules/tools/conf/SampleRules, provides an illustration of a set of business rules, including a configured attribute for Season Codes and some test rules that illustrate validation constraints. You can use this file as an advanced example of some possible approaches to take when planning your own configuration. However, your customization should be based on the default business rules. An editable copy of the business rule definition can be found in config/businessrulemgr/rule_definitions.xml. Once you have edited this file, you can use /modules/tools/bin/brmadmin.sh to reload the file in order to implement the changes you have made.

The xml schema for the business rule definitions file is located in tools/brmadmin/conf/brm_config.xsd

Here is a sample business rule definition, including two attributes, taken from /modules/tools/conf/SampleRules/rule_definitions.xml:

```
<AttributeInfo name="SEASON_CODE"
   table="ITEMS_TBL"
   shortDescription="brm.rules.attribute.attr1.label"
   longDescription="brm.rules.attribute.attr1.description"
   allowOtherValues="N"/>
<AttributeInfo name="VENDOR"
   table="ITEMS_TBL"
   shortDescription="brm.rules.attribute.attr2.label"
   longDescription="brm.rules.attribute.attr2.description"
   allowOtherValues="Y"/>
<RuleDefinition name="MIN_FIRST_MKDN"
   shortDescription="brm.rules.params.minmarkdown.label"
   longDescription="brm.rules.params.minfirstmarkdown.description"
   readAction="BRM_PRICE_VIEW"
   editAction="BRM_PRICE_EDIT"
  <KeyLevel merchandiseLevel="DEFAULTLEVEL"
     locationLevel="DEFAULTLEVEL"
     matchAttribute1="N"
     matchAttribute2="N"/>
  <KeyLevel merchandiseLevel="WORKSHEET"
     locationLevel="WORKSHEET"
     matchAttribute1="N"
     matchAttribute2="N"/>
  <KeyLevel merchandiseLevel="WORKSHEET"
     locationLevel="WORKSHEET"
     matchAttribute1="N"
     matchAttribute2="Y"/>
  <ValueDefinition valueType="FLOAT"
     validationType="RANGE"
     shortDescription="brm.rules.value.markdownpct.label"
     longDescription="brm.rules.value.markdownpct.description"
     allowNullValues="N"
     defaultValue="0">
   <value ruleValue="0"/>
   <value ruleValue="1"/>
</RuleDefinition>
```

Each business rule definition contains the following information:

- The name of the business rule, in this case MIN_FIRST_MKDN.
- The short description resource ID for the business rule's name, which is displayed in the UI.
- The long description resource ID for the business rule description, which is displayed when a user hovers over the name in the UI.
- The read action and the write action associated with the business rule. Roles, which are assigned to specific users and determine their permissions, are made up of actions. In order for users to be able to view and/or edit a business rule in the UI, they must be assigned a role that includes some combination of the following actions at the desired level or higher:
  - PRICE_VIEW
  - PRICE_SUBMIT
  - BRM_PRICE_VIEW

- BRM_PRICE_EDIT

In addition, in order to be able to view and/or edit administrative business rules, users must be assigned a role that includes:

- BRM_PROFITLOGIC_VIEW
- BRM_PROFITLOGIC_EDIT

For more information on actions and roles, see the Markdown Optimization Online Help.

- An arbitrary number of key levels, which specify at what levels an instance of the business rule can be matched to an item. Each key level contains a merchandise hierarchy level, a location hierarchy level, and optional custom attributes that are used to determine the match between an item and a rule. To determine the rule mapping, matching occurs in the following order of precedence:

  1. Search the merchandise hierarchy from low to high for a match.
  2. Search the location hierarchy from low to high for a match.
  3. If an attribute is set to Y, match that item's value.
  4. If a attribute is set to N, match any attribute value.

  If a rule is set at more than one level (for example outdates at both the merchandise/location level and the merchandise/location/attribute level), matching occurs at whatever the lowest level is, given the circumstances.

  For the example rule definition shown above, matching of rule to item occurs at the DEFAULTLEVEL DEFAULTLEVEL level with any attribute, at the Worksheet Worksheet level with any attribute, and at the Worksheet Worksheet level with the Vendor attribute.

- The type of value for the rule:
  - Integer
  - Floating point number
  - Date
  - String
- Validation, by range, enumeration, or none. If range, then the minimum and maximum values are given. If enumeration, a list of values is provided.
- Whether or not null values are allowed.
- The default value for the rule. If no default value is assigned, then NULL is assumed.
- If range is being used for validation, in combination with a valid type, the minimum and maximum values of the range are provided.

## Loading Business Rule Definitions

When you first begin using the application and whenever you make changes, you must load the business rule definitions file into the database, using brmadmin.sh.

Here is the usage for the brmadmin.sh script.

Server Mode (the default), which sends the request to the application server:

**brmadmin.sh** [-server] *<config_root> <rule_definitions> [<host> <port>]*

Client Mode, which processes the request on the client side:

**brmadmin.sh** [-client] <*config_root*> <*rule_definitions*>

where

- <config_root> – the root directory of the application configuration files.
- <rule_definitions> – the name of the xml file that contains the rule definitions.
- <host> - the application server host
- <port> - the application server port
- -h - displays help message
- -p - disables execution of database load procedures

You must preserve business rule definitions required by the application as well as those required by any inference rules that you have customized.

Business rule instances are affected when you modify business rule definitions. If you change rule value types, business rule instances may be deleted. In addition, changes to definitions may cause inconsistencies between the rules and the instances. As a result, the application may not perform properly.

If you change business rule definitions or add new ones, you may have to modify the grid configuration for the BRM (see "Business Rule Manager Grid Configuration" on page 3-12).

# Configuring Business Rule Definitions

When configuring business rules to meet business needs, consider the following:

- When configuring key levels, you must manage the settable levels in conjunction with the inheritance hierarchy and user access.
- Since the application business rules are implemented through the inference rules, changes to the ir.sql may affect rule instances.
- Editing business rule definitions to change validations or default values may affect rule instances.
- Editing business rule definitions to change validations or default values may affect system performance.
- If you add a new business rule or change an existing one, you may need to add resources or modify the grid configuration.

# Business Rule Instances

A business rule instance is a specific mapping between a key and a rule value. When BRM is installed, instances for the business rules exist at the top level and have the default values assigned to them (even if the top level is not a settable key level as defined in the business rule definition). If a business rule instance is deleted, the object that was assigned that instance will then inherit the settings of the instance at the next higher precedence level in the hierarchy. If the top level is deleted, the instance returns to the default value in the business rule definition file.

## Guidelines for Entering Business Rule Instances

You can enter values for business rules either by using the BRM application or the BRM API. Both methods validate the instance against the BRM rule definitions. When

using the BRM, you must be assigned a role that permits you to make changes to business rule values. For more information on Roles, see the application Online Help.

In addition, you can enter some item-level values through the Markdown Optimization Maintaining Merchandise screen. For more information, see the Markdown Optimization User Guide.

Business rule instances must be consistent with business rule definitions:

- Instances must be settable at the desired level, as defined in the rule definitions.
- Instances must conform to the validations defined in the rule definitions, which include the value type.
- Each instance must have an associated business rule definition.
- The key level of each instance must be permitted by the rule definition.
- The attribute values used in the instance keys should be consistent with the attributes in the BRM configuration.

You can use the BRM to view a business rule value that was in effect for a particular date. The UI displays all the rule values that would apply via inheritance. The value on the target date is the one with the highest precedence. For more information, see the Markdown Optimization User Guide.

## Custom Attributes

Attributes are optional variables that can be added to a specific business rule definition. Two attributes are permitted. Attributes extend the business rule key and are used to determine the match between a rule and an item. Custom attributes should be added to the rule_definitions.xml file.

The attribute definition includes:

- the attribute name, which must be consistent with the column name in the source table.
- the name of the table that includes the column used for the attribute name. The following tables can be used:
  - ITEMS_TBL
  - ITEMS_CDA_TBL
  - MERCHANDISE_HIERARCHY_TBL
  - MERCH_ATTR_TBL
  - LOCATION_HIERARCHY_TBL
  - LOCATION_ATTR_TBL
- the resource ID for the attribute's name, which is displayed in the UI.
- the resource ID for the attribute description, which is displayed when a user hovers over the name in the UI.
- whether an attribute value other than one from the current set of values is valid.

To configure custom attributes (for example, Season Code and Vendor), you should define the resources used for their display as part of businessrulemgrResources.properties:

```
# Rules grid - Attributes
brm.rules.attribute.group.label=Attributes
```

```
brm.rules.attribute.group.description=Attributes
brm.rules.attribute.attr1.label=Season
brm.rules.attribute.attr1.description=Season Code
brm.rules.attribute.attr2.label=Vendor
brm.rules.attribute.attr2.description=Vendor
```

Once the custom attributes have been defined, you must run com.profitlogic.db.birch.LoadBRMAttributeValues (part of PRERUN) after you run brmadmin.sh in order to see the custom attributes changes in the Markdown Optimization application. LoadBRMAttributes loads values into BRM_ATTRIBUTE_VALUE_TBL. The application derives the values for the attributes displayed on the BRM page from this table.

# Business Rules and Inference Rules

The Markdown Optimization business rules are implemented through the inference rules (discussed later in this chapter), using values customized and set in the BRM. The IR_BUSINESS_POLICY inference rule (and other inference rules that require the data) can obtain business rule values in two ways:

- The getBRValue function obtains the current value, including any values that have changed since the last pre-model run step.
- During the pre-model run stage, the item_brm_rules table is populated at the item level to provide quick access to business rule values during the model run.

You can configure IR_BUSINESS_POLICY. For example:

- If you change the name of the business rule in the BRM, you should also change it in IR_BUSINESS_POLICY.
- You can define a business rule value as a constant, if the value does not vary by merchandise level, location level, or attribute, by defining the constant in IR_BUSINESS_POLICY.

# Business Rule Manager Bulk Loader

The BRM  Bulk Loader provides a means for staging and loading a set of business rule instances. This utility is included within the standard interface and standard load (for more information, see the application Operations Guide), but can also be implemented separately if new or updated business rule instances need to be loaded outside the normal scheduled batch processes. The Bulk Loader validates the business rule instances according to the guidelines described in "Guidelines for Entering Business Rule Instances" on page 3-8.

## Business Rule Instances Standard Interface Specification (ASH_BRM_INSTANCE_TBL)

The data to be loaded by the Business Rule Manager bulk loader utility must conform to the following standard interface specification.

The merchandise and location keys map to the CLIENT_LOAD_ID. The merchandise and location levels map to LEVEL_DESC. The rule name is the name of the business rule as specified in the business rule definition. The rule value is the value assigned to the business rule instance. The attribute values are the specific values for the custom variables, which have been derived from columns in the permitted source tables. The delete flag defines whether the instance is to be deleted (a value of 1) or added/updated (a value of 0 - the default).

*Table 3–2 Business Rule Instances Standard Interface Specification*

| Attribute | Attribute Description | Data Type | Maximum Length | Nullable Y/N |
|---|---|---|---|---|
| MERCHANDISE_KEY | Key for this level of the hierarchy | String | 50 | N |
| MERCHANDISE_LEVEL | ID for this level of the hierarchy | String | 50 | N |
| LOCATION_KEY | Key for this level of the hierarchy | String | 50 | N |
| LOCATION_LEVEL | ID for this level of the hierarchy | String | 50 | N |
| RULE_NAME | The name of the business rule associated with the item. | String | 64 | N |
| RULE_VALUE | The business rule value assigned to the item. | String<br>Values < 1 should be expressed as 0.n. | 100 | N |
| ATTRIB1_VALUE | The specific value associated with the item for custom attribute 1. | String | 100 | Y |
| ATTRIB2_VALUE | The specific value associated with the item for custom attribute 2. | String | 100 | Y |
| DELETE_FLAG | A flag to indicate whether the instance is to be deleted or inserted. 0 = insert (the default). 1 = delete. | Integer | 1 | N |

## Loading Instances

The Standard Load scripts that stage and load the data into the application stage and load business rule instances. In order to invoke the BRM Bulk Loader utility separately, as a manual process, do the following:

bash **pl_stage_file.sh** --controldir=<*directory with control files*> --logdir=<*log output directory*> <*file containing standard interface-compliant BRM rule instances*>

bash **pl_load_data.sh** --logdir=<*log output directory*> "com.profitlogic.db.birch.LoadBRInstances"

The utility validates whether or not the instance key is a legal key at the specified level and whether the instance value is a legal value, as specified in the definition. If the validation fails, the procedure terminates and no changes are made.

Business rule definitions contained in config/businessrulemgr/rule_definitions.xml are loaded using brmadmin.sh.

# Business Rule Manager Properties

BRM properties may need to be configured prior to the deployment of the application. The properties are located in configroot/businessrulemgr/businessrulemgr.properties. The settings in this file can be overwritten by client settings.

*Table 3–3 Business Rule Manager Properties*

| Property | Description | Default Value |
|---|---|---|
| numBrowsableMerchLevels | The number of merchandise hierarchy levels that can be browsed in the BRM UI. | 4 |
| numBrowsableLocLevels | The number of location hierarchy levels that can be browsed in the BRM UI. | 2 |
| numFindableMerchLevels | The number of additional merchandise hierarchy levels that can be accessed using the BRM find feature. | 2 |
| numFindableLocLevels | The number of additional location hierarchy levels that can be accessed using the BRM find feature. | 1 |
| numExpandableMerchLevels | The number of levels that the merchandise hierarchy can be expanded to in the BRM UI. | 4 |
| numExpandableLocLevels | The number of levels that the location hierarchy can be expanded to in the BRM UI. | 3 |

## Guidelines for Setting BRM Properties

Use the following guidelines in planning the configuration of the BRM properties:

- The number of browsable merchandise hierarchy levels should equal the application worksheet merchandise hierarchy levels.
- The number of browsable location hierarchy levels should equal the application worksheet location hierarchy levels.
- The number of findable merchandise hierarchy levels should equal (the total number of merchandise levels – the number of browsable merchandise hierarchy levels).
- The number of findable location hierarchy levels should equal (the total number of location hierarchy levels – the number of browsable location hierarchy levels).
- The number of expandable merchandise hierarchy levels should equal the number of browsable merchandise hierarchy levels.
- The number of expandable location hierarchy levels should equal the number of browsable location hierarchy levels.

In addition, keep in mind that

- the BRM validates that the total number of levels defined in the properties file does not exceed the number of levels defined in the database.
- to forestall performance or memory problems, set the number of levels in the properties file close to Class in the merchandise hierarchy.
- the default values for common.hierarchy.cache.timeout.hour in configroot/suite/suite.properties may need to be configured.

# Business Rule Manager Grid Configuration

For business rules such as OUT_DT that allow null values, a custom property must be added to the grid configuration. (For more information on configuring the front end, see and the Front End Configuration chapters of this book.)

```
<column-def>
   <key>OUT_DT</key>
   <column-def-properties type="date" display-type="date" db-column-name="name''
db-table-name="name" editable="true" sortable="true" orderable="true"
hideable="true"
groupId="GROUP_HEADER" visibility="never-visible"/>
   <custom-property name="convertZeroToNull" value="true" custom-type="display"/>
->  <custom-property name="allowNone" value="true" custom-type="display"/>
   </column-def>
```

## Example Configuration

The INVENTORY_TARGET business rule is configured to express the target inventory level as a percentage of sell-through. To change the inventory target so that it is expressed as the number of end inventory units, complete the following process.

1. In the INVENTORY_TARGET business rule, configure the value Type as INT.

```
<RuleDefinition name="INVENTORY_TARGET"
  shortDescription="brm.rules.params.inventorytarget.label"
  longDescription="brm.rules.params.inventorytarget.description"
  readAction="BRM_PRICE_VIEW"
  editAction="BRM_PRICE_EDIT"
    <KeyLevel merchandiseLevel="DEFAULTLEVEL" locationLevel="DEFAULTLEVEL"
    matchAttribute1="N" matchAttribute2="N"/>
   <KeyLevel merchandiseLevel="WORKSHEET" locationLevel="WORKSHEET"
    matchAttribute1="N" matchAttribute2="N"/>
   <KeyLevel merchandiseLevel="OPTIMIZATION" locationLevel="OPTIMIZATION"
    matchAttribute1="N" matchAttribute2="N"/>
   <ValueDefinition valueType="INT" validationType="RANGE"
    shortDescription="brm.rules.value.inventorytarget.label"
    longDescription="brm.rules.value.inventorytargetdescription"
    allowNullValues="N"
    defaultValue="0">
     <Value ruleValue="0"/>
     <Value ruleValue="1000000000"/>
    </ValueDefinition>
<RuleDefinition>
```

2. To make INVENTORY_TARGET an integer in the grid, set the BRM grid configuration in configroot/businessrulemgr/client/grids/brm-column-list.xml as follows:

```
<column-def>
  <key>INVENTORY_TARGET</key>
  <column-def-properties type="integer" display-type="integer"
    db-column-name="name" db-table-name="name" editable="true"
    sortable="true" orderable="true" hideable="true" groupid="GROUP_HEADER"
visibility="never-visible"/>
  <custom-property name="convertZeroToNull" value="true"
    custom-type="display"/>
<column-def>
```

3. Change the resources file so that the display label and the rule description reflect the change from Sell Through Percent to Ending Inventory Units. The resources file is located in configroot/suite/resources/businessrulemgrResources.properties.

```
brm.rules.params.inventorytarget.label = End Inv Units
brm.rules.params.inventorytarget.description = The inventory target at the out
date as ending inventory units
```

4. Specify the following in p4pgui-config.xml:

```
<merchandise-maint-params endingInv-input-type="endingInvUnits">
```

5. Change the default configurations for INT_MOD_INV_TARGET_ST_PERC and INT_MOD_INV_TARGET_END_UNITS in the custom column file by commenting out or removing default definitions and un-commenting the alternative definitions for those columns.
6. Make the column INT_MOD_INV_TARGET_ST_PERC uneditable, and make the column INT_MOD_INV_TARGET_END_UNITS editable in the maintenance grid configuration files, p4p-maint-grid.xml and p4p-maint-grid-groups.xml.
7. Make the column INT_MOD_INV_TARGET_ST_PERC uneditable, and make the column INT_MOD_INV_TARGET_END_UNITS editable in the maintenance grid configuration file, p4p-maint-grid-flat.xml.
8. Edit and re-apply the ir.sql file. Inventory target in units is calculated for each item by the inventoryTarget column of ir_business_policy (and ir_business-policy_c). By default, it calculates a value via the sell through percent obtained from the BRM. Change the code to use the value directly as the number of units:

```
TO_NUMBER(
  getBRValue('INVENTORY_TARGET',
    i.merchandise_id, i.location_id,
    brm_attribute1, brm_attribute2))
as inventorytarget,
```

# 4

# Inference Rules

This chapter contains the following:



## Introduction

Inference rules define queries specifying particular views into the database that provide customization points for Markdown Optimization. An inference rule corresponds to a specific business policy. For example, views define relevant dates and data, the values needed for model runs, and which metrics to calculate and populate in the tables visible through the UI.

Inference rules define the interface between the data and the model. All data that is passed to the model is controlled by inference rules. In addition, much of the data that is passed to the ITEM_DATA table and the UI is also controlled by inference rules. (However, some data is passed to the UI directly through the load statements.)

Markdown Optimization is installed with default inference rules, provided in the **ir.sql** file, which is located in **config/db.config**. The ir.sql file is overwritten during every subsequent installation. If you are going to customize **ir.sql**, it is recommended that you create a copy of the changes in **config/db.config**. Keeping a copy of your customization can be helpful in troubleshooting. In addition, this will allow you to apply your changes to any upgrade, which is important, as the default inference rules can change between release of the application.

Two scripts are available that you can use to apply the **ir.sql** to the database schema:

- **plconfiguredb.sh**, used by the installer
- **configdb.sh**, located in **config/db.config**

For example:

$ **bash configdb.sh** *dbalias username password ir.sql*

You can use **configdb.sh** to apply your **custom_ir.sql** to the database.

Note that certain inference rule values can be managed via the Business Rule Manager (BRM). For more information on the BRM, see Chapter 3, "Business Rule Manager".

# Inference Rule Access

To obtain the best performance, you can configure how the Calc Engine queries inference rules.

Inference Rules can be accessed in three different ways. The way inference rules are accessed is customizable and can impact performance. It is possible to process more than one item at a time; that is, it is possible to have fewer, larger queries.

The inference rule access strategy is configured in **delphi.properties**, as follows:

***Table 4–1 Inference Rule Access Configuration Settings***

| Configuration Setting | Form of Where Clause in Query |
|---|---|
| strategy.activitydata=single | where item_id = 1234 |
| strategy.activitydata=list | where item_id in (1234, 5678, ...n), where n is a value between 1,000 and 10,000. |
| strategy.activitydata=temptable | where item_id in (select from temp_ table) |

The access level can be configured for the following Inference Rules, which are a direct interface to the Calc Engine:

***Table 4–2 Inference Rules Strategy Setting Names***

| Inference Rule Name | Strategy Setting Name |
|---|---|
| IR_ACTIVITY_DATA | activitydata |
| IR_BUSINESS_POLICY | businesspolicy |
| IR_FORCED_MARKDOWNS | forcedmarkdowns |
| IR_ITEM_DATES | itemdates |
| IR_ITEM_PARAMETERS | itemparameters |
| IR_ITEM_PRICES | itemprices |
| IR_MARKDOWN_CALENDAR | markdowncalendar |
| IR_MODEL_VALUES | modelvalues |
| IR_PAST_TICKET_PRICES | pastticketprices |
| IR_PENDING_MARKDOWNS | pendingmarkdowns |
| IR_PLANNED_PROMOS | plannedpromos |
| IR_PRICE_LADDER | priceladder |
| IR_PRIOR_DISTRIBUTION | distribution |

Most inference rules have a default strategy option of *list*. Here is an example of override settings for each of the inference rules listed in Table 4–3, " Inference Rules" that can be used in **delphi.properties** (see Table 4–1, " Inference Rule Access Configuration Settings").

strategy.activitydata=temptable

strategy.businesspolicy=list

strategy.forcedmarkdowns=list

strategy.itemdata=list

strategy.itemparameters=list

strategy.itemprices=list

strategy.markdowncalendar=list

strategy.modelvalues=list

strategy.pastticketprices=list

strategy.pendingmarkdowns=list

strategy.plannedpromos=list

strategy.priceladder=list

strategy.distribution=single

Note that some inference rules have interdependencies that can impact performance. Inference rule dependencies are discussed in greater detail in Chapter 5, "What If"

### Performance Tuning Recommendations

If you make changes to inference rules and performance during an model run or a What If simulation becomes slow, consider the following:

1. Check to see if that the Database is fully loaded and that the CPU is being fully utilized
2. Use a Database Monitoring software tool such as TOAD to check the active sessions in the database
3. Typically, n number of connections are visible in the database. Are all the connections sitting on the same query? If so, the query is a bottleneck for the throughput of the run.
4. If the query is accessing an inference rule using an access strategy of list or temptable and is taking too long, try changing the access strategy.

   Note that the single access strategy will provide reasonable but not optimum performance. The list and temptable strategies are recommended for optimum performance.

## Inference Rule Categories

Inference rules can be divided into two general categories:

- Inference rules that provide information used in the model run. Item data, business constraints, and model parameters. Some of these generally require customization and others do not.
- Inference rules that produce metrics, some of which are displayed in the UI.

In some cases, two versions of an inference rule exist: IR_NAME and IR_NAME_C. The IR_NAME form is used when a item is optimized individually and the IR_NAME_C form is used when the item is optimized as part of a collection. In certain cases, collections require special behavior and the inferences rules provide the means to accomplish this (for example, to align outdates in IR_ITEM_DATES_C). Some IR_NAME_C inference rules contain a COLLECTION_ID.

This section describes a subset of the Markdown Optimization inference rules.

***Table 4–3 Inference Rules***

| Inference Rule Name | Discussed On... |
|---|---|
| *Inference Rules that are part of the basic configuration and that are typically customized.* | |
| IR_ITEM_DATES and IR_ITEM_DATES_C | on page 4-13 |
| IR_ITEM_PRICES and IR_ITEM_PRICES_C | on page 4-15 |
| IR_MODEL_START | on page 4-16 |
| IR_MODEL_START_OPTION | on page 4-16 |
| IR_PENDING_MARKDOWNS | on page 4-19 |
| IR_SEASONALITY_ATTRIBUTE | on page 4-22 |
| *Inference rules that are part of business policies and that are typically customized.* | |
| IR_BUSINESS_POLICY and IR_BUSINESS_POLICY_C | on page 4-6 |
| IR_BLOCKED_MARKDOWN and IR_BLOCKED_ MARKDOWN_C | on page 4-6 |
| IR_COLLECTION_INFO | on page 4-8 |
| IR_MARKDOWN_CALENDAR | on page 4-15 |
| IR_MARKDOWN_CALENDAR_EX and IR_ MARKDOWN_CALENDAR_EX_C | on page 4-16 |
| IR_PLANNED_PROMOS | on page 4-20 |
| IR_PRICE_LADDER and IR_PRICE_LADDER_C | on page 4-21 |
| *Inference rules that are provided by Analytical Services.* | |
| IR_ITEM_BASE_DEMAND | |
| IR_ITEM_PARAMETERS | on page 4-14 |
| IR_MODEL_VALUES | on page 4-17 |
| IR_PLANNED_PROMOS | on page 4-20 |
| IR_STATE_TRANS_CONFIG_OVERRIDE | on page 4-22 |
| IR_STATE_TRANS_PREV_RUN | on page 4-22 |
| *Inference rules that are typically not changed.* | |
| IR_ACTIVITY_DATA | on page 4-6 |
| IR_ELIGIBLE | on page 4-10 |
| IR_PAST_TICKET_PRICES | on page 4-19 |
| IR_ITEM_IDS and IR_ITEM_IDS_C | on page 4-14 |
| *Inference rules that make information available to the UI and that are used during the KPI calculations. These inference rules populate the ITEM_DATA table.* | |
| IR_COLLECTION_INFO | on page 4-8 |
| IR_FRONT_END_IDS | on page 4-11 |
| IR_ITEM_DATES | on page 4-13 |
| IR_ITEM_PRICES | on page 4-15 |
| IR_WAREHOUSE | on page 4-23 |

***Table 4–3 (Cont.) Inference Rules***

| Inference Rule Name | Discussed On... |
|---|---|
| IR_USER_TEXTS | on page 4-23 |
| IR_USER_DATES | on page 4-23 |
| IR_USER_FLOATS | on page 4-23 |
| IR_WORKSHEET_IDS | on page 4-24 |
| *Inference rules that use forecast and markdown recommendation information and that populate the ITEM_DATA table.* | |
| IR_FORECAST_METRICS | on page 4-10 |
| IR_O_USER_TEXTS | on page 4-18 |
| IR_O_USER_DATES | on page 4-17 |
| IR_O_USER_FLOATS | on page 4-18 |
| IR_PROJ_MKDNS | on page 4-21 |
| *Inference rules used to configure Pricing Groups.* | |
| IR_ITEM_COLLECTION | on page 4-11 |
| IR_ITEM_COLLECTION_OPTION | on page 4-12 |
| *Inference rules used by What If.* | |
| WIF_FORECAST_DATA | on page 4-23 |
| *Additional inference rules.* | |
| IR_DISPLAY_PROMOS | on page 4-9 |
| IR_FE_WAREHOUSE | on page 4-10 |
| IR_FORCED_MARKDOWNS | on page 4-10 |
| IR_FORECAST_METRICS_POSTRUN | on page 4-10 |
| IR_HISTORIC_METRICS | on page 4-11 |
| IR_ITEM_DAILY_WEIGHTS_OVERRIDE | on page 4-12 |
| IR_ITEM_INFO and IR_ITEM_INFO_C | on page 4-14 |
| IR_LOCATION_HIERARCHY | on page 4-15 |
| IR_LOC_OPT_LEVEL | on page 4-15 |
| IR_MERCH_OPT_LEVEL | on page 4-16 |
| IR_MERCHANDISE_HIERARCHY | on page 4-16 |
| IR_METRICS | on page 4-16 |
| IR_MISSING_WEEKS | on page 4-16 |
| IR_P4P_ITEMS_CONFIG | on page 4-18 |
| IR_PRIOR_DISTRIBUTION | on page 4-21 |
| IR_PROCESS_NULL_OUTDT | on page 4-21 |
| IR_ROLLUPS | on page 4-22 |
| IR_SEASON_METRICS | on page 4-22 |
| IR_WIF_PROJ_OH_UNITS_EFF_DT | on page 4-23 |
| IR_WIF_ROLLUPS | on page 4-23 |

## Inference Rule Descriptions

This section provides details about the inference rules listed in the above table. This list of inference rules is in alphabetical order.

### IR_ACTIVITY_DATA

The IR_ACTIVITY_DATA inference rule provides all the historical sales activity, beginning with the start date for an item, to the model. The data is loaded on a weekly basis, by week. The view assumes that a week with zero sales is valid for forecasting. A Scenario_ID column is included for use with What If. When What If is invoked from the UI, the override value is entered into Inventory, and Warehouse_Units and On_Order are set to zero.

The field values for Interpretation are:

- 0 = permanent price
- 1 = start of new markdown
- 4 = a price that has not yet been set

### IR_BLOCKED_MARKDOWN and IR_BLOCKED_MARKDOWN_C

The IR_BLOCKED_MARKDOWN inference rule is used to indicate the reasons that markdowns are blocked on effective dates. (The exclusion of candidate dates is controlled by IR_MARKDOWN_CALENDAR and the reason for the exclusion is indicated here.) A Scenario_ID column is included for use with What If.

See IR_MARKDOWN_CALENDAR_EX for related information.

### IR_BUSINESS_POLICY and IR_BUSINESS_POLICY_C

The IR_BUSINESS_POLICY inference rule provides business constraint information, such as markdown depth and salvage details, that is used by the model run. It looks up most of the values used by the Business Rule Manager.

It should produce one row per item to be forecast or optimized in a model run. You will see model configuration errors during a model run if values are incorrect.

For What If, use the scenario_ID to obtain New_Inventory_Target and New_Salvage_Above_Target from WIF_SCENARIO_TBL.

This inference rule has the following columns:

- Item_ID – the ID of the specified item.
- MinMarkdownInterval – the number of days required between markdowns. This is managed by the NO_TOUCH_AFTER_MKDN business rule.
- MinMarkdownPercentOfFullPrice – the minimum markdown, expressed as a percentage of the original full retail price.
- MaxFirstMarkdownPercentage – the maximum amount for the first markdown, expressed as a percentage of the current permanent price (ticket price). This is managed by the MAX_FIRST_MKDN business rule.
- MaxNumberMarkdowns – The total number of markdowns an item can receive during its life cycle. This is managed by the MAX_MKDN_NO business rule.
- NoMarkdownInPromo – a value, not used by default, that can be used by IR_MARKDOWN_CALENDAR or IR_MARKDOWN_CALENDAR_EX to trigger the elimination of markdown dates that are scheduled during a promotion.

- PromoCeiling – Not used by default. The value can be used by IR_PLANNED_PROMOS to affect Promo Type (interpretation).
- InventoryTarget – the number of items expected to remain unsold by the out-of-stock date (also called outdate or exit date). This is managed by the INVENTORY_TARGET business rule as a sell-through percent. The sell-through percent is used to calculate the value for the number of items.
- TargetSellThru – the fraction of inventory that the application should try to sell.
- SalvageValueAboveTarget – the value of an item when the inventory target is not met, expressed as a dollar amount. This is managed by the SALVAGE_ABOVE_TARGET business rule. The dollar amount is used to calculate the salvage value as a percentage of the full retail price.
- SalvageAboveTargetPercent – the salvage value for unsold items above the sell-through target.
- SalvageValueWithTarget – the value of an item when the inventory target is met, expressed as a dollar amount. This is managed by the SALVAGE_WITHIN_TARGET business rule. The dollar amount is used to calculate the salvage value as a percentage of the full retail price. The value is used by IR_PRICE_LADDER.
- DaysAfterLand – the minimum number of days after the first optimization date before the item is eligible for a markdown. This is managed by the NO_TOUCH_AFTER_LAND business rule. It is used by IR_MARKDOWN_CALENDAR to eliminate some potential markdown dates for optimizations.
- NoMarkdownOnEffective – used by IR_MARKDOWN_CALENDAR or IR_MARKDOWN_CALENDAR_EX to eliminate a specific recommended date as an effective markdown date. This value is not a default value.
- MaxMarkdownPercentOfFullPrice - the maximum markdown, expressed as a percentage of the original full retail price. This is used by IR_PRICE_LADDER to trim the list of candidate prices available to the optimization.
- StockoutLevel – used to determine whether or not the inventory target has been met, for purposes of applying salvage targets. The value is expressed in units and is typically set to 0.
- MaxAbsolutePrice – not implemented. Set to 1.
- MarkdownDayOfWeek – can be used by IR_ITEMS_DATES and IR_MARKDOWN_CALENDAR to indicate the day of the week that is the markdown day.
- DaysBeforeOutdate – used by IR_MARKDOWN_CALENDAR or IR_MARKDOWN_CALENDAR_EX to eliminate a specific recommended markdown date that is close to the outdate. This value is not a default value.
- MinFirstMarkdownPercentage – the minimum amount for the first markdown, expressed as a percentage of the current permanent price (ticket price). This is managed by the MIN_FIRST_MKDN business rule.
- MinSubseqMarkdownPercentage – the minimum amount for every markdown after the first one, expressed as a percentage of the current permanent price (ticket price). This is managed by the MIN_OTHER_MKDN business rule.
- MaxSubseqMarkdownPercentage – the maximum amount for every markdown after the first one, expressed as a percentage of the current permanent price (ticket price). This is managed by the MAX_OTHER_MKDN business rule.

- TempMarkdownsBlock – Used to indicate whether to consider temporary markdowns when calculating MaxNewMarkdowns and when making decisions based on MinMarkdownInterval.
- PosMarkdownsBlock – Used to indicate whether to consider POS markdowns when calculating MaxNewMarkdowns and when making decisions based on MinMarkdownInterval.
- Scenario_ID – 0 for model run; all other values identify a specific What If scenario.

#### IR_COLLECTION_INFO

The IR_COLLECTION_INFO inference rule defines information about each collection. For the model run, it uses Collection_Pricing to specify the collection pricing rule. The three pricing rules are:

- Price-together – the pricing recommendations for the items in a group are to the same price points
- Percent-together – the pricing recommendation for the items in a group are to the same percentage off
- Markdown-together – the items in a group are marked down together

This inference rule also supplies the Collection_ID to the Front_End_Collection_ID (collection name) mapping for the UI.

This inference rule has the following columns:

- Collection_ID
- Collection_Client_ID
- Collection_Desc
- Parent_Collection_ID
- Land_Dt
- Out_Dt
- Clearance_Ind_Dt
- Price_Ladder_ID
- Clr_Price_Ladder_ID
- Collection_Type – This specifies the business constraints on the markdown recommendations for items in a collection, as follows:
  - PriceTogether – all items in a collection must be markdown down to the same dollar value.
  - PercentOffTogether – all items in a collection must be marked down to the same percentage off the original retail price.
  - MarkdownTogether – all items in a collection must be marked down, but the markdown prices have no defined relationship with each other.
- Parent_Collection_Desc
- Parent_Client_ID
- Collection_Pricing
- Is_A_Front_End_Collection
- Front_End_Collection_ID

### IR_DISPLAY_PROMOS

The IR_DISPLAY_PROMOS inference rule lists the information about promotions that is displayed in the UI. It is based on IR_PLANNED_PROMOS, with differences as noted below.

This inference rule has the following columns:

- Item_ID – the ID of the item affected by the promotion.
- Price – the promotion price (not the relative price).
- Interpretation – the type of promotion. Interpretation affects the business rules that apply to a given promotion. The business rules affect the legality of the markdowns in the vicinity of the promotion.

  The possible values for interpretation are:

  - Promo_Floor (2) – a floor promotion.
  - Promo_Ceiling (3) – a ceiling promotion.
  - Promo_Unrestricted (9) – a promotion that has no restrictions.
- StartDate – unlike in IR_PLANNED_PROMOS, this start date includes all promotions.
- EndDate – the actual end date (not end_dt + 1)
- Priority – a value used to prioritize all the promotions of a given type in order to eliminate any possible conflicts. The default value is 2.

  The actual precedence rules used to determine the promotion used are:

  1. Floor promos win
  2. Lowest price
- Lift – the effect of an external event, such as advertising, on sales when a promotion is in effect. Used in forecasting. A multiplier applied to the demand.
- LiftType – used to define the lift. The possible values for lift are:

  - Base (0) – for base media lifts.
  - Relative (1) – for relative media lifts.
  - POS (2) – for percent-off events that are independent of markdown status.
  - Additional (3) – for percent-off events. Applicable only to items that have had one or more markdowns.
  - No_Markdown (4) – for percent-off events. Applicable only to items that have had no markdowns.
  - First_Markdown (5) – for percent-off events. Applicable only to items that have had one markdown.
  - Multiple_Markdown (6) – for percent off events. Applicable only to items that have had two or more markdowns.

  Base and relative are used for combining media effects. The lift on a given day is computed by multiplying max (Base lifts) and max (Relative lifts). POS, Additional, No_Markdown, First_Markdown, and Multiple_Markdown are all used for point-of-sale promotions. In these promotions, the sales price is calculated by taking a percent off the ticket price. The percent off is specified in the application field as a relative price. So, 35 % off means a relative price of 0.65. The promotional price is triggered only if the specified Lift Type conditions apply.

A POS means that the discount is taken in addition to lowest permanent (list or markdown, but not promotion or clearance) price. Additional means that the discount is taken in addition to the lowest permanent (markdown, but not promotion or clearance) price. The Interpretation for either POS, Additional, No_Markdown, First_Markdown, and Multiple_Markdown promotions should be set to PROMO_UNRESTRICTED.

- Promo_Desc – a description of the promotion.
- Promo_Pct_Off – the actual value (not 1 - Promo_Pct_Off).
- Promo_Type – the type of promotion
- Promo_Number – the number identifying the promotion
- Attributes 1-5 – variable attributes
- Week_End_Date – the date for the last day of the week

#### IR_ELIGIBLE

The IR_ELIGIBLE inference rule is used to provide a list of the eligible items and eligible collections to the model run. Eligibility is defined and customized via the load statements.

#### IR_FE_WAREHOUSE

The IR_FE_WAREHOUSE inference rule references the IR_WAREHOUSE view. It lists the warehouse on-hand and on-order units for an item.

#### IR_FORCED_MARKDOWNS

The IR_FORCED_MARKDOWNS inference rule defines the markdown level an item is required to have. If the item has not reached the defined markdown level by the scheduled time, then a markdown will be forced even if it is not desirable, or the opportunity cost will be zero.

#### IR_FORECAST_METRICS

The IR_FORECAST_METRICS inference rule contains a list of forecasted metrics.

This inference rule has the following columns:

- Ending_Inventory_Units
- EOL_Cum_Unit_Sales
- EOL_Cum_Dollars_Sales
- Weekly_Projected_Unit_Sales
- Weekly_Projected_Dollar_Sales
- Weekly_Projected_Sales_Price
- Projected_Out_of_Stock
- Rec_Rtl_Min
- Forecast_ID

#### IR_FORECAST_METRICS_POSTRUN

For What If, the scenario_ID is specified in internal queries. Used for updating ITEM_DATA in the POSTRUN step.

### IR_FRONT_END_IDS

The IR_FRONT_END_IDS inference rule provides the Store_ID, Merchandise_ID, Ladder_ID, and Current_Ladder_ID associated with an item to the ITEM_DATA table.

### IR_HISTORIC_METRICS

The IR_HISTORIC_METRICS inference rule lists the following historic metrics:

- Cumulative quantity sold
- Cumulative sales dollars
- Current on order dollars
- Inventory cost
- Current units on order
- Start sell date
- Week-minus-1 units on hand
- Week-minus-2 units on hand
- Week-minus-3 units on hand
- Unit sales through week
- Unit sales week-minus-1
- Unit sales week-minus-2
- Unit sales week -minus-3
- Dollar sales through week
- Dollar sales week-minus-1
- Dollar sales week-minus-2
- Dollar sales week-minus-3

### IR_ITEM_BASE_DEMAND

The IR_ITEM_BASE_DEMAND inference rule is used by Analytical Services to apply (or override) a demand strategy to historical sales.

This inference rule has the following columns:

- Item_ID – identifies the item.
- Base_Demand – the external base demand value, which must be positive, or it will be ignored.
- Base_Demand_Usage – must have a value of either Override or Floor. If set to Override, it overrides the BDE calculated by the CE. If set to Floor, the CE value is used.

### IR_ITEM_COLLECTION

The IR_ITEM_COLLECTION inference rule defines how items are grouped into pricing groups.

This inference rule has the following columns:

- Item_ID
- Merchandise_ID
- Location_ID

- Collection_Client_ID
- Collection_Desc

This inference rule can be configured with a custom list of excluded/included items. It works in combination with IR_ITEM_COLLECTION_OPTION.

### IR_ITEM_COLLECTION_OPTION

The IR_ITEM_COLLECTION_OPTION inference rule includes a flag by default set to *N*, which indicates that the pricing groups are managed at the level of optimization. The *Y* flag is used to indicate pricing group management at the Chain level (optimization is still at the item level).

### IR_ITEM_DAILY_WEIGHTS_OVERRIDE

The IR_ITEM_DAILY_WEIGHTS_OVERRIDE inference rule provides daily weights that override the default daily weights for an item. The Calc Engine uses daily weights in combination with the weekly forecasted sales units to determine daily forecasts.

IR_ITEM_DAILY_WEIGHTS_OVERRIDE has 8 columns: ITEM_ID, SUNDAY_WT, MONDAY_WT, TUESDAY_WT, WEDNESDAY_WT, THURSDAY_WT, FRIDAY_WT, and SATURDAY_WT to accommodate a weight for each weekday and for each item whose daily weights need to be overridden. By default, this view has no records, so no daily weights are overridden.

***Table 4–4 Default Daily Weight Values***

| Day of Week | Default Daily Weight Value |
|---|---|
| Sunday | 0.2 |
| Monday | 0.1 |
| Tuesday | 0.1 |
| Wednesday | 0.1 |
| Thursday | 0.1 |
| Friday | 0.2 |
| Saturday | 0.2 |

The view is not required to have any record unless daily weights need to be overridden for some items. For items that do not have record in the view, the CE will apply the default daily weights.

To override the daily weights of an item, this view must contain exactly one record for the ITEM_ID. The CE checks the validity of the daily weight record in two steps:

First, the weight for each weekday must be a non-negative double value, and weights for the same item must add up to 1. If any weekday has a negative value or a NULL value, or the values do not add up to 1, the CE will throw a "badDailyWeightsOverride" error and will not generate a forecast or markdown recommendation.

Second, the daily weights are compared with the historic data. If a particular weekday has a daily weight value of 0, but the historic daily sales on the same weekdays do not have a value of 0, the CE will throw a "badSeasonality" error. However, the CE does allow the daily weight and the daily sales on the same weekday to both have a value of 0 at the same time; in this case, it will forecast zero sales on the same weekday.

Here is the default ir_item_daily_weights_override from ir.sql:

```
CREATE VIEW IR_ITEM_DAILY_WEIGHTS_OVERRIDE
(
    ITEM_ID,
    SUNDAY_WT,
    MONDAY_WT,
    TUESDAY_WT,
    WEDNESDAY_WT,
    THURSDAY_WT,
    FRIDAY_WT,
    SATURDAY_WT
)
AS
  SELECT
    i.item_id,
    0.2 as SUNDAY_WT,
    0.1 as MONDAY_WT,
    0.1 as TUESDAY_WT,
    0.1 as WEDNESDAY_WT,
    0.1 as THURSDAY_WT,
    0.2 as FRIDAY_WT,
    0.2 as SATURDAY_WT
  FROM
    items_tbl i
 WHERE i.end_dt IS NULL
 AND 1 = 0
%{YA_TD}%
```

Here is an example of a customized version of the view in which all the items share the same daily weights that are different from the default ones.

```
CREATE VIEW IR_ITEM_DAILY_WEIGHTS_OVERRIDE
(
    ITEM_ID,
    SUNDAY_WT,
    MONDAY_WT,
    TUESDAY_WT,
    WEDNESDAY_WT,
    THURSDAY_WT,
    FRIDAY_WT,
    SATURDAY_WT
)
AS
  SELECT
    i.item_id,
    0.0 as SUNDAY_WT,
    0.1 as MONDAY_WT,
    0.1 as TUESDAY_WT,
    0.2 as WEDNESDAY_WT,
    0.1 as THURSDAY_WT,
    0.2 as FRIDAY_WT,
    0.3 as SATURDAY_WT
  FROM
    items_tbl i
 WHERE i.end_dt IS NULL;
```

### IR_ITEM_DATES and IR_ITEM_DATES_C

The IR_ITEM_DATES inference rule defines a set of intervals, beginning with the start date and ending with the outdate. StartDate is defined as Sunday by default.

For What If, use the scenario_ID to obtain New_Out_Dt from WIF_SCENARIO_TBL.

This view assumes an updated ITEMS_BRM_RULES table that contains current outdate values.

Note that days of the week must be aligned correctly or errors will result.

This inference rule has the following columns:

- ItemID – identifies the item the dates apply to.
- StartDate – the first date that an item is considered to be available for sale. It is not the date on which the item arrives in the store or the date of the first sale. It can be calculated based on sales or it can be supplied directly from the client through a data feed.
- StartSimulationDate – the date on which the simulation starts, which is defined by default by adding one day to the last day of historical activity. The last day of history is always a Saturday, which is the last day that the application has the sales data from the client.
- EffectiveDate – the date on which a new markdown recommendation from the run can be applied to the item. This date is generally the one on which the new markdown is possible, given the production cycle. If the model run makes a markdown recommendation for this day, then it will be available for approval in the application UI. It is usually x days after the last day of history. Some clients may have varying effective dates for different departments.
- OutDate – the date on which all items are sold or the target inventory value is met. The value for OutDate in IR_ITEM_DATE and IR_ITEM_DATE_C must be aligned. The use of ITEMS_MODELRUN_TBL for outdates is not appropriate.
- DB_Last_Actual_Date – the last day of historical activity.
- Scenario_ID – 0 for model run; all other values identify a specific What If scenario.

#### IR_ITEM_IDS and IR_ITEM_IDS_C

The IR_ITEM_IDS inference rule provides a set of IDs that are associated with an item.

This inference rule has the following columns:

- Item_ID – identifies the item.
- Collection_ID – used only with IR_ITEMS_IDS_C.
- Merchandise_ID – used in association with the Location_ID to identify an item.
- Location_ID – used in association with the Merchandise_ID to identify an item.
- Price_Ladder_ID – identifies the price ladder associated with an item.
- Seasonality_ID – uses the seasonality attribute value, which identifies the seasonality curve for the item, and that is defined in IR_SEASONALITY_ATTRIBUTE.

#### IR_ITEM_INFO and IR_ITEM_INFO_C

The IR_ITEM_INFO inference rule shows basic information about an item, including price and date. This view references IR_ITEM_DATES and IR_ITEM_PRICES. For What If, scenario_ID is specified in internal queries.

#### IR_ITEM_PARAMETERS

The IR_ITEM_PARAMETERS inference rule defines the analytical parameters used in a forecast and are provided by Analytical Services. This view includes the following columns: Item_ID, Gamma, CriticalInventory, ZeroInventoryEffect, Demand_

Uncertainty, Model, Demand_Strategy, Demand_Intervals, MaxNewMarkdowns, Alpha, Beta, PriceEffect, InSeasonDistribution, InSeasonParameter, UseInternalPrior, and InternalPriorBias.

### IR_ITEM_PRICES and IR_ITEM_PRICES_C

The IR_ITEM_PRICES inference rule provides the basic set of prices for each item. One row must exist for each item (an eligible item) run through the model. The Perm_Ticket_Price only reflects markdowns from model runs, not from What If calculations. The value should be the ticket price as of the effective date.

The view contains "scenario_id=0" to ensure that What If data is not accessed.

Note that the "item does not exist" error is primarily caused by a failure in this query.

This inference rule has the following columns:

- Item_ID
- Full_Price
- Ticket_Price
- Perm_Ticket_Price
- Current_Inv_Price
- Avg_Cost

### IR_LOC_OPT_LEVEL

This inference rule provides the location optimization level, as defined in the Cross Products Information Standard Interface.

### IR_LOCATION_HIERARCHY

The IR_LOCATION_HIERARCHY defines an item's location hierarchy.

### IR_MARKDOWN_CALENDAR

The IR_MARKDOWN_CALENDAR inference rule defines the markdown calendar for an item. These dates are used during an optimization. The view can be used, for example, to trim the calendar so that there are no markdowns during the last weeks. (The item dates view and the markdown calendars view share common logic.)

See IR_MARKDOWN_CALENDAR_EX for related information. This view is necessary when a popup message explaining the exclusion is needed.

This rule produces zero or more rows representing recommended markdown dates. If the eligible effective date is not available, or if this view returns zero rows, then markdowns are not recommended. Markdowns can only be recommended if available effective dates are provided by this view. The dates are based on the weekly calendar provided by the client. It uses IR_BUSINESS_POLICY and IR_PLANNED_PROMOS to apply restrictions to the set of recommended dates. Additional restrictions may also be applied, based on IR_MARKDOWN_CALENDAR_EX.

For What If, use the scenario_ID to obtain the New_Blackout_End from WIF_SCENARIO_TBL.

This inference rule has the following columns:

- ItemID – the ID of the item being marked down.

- CalendarDate – the date of the candidate markdown. This should be between the effective date and the outdate.
- Scenario_ID – 0 for model run; all other values identify a specific What If scenario.

#### IR_MARKDOWN_CALENDAR_EX and IR_MARKDOWN_CALENDAR_EX_C

The IR_MARKDOWN_CALENDAR_EX inference rule defines the dates that are excluded from the standard markdown calendar. It excludes dates from IR_MARKDOWN_CALENDAR and provides reason codes for the exclusion to IR_BLOCKED_MARKDOWN. The view uses resource IDs to describe the reason for the exclusion, so use only properly defined resources. A Scenario_ID column is included for use with What If.

#### IR_MERCH_OPT_LEVEL

This inference rule provides the merchandise optimization level, as defined in the Cross Products Information Standard Interface.

#### IR_MERCHANDISE_HIERARCHY

The IR_MERCHANDISE_HIERARCHY inference rule defines an item's merchandise hierarchy.

#### IR_METRICS

The IR_METRICS inference rules lists the following metrics:

- Unit cost
- MTD net sales units
- MTD net sales amount
- STD net sales units
- STD net sales amount

#### IR_MISSING_WEEKS

The IR_MISSING_WEEKS inference rule defines the weeks in an item's history that are missing activities. An item should have, at a minimum, history from its start date to the last day of history. A Scenario_ID column is included for use with What If.

#### IR_MODEL_START

The IR_MODEL_START inference rule is used when the IR_MODEL_START_OPTION is defined as custom. It defines the model start date for items and produces one row per item.

This inference rule has the following columns:

- Item_ID – identifies the item.
- Model_Start_Dt – the first date that the item is available for sale.

#### IR_MODEL_START_OPTION

The IR_MODEL_START_OPTION inference rule is used to configure the Option and Threshold (when necessary) settings to determine the model start date (the first possible sale date for an item) used for optimizations. This inference rule produces a single row containing a global setting. This view should be used for configuring Option and Threshold for setting Model_Start_Dt in ITEMS_TBL. (Model_Start_Dt is

always represented as the first day of the week preceding the actual computed date. It is loaded using LoadModelStartDate, which is part of plfrontendload.sh (FELOAD).)

This inference rule has the following columns:

- Model_Start_Option – the value must be one of the following:
  - inventoryRatio – (inventory/cumulative_sales_to_date + inventory + on_order) above a defined Threshold.
  - storeRatio – (stores_with_inventory/stores_in_region) above a defined Threshold.
  - plannedStart – the default. No threshold value needed.
  - custom – derives the value from IR_MODEL_START. No threshold value needed.
  - sellThrough – used when Model Start Sell Through Pct is used to determine the model start date. When this option is selected, then a value (Y or N) must be provided for Recalc, Use_StoreOH_Inv, Use_StoreOO_Inv, Use_DCOH_Inv, and Use_DCOO_Inv.

    If the value of either Use_StoreOH_Inv, Use_StoreOO_Inv, Use_DCOH_Inv, and Use_DCOO_Inv is set to Y (the default), then the specified value for that parameter is used in the calculation of the Model Start Date. The total inventory is calculated by summing the store and distribution center inventories. Most clients use the following combinations:

    * Store On Hand + Store On Order
    * Store On Hand + Store On Order + DC On Hand
    * Store On Hand + Store On Order + DC On Hand + DC On Order

    Note that if the Sell Through option is used, then the three business rules, MSD_FORCED_START_DT, MSD_SELLTHROUGH_PCT, and MSD_MAX_DELAY_WK, must be configured. For more information on the business rules, see Chapter 3, "Business Rule Manager".
- Threshold – the numeric value of the threshold, for inventoryRatio and storeRatio only. This value must be between 0 and 1.
- Recalc – used to indicate that a recalculation will be used. The default value is Y.
- Use_StoreOH_Inv – the value for Store On Hand Inventory is used in the calculation of Model Start Date. The default value is Y.
- Use_StoreOO_Inv – the value for Store On Order Inventory is used in the calculation of Model Start Date. The default value is Y.
- Use_DCOH_Inv – the value for DC On Hand Inventory is used in the calculation of Model Start Date. The default value is Y.
- Use_DCOO_Inv – the value for DC On Order Inventory is used in the calculation of Model Start Date. The default value is Y.

### IR_MODEL_VALUES

The IR_MODEL_VALUES are provided by Analytical Services.

### IR_O_USER_DATES and IR_O_USER_DATES_C

The IR_O_USER_DATES inference rule defines six date values per item per run ID, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does have access to forecast and markdown information.

This inference rule has the following columns:

- Item ID – identifies the item
- User date columns as appropriate

### IR_O_USER_FLOATS and IR_O_USER_FLOATS_C

The IR_O_USER_FLOATS inference rule defines twelve numeric values per item per run ID, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does have access to forecast and markdown information.

This inference rule has the following columns:

- Item ID – identifies the item
- User float columns as appropriate

### IR_O_USER_TEXTS and IR_O_USER_TEXTS_C

The IR_O_USER_TEXTS inference rule defines four text values per item per run ID, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does have access to forecast and markdown information.

This inference rule has the following columns:

- Item_ID – identifies the item
- User text columns as appropriate

### IR_P4P_ITEMS_CONFIG

This inference rule provides a single point of configuration for markdown information. The initial definition of the view is a pass through to the P4P_ITEMS view.

The P4P_DISPLAY_ITEMS view has been modified to be a join between P4P_ITEMS and IR_P4P_ITEMS_CONFIG. The view now returns TAKEN_PRICE instead of PROPOSED_PRICE. PL_MARKDOWN_SENDBACK, RDM load, sample reports, all xml configurations, P4P_DISPLAY_ITEMS, and P4P_MAINTAIN_ITEMS have been changed to use or return TAKEN_PRICE.

The Proposed_Price column (as well as the Int_Proposed_Price column in p4p-column-list.xml) should be used to reflect the value of the price ladder. The new column, Int_Taken_Price in p4p-column-list.xml, maps to the Taken_Price column in P4P_DISPLAY_ITEMS. This column has been added to all grids that contain Proposed_Price.

The IR_P4P_ITEMS_CONFIG has the following columns:

- Item_ID
- Submittal_Worksheet_ID
- Markdown_Flag
- Recommended_Retail_Price
- Taken_Price

The initial definition of the view is a pass through to the p4p_items view.

The markdown_flag column accepts the following values:

- 0 – markdown not taken
- 1 – markdown taken to item recommended price
- 2 – markdown taken to pricing group recommended price

- 3 – markdown taken to user modified price
- 4 – markdown taken due to optimization to budget
- 5 – markdown taken due to What If

### IR_P4P_MARKDOWN_ACTIVITIES

The IR_P4P_MARKDOWN_ACTIVITIES inference rule is used to return markdown activities to What If that match the forecasts in P4P_FORECAST_DATA. These forecasts reflect whether pricing groups or items were used in the model run, so this view keeps What If consistent.

### IR_PAST_TICKET_PRICES

The IR_PAST_TICKET_PRICES inference rule provides a ticket price history to the model. This information is used to determine the number of markdowns that have already occurred, the date of the last markdown, and the starting ticket price for the forecast. A Scenario_ID column is included for use with What If.

The field values for interpretation are:

- 0 = permanent price
- 1 = start of new markdown
- 4 = unknown price

### IR_PENDING_MARKDOWNS

The IR_PENDING_MARKDOWNS inference rule defines markdowns that have already been accepted but are still in the forecast range and so should be taken into account by the forecast. Markdowns from two different sources are included:

- historic markdowns, taken during previous weeks, that are not yet in the sales history
- markdowns proposed by What If

This view handles markups, markdowns, and any pending price changes. The view returns the relative price as taken from the full price (or the current ticket price if the interpretation is 3). It is a multiplier applied to the original retail (full) price for the PERM and TEMP interpretations, and to the current ticket price for the POS interpretation.

This may require customization so that Start_Dt occurs on the correct date.

Temporary markdowns are flagged to distinguish them from POS markdowns.

For What If, use the scenario_ID to obtain Item_Markdowns from WIF_ITEM_MARKDOWN_TBL.

This inference rule has the following columns:

- ItemID – identifies the item associated with the markdown.
- StartDate – the effective date of the markdown.
- Price – the relative price, a multiplier that is applied to the original retail price (full price) for interpretations 1 and 2 and to the current ticket price for interpretation 3.
- Interpretation – Permanent markdown = 1. Temporary markdown = 2. POS markdown = 3.
- Scenario_ID – 0 for model run; all other values identify a specific What If scenario.

### IR_PLANNED_PROMOS

The IR_PLANNED_PROMOS inference rule defines the characteristics of all future planned temporary markdowns and the associated expected lift for each item. In the forecasted range, this is used to determine the current selling price and to implement floor and ceiling restrictions on markdowns. Promotions with lifts are determined based on a historical analysis of an item's demand.

A Scenario_ID column is included for use with What If. The value returned by this view does not vary by scenario ID. The view depends on IR_ITEM_DATES and IR_PENDING_MARKDOWNS (via IR_ITEM_PRICES). These two views do contain override logic. IR_PLANNED_PROMOS does not depend on fields that vary with What If. The Scenario_ID column is included in this view to provide robustness during customization.

This inference rule has the following columns:

- Item_ID – the ID of the item affected by the promotion.
- Price – the relative price. Price affects demand according to the price effect function.
- Interpretation – the type of promotion. Interpretation affects the business rules that apply to a given promotion. The business rules affect the legality of the markdowns in the vicinity of the promotion.

  The possible values for interpretation are:

  - Promo_Floor (2) – a floor promotion.
  - Promo_Ceiling (3) – a ceiling promotion.
  - Promo_Unrestricted (9) – a promotion that has no restrictions.
- StartDate – the date on which the promotion will begin.
- EndDate – the date on which the promotion will end.
- Priority – a value used to prioritize all the promotions of a given type in order to eliminate any possible conflicts. The default value is 2.

  The actual precedence rules used to determine the promotion used are:

  1. Floor promos win
  2. Lowest price
- Lift – the effect of an external event, such as advertising, on sales when a promotion is in effect. Used in forecasting. A multiplier applied to the demand.
- LiftType – used to define the lift. The possible values for lift are:
  - Base (0) – for base media lifts.
  - Relative (1) – for relative media lifts.
  - POS (2) – for percent-off events that are independent of markdown status.
  - Additional (3) – for percent-off events. Applicable only to items that have had one or more markdowns.
  - No_Markdown (4) – for percent-off events. Applicable only to items that have had no markdowns.
  - First_Markdown (5) – for percent-off events. Applicable only to items that have had one markdown.

- Multiple_Markdown (6) – for percent off events. Applicable only to items that have had two or more markdowns.

Base and relative are used for combining media effects. The lift on a given day is computed by multiplying max (Base lifts) and max (Relative lifts). POS, Additional, No_Markdown, First_Markdown, and Multiple_Markdown are all used for point-of-sale promotions. In these promotions, the sales price is calculated by taking a percent off the ticket price. The percent off is specified in the application field as a relative price. So, 35 % off means a relative price of 0.65. The promotional price is triggered only if the specified Lift Type conditions apply.

A POS means that the discount is taken in addition to lowest permanent (list or markdown, but not promotion or clearance) price. Additional means that the discount is taken in addition to the lowest permanent (markdown, but not promotion or clearance) price. The Interpretation for either POS, Additional, No_Markdown, First_Markdown, and Multiple_Markdown promotions should be set to PROMO_UNRESTRICTED.

- Scenario_ID - 0 for model run; all other values identify a specific What If scenario.

### IR_PRICE_LADDER and IR_PRICE_LADDER_C

The IR_PRICE_LADDER inference rule sets the available prices that the model can use for optimization. The prices in the price ladder are defined relative to the original full retail price. This can be customized to trim the available prices based on specific business constraints.

This inference rule defines the base candidate prices that are used on any available markdown day. The optimizer uses this to determine an optimal sequence of markdowns. So assumptions based on the current date or the current price should be carefully evaluated.

The prices supplied by IR_PRICE_LADDER_C are assumed to be consistent with the collection pricing rule. Otherwise, they will not be considered as markdown candidates. For example, in a "price together" collection, only the dollar amounts (calculated via relative price * full price) common to each item's price ladder will be considered. If there are no dollar values in common, no markdown is possible.

A Scenario_ID column is included for use with What If.

This inference rule has the following columns:

- Item_ID – identifies the item.
- Price – the price relative to the full price for the item.
- Interpretation – Permanent markdown = 1.
- Scenario_ID – 0 for model run; all other values identify a specific What If scenario.

### IR_PRIOR_DISTRIBUTION

The IR_PRIOR_DISTRIBUTION inference rule lists Analytical Services values.

### IR_PROCESS_NULL_OUTDT

This inference rule is used for backward compatibility with versions of the application prior to 4.0.

### IR_PROJ_MKDNS

The IR_PROJ_MKDNS inference rule. For What If, scenario_ID is specified in internal queries.

#### IR_ROLLUPS

The IR_ROLLUPS inference rule references the ITEM_DATA table directly and calculates rollups based on the data in this table. It lists the following metrics:

- Cumulative average price
- Cumulative sell-through percent
- Cumulative percent off
- Average price for the current week
- Cumulative gross profit percent
- Sell-through percent for the current week
- Sell-through percent week-minus-1
- Sell-through percent week-minus-2
- Sell-through percent week-minus-3
- EOL gross margin dollars
- EOL gross margin percent
- Weeks of supply

#### IR_SEASON_METRICS

The IR_SEASON_METRICS inference rule lists the following metrics:

- MTD average price
- Unit sales season-minus-1
- STD gross margin percent

#### IR_SEASONALITY_ATTRIBUTE

The IR_SEASONALITY_ATTRIBUTE inference rule defines the item attribute value that is used to look up seasonalities.

This inference rule has the following columns:

- Item_ID – identifies the item.
- Item_Attribute – the Analytical Services value assigned to the item.

#### IR_STATE_TRANS_CONFIG_OVERRIDE

The IR_STATE_TRANS_CONFIG_OVERRIDE inference rule is used for risk rating and is provided by Analytical Services.

#### IR_STATE_TRANS_PREV_RUN

The IR_STATE_TRANS_PREV_RUN inference rule is used for risk rating and is provided by Analytical Services.

#### IR_USER_DATES and IR_USER_DATES_C

The IR_USER_DATES inference rule defines six date values per item, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does not have access to forecast information.

This inference rule has the following columns:

- Item_ID – identifies the item
- User date columns as appropriate

#### IR_USER_FLOATS and IR_USER_FLOATS_C

The IR_USER_FLOATS inference rule defines twelve numeric values per item, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does not have access to forecast information.

This inference rule has the following columns:

- Item_ID – identifies the item
- User float columns as appropriate

#### IR_USER_TEXTS and IR_USER_TEXTS_C

The IR_USER_TEXTS inference rule defines four text values per item, based on client requirements, for the ITEM_DATA table during the model run. This inference rule does not have access to forecast information.

This inference rule has the following columns:

- Item_ID – identifies the item
- User text columns as appropriate

#### IR_WAREHOUSE

The IR_WAREHOUSE inference rule provides Warehouse_On_Hand and Warehouse_On_Order to the ITEM_DATA table. If a client does not want to include warehouse on order units in the forecast, the Warehouse_On_Order units should be set to zero.

#### WIF_FORECAST_DATA

The WIF_FORECAST_DATA inference rule is dependent on other, configurable inference rules and is included in ir.sql because it cannot be created unless several other inference rules have already been created. It must not be configured or modified.

#### IR_WIF_PROJ_OH_UNITS_EFF_DT

This view calcuates projected on hand units as of the effective date for the item. It isused in What If scenarios. This metric is not calculated for pricing groups. When you use this IR, always add a WHERE clause that assigns values for item_id, submittal_worksheet_id, and forecast_id.

This inference rule has the following columns:

- Item_ID
- Forecast_ID
- Submittal_Worksheet_ID
- Collection_Forecast_ID

#### IR_WIF_ROLLUPS

Calculates rollup values for an item based on What If scenarios using WIF_KPI_TBL and ITEM_DATA. Contains the following metrics: Proj_Std_EOL, GM_Amount, Proj_Std_EOL_GM_Perc Proj_Std_EOL_GM_Amount_C, and Proj_Std_EOL_GM_Perc_C. This IR is similar to IR_ROLLUPS.

This inference rule has the following columns:

- Item_ID
- Forecast_ID
- Submittal_Worksheet_ID
- Proj_Oh_Units_Eff_Dt

### IR_WORKSHEET_IDS

The IR_WORKSHEET_IDS inference rule populates all values up to the level at which worksheets are defined and specifies how the worksheets are mapped to the back end. It generates submittal_worksheet_IDs for the application. Worksheets must be defined for all *N* levels in the combined merchandise hierarchy/location hierarchy, where *N* is a value between 1 and 4.

**Defining a Worksheet.**

Worksheets are defined at a specific level in the merchandise and location hierarchy and can be defined up to four levels.

To define a worksheet:

1. In ASH_CP_TBL, described in Chapter 3, "Standard Load" in the Markdown Optimization Operations Guide, specify the merchandise and location hierarchy levels for the intersect name WORKSHEET. For example:

| INTERSECT_NAME | MERCHANDISE_LEVEL | LOCATION_LEVEL |
|---|---|---|
| OPTIMIZATION | COLOR | STORE_CLSTR |
| WORKSHEET | DEPARTMENT | CHAIN |
| CLUSTER | CHAIN | CHAIN |
| DEFAULTLEVEL | CHAIN | CHAIN |
| SALES | COLOR | STORE |

2. Verify that IR_WORKSHEET_IDS has the correct settings.
3. Set the attribute hierarchy-levels-above-worksheet in the <client> tag in p4pgui-config.xml. The attribute level must equal the worksheet level. If the worksheet level = 3, then hierarchy-levels-above-worksheet = 3.
4. In p4p-custom-columns.xml, set the INT_WKSHT_HIERARCHY element to the appropriate hierarchy that corresponds to the worksheet level.

# 5

# What If

This chapter contains the following:



## Introduction

The Markdown Optimization What If functionality allows users to select a group of items, make experimental changes to certain settings, and then perform a re-optimization in order to model the effects of the setting changes on the application markdown recommendations and forecasts for the selected items. If the results are satisfactory, the changes can be applied permanently.

The changes that can be made within the What If functionality are changes that are also available within the application via the Item Maintenance and Take Markdowns Advanced screens. What If simply allows users to experiment with changes on a small group of items and simulate the results.

Any changes taken permanently must be consistent with permissions settings in the Business Rule Manager and User Management.

Markdown changes taken within What if are in addition to pending markdown changes.

The information from a given What If recalculation is available only for the length of the specific What If session.

KPIs are not calculated by What If.

What If functionality is implemented within the application through an API call to the Calc Engine via the RMI Server.

Setting changes are implemented just below the inference rule level so that the inference rules can pick up the changed values. Relevant inference rules have been modified to enable the What If to function with existing inference rules.

The What If end-user functionality is accessed from the application Worksheet and is described in detail in the Markdown Optimization User Guide.

This chapter provides details about the configuration of What If.

# Configuring the RMI Server

The RMI server, which is part of the Calc Engine and which facilitates remote Java method calls, provides What If with access to the Calc Engine. Each instance of p4pgui is associated with a single RMI server.

## Starting the RMI Server and Registry

The enginectl.sh script is used to start and stop the RMI server from the command line. It calls runInteractiveCE.sh with the -p flag set. So, in production, protected mode is the default. This option can only be turned off by modifying the CONFIGURATION section of enginectl.sh.

To start, stop, kill, restart, get the status for, or get help about the interactive engine (RMI server), use the following commands:

`enginectl.sh <ConfigRoot> start`
This starts the engine and the failover process.

`enginectl.sh <ConfigRoot> stop`
This stops the engine and the failover process and provides an error message on failure.

`enginectl.sh <ConfigRoot> kill`
This stops the engine and the failover process and provides an error message on failure.

`enginectl.sh <ConfigRoot> restart`
This stops and then restarts both the engine and the failover process. It provides an error message if restart fails. It does not provide an error message if stop fails and restart succeeds.

`enginectl.sh <ConfigRoot> status`
This message indicates whether or not the engine is running and if the protected mode flag is set.

`enginectl.sh <ConfigRoot> help`
This prints a usage message.

Other versions of the help command include enginectl.sh help and enginectl.sh.

These commands are located in modules/tools/bin.

## Port and Host Configuration

The port used by the RMI server must be configured as delphi.rmi.port in:

- config/Engine/delphi.properties
- config/suite/suite.properties

The value assigned to delphi.rmi.port must be the same in both files.

In addition, a value must be assigned to delphi.rmi.host in config/suite/suite.properties.

For example:

delphi.rmi.host=orr.grossprofit.com

delphi.rmi.port=7062

## What If and Pricing Groups

The Markdown Optimization model run can be configured to optimize items as both a member of a pricing group and as an individual item. What If recalculations can be configured to optimize an item either as a member of a pricing group or as a an individual item.

You configure the What If setting in config/Price/config.properties.

The default setting specifies that a What if recalculation occurs at the item level:

pricefe.whatif.itemDominant=true

To specify that a What If recalculation occurs at the pricing group level:

pricefe.whatif.itemDominant=false

Markdown Optimization has three configuration points for item vs. pricing group optimization and these should be configured consistently:

- P4P_FORECAST_DATA table, which is populated via load_Statements.sql
- IR_P4P_MARKDOWN_ACTIVITIES, which is used by What If to access model run recommendations
- pricefe.systemwide.ItemDominant (default = true) in config.properties

What If displays the forecasts and recommendations from the model run by querying P4P_FORECAST_DATA and markdowns taken from IR_P4P_MARKDOWN_ACTIVITIES. So, the What If display information reflects the configuration of the three configuration points. However, the What if recalculation reflects only the configuration of pricefe.whatif.itemDominant setting.

## What If Size Limitations

What If recalculations perform best within certain size limitations. You can configure What If to define the number of items that are permitted in a given recalculation.

The following parameters are configured in config/p4pgui/config.properties:

- p4pgui.what-if.max.size - should not be set to greater than 1,000. The recalculation will not be initiated if the number of items exceeds this value. Use this parameter to manage how users can configure What If so that performance is not degraded.
- p4pgui.what-if.warn.size - best if set to 100. Setting this to a higher value can impact performance. The recalculation will be initiated if the number of items exceeds this value; however, the user will receive a warning.
- p4pgui.what-if.pricing-group-item.weight - use this value as a variable when recalculating items in a pricing group. The value reflects the relative cost of optimizing individual items as compared to optimizing items in pricing groups.

### Configuring p4pgui config.properties

The following settings must be configured to determine pricing group membership in order to determine which items to re-optimize. For more information on What If and pricing groups, see "What If and Pricing Groups" on page 5-3.

*Table 5–1 What If Settings in config.properties*

| Setting | Definition | Value |
|---|---|---|
| pricefe.what-if.itemDominant (See also pricefe.systemwide.itemDominant, described in the chapter config.properties) | Determines whether What If re-optimizes an item as an item or as a collection member | True (default) - items re-optimized as items<br>False - items re-optimized as pricing group members |
| p4pgui.max.what-if.rows | Obsolete | N/A |
| p4pgui.what-if.max.size | Defines the hard limit on the number of items | Default = 1000 |
| p4pgui.what-if.warn.size | Defines the soft limit on the number of items | Default = 100 |
| p4pgui.what-if.pricing-group -item.weight | Defines the weight for each additional item in a pricing group being re-optimized | Usually a decimal value less than 1.0. Default value = 0.7. |

# Front End Configuration for What If

The What If display in the application UI provides functionality to allow the user to view the settings for the scenario variables and to enter override values that are used in the What If recalculation. The What If display, including display text, input formats, and output formats, is configurable. For more information about using the What If user interface, see the Markdown Optimization User's Guide.

## Configuring the Scenario Settings Display

The Scenario Settings display can be configured in two ways. Each row in the display grid can be visible or hidden. The Override Value in each row is either editable or not editable. These settings are configured in the config/Price/grids/p4p-what-if-scenario-variables.xml file. Each configuration is provided by a custom property for each row-group. Each row-group represents one row in the grid.

For example:

```
<row-group>
    <key>SALVAGE_VALUE</key>
    <rowgroup-properties/>
    <custom-property name="hidden" value="false" custom-type="application"/>
    <custom-property name="editable" value="true" custom-type="application"/>
</row-group>
```

Each column header has a resource key in config/Price/resources/p4pguiResources.properties. Each row key is associated with the label for the Scenario Variable column. Appropriate formats for input and output strings are also configured here.

For example:

```
#column heading
p4pgui.whatIf.scenario.variable.heading = Scenario<br>Variable

#row resources for Current Inventory scenario variable
p4pgui.whatIf.scenario.name.currentInventory = Current Inventory
p4pgui.whatIf.scenario.format.currentInventory = #0.00%
p4pgui.whatIf.scenario.input.format.currentInventory = #0.00
p4pgui.whatIf.scenario.range.currentInventory = {0} - {1}
```

It is possible to un-comment the appropriate format patterns so that the user does not have to enter the % symbol. For example:

```
#p4pgui.whatIf.scenario.format.currentInventory = #0.00%
p4pgui.whatIf.scenario.input.format.currentInventory = #0.00
```

However, these formats must be synchronized with the default formats found in CommonMessages.properties.

### Configuring the What If Display/Metrics

Pre-defined metrics, which are listed in "What If Metric Calculations" on page 5-9, are configured in config/Price/grids/p4pgui-config.xml.

For example:

```
<what-if-view-row
    display-name="p4pgui.whatIfRow.markdownDollars.label"
    description="p4pgui.whatIfRow.markdownDollars.description"
    use-as="markdownDollars" type="money"
    format="p4pgui.whatIfRow.markdownDollars.format"/>
```

## What If and the Database

The output from a What If recalculation is stored in the database, as follows:

- the recommended markdowns (MARKDOWN_ACTIVITIES), WIF_ITEM_MARKDOWN_TBL
- the override values - WIF_SCENARIO_TBL

ITEM_DATA is not written to by What If, so the model run values are maintained there.

KPIs are not calculated by What If.

The cleanup of this output occurs automatically on a per-session basis. After cleanup, WIF_SCENARIO_TBL is truncated and is re-seeded with scenario_ID=0. For example:

```
insert into WIF_SCENARIO_TBL
values (0, null, null, null, null, null)
```

The records in the RTM tables for What If contain the appropriate Scenario_ID.

### Database Tables

Here are some of the tables associated with What If:

WIF_SCENARIO_TBL - contains the scenario override values for a given scenario_ID.

***Table 5–2 WIF_SCENARIO_TBL***

| Column Name | Description | Data Type | Maximum Length | Nullable (Y/N) |
|---|---|---|---|---|
| Scenario_ID | Identification number for a scenario, which is generated by the Calc Engine. | Integer | 32 | N |
| New_Blackout_End | No new markdown recommendations can be made before this date. | Date in format YYYY-MM-DD | 10 | Y |

*Table 5–2 (Cont.) WIF_SCENARIO_TBL*

| Column Name | Description | Data Type | Maximum Length | Nullable (Y/N) |
|---|---|---|---|---|
| New_Inventory | The sum of inventory on hand, inventory on order, and, optionally, inventory in the warehouse. This value overrides total inventory quantity at end of history. | Integer | 32 | Y |
| New_Out_Dt | This value overrides BRM's OUT_DT. | Date in format YYYY-MM-DD | 10 | Y |
| New_Inventory_ Target | This value overrides BRM's INVENTORY_TARGET. | String | 100 | Y |
| New_Salvage_ Above_Target | This value overrides BRM's SALVAGE_ABOVE _TARGET. | String | 100 | Y |

WIF_ITEM_MARKDOWN_TBL - contains the markdown recommendation for a given scenario_ID and item_ID.

*Table 5–3 WIF_ITEM_MARKDOWN_TBL*

| Column Name | Description | Data Type | Maximum Length | Nullable (Y/N) |
|---|---|---|---|---|
| Scenario_ID | Identification number for a scenario, which is generated by the Calc Engine. | Integer | 32 | N |
| Item_ID | Identifies the item. | Integer | 32 | N |
| Calendar_dt | The date for the markdown. | Date in format YYYY-MM-DD | 10 | N |
| Interpretation | PERM = 1<br>TEMP = 2<br>POS = 3 | Integer | 1 | N |
| Relative_Price | Markdown relative value. | Decimal | 20,18 | Y |

WIF_RESULTS_TBL - provides a mapping between Scenario_ID/Item_ID and the Forecast_ID.

*Table 5–4 WIF_RESULTS_TBL*

| Column Name | Description | Data Type | Maximum Length | Nullable (Y/N) |
|---|---|---|---|---|
| Scenario_ID | Identification number for a scenario, which is generated by the Calc Engine. | Integer | 32 | N |
| Item_ID | Identifies the item. | Integer | 32 | N |
| Forecast_ID | Identifies the forecast. | Integer | 32 | N |

# What If and Inference Rules

What If is used to perform a recalculation of the optimization on a select group of items. Users can override certain settings to simulate changes using What If. Each re-optimization session is assigned a scenario_ID by the Calc Engine. The scenario_ID

is used to identify the specific What if calculation. The scenario_ID is also used in all inference rules that are called during a What If calculation.

Scenario overrides (that is, the new values being used in the What If simulation) in What If are implemented just under the inference rule level so that the inference rules that are affected by What If can pick up the override values.

The following table details the relationship between the scenarios settings and specific inference rules:

***Table 5–5 Scenario Settings in relationship to Inference Rules***

| Scenario Setting | Inference Rules |
|---|---|
| Exit Date | IR_ITEM_DATES, IR_ITEM_DATES_C, other inference rules that reference IR_ ITEM_DATES |
| Scenario Markdowns | IR_PENDING_MARKDOWNS |
| Inventory Level | IR_ACTIVITY_DATA |
| Inventory Target | IR_BUSINESS_POLICY (INVENTORYTARGET and TARGETSELLTHRU) (corresponds to BRM values) |
| Salvage Value | IR_BUSINESS_POLICY (SALVAGEVALUEABOVETARGET) |
| End Blackout Date | IR_MARKDOWN_CALENDAR, IR_ MARKDOWN_CALENDAR_C |

In addition, IR_PENDING_MARKDOWNS obtains markdowns from WIF_ITEM_ MARKDOWN_TBL, which contains the markdowns from the What If recalculation.

## How What If Affects Inference Rules

Inference rules are affected by What If in one of three ways:

- Inference rules that have a column for scenario_ID and contain override logic so that they can pick up the override values from WIF_SCENARIO_TBL:
  - IR_BUSINESS_POLICY
  - IR_ITEM_DATES
  - IR_ITEM_DATES_C
  - IR_MARKDOWN_CALENDAR
  - IR_PENDING_MARKDOWNS
  - IR_ACTIVITY_DATA
- Inference rules that have a column for scenario_ID but no override logic. These inference rules have dependencies on the inference rules that do contain override logic:
  - IR_BLOCKED_MARKDOWN
  - IR_BLOCKED_MARKDOWN_C
  - IR_MARKDOWN_CALENDAR_EX
  - IR_MISSING_WEEKS
  - IR_PAST_TICKET_PRICES

- IR_PLANNED_PROMOS
- IR_PRICE_LADDER
- IR_PRICE_LADDER_C

- Inference rules that specify scenario_ID = 0 in internal queries so that they only retrieve optimization run data and not What If override data from other inference rules they have dependencies with.
  - IR_DISPLAY_PROMOS
  - IR_FORECAST_METRICS_POSTRUN
  - IR_ITEM_INFO
  - IR_ITEM_INFO_C
  - IR_ITEM_PRICES
  - IR_ITEM_PRICES_C
  - IR_PROJ_MARKDOWNS

## Inference Rule Dependencies for What If

The scenario overrides from What if affect a number of inference rules directly and many others indirectly. Other linkages are possible, as described in the text. However, when you are configuring the inference rules, you should try to avoid breaking any of the linkages shown here, or incorrect What If behavior may result.

The following table lists the inference rule dependencies for What If. Inference rules are identified as primary in this table simply in terms of the dependency relationships being specified.

***Table 5–6 Inference Rule Dependencies***

| Primary Inference Rule | Inference Rule(s) That Depend(s) on the Primary Inference Rule |
|---|---|
| IR_ITEM_DATES (_C) | IR_ACTIVITY_DATA |
| | IR_PENDING_MARKDOWNS |
| | IR_MISSING_WEEKS |
| | IR_PAST_TICKET_PRICES |
| | IR_MARKDOWN_CALENDAR (_EX) |
| | IR_BLOCKED_MARKDOWN(_C) |
| | IR_FORECAST_METRICS_POSTRUN |
| | IR_PROJ_MKDNS |
| | IR_HISTORIC_METRICS |
| | IR_DISPLAY_PROMOS |
| | IR_ITEM_INFO(_C) |
| | IR_PLANNED_PROMOS |

*Table 5–6 (Cont.) Inference Rule Dependencies*

| Primary Inference Rule | Inference Rule(s) That Depend(s) on the Primary Inference Rule |
|---|---|
| IR_ITEM_PRICES(_C) | IR_PRICE_LADDER(_C) |
| | IR_HISTORIC_METRICS |
| | IR_DISPLAY_PROMOS |
| | IR_ITEM_INFO(_C) |
| | IR_PLANNED_PROMOS |
| IR_BUSINESS_POLICY | IR_PRICE_LADDER(_C) |
| | IR_MARKDOWN_CALENDAR |
| | P4P_WHAT_IF_ITEM_BASE |
| IR_WAREHOUSE | IR_ACTIVITY_DATA |
| | IR_BUSINESS_POLICY |
| | IR_FE_WAREHOUSE |
| | IR_HISTORIC_METRICS |
| IR_MISSING_WEEKS | IR_ACTIVITY_DATA |
| | IR_PAST_TICKET_PRICES |
| IR_ITEM_IDS(_C) | IR_PRICE_LADDER(_C) |
| | IR_MODEL_VALUES |
| IR_MARKDOWN_CALENDAR_EX | IR_MARKDOWN_CALENDAR |
| | IR_BLOCKED_MARKDOWN(_C) |
| IR_PENDING_MARKDOWNS | IR_ITEM_PRICES(_C) |
| IR_PLANNED_PROMOS | WIF_FORECAST_DATA |
| IR_METRICS | IR_SEASON_METRICS |

# What If Metric Calculations

The following tables list the metric calculations used by What If. Definitions for some terms used here can be found at the end of this section. Note that markupPercent has been added and gmDollarsRetail and gmPercentRetail have been removed.

The Opt Ticket Price reflects model run recommendations.

*Table 5–7 Opt Ticket Price Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | forecastRecommendedTicket |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | N/A |
| Season to Date/Life to Date (STD/LTD) | N/A |

*Table 5–7 (Cont.) Opt Ticket Price Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Weekly (corresponds to date in function)<br>Note: Ticket prices are inventory weighted, not sales weighted. | sum for all items (getItemTicketPrice(item, date) * getSalesUnits(item, date))/ sum(getSalesUnits(item/date)) |
| Monthly | N/A |

The Opt Sales Price reflects model run values, which will be different than the recommended ticket price only in the case of promotions.

*Table 5–8 Opt Sales Price Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | forecastPriceAverage |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | getTTOOSSalesDollars() / getTTOOSSalesUnits() |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | getForecastPriceAverage(): getSalesDollars(date) / getSalesUnits(date). Use getForecastPriceExact() if getSalesUnit=0 |
| Monthly | getMonthSalesDollars(monthName) / getMonthSalesUnits(monthName) |

The Ticket Price is a recalculation based on the user's overrides.

*Table 5–9 Ticket Price Metric Calculation*

| Category/time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | forecastTicketPrice |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | N/A |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | Ticket price from Recalc<br>Note: Ticket prices are inventory weighted, not sales weighted. |
| Monthly | N/A |

The Sales Price is a recalculation based on the user's overrides, and is different than the ticket price in the case of temporary POS markdowns and promos.

*Table 5–10 Sales Price Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | whatIfPrice2 |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | N/A |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | Sales Price From Recalc<br>Note: Sales prices are sales weighted, not inventory weighted. |
| Monthly | N/A |

The Sales Dollars represents the sum of the sales dollars for all items for a specified time period.

*Table 5–11 Sales Dollars Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | salesDollars |
| End of Life (EOL) | getEOLSalesDollars(): getTTOOSSalesDollars() + getSTDSalesDollars(); |
| Total Till Out of Stock (TTOOS) | getTTOOSSalesDollars():<br>Sum for all items for all dates till out date of sales dollars |
| Season to Date/Life to Date (STD/LTD) | getSTDSalesDollars(): Sum of (CUMULATIVE_SALES_DOLLARS from item data for each item) |
| Weekly (corresponds to date in function) | getSalesDollars(date):<br>Sum for all items (getSalesDollars(itemId,date))<br>getSalesDollars(item,date):<br>(getItemSalesPrice(itemId, date) * getSalesUnits(itemId, date)); |
| Monthly | getMonthSalesDollars: sum of getSalesDollars(date) for each item for each fiscal week |

The Sales Units are the total sales units for the specified time period.

*Table 5–12 Sales Units Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | salesUnits/<br>forecastSalesUnits |
| End of Life (EOL) | getEOLSalesUnits()= getTTOOSSalesUnits() + getSTDSalesUnits() |

*Table 5–12 (Cont.) Sales Units Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Total Till Out of Stock (TTOOS) | getTTOOSSalesUnits():<br>sum (getSalesUnits(item,date)) for each item for each date till outdate of item |
| Season to Date/Life to Date (STD/LTD) | getSTDSalesUnits(): CUMULATIVE_<br>QUANTITY_<br>SOLD from item data for item |
| Weekly (corresponds to date in function) | getSalesUnits(item,date) :<br>min(startingInventory,(item, date),<br>sales(item,date))<br>sales(item,date)=<br>Old Code: forecastDemand * Math.pow(basePrice, elasticity) / Math.pow(salesPrice, elasticity)<br>New Code: Engine Recalc Sales Units |
| Monthly | getMonthSalesUnits: sum of<br>getSalesUnits(item,date) for each item for each fiscal week |

The Gross Margin Dollars (GM $) = Sales $ - (Unit Cost * Total Units)

The Adjusted Gross Margin Dollars (Adj GM $) = Sales $ - (Unit Cost * Total Units) + Residual Value of unsold units - Cost of unsold units

Unlike adjusted gross margin metrics, gross margin metrics are available on a weekly and monthly basis.

*Table 5–13 GM$ Cost Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | gMDollarsCost |
| End of Life (EOL) | getEOLGrossMarginDollarsCost()<br>:getTTOOSGrossMarginDollarsCost()<br>+ getSTDGrossMarginDollarsCost() |
| Total Till Out of Stock (TTOOS) | Remove from UI - for calc of EOL only)<br>getTTOOSGrossMarginDollarsCost():<br>getTTOOSSalesDollars(item) -<br>getTTOOSCostDollars(item)<br>- getTTOOSEndingInventoryDollars<br>Cost(item) + getSalvage(item)<br>getTTOOSCostDollars(item): (getUnitCost(item) *<br>getTTOOSSalesUnits(item))<br>getSalvage(itemid)=<br>salvageValue *<br>getTTOOSEndingInventoryUnits(item) |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | This calculation has been removed. |
| Monthly | This calculation has been removed. |

The Gross Margin Percent (GM %) Cost = GM $ / Sales $

The Adjusted Gross Margin% (Adj GM%) = Adj GM $/Sales $

Unlike adjusted gross margin metrics, gross margin metrics are available on a weekly and monthly basis.

***Table 5–14 GM % Cost Metric Calculation***

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | gMPercentCost |
| End of Life (EOL) | (100.0 * getEOLGrossMarginDollarsCost()) / getEOLSalesDollars(); |
| Total Till Out of Stock (TTOOS) | This calculation has been removed. |
| Season to Date/Life to Date (STD/LTD) | This calculation has been removed. |
| Weekly (corresponds to date in function) | This calculation has been removed. |
| Monthly | This calculation has been removed. |

The Markup Percent = (Ticket Price - Unit Cost)/Ticket Price.

***Table 5–15 MU % Metric Calculation***

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | markupPercent |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | N/A |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | getMarkupPerc(date)=<br>100*getMarkup(date) /getForecastTicketPrice(date)<br>getMarkup(date) = sum for all items (getItemTicketPrice(item,date) - getUnitCost(item)) weighted by sales units |
| Monthly | N/A |

The Gross Margin Dollars Retail calculation has been removed.

***Table 5–16 GM Dollars Retail Metric Calculation***

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | gMDollarsRetail |
| End of Life (EOL) | N/A |

*Table 5–16 (Cont.) GM Dollars Retail Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Total Till Out of Stock (TTOOS) | This calculation has been removed. |
| Season to Date/Life to Date (STD/LTD) | This calculation has been removed. |
| Weekly (corresponds to date in function) | This calculation has been removed. |
| Monthly | This calculation has been removed. |

The Gross Margin Percent Retail calculation has been removed.

*Table 5–17 GM Percent Retail Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | gMPercentRetail |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | This calculation has been removed. |
| STD/LTD | This calculation has been removed. |
| Weekly (corresponds to date in function) | This calculation has been removed. |
| Monthly | This calculation has been removed. |

The Markdown Dollars represents the forecasted markdown cost for the specified time period. The markdown cost is the sum of the costs based on permanent markdowns.

*Table 5–18 Markdown Dollars Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | markdownDollars |
| Total Till Out of Stock (TTOOS) | getTTOOSMarkdownDollars(): sum of getMarkdownDollars() for all dates |
| Season to Date/Life to Date (STD/LTD) | This calculation has been removed. |
| Weekly (corresponds to date in function)<br>Note: This accounts for the cost of permanent markdowns only. | getMarkdownDollars()=<br>sum<br>(lastTicketPrice - currentTicketPrice) *<br>getStartingItemInventory(itemId, date) of all items<br>This calculation now uses the OWNED_RTL_ PRICE to calculate the Ticket Prices as follows:<br>TicketPrice = min(TicketPrice, OwnedPrice) |
| Monthly | sum of getMarkdownDollars<br>(date) for each item for each fiscal week |

The Discount Dollars represents the forecasted discount cost for the specified time period. The discount cost is the sum of permanent and temporary markdown costs as well as promotions.

***Table 5–19 Discount Dollars Metric Calculation***

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | discountDollars |
| Total Till Out of Stock (TTOOS) | getTTOOSDiscountDollars(): sum of getDiscountDollars() for all dates |
| Season to Date/Life to Date (STD/LTD) | This calculation has been removed. |
| Weekly (corresponds to date in function)<br>Note: This accounts for permanent and temporary markdowns as well as promotions. | getDiscountDollars()=<br>sum<br>(lastTicketPrice - currentTicketPrice) * startingInventory<br>+<br>Math.max(currentTicketPrice - currentSalesPrice, 0.0)<br>* currentSalesUnits)<br>of all items<br><br>Ticket Prices calculated with respect to OWNED_RTL_PRICE. The Math.max ensures that negative Discount $ are not calculated. |
| Monthly | sum of getDiscountDollars(date) for each item for each fiscal week |

The Sell Thru Percent Remaining represents the amount of inventory remaining at the end of a specified time period.

***Table 5–20 Sell Thru % Remaining Metric Calculation***

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | sellThruPercentRemaining |
| End of Life (EOL) | This calculation has been removed. |
| Total Till Out of Stock (TTOOS) | ((100.0 * getTTOOSSalesUnits()) / getInitialInventory())<br>getInitialInventory(): sum of INT_INVENTORY for all items |
| Season to Date/Life to Date (STD/LTD) | This calculation has been removed. |
| Weekly (corresponds to date in function) | (100.0 * getSalesUnits()) / (getSalesUnits() + getEndingInventory()) |
| Monthly | (100.0 * getMonthSalesUnits()) / (getMonthSalesUnits() + getMonthEndingInventory()) |

The Sell Thru Percent Total represents the total amount of inventory sold at the end of a specified time period.

*Table 5–21 Sell Thru % Total Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | sellThruPercentTotal |
| End of Life (EOL) | getEOLSellThroughPercent |
| Total Till Out of Stock (TTOOS) | ((100.0 * getTTOOSSalesUnits()) / getTotalInventory()) |
| Season to Date/Life to Date (STD/LTD) | (100.0 * getSTDSalesUnits(item)) / (getSTDSalesUnits(item) + getSTDEndingInventoryUnits())) |
| Weekly (corresponds to date in function) | (getSalesUnits(date) * 100) / getTotalInventory()<br>getTotalInventory(): sum (getCumulativeSales(itemId) + getInitialInventory(itemId)) of all items |
| Monthly | getSellThruPercentTotal(date) for each item for each fiscal week |

The EOP Units are the remaining units on hand at the end of a specified time period.

*Table 5–22 EOP Units Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | inventoryUnits/ forecastInventoryUnits |
| End of Life (EOL) | getTTOOSEndingInventoryUnits |
| Total Till Out of Stock (TTOOS) | getTTOOSEndingInventoryUnits: sum of getEndingInventory(itemId, outdate) for each item |
| Season to Date/Life to Date (STD/LTD) | getSTDEndingInventoryUnits(): sum of (COMMITTED_INV_UNITS from item data) for all items |
| Weekly (corresponds to date in function) | getEndingInventory(date): sum (getEndingInventory(item,date)) for all items<br>getEndingInventory(item,date): getStartingItemInventory(item,date) - getSalesUnits(item,date) |
| Monthly | getMonthEndingInventory(): sum of getEndingInventory(date) for each item for each fiscal week |

The EOP Dollars (Cost) represents the cost of the remaining units on hand.

*Table 5–23 EOP Dollars (Cost) Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | inventoryDollarsCost |
| End of Life (EOL) | getTTOOSEndingInventoryDollarsCost |

*Table 5–23 (Cont.) EOP Dollars (Cost) Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Total Till Out of Stock (TTOOS) | getTTOOSEndingInventoryDollarsCost(item) : getUnitCost * getEndingInventory(itemId, outdate) |
| Season to Date/Life to Date (STD/LTD) | Sum (getUnitCost(item) * getSTDEndingInventoryUnits(item)) for all items |
| Weekly (corresponds to date in function) | sum (getUnitCost(itemId) * getEndingInventory(itemId, date)) for all items |
| Monthly | getEndingInventoryDollarsCost (date) for each item for the fiscal month (notice that this is not a sum) |

The EOP Dollars (Retail) represents the retail value of the remaining units on hand.

*Table 5–24 EOP Dollars (Retail) Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | inventoryDollars /inventoryDollarsRetail |
| End of Life (EOL) | getTTOOSEndingInventoryDollarsRetail |
| Total Till Out of Stock (TTOOS) | getTTOOSEndingInventoryDollarsRetail(item): sum of (getEndingInventoryDollarsRetail(item. outdate)) |
| Season to Date/Life to Date (STD/LTD) | sum (ticket price * getSTDEndingInventoryUnits(item)) for all items |
| Weekly (corresponds to date in function) | sum (getOwnedSalesPrice(itemId, date) * getEndingInventory(item,date)) for all items |
| Monthly | getEndingInventoryDollarsRetail(date) for each item for the fiscal month (notice that this is not a sum) |

The Promo Flag indicates whether a planned promotion is in effect or not for a given period of time.

*Table 5–25 Promo Flag Metric Calculation*

| Category/Time Period | Tag Value/Calculation |
|---|---|
| Tag Used in config/Price/grids/p4pgui-config.xml | promoFlag |
| End of Life (EOL) | N/A |
| Total Till Out of Stock (TTOOS) | N/A |
| Season to Date/Life to Date (STD/LTD) | N/A |
| Weekly (corresponds to date in function) | P if there is a promo in week. |
| Monthly | P if there is a promo in month. |

## Metric Table Definitions

The following are definitions used in the tables in this section. Also listed are some Forecasted End of Life (FCEOL) metric calculations.

Cumulative Sales Units: The total sales through the period.

Discount $: The forecasted discount cost for the specified time period. The discount cost includes only temporary markdown costs.

EOP Units: The forecasted remaining units at the end of the period.

EOP $ (Cost): The forecasted cost of the remaining units at the end of the period.

EOP $ (Retail): The forecasted retail value of the remaining units at the end of the period.

EOL: End of Life. The forecasted total from the beginning of the life cycle to the exit date, using the forecast and markdowns from the weekly run.

FCEOL: Forecasted End of Life. The forecasted total from the beginning of the life cycle to the exit date, using the forecast and markdowns from the weekly run.

GM $: Gross Margin $ = Sales $ - (Unit Cost * Total Units) + (Residual value of unsold units)

GM %: Gross Margin % = GM $/Sales $

LTD: Life to Date. The total from the beginning of the life cycle to the most recent week of history.

MD $: The forecasted markdown cost for the specified time period. The markdown cost is the sum of the costs based on permanent markdowns.

MU %: Markup % = (Ticket Price - Unit Cost)/Ticket Price.

Opt Sales Price: The forecasted sales price for the week, assuming all recommended markdowns are taken. This price can be lower than the forecasted ticket price due to promotions. It can be higher than the ticket price in markdown weeks since some sales in those weeks may be forecasted to occur prior to the markdown.

Opt Ticket Price: The ticket price forecasted during the weekly model run for the end of a specific period.

Sales $: The total sales dollars for the specified time period.

Sales Price: The sales price resulting from the what-if simulation. In weeks with markdowns, this number may be higher than the ticket price if any sales occurred at the pre-markdown price.

Sales Units: The total sales units for the specified time period.

Sell Thru %: The percentage of units sold during a given period relative to units at the beginning of the period. It is calculated as Sales Units/(Sales Units + EOP Units).

Sell Thru % (Total): The percentage of units sold during a given period relative to the total buy quantity. It is calculated as Sales Units/(Cumulative Sales Units + EOP Units).

Ticket Price: The ticket price resulting from the what-if simulation. If no recalculation has occurred, then this will be the same as the Opt Ticket Price.

TTOOS: Total Til Out of Stock. The forecasted total form the start of the simulation to the exit date. This displays the weekly model run's recommended scenario, initially or after a Show Initial Recommendations action. It also displays the forecast and markdowns form the what-if simulation if a recalculation has occurred.

currentSalesPrice: sales price for item or week.

currentTicketPrice: ticket price for this week.

getInitialInventory(): INT_INVENTORY - column - committed_inv_units from item_ data.

getItemSalesPrice(itemid, date): sales price for item/date.
Old code: sales price based on user selection
New code: engine recalc sales price

getOriginalRetailPrice(): original retail from item data weighted by sales units for multiple items.

getOwnedPrice(ticketPrice, itemID): Market value of item. It is used to calculate MD $ and Retail $ and Discount $.
Math.min(ticketPrice, owned Price)

getStartingItemInventory(itemid, date): starting inventory for item for this week.

getUnitCost(): unit cost for item from item data.

lastTicketPrice: get the lowest ticket price iterating through all the previous weeks' data.

### FCEOL Metrics

FCEOL Sales$ = EOL_CUM_DOLLARS_SALES + CUMULATIVE_SALES_DOLLARS from p4pgui_display_items (projSalesDollarsEOL - p4p-column-list.xmly)

FCEOL Sales Units = EOL_CUM_UNIT_SALES + CUMULATIVE_QUANTITY_SOLD from p4p_display_items (projSalesUnitEOL - p4p-column-list.xmly)

FCEOL GM$ = (PROJ_STC_EOL_GM_AMOUNT form p4p_display_itmes (projMarginDollarsEOL - p4p-column-list.xmly)

FCEOL EOP Units = ENDING_INVENTORY_UNITS from p4p_display_items (projOnHandUnitsEOL - p4p-column-list.xmly)

FCEOL EOP $ Retail = (case when process_as_itme = 1 then ending_inventory_units else ending_inventory_units_c end)*REC_RTL_MIN from p4p_display_items (projOnHandRtlDollarsEOL - p4p-column-list.xmly)

The remaining FCEOL metrics are the same as EOL for calculations but are always based on the model run results.

# 6

# Configurable Data Attributes

This chapter contains the following:



## Introduction

Configurable Data Attributes (CDAs) provide a way for retailers to see, in addition to the default data that is visible through the application interface, custom data that they themselves specify and that is not required by the application. This data can be used in business rules and can be displayed in the application UI.

## Defining Configurable Data Attributes

Configurable Data Attributes are defined in the database using the CDA Administration Utility. The data is then staged and loaded. All client-specified data is included in the standard interface specification in fields with field names beginning with the word ATTRIBUTE.

CDAs are disabled by default. The column PL_DD_ATTRIBUTES.DISABLED should be set to 1 to disable the CDA and should be set to 0 to enable the CDA.

You can access the CDAs in the database via database queries or change the grid configuration to make them visible in the user interface.

The number of CDAs per entity is limited by the number of database columns pre-allocated in every CDA storage table. Every application schema provides eight data columns of type VARCHAR and DATE, and ten number columns of type NUMBER. When you are creating a new attribute, you can choose the storage columns from the following disassociated columns of the corresponding type:

***Table 6–1 CDA Data Type***

| Data Attribute Type | Data Type |
|---|---|
| String | VARCHAR |
| Integer | NUMBER |
| Boolean | NUMBER |
| Double | NUMBER |
| Date | NUMBER |
| Currency | VARCHAR |

*Table 6–1 (Cont.) CDA Data Type*

| Data Attribute Type | Data Type |
|---|---|
| Currency | NUMBER (2 columns) |

The following tables supports extension by the CDA Administrative Utility:

*Table 6–2 Standard Interface Tables with CDAs*

| Entity Name | Staging Table | Active Table | CDA Table |
|---|---|---|---|
| Location | ASH_LH_TBL | LOCATION_HIERARCHY_TBL | LH_CDA_TBL |
| Merchandise | ASH_MH_TBL | MERCHANDISE_HIERARCHY_TBL | MH_CDA_TBL |

# 7

# Localization

This chapter contains the following:



## Introduction

Internationalization is the process of creating software that can be easily translated. Changes to the code are not specific to any particular market. Markdown Optimization has been internationalized to support multiple languages.

This chapter describes configuration settings and features of the software that ensure that the base application can handle multiple languages.

## Translation

Translation is the process of interpreting and adapting text from one language into another. Although the code itself is not translated, components of the application that are translated include:

- Graphical user interface (GUI)
- Error messages

The following components are not translated:

- Documentation (Online Help, Release Notes, Installation Guide, User Guide, Operations Guide)
- Batch programs and messages
- Log files
- Configuration Tools
- Reports
- Demo data
- Training materials

The user interface for Markdown Optimization has been translated into:

- Chinese (Traditional)
- Chinese (Simplified)
- French
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazilian)
- Russian
- Spanish (Spain)

Markdown Optimization depends on both the browser settings and the regional settings to determine which language is being supported for a specific implementation.

Markdown Optimization does support multiple languages within a single installation. It does not support multiple currencies within a single installation.

# Files

The following Markdown Optimization files are translated for each language that is supported by an installation. These files are the resource files used by the application for culturally dependent data and text strings that are displayed to end users. A properties file may exist in more than one subdirectory; any changes must be made consistently in all versions of each properties file. These files do not have to be registered with the application server.

## Translated Files

The translated files each exist in two different formats.

- The format used by the application (ending in .properties)
- The format that can be used for customization (ending in .native)

Note that the _xx in the filename designates the locale of the file. The locale can be the language alone (e.g., _en, _fr), or a language_country combination (e.g., _en_GB, _fr_FR). Refer to the "Supported Locales" section of the Java Internationalization documentation appropriate for the version of Java that you are using.

```
./config/Price/resources/formats_xx.properties
./config/Price/resources/formats_xx.properties.native
.
.
./config/Price/resources/gridResources_xx.properties
./config/Price/resources/gridResources_xx.properties.native
.
.
./config/Price/resources/p4pguiResources_xx.properties
./config/Price/resources/p4pguiResources_xx.properties.native
.
.
./config/Price/resources/UserMessageResources_xx.properties
./config/Price/resources/UserMessageResources_xx.properties.native
.
```

```
.
./config/suite/resources/businessrulemgrResources_xx.properties
./config/suite/resources/businessrulemgrResources_xx.properties.native
.
.
./config/suite/resources/CommonMessages_xx.properties
./config/suite/resources/CommonMessages_xx.properties.native
.
.
./config/suite/resources/EngineResources_xx.properties
./config/suite/resources/EngineResources_xx.properties.native
.
.
./config/usermanagement/resources/gridResources_xx.properties
./config/usermanagement/resources/gridResources_xx.properties.native
.
.
./config/usermanagement/resources/UsermanagementResources_xx.properties
./config/usermanagement/resources/UsermanagementResources_xx.properties.native
.
.
./config/usermanagement/UserAccount_xx.properties
./config/usermanagement/UserAccount_xx.properties.native
```

### Directory Structure

Beneath the configuration root directory is the Markdown Optimization application root directory. This directory contain subdirectories for default resources and default grid configurations. The application root directory also contains the customer-specific configuration directory. The Client directory contains the properties files that have been localized/configured for a customer implementation.

Files that are localized are named according to the following convention, using the base name of the file and adding a language specification, as shown in the following example. Note that, since two dialects of Chinese are supported, the part of the string that identifies the language contains two parts. This pattern will apply to any language in which more than one dialect is supported.

Language Name gridResources_xx.properties

The localized files contain the translated user interface strings, localized date and number formats, but no locale-insensitive information such as database or installation configuration properties.

## Configuration Settings

In order for Markdown Optimization to function correctly when localized, the end user's Browser settings and the Regional and Language Options settings of the operating system must match. If they do not match, the UI may display in an inconsistent manner. The Browser settings can be found in the Internet Explorer under Tools > Internet Options > Languages. The Regional and Language Options can be found in the Control Panel.

The following table lists these settings:

*Table 7–1 Language Settings*

| Browser Settings | Regional and Language Option |
|---|---|
| Chinese (China) [zh-cn] | Chinese (PRC) |
| Chinese (Taiwan) [zh-tw] | Chinese (Taiwan) |
| English (United States) [en-us] | English (United States) |
| French (France) [fr] | French (France) |
| German (Germany) [de] | German (Germany) |
| Italian [it] | Italian |
| Japanese [ja] | Japanese |
| Korean [ko] | Korean |
| Portuguese (Brazil) [pt-br] | Portuguese (Brazil) |
| Spanish (International Sort) [es] | Spanish (Spain) |
| Russian [ru] | Russian |

# Formatting for Localization

The formatting of dates, time, and numbers is locale-specific and determined by the Browser settings and the Regional settings.

## Currency

To set the currency symbol for the application, edit CommonMessages.properties.

Specifically, you must edit CommonMessages_*xx*.properties.native, using the procedure described below, to update your edits into CommonMessages_ xx.properties.

For example, to specify the Euro in French, edit CommonMessages_fr.properties.native as follows:

```
cc.currencySymbol.localOverride=€
```

While you can edit the CommonMessages_fr.properties directly and set the value to the symbol for the Euro, if you need to update other strings you will overwrite the Euro setting and lose it unless you have updated the change to the native file.

## Format Patterns

Number format patterns are used to specify the arrangement of digits, group and decimal separators, percent symbols, and currency symbols in numeric formats. Date format patterns specify the arrangement of seconds, minutes, hour, day, month, year, and day of week and date separators in date formats. In Markdown Optimization, the format patterns are always specified using US English separator conventions. The currency symbols themselves and the numeric separator character are not specified in the format patterns.

Default format patterns are specified in CommonMessages.properties. These can be edited to match client and or locale requirements. Format patterns can be found in almost any of the properties files, but they are most common in gridResouces.properties.

### Number Format Patterns

Number format patterns are expressed with US English separators ("comma" for the thousands separator and always "period" for the decimal separator), regardless of the locale. For example, #0.00%, 0 %, and #.0000 % are all valid formats. A specific configuration may require that in English the user sees two decimal places and in European Union the user sees one decimal place. The pattern string for English is "#0.00%" and the pattern string for French is "% #0.0". The user sees 59.29 % in English and % 59,3 in French.

The pattern string "#0,00" is an invalid format because it uses the comma as the decimal separator. It should be #0.00.

### Currency Format Patterns

Currency format patterns behave the same as number format patterns except that they contain the universal currency symbol to show the position of the currency symbol "¤" in the format. This symbol is represented as \u00A4.

For example #,##0.00 \u00A4 ; (#,##0.00 \u00A4) is a reasonable format for an EU country using the Euro. If the currency symbol is set to be the Euro as describe above, the following value will be formatted as follows for the German locale:

```
-123456.99 -> (123 456.99 €)
.99 -> 0.99 €
```

### Date Format Patterns

Date Format Patterns must always be expressed in US English symbols.

***Table 7–2 Date Format Patterns***

| Letter | Date/Time Component | Presentation | Example |
|---|---|---|---|
| G | Era designator | Text | AD |
| y | Year | Year | 1996; 96 |
| M | Month in year | Month | July; Jul; 07 |
| w | Week in year | Number | 27 |
| W | Week in month | Number | 2 |
| D | Day in year | Number | 189 |
| d | Day in month | Number | 10 |
| F | Day of week in month | Number | 2 |
| E | Day in week | Text | Tuesday; Tue |
| a | AM/PM marker | Number | PM |
| H | Hour in day (0 - 23) | Number | 024 |
| k | Hour in day (1 - 24) | Number | 0 |
| K | Hour in AM/PM (0 - 11) | Number | 12 |
| h | Hour in AM/PM (1 - 12) | Number | 30 |
| m | Minute in hour | Number | 55 |
| s | Second in minute | Number | 978 |

*Table 7–2 (Cont.) Date Format Patterns*

| Letter | Date/Time Component | Presentation | Example |
|---|---|---|---|
| S | Millisecond | Number | |
| z | Time zone | General time zone | Pacific Standard time; PST; GMT-08:00 |
| Z | Time zone | RFC 822 time zone | -0800 |

For example, in Portugal, the day precedes the month, and dashes are the typical separator. Note that unlike the Number Format patterns, the separator characters are defined in the pattern. So in the Portuguese locale, a short date might be specified as follows:

dd-MM-yyyy

## Number Separators

By default, Markdown Optimization displays thousands and decimal separators as determined by Java's internationalization framework. The default behavior of the application should match the locale of the user's browser.

For example, if the format pattern #,##0.00 is used for the floating point number 1234.56, it displays as follows, depending on the browser setting:

*Table 7–3 Number Display*

| Browser Setting | Number Displayed |
|---|---|
| EN | 1,234.56 |
| NL | 1.234,56 |
| FR | 1 234,56 |

To override the default, edit CommomMessages.properties. For example, to define specific separators:

```
cc.groupSeparatorSymbol.localeOvverride=.
cc.decimalSeparatorSymbol.localeoverride=,
```

This setting produces the following results:

*Table 7–4 Number Display*

| Browser Setting | Number Displayed |
|---|---|
| EN | 1.234,56 |
| NL | 1.234,56 |
| FR | 1.234,56 |

## formats.properties

The formats.properties file contains the number and date formats used for insertion into some user-facing error messages. A file exists for each locale supported by Markdown Optimization. The separator symbols in the format strings must always be "comma" for the thousands separator and must always be "period" for the decimal separator, regardless of the locale.

For example, #0.00%, 0 %, and #.0000 % are all valid formats. A specific configuration may require that in English the user sees two decimal places and in EU the user sees one decimal place. The pattern string for English is "#0.00%" and the pattern string for French is "% #0.0". The end user sees 59.29 % in English and % 59,3 in French.

The pattern string "#0,00" is an invalid format because it uses the comma as the decimal separator.

## Technical Notes

The cutoff sets the time and day of week for the cutoff, which is displayed in the application UI.

The entry-cutoff-day-of-week and export-day-of-week attributes of the cutoff tag must use English day-of-week names.

# 8

# Pricing Group Management

This chapter contains the following:



## Introduction

Pricing groups in Markdown Optimization are traditionally managed at the optimization level (non-chain pricing groups). Markdown Optimization also permits pricing groups to be managed at the chain level but optimized at a lower level.

Chain level pricing groups can be useful, for example, when adding merchandise to a pricing group in all locations. Instead of adding the merchandise to each location separately, a user can add the merchandise only once, at the chain level, and the merchandise will be added by the application to each location. Although the pricing group is managed at the chain level, the worksheet displays the pricing group at the optimization level to facilitate taking markdowns.

Two inference rules provide configuration points for pricing groups. The IR_ITEM_COLLECTION inference rule is used to provide custom configuration for defining what is included or excluded from the collections load. The IR_COLLECTION_OPTION inference rule contains a flag that is used to indicate whether pricing groups are managed at the chain level or at the optimization level. (Note that IR_COLLECTION_INFO continues to be used for optimization without regard to pricing group management.)

Three load procedures provide the functionality for loading pricing groups into Markdown Optimization: LoadCollectionsAuto, LoadCollectionsSendback, and LoadCollectionsFE.

Collection information is stored in ITEM_DATA and in P4P_COLLECTIONS (both populated by LoadCollectionsFE). If pricing groups are managed at the chain level, the Collection_ID column in ITEM_DATA (which is used by the front end) is populated with a parent record, and the Internal_Collection_ID column (which is used by the model) is populated with children records, and P4P_COLLECTIONS is populated with chain-collection information.

If pricing groups are managed at the optimization level, both columns are populated with the optimization-level record, and P4P_COLLECTIONS is populated with item-collection information.

# Load Procedures

There are three load procedures for pricing groups: LoadCollectionsAuto, LoadCollectionsSendback (both part of the Standard Load - run from pl_load_client.sh), and LoadCollectionsFE (part of FELOAD in load_statements.sql - run from plfrontendload.sh). None of these loads require ASH staging files. For more information on the standard load and the model run, see the Markdown Optimization Operations Guide.

## LoadCollectionsAuto

The ir_item_collection view determines how to group items into pricing groups, and the LoadCollectionsAuto procedure creates new collections and new collection maps based on the view. All items with the same COLLECTION_CLIENT_ID are assigned to the same collection. If any item has already been assigned to a collection, or has already been auto-collected, the load procedure excludes it (via the ITEM_ASSIGNED_COLLS_TBL table).

The procedure populates COLLECTIONS_TBL with distinct collections and populates COLLECTION_MAPS_TBL with the mappings for collections to items. If an item is not already in COLLECTION_MAPS_TBL, it will be auto-collected as part of the load procedure.

The LoadCollectionsAuto procedure derives the rules for grouping items into pricing groups from the IR_ITEM_COLLECTION inference rule. See "Inference Rule Configuration" on page 8-3 for details on configuring the inference rule.

A flag in IR_ITEM_COLLECTION_OPTION determines whether the pricing groups are managed at the chain level or at the optimization level. When the flag is set to N (the default value), pricing groups are managed at the optimization level. When the flag is set to Y, pricing groups are managed at the chain level.

To disable auto-collection, you can redefine IR_ITEM_COLLECTION so that it does not return any records (for example, by adding 1=0 to the where clause in the view).

New items that become eligible or ineligible are automatically added or removed from a chain level pricing group as long as they are part of the Items data feed.

## LoadCollectionsSendback

Any changes or additions to pricing groups that users implement via the application UI override the assignment of items to pricing groups that are made by the LoadCollectionsAuto procedure. Changes are applied to the associated P4P_COLLECTIONS and ITEM_DATA entries (in the front end) and propagated to COLLECTION_TBL and COLLECTION_MAPS_TBL (in the back end). The population of these tables differs, depending on the setting in IR_ITEM_COLLECTION_OPTION.

The changes are processed by the LoadCollectionsSendback procedure and will be reflected in the UI the week after they are processed by the procedure. The modifications are archived in SENDBACK_COLLECTIONS_ARCH.

These changes include:

- Items re-assigned from one existing pricing group to another.
- Items re-assigned to a new pricing group.
- Items removed from an existing pricing group that are not assigned to another pricing group. If such items have been auto-collected, they cannot be auto-collected again, but must be manually assigned to another pricing group.

#### LoadCollectionsFE

The LoadCollectionsFE procedure is part of the FELOAD step (called by plfrontendload.sh) in load_statements.sql. It populates P4P_COLLECTION and updates the Collection_ID (used by the front end) and Internal_Collection_ID (used by the model) columns in ITEM_DATA. Source tables are COLLECTION_TBL and COLLECTION_MAPS_TBL.

## Inference Rule Configuration

The IR_ITEM_COLLECTION inference rule defines how items are grouped into pricing groups. The IR_ITEM_COLLECTION_OPTION is set either to N, which indicates that the pricing groups are managed at the level of optimization, or to Y, to indicate pricing group management at the Chain level.

An ISC_ procedure can be used to insert a list of items that can be included or excluded in the auto collection process. Using this list (instead of customizing the view itself) will improve performance. The list can be created using some threshold criteria such as inventory or sales.

For more information on inference rules, see Chapter 4, "Inference Rules"

### Example Configurations

Here are three sample configurations.

#### IR_ITEM_COLLECTION

Here is an example configuration of IR_ITEM_COLLECTION for pricing groups. The single point of configuration is the collection_client_id. This column defines parent collections in the non-default (Y) implementation. It defines child collections in the default (N) implementation by including Location_ID, as shown in the following example.

```
CREATE VIEW ir_item_collection
(ITEM_ID, MERCHANDISE_ID, LOCATION_ID
 COLLECTION_CLIENT_ID, COLLECTION_DESC)
AS
SELECT item_id,
       i.merchandise_id,
       i.location_id,
       case when iro.chain_flag='Y'then mh1.client_load_id||'/'||i.season_code
       else mh1.client_load_id||'/'||i.season_code||'/'||i.location_id end as
           collection_client_id,
       mh1.merchandise_desc || '/' ||i.season_code as collection_desc
FROM items_tbl i, merchandise_hierarchy_tbl mh, merchandise_hierarchy_tbl mh1, ir_
item_collection_option iro
       WHERE mh.merchandise_id = i.merchandise_id and mh1.merchandise_id =
           mh.parent_merchandise_id
```

### Chain-Level Pricing Groups

An example of Chain Pricing Group flag (IR_ITEM_COLLECTION_OPTION):

```
CREATE VIEW ir_item_collection_option AS
       SELECT 'Y' AS chain flag from DUAL-- identifier of chain collection
management implementation
```

### Including a List of Items

Configuring IR_ITEM_COLLECTION to include an ISC_procedure that provides a custom list of excluded/included items:

```
CREATE VIEW ir_item_collection
(ITEM_ID, MERCHANDISE_ID, LOCATION_ID
 COLLECTION_CLIENT_ID, COLLECTION_DESC)
AS
SELECT item_id,
       i.merchandise_id,
       i.location_id,
       case when iro.chain_flag='Y'then mh1.client_load_id||'/'||i.season_code
       else mh1.client_load_id || '/' || i.season_code||'/'||i.location_id end
          as collection_client_id,
       mh1.merchandise_desc || '/' || i.season_code as collection_desc
FROM items_tbl i, ISC_ITEM_COLLECTION_AUTO_TBL isc,
merchandise_hierarchy_tbl mh, merchandise_hierarchy_tbl mh1, ir_item_collection_
option iro
       WHERE mh.merchandise_id = i.merchandise_id and mh1.merchandise_id =
mh.parent_merchandise_id and i.item_id = isc.item_id
```

## Redefining Collections

If you want to change the way items are grouped into collections, you must do the following:

1. Update IR_ITEM_COLLECTION
2. Truncate the following tables:
   - COLLECTION_MAPS_TBL
   - COLLECTIONS_TBL
   - ITEMS_ASSIGNED_COLL_TBL
3. Re-run the LoadCollectionsAuto procedure. This occurs as part of the weekly batch process, so the new grouping will not be available until the next model run.

# Front End Configuration

The application Maintaining Merchandise page should provide a grid in which the top level displays the chain pricing group and the level below it displays the name of the merchandise in the pricing group, independent of the location it belongs to.

The edit-group-grid.xml file must be configured so that a user can select merchandise and add it across all locations/regions.

Here is a grid configuration that exemplifies the above characteristics. Other configurations are possible. The configuration should be consistent with the rest of the application configuration. (For more information, see Chapter 10, "Understanding the Application (GUI) Configuration" and Chapter 11, "Configuring the Application (GUI)")

```
 <row-group>
        <key>Style-CC</key>
        <rowgroup-properties expandable="false" isexpanded="true">
            <groupby>Style</groupby>
        </rowgroup-properties>
        <override-column-group>
            <column>
                <key>INT_STYLE_DESC</ key>
                <column-properties display-type="static-text"/>
            </column>
            <column>
               <key>ROWSELECT</key>
               <column-properties editable="true" display-type="checkbox"
                                  editable-in-readmode="true"/>
            </column>
        </override-column-group>
        <row-group>
             <key>CC-Cluster</key>
             <rowgroup-properties/>
        </row-group>
        <summary-info/>
</row-group>
```

It will change to:

```
<row-group>
        <key>Style-CC</key>
        <rowgroup-properties expandable="false" isexpanded="false">
            <groupby>Style</groupby>
        </rowgroup-properties>
        <override-column-group>
            <column>
                <key>INT_STYLE_DESC</ key>
                <column-properties display-type="static-text"/>
            </column>
        </override-column-group>
</row-group>
```

## Collection Functionality - An Example

Here is an example of how pricing groups can function:

1. Create a new collection with collection_id=3 in p4p_collection via the application UI.
2. Assign the following items, from ITEM_DATA, to the collection:
   - M1 - L1
   - M2 - L1
3. The item_tbl table should contain the following:
   - M1 - L1
   - M2 - L2
   - M2 - L3
   - M2 - L4
4. In the non-pricing group (default) implementation, collection_id = M#/S1/L1, includes the following items. Only one location ID can appear here. After the load, there is one collection_tbl record and three collection_maps_tbl records.

- M1 - L1
- M2 - L1
- M3 - L1

5. The pricing group (non-default) implementation, collection_id = M#/S1, includes the following items. Since the collection client ID defines the parent collection, after the load, there is one parent collection_tbl.
   - M1 - L1
   - M2 - L1
   - M3 -L1
   - M1 - L2
   - M2 - L3
   - M3 - L3
6. Since there are three distinct locations selling different merchandise, there are three child collections_tbl records.

   The collection_maps_tbl records for child collection #1 include:
   - M1 - L1
   - M2 - L1
   - M3 - L1

   The collection_maps_tbl record for child collection #2 is M1 - L2.

   The collection_maps_tbl records for child collection #3 include:
   - M2 - L3
   - M3 - L3
7. To have an item unassigned from a collection, use the application UI to remove (set collection_id to NULL) for a given item. Then the sendback procedure will remove the record from collection_maps_tbl.

## Test Scenarios - LoadCollectionsSendback

Here are five scenarios using LoadCollectionsSendback that describe the condition before the load procedure occurs and what happens as a result of the load procedure.

Scenario 1: Adding front end collections and assigning items to the collections. Back end tables are empty.

- Before the Load: There is one collection in p4p_collection. Four items in the ITEM_DATA table have been assigned to the collection. Both collections_tbl and collection_maps_tbl are empty.

| p4p_collection |
|---|
| col_id |
| 1 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |

| Items | |
|---|---|
| m_id | l_id |
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |
| M2 | L2 |
| M2 | L3 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). One record is created in collections_tbl (regardless of the number of distinct locations for the four items) and four records are created in collection_maps_tbl.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). One record is created in collections_tbl with no maps. The number of child records created matches the number of distinct locations. Each child collection is associated with a collection_maps_tbl record that is created in association with an assigned item.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |

| Collections_tbl | |
|---|---|
| 1 | null |
| 2 (for L1) | 1 |
| 3 (for L2) | 1 |
| 4 (for L3) | 1 |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 2 | M1 | L1 |
| 2 | M2 | L1 |
| 3 | M1 | L2 |
| 3 | M2 | L2 |
| 4 | M2 | L3 |

Scenario 2: Removing an item from a collection.

- Before the Load: The collection_id for on of the items in the ITEM_DATA table is set to NULL.

| Collections_tbl |
|---|
| col_id |
| 1 |
| 5 |
| 6 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 (set to null) | M2 | L2 |
| 5 (set to null) | M6 | L6 |
| 6 (set to null) | M5 | L5 |

| Items | |
|---|---|
| m_id | l_id |

| Items | |
|---|---|
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |
| M2 | L2 |
| M2 | L3 |
| M6 | L6 |
| M5 | L5 |
| M5 | L7 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). One collection map for the item is deleted. The collection_tbl record is also removed if no other items for the collection are found in the ITEM_DATA table and, for merchandise that does not exist in the ITEM_DATA table for the collection_id, no other items are found in collection maps.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 5 | null |
| 6 | null |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |
| 5 | M6 | L6 |
| 6 | M5 | L5 |
| 6 | M5 | L7 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). One or two collection maps for the item are deleted. (The child record is deleted as the second record if there are no other items in the ITEM_DATA table or in maps with that merchandise, but if the same merchandise has different locations and exists in maps.) The collection_tbl records (parent and child) are also removed if no other items for the collection are found in the ITEM_DATA table (regardless of whether there are more items with that merchandise in the items for the collection_id).

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 2 (for L1) | 1 |
| 3 (for L2) | 1 |
| 4 (for L3) | 1 |
| 5 | null |
| 6 | null |
| 7 (for L6 only) | 5 |
| 8 (for L5 only) | 6 |
| 9 (for L7 only) | 6 |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 2 | M1 | L1 |
| 2 | M2 | L1 |
| 3 | M1 | L2 |
| 3 | M2 | L2 |
| 4 | M2 | L3 |
| 7 | M6 | L6 |
| 8 | M5 | L5 |
| 9 | M5 | L7 |

Scenario 3: Adding an item to a collection.

- Before the Load: An item in the ITEM_DATA table is assigned to an existing collection. The front end updates collection_id for the item.

| p4p_collection |
|---|
| col_id |
| 1 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |

| ITEM_DATA Table | | |
|---|---|---|
| 1 | M3 | L4 |

| Items | |
|---|---|
| m_id | l_id |
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |
| M2 | L2 |
| M2 | L3 |
| M3 | L4 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). One collection map for the item is created.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |
| 1 | M3 | L4 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). One child collection map is created for the item. If the merchandise being added is new to the ITEM_DATA table, then one parent map is created with chain location_id. If the location is new, then one child collection is also created.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 2 (for L1) | 1 |
| 3 (for L2) | 1 |

| Collections_tbl | |
|---|---|
| 4 (for L3) | 1 |
| 5 (for L4) | 1 |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 2 | M1 | L1 |
| 2 | M2 | L1 |
| 3 | M1 | L2 |
| 3 | M2 | L2 |
| 4 | M2 | L3 |
| 5 | M3 | L4 |

Scenario 4: Adding a front end collection without assigning any items to it.

- Before the Load: A standalone record is created in p4p_collection when a user creates a new collection but does not assign any items to it.

| p4p_collection |
|---|
| col_id |
| 1 |
| 5 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |

| Items | |
|---|---|
| m_id | l_id |
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |
| M2 | L2 |

| Items | |
|---|---|
| M2 | L3 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). The p4p_collection record is deleted.

| p4p_collection |
|---|
| col_id |
| 1 |
| 5 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). The p4p_collection record is deleted.

| p4p_collection |
|---|
| col_id |
| 1 |
| 5 |

Scenario 5: Items are moved from one collection to another while adding a front end collection and assigning items to it. Back end tables contain items.

- Before the Load: A p4p_collection record is created. Items are assigned to the collection. Some items in the ITEM_DATA table are updated with the new collection_id.The back end tables contain other collection data.

| Collections_tbl |
|---|
| col_id |
| 1 |
| 5 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 - > 5 | M2 | L1 |
| 1 - > 5 | M2 | L2 |

| Items | |
|---|---|
| m_id | l_id |
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |
| M2 | L2 |
| M2 | L3 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). One record is created in collections_tbl and two records are created in collection_maps_tbl.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 5 | null |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |
| 5 | M2 | L1 |
| 5 | M2 | L2 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). Some records are created in collections_tbl (one parent record and as many child records as there are distinct locations). Four records are created in collection_maps_tbl. Child maps are created for all items associated with the merchandise.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 2 (for L1) | 1 |
| 3 (for L2) | 1 |
| 4 (for L3) | 1 |
| 5 | null |
| 6 (for L1) | 5 |
| 7 (for L2) | 5 |
| 8 (for L3) | 5 |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 2 | M1 | L1 |
| 2 | M2 | L1 |
| 3 | M1 | L2 |
| 3 | M2 | L2 |
| 4 | M2 | L3 |
| 6 | M2 | L1 |
| 7 | M2 | L2 |
| 8 | M2 | L3 |

Scenario 6: Removing a front end collection and un-assigning its items.

- Before the Load: A collection is completely removed from the application UI. As a result, the p4p_collection record is deleted. The ITEM_DATA table is updated so that all the collection_ids are set to NULL for items belonging to the collection that was removed.

| Collections_tbl |
|---|
| col_id |
| 1 |
| 2 |

| ITEM_DATA Table | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |
| 1 | M3 | L4 |
| 2 | M4 | L6 |

| Items | |
|---|---|
| m_id | l_id |
| M1 | L1 |
| M1 | L2 |
| M2 | L1 |

| Items | |
|---|---|
| M2 | L2 |
| M2 | L3 |
| M3 | L4 |
| M4 | L6 |
| M4 | L7 |

- After the Load:
  - Default Single-Chain Implementation (chain_flag = N). All corresponding ITEM_DATA table collection maps are deleted. If a map exists that contains merchandise that is not in the ITEM_DATA table, then the collection_tbl record is not removed. If no map exists, then the collection_tbl record is deleted.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 2 | null |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 1 | M1 | L1 |
| 1 | M1 | L2 |
| 1 | M2 | L1 |
| 1 | M2 | L2 |
| 1 | M3 | L4 |
| 2 | M4 | L6 |
| 2 | M4 | L7 |

  - Non-Default Multi-Chain Implementation (chain_flag = Y). All corresponding ITEM_DATA table collection maps are deleted. If a map exists that contains merchandise that is not in the ITEM_DATA table, then the collection_tbl parent and child record are not removed.

| Collections_tbl | |
|---|---|
| col_id | parent_col_id |
| 1 | null |
| 2 (for L1) | 1 |
| 3 (for L2) | 1 |
| 4 (for L3) | 1 |

| Collections_tbl | |
|---|---|
| 5 (for L4) | 1 |
| 2 | null |
| 6 (for L6) | 2 |
| 7 (for L7) | 2 |

| Collection_maps_tbl | | |
|---|---|---|
| col_id | m_id | l_id |
| 2 | M1 | L1 |
| 2 | M2 | L1 |
| 3 | M1 | L2 |
| 3 | M2 | L2 |
| 4 | M2 | L3 |
| 5 | M3 | L4 |
| 6 | M4 | L6 |
| 7 | M4 | L7 |

# 9

# Flexible Store Clustering

The chapter contains the following:



## Introduction

Flexible Store Clustering is an optional feature of Markdown Optimization that permits customers to group stores differently for different sets of merchandise. Grouping the stores in this way can facilitate more accurate optimizations and forecasts than can occur at the chain level, because the selling patterns for the set of merchandise in the stores of a given cluster will be similar.

Analytical Services is responsible for the design of a customer's flexible store clustering configuration.

Flexible Store Clustering is implemented in Markdown Optimization via the Standard Interface and the Standard Load.

## Technical Details

The following are technical details that should be taken into consideration when implementing Flexible Store Clustering:

A cluster is an arbitrary grouping of physical store locations. A cluster set is a group of clusters that is assigned to an entry in the merchandise hierarchy. A cluster set contains all stores only once.

The ideal number of groupings or clusters may vary by merchandise and customer from approximately 5 to 25 for each set of merchandise.

Flexible Store Clustering is enabled and disabled by an implementation-wide flag that is stored in the database. The value is loaded via ASH_CP_TBL (intersect_name = CLUSTER - the new hierarchy TYPE). The intersect name of the flag is CLUSTER, with merchandise and location values set to values other than CHAIN and CHAIN. These values must match the entries in the client_hierarchy_levels_tbl. for the merchandise hierarchy and original location hierarchy levels.

If the merchandise levels are:

- Chain
- Company
- Division

- Department
- Class
- SKU

and the location levels are:

- Chain
- Region
- Store

and the cluster levels are:

- Chain
- Cluster Set
- Cluster
- Store

then the entries in ASH_CP_TBL for the CLUSTER entry must come from these defined hierarchy levels. In this example, there is only one valid location (level 2 - Cluster Set) and five valid merchandise possibilities. In general, the cluster set mappings should be set at the Division level.

Flexible Store Clustering is associated with only one level of the merchandise hierarchy for an implementation.

When merchandise hierarchy and location hierarchy values are set at a valid level other than CHAIN, clustering is enabled. If flexible store clustering is enabled, all items and worksheets are defined using flexible store clustering and all activity aggregations use the flexible store clustering aggregations.

When flexible store clustering is being used, clusters (not cluster sets) are the location optimization level.

If User Management and the Business Rule Manager are configured before Flexible Store Clustering is implemented, then the rules must be re-defined for any setting below the level defined for clustering.

Business rules and security can be defined at the chain, cluster, and cluster set level.

Historic data can be re-aggregated after clusters are defined by re-loading the historic data. If store clusters are reorganized, historical data must be re-loaded so that it can be re-aggregated into the new store clusters.

The values in the ASH_CP_TBL identify whether Flexible Store Clustering is being used or not. If it is being used, the location load procedure combines the location hierarchy information with the store clusters and cluster sets and populates the location hierarchy tables with the appropriate data values. The current location hierarchy information is stored in a separate table. For information on standard load validations for Flexible Store Clustering, see the Markdown Optimization Operations Guide.

During the item creation process the items are defined as the cross product of a Merchandise Hierarchy entry and a store cluster. Worksheets should be defined at or above the cluster set level in the Location Hierarchy.

Modification of clusters to handle new location entries must be done after the locations are entered into the application. If merchandise is added to the merchandise hierarchy at a level that does not have a cluster set defined, then no cluster set will be assigned to the merchandise.

Intermediate levels between clusters and cluster sets are permitted in the Standard Load. For a CLUSTER implementation alone, this acyclic tree validation is turned OFF for the last level. However, the CLUSTER level should be the (*n*-1), where *n* is the deepest level of the hierarchy (STORE). Only the CLUSTERSET is mapped to a merchandise level and is the same for the cluster mapping interface from the client. The CLUSTER key (client_load_id) cannot be repeated between cluster sets.

Moving a store from one cluster to another does not translate to items re-allocation on the activities history reconciliation.

Flexible Store Clustering does not require any configuration of nor is there any impact on inference rules.

The Mhrename standard interface does not remove inactive cluster sets. So, items that are members of inactive cluster sets are filtered out during the population of the INTERNAL_ITEM_DATA_TBL table in FELOAD in load_statements.sql.

# 10

# Understanding the Application (GUI) Configuration

This chapter contains the following:



## Introduction

This chapter provides the conceptual background necessary for you to understand how to configure the application UI to reflect the client's business rules and guidelines.

This chapter covers the following:

- Client business requirements
- The application configuration files
- The screen configuration

## Client Business Requirements

Business rules are operational constraints and guidelines that the application uses when making pricing and markdown decisions. These rules, which vary from client to client, determine the layout and functioning of the application.

Business rules determine such factors as:

- required data for optimization operations
- data display in the user interface, including layout and contents
- constraints for marking down items or collections
- rules for calculating particular values

Because documented client business requirements are essential for the application configuration, these requirements must be gathered before you begin your configuration tasks.

The following table shows typical Markdown Optimization business requirements.

***Table 10–1 Typical Markdown Optimization Business Requirements***

| Category | Business Requirement |
|---|---|
| Merchandise display hierarchy | Level for creating worksheet |
| | Level for processing markdowns |
| Display information criteria | Summary metrics |
| | What If |
| | Sorting and filtering |
| | Number and value of price ladders |
| | Formulas |
| Text strings | Screen header |
| | Row and column headings |
| | Buttons |
| | Drop-down menus |
| | Diagnostic messages |
| Layout | Needed grids |
| | Column configuration |
| | Column display |
| | Column content |
| | Item details |
| User related | Default view label and structure |
| | User administrative data |

You configure the application interface based on the client's business requirements.

# The Markdown Optimization Application Configuration Files

Clients use Markdown Optimization to view selected markdown data that is derived from application's database tables.

To configure the  application, you need to modify various files belonging to the application configuration set. These files are located in the configroot/p4pgui/ directory. These files consist of application-level files, column files, grid files, data definition files, and user message files.

You must reconfigure the configuration files for each new customer installation. While some properties for a particular installation may have the same values as the default values, you may need to customize other values.

## Application-Level Configuration Files

Application-level configuration files contain information specifying elements in more than one screen in the application.

These files specify elements that are not specific to columns or grids, for example, user messages, menu labels, or the time display.

***Table 10–2 Application-Level Configuration Files***

| File Name | Defines |
|---|---|
| config.properties | The main application properties file that contains a list of all XML files that must be loaded when the application starts up. This file shows the application where to find the needed column, grid, and properties files. |
| p4pgui-config.xml | Defines various elements not defined in other configuration files, for example, grid names, metric item properties, user administration settings, and what-if properties.<br>Note that the valid elements for this file are defined in the following table. |
| p4pguiResources.properties | Define application properties such as markdowns. |
| UserMessagesResources.properties | A user message that is triggered by an event within the application. |
| formats.properties | Defines custom formats such as price, date, percent, number, location. |
| CommonMessages.properties | Error message strings, command names, and minor formatting information for numeric and date columns |
| p4pguiResources.properties | Error message strings and formatting properties. |

The following table shows the valid elements and sub-elements (nested elements) for the p4pgui-config.xml file.

***Table 10–3 Valid Elements and Nested Elements for p4pgui-config.xml File***

| Element | Element Description | Valid Attributes for Element |
|---|---|---|
| client | Miscellaneous configuration settings. | name<br>hierarchy-levels-above-worksheet<br>last-displayed-hierarchy-level<br>hierarchy-price ladder<br>item-worksheet-title<br>feedback-email<br>feedback-dev-email<br>feedback-mailhost<br>report-email<br>temp-markdowns-active (true or false)<br>max-worklist-query-size<br>excel-export-leaf-nodes-only<br>collectionCentricOTB (true or false) |
| forecast-params | Miscellaneous attributes for the What If and Recommended Forecast screens. | show-weeks<br>extended-summary<br>edit-before-effective-date<br>decreasing -prices<br>number-forecast-weeks<br>label-position-in-week<br>forecast-current-week |
| forecast-view-row | Specifies which rows display on the Recommended Forecast screen. | |
| hierarchy | Specifies data sources for the hierarchy filter widgets. | html-form-name<br>id<br>key |
| items-metric | Specifies the layout of the summary metrics area at the bottom of worksheets. | |
| merchandise-maint-params<br>(Nested elements: outdate-constraints, excluded-days) | Specifies the following:<br>■ Valid outdate range<br>■ Whether users modify Target Sell thru or Ending Inventory Target | |
| metrics<br>(Nested elements: metric-m1budget, metric-m2budget, metric-fixed, metric-items) | Defines which summary worksheet-level metrics to compute, for example:<br>■ Name<br>■ Column reference<br>■ Aggregation type | |
| metrics-params | Specifies the display of the effective date on worksheets. | |
| page | Specifies which grids are available on the Worksheet and Maintaining Merchandise screens. | |

*Table 10–3 (Cont.) Valid Elements and Nested Elements for p4pgui-config.xml File*

| Element | Element Description | Valid Attributes for Element |
|---|---|---|
| sendback<br>(Nested elements: select-query, pre-sendback-update) | Defines database queries that report changes made to the application metrics. | sendback name |
| what-if-view-column | Assigns labels and descriptions to the summary columns on the left side of the What If screen. | |
| what-if-view-row | Specifies which rows display on the What If screen. | |
| worksheet-params | Does the following:<br>■ Specifies column on which to search in the Find dialog box<br>■ Toggles the availability of the accelerated markdowns functionality. | |

## Markdown Optimization Column Configuration Files

The column configuration files consist of two XML files and one properties file, as shown in the following table.

*Table 10–4 Markdown Optimization Column Configuration Files*

| File Type | File Name | Purpose |
|---|---|---|
| XML | p4p-column-list.xml | All columns available to all grids in a given client installation. This file is pre-configured and comes with the standard application. |
| | p4p-custom-columns.xml | Client-specific column definitions. |
| Properties | gridResources.properties | A file containing the column label text and description. An alias in the p4p-column-list.xml or p4p-custom-columns.xml file maps to the corresponding label text and description contained in this file. |

The XML column configuration files, p4p-column-list.xml and p4p-custom-columns.xml, provide a set of fields (columns) that are available in the application across all grids. They define two types of data:

- Visible data that is displayed to the client in the user interface.
- Internal-use fields that are used by the system and cannot be seen by the client, for example, ID fields such as item ID and location ID.

These files are virtually identical in structure and syntax. The only syntax difference is in the file key name, shown in the following table. To see examples of the use of these columns in the XML column files, see the excerpts from the p4p-column-list.xml file and the p4p-custom-columns.xml file.

*Table 10–5 File Key Names for XML Column Files*

| File Name | File Key Name |
|---|---|
| p4p-column-list.xml | internalColumns |
| p4p-custom-columns.xml | customColumns |

These two XML column files differ mainly in the source of their column definitions.

- The p4p-column-list.xml file contains standard column definitions for the installation that come out of the box with the application.

  These column definitions are listed in the Standard Column List.xls.

- The p4p-custom-columns.xml file is where you define custom columns for a particular client installation.

  Typically, clients request custom columns, which are then specified in the application metrics (business requirements) spreadsheet. These specifications define the column's display features, data source and type, and other attributes.

  This file is optional. You should use it only if the client installation requires custom column definitions.

  Note that the definitions in p4p-custom-columns.xml override the definitions in p4p-column-list.xml.

The columns defined in the XML column files work through the principle of inheritance. All columns defined in the p4p-column-list.xml and p4p-custom-columns.xml files are parent columns. Specifying inheritance is discussed in the section on the application grid files.

The syntax for the p4p-column-list.xml and p4p-custom-columns.xml files is the same except for the file key name.

Following is a table showing all XML elements found in both the p4p-column-list.xml file and the p4p-custom-columns.xml file. This table shows the level in the hierarchy for these elements and the acceptable values for those elements containing properties.

***Table 10–6 Elements in XML Column Files***

| Level | Element | Purpose | Acceptable Values |
|---|---|---|---|
| Top | <column-list> | | N/A |
| Child | <column-def> | Default description of grid column. | N/A |
| | <key> | The reference name for this column. | A unique name that describes the column. When creating this name, do not use spaces or HTML special characters. |
| | <column-def-properties> | Properties that define the data and display details of a <column-def>. | |

The <column-def-properties> element accepts the following values:

***Table 10–7 Acceptable Values for <column-def-properties> Element in the XML Column Files***

| Attribute | Value | Description |
|---|---|---|
| <key> | Alphanumeric characters excluding spaces and HTML special characters | A unique key name for the column that must match the key name defined in the grid file for the column. |
| label | Must be a valid Java property key | Alias that points to the comparable label in the gridResources.properties file containing the label text that displays at the top of the column |

***Table 10–7 (Cont.) Acceptable Values for <column-def-properties> Element in the XML Column Files***

| Attribute | Value | Description |
|---|---|---|
| description | Must be a valid Java property key | Alias that points to the comparable label description in the gridResources.properties file containing the context-sensitive label description for the top of the column |
| type | currency<br>date<br>double<br>integer<br>number<br>percent<br>string | The type of data that can appear in this column, such as text, date, number, percent.<br>This data type must match the data type of the comparable field in the database table from which it is drawn. |
| display-type | blank<br>button<br>checkbox<br>combobox<br>date<br>dropdown<br>edit<br>float<br>hyperlink<br>integer<br>lock<br>owner-drawn<br>pic<br>picture<br>static-text<br>time | How to render this column data on the screen. |
| read-only-type | blank<br>button<br>checkbox<br>combobox<br>date<br>dropdown<br>edit<br>float<br>hyperlink<br>integer<br>lock<br>owner-drawn<br>pic<br>picture<br>static-text<br>time | When a grid is in a read-only state, use this display type instead of the value of the display-type attribute. |
| DB-table-name | | Defines the name of the database table that serves as the data source for this column. |
| DB-column-name | | Defines the name of the column within the database table that serves as the data source for this column.<br>Note that the value of the db-column-name property must be UPPER CASE. |
| composeable | true<br>false | Indicates columns that the client can use to create custom columns. |
| filterable | true<br>false | Indicates whether the client can choose to not display this column. |
| sortable | true<br>false | Allows the grid's rows to be sorted by the column |

***Table 10–7 (Cont.) Acceptable Values for <column-def-properties> Element in the XML Column Files***

| Attribute | Value | Description |
|---|---|---|
| orderable | true<br>false | Allows the column to be reordered in the grid relative to the columns around it |
| hideable | true<br>false | Indicates whether the user can hide the column. |
| expandable | true<br>false | Indicates whether the user can expand the column. |
| visibility | never visible<br>not visible<br>visible | Specifies the visibility of the column. “never visible” means that the column is used by xml without being visible to the user through screens and drop-downs, while “not visible” means that the column is not visible. |
| editable | true<br>false | Indicates whether the user can make edits to the column |
| filtertype | date<br>dropdown<br>text<br>text area | Specifies the type of user-entry widget to use for each filterable column in the Customize Table user interface. |
| operatortype | equals<br>list<br>numeric | Specifies operator list types that are available for each filterable column in the Customize Table user interface. |
| columntype | none<br>expand-collapse<br>row-select<br>spacer | Specifies column types to be treated as a group. Typically, you do not modify these. The default value, none, is appropriate for any column that you customize. |
| function | | Defines functions and arguments.<br>Note that the acceptable values for these functions are described in the following table. |

The following table shows the functions that are available for the function attribute in the <column-def-properties> element.

***Table 10–8 Available Functions for <column-def-properties> Element in the XML Column Files***

| Function | Description |
|---|---|
| P4P_SUM | Sum of child rows |
| P4P_MAX | Maximum of child rows |
| P4P_MIN | Minimum of child rows |
| P4P_AVG_CHILD | Weighted average of child rows |
| P4P_AVG | Weighted average of child rows<br>Note that this function requires a column key as an argument, using the XML tag <args> |
| P4P_PRICELADDER | Generates price ladders |
| P4P_LADDERPICKER | Generates a drop-down list from which the user selects ladders |
| P4P_SUBSTITUTE | Substitutes this column with the maximum value of the child rows of the column passed as an argument |

***Table 10–8 (Cont.) Available Functions for <column-def-properties> Element in the XML Column Files***

| Function | Description |
|---|---|
| P4P_BLANK | Specifies that no data is generated or displayed for this column |
| P4P_TEMPLATE | Substitutes the data for this column with the argument |
| P4P_SAME_OR_NULL | Displays a value only if all children are the same |
| P4P_IF_POSITIVE | Displays the value passed as the argument only if the maximum of all the children is greater than 0 |

### Data Sources in XML Column Files

The metrics that display on the application screens are either directly quoted from metrics in the database tables or are derived from calculations on metrics that come directly or indirectly from the database tables.

- Direct Metric. This type of metric is a direct reference to a column that exists as a field in the corresponding database table. A direct metric is displayed on the screen exactly as it is defined in the database.
- Derived metrics. Derived metrics are based on calculations that are made on other metrics. The two types of derived metric are:
  - Simple derivation. This type of metric is derived from the result of a formula that performs calculations on a metric that comes directly from a database column.
  - Complex derivation. This type of metric is derived from a column that is defined in one of the XML column files, which in turn is derived from a column in the database. That is, an XML column may refer to another XML column that directly refers to the database.

### Sorting on User-Defined Metrics

The p4p-column-list.xml file can be modified to provide the user with the ability to sort on user-defined metrics. To do this:

1. In the xml file, go to USER_DEFINED_SUM, USER_DEFINED_DIFF, USER_DEFINED_RATIO, and USER_DEFINED_CUM_SUM columns.
2. Change the sortable flag from sortable=false to sortable=true.

String columns in p4p-column-list.xml can be configured to make filtering case sensitive or case insensitive. To do this, use the following tags:

- iscasesensitive=false to make the column case insensitive
- iscasesensitive=true to make the column case sensitive

### Hierarchy Filtering

By default, a user can filter by Hierarchy 6. To use another level, change the INT_UNIQUE_ID derivation in p4p-column-list.xml to the appropriate number.

A user can filter items by any unique hierarchy combination. For example, configure INT_UNIQUE_ID to HIERARCHY(*n*)-HIERARCHY(*n*+1)-REGION in order to filter items by the HIERARCHY(*n*)-HIERARCHY(*n*+1)-REGION hierarchy combination.

The gridResources.properties file contains the label and description for the column.

### Margin Visibility

The following applies to the Margin Visibility feature of What If.

#### p4p-column-list.xml

**Changes to p4p-column-list.xml** Note the following.

### Column Groupings

The following column groupings have been added for MDO13.1

```
<!-- COLUMN GROUPS -->
   <column-def>
          <key>MODEL_RUN_METRICS_COLUMN_GROUP</key>
          <column-def-properties groupId="GROUP_HEADER"
label="p4pgui.modelrun.metrics.group.column.label" group-
description="p4pgui.modelrun.metrics.group.column.label" orderable="true"
hideable="true" sortable="false"/>
    </column-def>
     <column-def>
          <key>CURRENT_METRICS_COLUMN_GROUP</key>
          <column-def-properties groupId="GROUP_HEADER"
label="p4pgui.cur.metrics.group.column.label" group-
description="p4pgui.cur.metrics.group.column.label" orderable="true"
hideable="true" sortable="false"/>
    </column-def>
<!-- End Column Groups -->
```

### Columns for Current Metrics (Items)

| Internal Grid Name | Direct From DB or Grid Calculated | Source Table/View | Sourcing Details |
|---|---|---|---|
| curNextRecMDDate | Direct | p4p_display_items | CUR_PROJECTED_NEXT_ MARKDOWN |
| curRecMDDollarsCost | Grid | p4p_display_items | (CASE WHEN PROCESS_AS_ITEM = 1 THEN RECOMMENDED_ITEM_FLAG ELSE RECOMMENDED_ COLLECTION_FLAG END)*( NVL ( CUR_PROJ_OH_UNITS_EFF_DT, 0) * UNIT_COST) |
| curTakenMDDollarsCost | Grid | p4p_display_items | CASE MARKDOWN_FLAG WHEN 0 THEN 0 ELSE NVL (CUR_PROJ_OH_ UNITS_EFF_DT, 0) * UNIT_COST END |
| curProjOutDate | Direct | p4p_display_items | CUR_PROJECTED_OUT_OF_STOCK |
| curProjOnHandUnitsEffDt | Direct | p4p_display_items | CUR_PROJ_OH_UNITS_EFF_DT |
| curProjSalesDollarsEOL | Grid | p4p_display_items | CUR_EOL_CUM_DOLLARS_SALES + CUMULATIVE_SALES_DOLLARS |
| curProjLifeRetail | Grid | p4p_display_items | CUMULATIVE_SALES_DOLLARS + CUR_EOL_CUM_DOLLARS_SALES |
| curProjSalesUnitsEOL | Grid | p4p_display_items | CUR_EOL_CUM_UNIT_SALES + CUMULATIVE_QUANTITY_SOLD |

| Internal Grid Name | Direct From DB or Grid Calculated | Source Table/View | Sourcing Details |
|---|---|---|---|
| curProjSellThruEOL | Grid | p4p_display_items | (CASE NVL (CUMULATIVE_ QUANTITY_SOLD,0)+ NVL (CUR_ EOL_CUM_UNIT_SALES,0)+ NVL (CUR_ENDING_INVENTORY_UNITS,0) WHEN 0 THEN 0 ELSE (1-ROUND(CUR_ENDING_ INVENTORY_UNITS/( NVL (CUMULATIVE_QUANTITY_SOLD,0)+ NVL (CUR_EOL_CUM_UNIT_ SALES,0)+ NVL (CUR_ENDING_ INVENTORY_UNITS,0)), 4)) END) |
| curProjSalesUnitsEOLandEIU | Grid | p4p_display_items | ( NVL (CUMULATIVE_QUANTITY_ SOLD,0)+ NVL (CUR_EOL_CUM_ UNIT_SALES,0)+ NVL (CUR_ENDING_ INVENTORY_UNITS,0)) |
| curProjOnHandUnitsEOL | Direct | p4p_display_items | CUR_ENDING_INVENTORY_UNITS |
| curProjOnHandRtlDollarsEOL | Grid | p4p_display_items | CUR_ENDING_INVENTORY_UNITS * CUR_REC_RTL_MIN |
| curProjOnHandCostDollarsEOL | Grid | p4p_display_items | CUR_ENDING_INVENTORY_UNITS * UNIT_COST |
| curProjMarginDollarsEOL | Direct | p4p_display_items | CUR_PROJ_STD_EOL_GM_AMOUNT |
| curProjMarginPercEOL | Direct | p4p_display_items | CUR_PROJ_STD_EOL_GM_PERC |

### Columns for Current Metrics (Groups)

| Internal Grid Name | Direct From DB or Grid Calculated | Source Table/View | Sourcing Details |
|---|---|---|---|
| curProjSalesDollarsEOLGrp | Grid | p4p_display_items | CUR_EOL_CUM_DOLLARS_SALES_C + CUMULATIVE_SALES_DOLLARS |
| curProjSalesUnitsEOLGrp | Grid | p4p_display_items | CUR_EOL_CUM_UNIT_SALES_C + CUMULATIVE_QUANTITY_SOLD |
| curProjSellThruEOLGrp | Grid | p4p_display_items | (CASE NVL (CUMULATIVE_ QUANTITY_SOLD,0)+ NVL (CUR_ EOL_CUM_UNIT_SALES_C,0)+ NVL (CUR_ENDING_INVENTORY_UNITS_ C,0) WHEN 0 THEN 0 ELSE (1-ROUND(CUR_ENDING_ INVENTORY_UNITS_C/( NVL (CUMULATIVE_QUANTITY_SOLD,0)+ NVL (CUR_EOL_CUM_UNIT_SALES_ C,0)+ NVL (CUR_ENDING_ INVENTORY_UNITS_C,0)), 4)) END) |
| curProjOnHandUnitsEOLGrp | Direct | p4p_display_items | CUR_ENDING_INVENTORY_UNITS_C |
| curProjOnHandRtlDollarsEOLGrp | Grid | p4p_display_items | CUR_ENDING_INVENTORY_UNITS _ C* CUR_REC_RTL_MIN |
| curProjOnHandCostDollarsEOLGrp | Grid | p4p_display_items | CUR_ENDING_INVENTORY_UNITS_C * UNIT_COST |

| Internal Grid Name | Direct From DB or Grid Calculated | Source Table/View | Sourcing Details |
|---|---|---|---|
| curProjMarginDollarsEOLGrp | Direct | p4p_display_items | CUR_PROJ_STD_EOL_GM_AMOUNT_C |
| curProjMarginPercEOLGrp | Direct | p4p_display_items | CUR_PROJ_STD_EOL_GM_PERC_C |

### Sample Entry for p4p-column-list.xml

```
<column-def>
    <key>curProjMarginDollarsEOL</key>
    <column-def-properties label="p4pgui.cur.projMarginDollarsEOL.column.label"
description="p4pgui.cur.projMarginDollarsEOL.column.description" db-table-
name="P4P_DISPLAY_ITEMS" db-column-name="CUR_PROJ_STD_EOL_GM_AMOUNT"
type="double" display-type="currency" filterable="true" sortable="true"
orderable="true" hideable="true" groupId="GROUP_HEADER"
format="p4pgui.bigCurency.column.format" composeable="true" editable="true">
      <function key="P4P_SUM"/>
    </column-def-properties>
  </column-def>
```

### Changes to Grid XMLs

The grid XML files have been updated to use the column grouping of the projected forecast metrics.

### Example

```
<column-group>
        <key>MODEL_RUN_METRICS_COLUMN_GROUP</key>
        <columngroup-properties
            resourced-label="true"
            group-description="p4pgui.modelrun.metrics.group.column.label"
            resource="false"/>
        <column>
          <key>projSalesDollarsEOL</key>
          <column-properties/>
        </column>
        <column>
          <key>projMarginDollarsEOL</key>
          <column-properties/>
        </column>
        <column>
          <key>projMarginDollarsEOLGrp</key>
          <column-properties/>
        </column>
        <column>
          <key>projOutDate</key>
          <column-properties/>
        </column>
        <column>
          <key>projOnHandUnitsEOL</key>
          <column-properties/>
        </column>
      </column-group>
      <column-group>
        <key>CUR_METRICS_COLUMN_GROUP</key>
        <columngroup-properties
            resourced-label="true"
```

```
            group-description="p4pgui.current.metrics.group.column.label"
            resource="false"/>
        <column>
          <key>curProjSalesDollarsEOL</key>
          <column-properties/>
        </column>
        <column>
          <key>curProjMarginDollarsEOL</key>
          <column-properties/>
        </column>
        <column>
          <key>curProjMarginDollarsEOLGrp</key>
          <column-properties/>
        </column>
        <column>
          <key>curProjOutDate</key>
          <column-properties/>
        </column>
        <column>
          <key>curProjOnHandUnitsEOL</key>
          <column-properties/>
        </column>
</column-group>
```

## Markdown Optimization XML Grid Configuration Files

A grid is a spreadsheet-like table that defines how columns and rows display on an application screen.

Each XML grid file determines the configuration of the associated screen, which has the same name as the file. For example, an XML configuration file named worksheet-summary-grid.xml determines the configuration of the associated Worksheet Summaries screen.

The following table shows the standard set of XML grid configuration files.These files are located in the directory configroot/resources/p4pgui/grids.

***Table 10–9 Standard Set of Markdown Optimization Grid Configuration Files***

| XML File Name | Screen Elements Defined in File |
|---|---|
| p4p-edit-group-grid.xml | Elements for adding and removing items from the collections grid |
| p4p-edit-items-wksht.xml | Elements for adding and removing items from the Worksheet grid |
| p4p-maint-grid-groups.xml | Elements for maintaining collections. |
| p4p-items-grid-flat.xml | Elements that open the items worksheet |
| p4p-price-groups-grid.xml | Elements that open the items worksheet |
| p4p-maint-grid-flat.xml | The element that opens the lowest aggregation of the Maintaining Merchandise worksheet |
| p4p-promo-details-grid.xml | Define details about promotions s for a particular item |
| p4p-wksht-summary-grid.xml | Elements located in the Markdown Worksheet Summaries worksheet |

### Inheritance in Grid Configuration Files

Typically, worksheets are designed so that some rows display summarized data from other rows. For example, a worksheet might contain a set of adjoining rows that display the data for several different colors of the same item, with each row displaying the data for a different color. To display the aggregated data from all the different item colors, a summary row is used, thereby creating a hierarchy of rows. Thus, each row represents either a record in the database or a defined aggregation of records.

The hierarchies of rows are defined within the <row-group> element of the XML grid file. The hierarchies are specified by defining the summary data row (defined aggregation of database records) as a parent row and the item-level data (individual database records) as child-level rows. Child rows are nested within the next highest level of row, which may be either the parent row or a higher-level child row.

Note that the <row-group> element is required when configuring hierarchies of rows for an application screen. Otherwise, it is not used.

### Grid File Elements and Attributes

The first XML element in a grid file is the <grid> element. This element contains:

- a <key> attribute that provides a unique reference name
- properties defining areas of the grid other than the columns

The following table shows the elements and attributes of grid files in the order in which they appear in the file.

***Table 10–10 Elements and Attributes in XML Grid Files***

| Level | Element or Attribute | Purpose |
|---|---|---|
| Top | <grid> | Highest-level (root) XML element for configuring the XML grid file. |
| | <grid-properties> | Properties that define the grid as a whole, not the rows or columns. |
| Child | <column-group-spec> | Required element that specifies the columns to be displayed in the grid. It must contain <column> child elements to specify the columns. If the screen's rows are organized hierarchically, the <column-group-spec> element must also contain a <row-group> element.The column definitions are nested within this element. |
| | <column> | Element that defines each column to be included in the grid. It must contain a column key that maps to a column key in one of the XML column files. It may also contain column properties. |
| | <key> | Required attribute that specifies the column key, which is a unique identifier for a specific column that is included in the grid. This key points to the column in one of the XML column files that has the identical key. |
| Parent | <row-group> | Optional element that enables the display of multiple levels (hierarchical groups) of rows. It defines the highest row level of a hierarchically organized set of rows. |
| Child | <row-group> | Nested child row group of parent row group. |
| Child of child | <row-group> | Nested row group. Child of above child row group. |

Note that Row group definitions override column group definitions.

Within the <row-group> element, the <groupby> element refers to a value that is defined in the column-list file. For example, the meaning of <groupby>WKSHT_HIERARCHY2</groupby> is that there should be one parent row per set of child rows whose value for WKSHT_HIERARCHY2 (as defined in a column file) is the same as the value for WKSHT_HIERARCHY2 for the parent row.

The <grid-properties> define the specific properties for each grid, independent of the rows or columns. For example, the frozenColumns property specifies how many columns do not scroll out of view during horizontal scrolling. This property defines the grid as a whole rather than a particular column.

Grid properties include the following:

***Table 10–11 Grid Properties***

| Attribute | Example |
|---|---|
| columnsFrozen | columnsFrozen=”5” |
| db-key-column-name | db-key-column-name=”entercolumnname” |
| db-table-name | db-table-name=”ITEM_DATA” |
| defaultrowlevel | defaultrowlevel=”1” |
| filterable | filterable=”false” |
| firstrowheadercolumn | firstrowheadercolumn=”2” |
| readonly | readonly=”true” |
| rowsFrozen | rowsFrozen=”2 ” |
| grid name | name=”p4pgui.maintGridFlat.grid.label” |

## Data Definition Files

These files, which consist of one schema (XSD) file and two document type definition (DTD) files, define the syntax rules for the associated XML files.

These files are located at: configroot/p4pgui/[client directory]/grids/

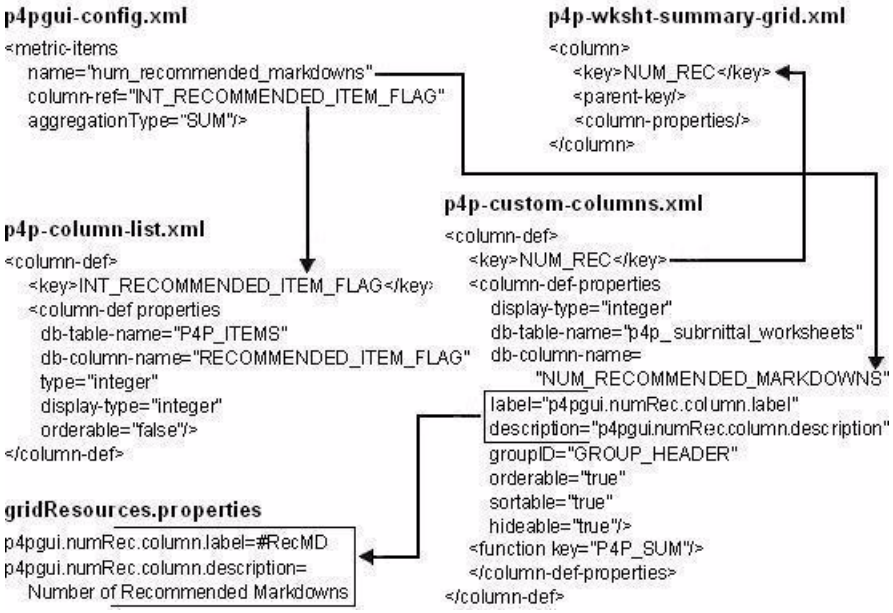
The content of each XML file in the configuration set must conform to the schema or DTD that defines it.

***Table 10–12 Data Definition Files for Markdown Optimization XML Files***

| File Name | Purpose |
|---|---|
| grid.xsd | The XML schema that defines all but two of the application XML configuration files. |
| p4pgui-config.dtd | The DTD that defines the p4pgui-config.xml file. |
| item-detail-layout.dtd | The DTD that defines the item-details-layout.xml file. |

## Mapping Between Screen Configuration Files

To display the application screens, the XML column files parse the information, such as labels and descriptions, contained in the appropriate properties files. The following graphic shows the mappings between the various XML column files.




This structure, in which the column-list.xml file points to the comparable element in the corresponding properties files, provides ease of use for the client. Using the properties files, the client can easily modify grid properties by editing the appropriate properties files.

All application screens are specified by the following common files:

- Column files:p4p-column-list.xml and, in almost all client installations, p4p-custom-columns.xml
- Master configuration file: p4pgui-config.xml
- Text display properties file: gridResources.properties

The other configuration files that define each screen are shown in the following table.

***Table 10–13 Mapping of Markdown Optimization Screens and Configuration Files***

| Screen | Grid File | Other Files |
|---|---|---|
| Worksheet Summaries | wksht-summary-grid.xml | |
| Item Worksheet | gui-items-grid-flat.xml<br>gui-items-grid-group-style.xml | |
| Edit Item Worksheet | add-remove-items-grid.xml | |
| Maintaining Merchandise | maint-grid-flat.xml<br>coll-maint-grid.xml | |
| Collections | coll-wksht-grid.xml | |
| Edit Collections | add-remove-collections-grid.xml<br>edit-items-collection-grid.xml | |
| User Profile | | |
| What If | | |

*Table 10–13 (Cont.) Mapping of Markdown Optimization Screens and Configuration*

| Screen | Grid File | Other Files |
|---|---|---|
| Recommended Forecast | | |
| Promo Details | promo-details-grid.xml | |
| Collection Info | | item-details-layout.xml |
| Item Info | | item-details-layout.xml |

## The Markdown Optimization Screens

Clients view and work with their markdown data using a series of application screens. These screens may be classified according to a client-based perspective or a configuration-based perspective.

### Client-Centered Classification of Screens

These screens display grids, which are two-dimensional data structures composed of rows and columns; they are similar to a spreadsheet. All application screen grids are based on a common grid infrastructure.You can organize the rows and columns on the grid to display hierarchically to as many levels of aggregation as the client wants.

From the client's viewpoint, the two types of screens are:

- Worksheet screens
- Reports

**Worksheet Screens** Each worksheet screen displays a grid showing a grouping of items, or a collection of items, with associated pricing information. Clients use worksheets to:

- view item details
- change markdown prices
- accept or decline markdown recommendations
- select items for forecasting and what-if analysis
- maintain collections, for example, add or remove items from collections
- select items for forecasting, what-if analysis and optimize-to-budget
- view results of pricing decisions
- save changes

Each worksheet represents a department or level in the merchandise hierarchy, such as chain, zone, or collection. Clients can access only those worksheets for which the client's system administrator has given permissions.

The application worksheet screens are shown in the following table:

*Table 10–14 Markdown Optimization Worksheet Screens*

| Screen | Purpose |
|---|---|
| Worksheets Summaries | Displays a list of the worksheets that the client can access, along with a summary of each worksheet and its current status. |
| (Item) Worksheet | |

*Table 10–14 (Cont.) Markdown Optimization Worksheet Screens*

| Screen | Purpose |
|---|---|
| Edit Item | Editing screen associated with Item Worksheet that enables client to edit the Item Worksheet, for example, add or remove items or collections that are not currently recommended for a markdown. |
| Collections | Screen associated with a collection, which is a set of items that must all be marked down together on the same day. |
| Edit Collection | Editing screen associated with the Collections worksheet that enables the client to add or remove items from a collection. |
| Maintaining Merchandise | Enables the client to perform tasks on items and collections, for example, setting and removing exit dates, setting exit inventory or sell-through targets, and creating, modifying, and removing collections. |

**Reports** Reports enable clients to view their data in non-standard ways that are unavailable on the worksheet screens. For example, a client may want to see data that is usually displayed on one worksheet displayed in a different format — across multiple screens. Like worksheets, reports are displayed through an ActiveX grid. The number and type of reports that you configure are determined by the client's business requirements and thus vary from one installation to another.

Note that for both worksheets and reports, you cannot configure the overall design of the grid; you can only configure its rows and columns.

### Configuration-Centered Classification of Markdown Optimization Screens

The three configuration types of Markdown Optimization screens are:

- Total
- Limited
- Display Only

A summary of all screens, categorized by configuration type, is shown in the following table:

*Table 10–15 Markdown Optimization Screen Configuration Types*

| Configuration Type | Elements to Configure | Related Screens |
|---|---|---|
| Total | Column metrics<br>Filter and sort options<br>Aggregation | Worksheet summaries |
| | | Worksheet |
| | | Maintaining Merchandise |
| | | Reports |
| Limited | Row and column selections | What If |
| | | Recommended Forecast |
| | | User Administration |
| | | Edit User |

*Table 10–15 (Cont.) Markdown Optimization Screen Configuration Types*

| Configuration Type | Elements to Configure | Related Screens |
|---|---|---|
| Display only | Static text updates | Item Information<br>Promo Details |

# Markdown Optimization Total Configuration Screens

This screen type allows you to completely configure the rows and columns on the grid, including creating new rows and columns.

The configuration of these screens defines:

- column metrics
- filtering and sorting options
- aggregations

The total configuration type screens and their functions are shown in the following table.

*Table 10–16 Markdown Optimization Total Configuration Type Screens*

| Screen(s) | Function |
|---|---|
| Worksheet summaries | Summary screen that displays the following:<br>■ A list of the item worksheets that the client can access<br>■ A summary of each worksheet and its current status |
| (Item) Worksheets | Main screen used by client for pricing (markdown) decisions. Main functions are:<br>■ evaluating recommendations for markdowns<br>■ accepting or declining markdown recommendations |
| Edit item worksheet | Editing screen associated with Item Worksheet. Enables the client to edit the Item Worksheet, for example, adding or removing items or collections that are not currently recommended for a markdown. |
| Maintaining merchandise | A page used for the following tasks:<br>■ Item-level tasks such as setting or removing exit dates and setting exit inventory or sell-through targets,<br>■ Collection-level tasks such as creating and deleting collections and managing those collection by adding and removing items and changing collection names. |
| Collections | Screen associated with a collection, which is a set of items that must all be marked down together on the same day. |

*Table 10–16 (Cont.) Markdown Optimization Total Configuration Type Screens*

| Screen(s) | Function |
|---|---|
| Edit collection | Editing screen associated with the Collections worksheet that enables the client to add or remove items from a collection. |
| Reports such as Markdown Analysis and Sample Price Change | Reports enable clients to view application data in alternative ways that are not available in the worksheets.<br>Markdown Analysis provides information to enable the client to assess how markdowns are being implemented throughout departments. It includes the following:<br>■ Items<br>■ Pricing information such as original current ticketed, current ticketed or recommended price.<br>■ Inventory information such as on hand or on order.<br>■ Financial summary metrics |

# Markdown Optimization Limited Configuration Screens

Limited Configuration screens provide a predefined selection of rows, columns, and other properties to use for their configuration. You can select only from these predefined rows and columns, which are specified in the p4pgui-config.xml file, located in the grids folder.

The following screens are limited configuration screens:

- What If
- Recommended Forecast
- User administration
- Edit user

## Configuring the What If Screen

The What If screen enables clients to experiment with the outcomes of various markdown scenarios by creating their own markdown schedules. Clients can try out various non-standard outcomes that may do any or all of the following:

- Disregard the markdown recommendations
- Violate the company's business rules
- Select prices from alternative price ladders
- Defer markdown actions

### The What If Screen

The What If screen modifies and displays the optimization results from that week's batch run. It displays only those items already optimized in the batch run, including all items with recommended markdowns. This screen neither re-optimizes nor performs a complete forecast.

When the client enters price changes into the What If screen, the application computes the sales impacts of these changes and then uses this sales and price information to compute the screen metrics. After creating a what-if scenario, the client typically compares the metrics calculated in this scenario to the metrics for the standard Markdown Optimization markdown recommendations.

Note that the What If screen does not apply business rules as do the other screens. Because this screen does not use the Calc Engine, the client cannot see the effects of promotions and of many business rules. Additionally, the What If code does not apply an inventory effect (also known as a pigeonholing effect) as does the Calc Engine. Therefore, the sales forecasts that it produces may be highly speculative.

### Data Sources for the What If Screen

The calculations performed on the What If page are based on data from the following sources:

- Client selections from the What If screen's user interface, for example, selecting price ladders from drop-down widgets such as the price ladder selection list.
- Markdown Optimization database views (which are described in the following table)

Note that before configuring the What If screen, verify that the database tables are populated with forecast data calculated by the model run.

*Table 10–17 Database Data Sources for What If Screen*

| Database View (P4P_ ...) | Database Table (P4P_ ...) | Type of Data | Additional Information |
|---|---|---|---|
| FORECAST_DATA | FORECAST_ ACTIVITIES | Forecast data such as:<br>• Week-by-week set of prices and sales<br>• Base demand information | This view must be populated with forecast data calculated from the model run. The Calc Engine calculates this forecast data, and then stores it in the FORECAST_ ACTIVITIES database table.<br>The FORECAST_DATA view contains one row for each week of an item's forecast.<br>Because the What If screen takes data from the database view and not directly from the database, this screen has no dynamic interaction with the Calc Engine. |
| WHAT_IF | ITEM_DATA | Forecast data such as:<br>• Full price<br>• Price elasticity<br>• Inventory effect parameters | This view pulls price elasticity, inventory effect, and other parameters that were used as inputs to the Calc Engine in the model run.<br>If the price elasticity parameter in the P4P_WHAT_IF view is not properly populated, the client cannot change the forecast by modifying the price schedule on the What If screen. |
| DISPLAY_ITEMS | ITEM_DATA | • Current item-level data<br>• Season-to-date summary metrics | This view provides parameters for forecast. You must ensure that the keys listed in the next table are specified in the p4pgui-config.xml file in order to pull the required fields (records) out of the ITEM_DATA table.<br>These keys are the key attributes of the <column-def> tags in the XML column files.<br>The data pulled out from ITEM_DATA is used to compute various metrics such as how much inventory, outdate, and the inventory cost. |

### Configuring Different Areas of the What If Screen

You can configure the various areas that comprise the What If screen. These areas are (from top to bottom):

- Display panel
- Action selection area
- Grid
- Graph

The following table describes the areas of the What If screen.

*Table 10–18 Areas of the What If Screen*

| Screen Area | Sub-Areas | Micro-Areas | Description | Configurable |
|---|---|---|---|---|
| Display panel | | | Displays number of items and outdate range | |
| Action selection | | | Enables client to select an action, for example, What If. | |
| Grid | Predefined rows | | Each predefined row represents data from a specified column from an item worksheet. | Yes |
| | Columns | Display-only | These predefined columns contain display-only metrics such as summary end of life.<br>In the p4pgui-config.xml file, you specify which metrics, that is, which columns to display in this area. | Yes |
| | | Weekly recommended forecast data | These columns consist of one columns for each week's worth of forecast data. The client can interact with these columns by changing the markdown recommendations within them.<br>In the p4pgui-config.xml file, you specify how many weeks' worth of data to display, that is, how many weekly columns to display by setting the number-forecast-weeks attribute of the <forecast-params> tag. | Yes |
| Graph | | | Display-only graph showing sales and inventory | |

The configuration of the columns and rows in the grid are described in the following sections.

### Configuring Columns for the What If Screen

The following table shows the predefined columns that you can select for the What If screen.

*Table 10–19 Predefined Columns for the What If Screen*

| Key | Display Name | Column Name | Description |
|---|---|---|---|
| STD | STD | Season to Date | The total dollars or units from the beginning of the season to today. |
| TTOOS | TTOOS | Total Till Out of Stock | The forecasted total from today until the exit date. |
| FCEOL | FCEOL | Forecasted End of Life | The sum of the Life to Date and Total Till Out of Stock totals.<br>This sum represents the forecasted total from the beginning of the season to the exit date, using the application recommended markdown schedule. |
| EOL | EOL | End of Life | The sum of the Life to Date and Total Till Out of Stock totals. |

Following are the definitions for the above columns, as found in the p4pgui-config.xml file.

```
<what-if-view-column
display name="p4pgui.whatIfCol.STD.label"
description="p4pgui.whatIfCol.STD.description"
use-as="STD"/>
<what-if-view-column
display name="p4pgui.whatIfCol.TTOOS.label"
description="p4pgui.whatIfCol.TTOOS.description"
use-as="TTOOS"/>
<what-if-view-column
display name="p4pgui.whatIfCol.FCEOL.label"
description="p4pgui.whatIfCol.FCEOL.description"
use-as="FCEOL"/>
<what-if-view-column
display name="p4pgui.whatIfCol.EOL.label"
description="p4pgui.whatIfCol.EOL.description"
use-as="EOL"/>
```

The attributes in these column definitions are described in the following table.

***Table 10–20 Column Attributes for What If Screen***

| Tag | Description |
|---|---|
| display-name | Alias that points to the comparable label in the gridResources.properties file containing the label text that displays at the top of the column. |
| description | Alias that points to the comparable label description in the gridResources.properties file containing the context-sensitive label description for the top of the column. |
| use-as | The calculation performed to produce the displayed result. |

To configure the weekly recommended forecast data columns that display on the right-hand side of the grid, you set the number-forecast-weeks attribute of the <forecast-params> tag in the p4pgui-config.xml file to the number of weeks' worth of forecasts that you want to display. One column displays in the screen for each week's forecast.

For example, the following tag is set to display 15 weeks' worth of data. This means that 15 right-hand columns display.

```
<forecast-params
number-forecast-weeks="15"/>
```

Note that the What If page does not display forecasts that go beyond the last outdate, even if you select a number of forecast weeks that is larger than the number of weeks till the last outdate.

The default configuration for the maximum number of weeks to display is 10. You can theoretically set a value as high as 104, which would allow for two years' worth (104 weeks' worth) of data to display. However, displaying more than 10 or 15 forecast weeks is unwieldy and is not recommended.

### Configuring Rows for the What If Screen

The predefined rows that you can select for the What If screen are shown in the following table.

***Table 10–21 Predefined Rows for the What If Screen***

| Key | Display Name | Pop-Up Description |
|---|---|---|
| fillWidgets | Fill right / left | Displays left and right arrows that the client can click to propagate selections to the left or right. |
| forecast Recommended Ticket | Rec Ticket Price | The forecasted ticket price at the end of the week if all recommended markdowns are taken. |
| forecastPrice | Rec Sales Price | The forecasted sales price for the week if all recommended markdowns are taken. |
| ladderID | Price Ladder ID | Drop-down list of price ladder names. |
| whatIfPrice | Override Price | The client-entered what-if price. |
| forecastTicketPrice | New Ticket Price | The what-if ticket price based on the client's Override Price entries. |
| registerPrice | New Sales Price | The what-if sales price based on the client's Override Price entries. |
| salesDollars | Sales $ | The total sales dollars for the specified time period. |
| salesUnits | Sales Units | The total sales units for the specified time period. |
| gmDollarsCost | GM $ (Cost) | The gross margin derived by calculating the cost of goods as follows:<br>sales units * unit cost. |
| gmPercentCost | GM % (Cost) | The gross margin percent derived by calculating the cost of goods as follows:<br>sales units * unit cost. |
| gmDollarsRetail | GM $ (Retail) | The gross margin percent derived by calculating the cost of goods as follows:<br>(sales dollars + markdown dollars) * (unit cost / original retail price). |
| gmPercentRetail | GM % (Retail) | The gross margin derived by calculating the cost of goods as follows:<br>(sales dollars + markdown dollars) * (unit cost / original retail price). |

*Table 10–21 (Cont.) Predefined Rows for the What If Screen*

| Key | Display Name | Pop-Up Description |
|---|---|---|
| markdownDollars | Markdown $ | The forecasted markdown cost for the specified time period based on both permanent and temporary markdowns. |
| sellThrough PercentRemaining | Sell Thru % | The percentage of inventory sold through at the end of the specified time period. |
| inventoryUnits | EOH Units | The remaining units on hand at the end of the specified time period. |
| inventoryDollars Retail | EOH $ (Cost) | The cost of the remaining units on hand. |
| inventoryDollars Cost | EOH $ (Retail) | The retail value of the remaining units on hand. |
| promoFlag | Promo Flag | Indicator for a planned promotional event.<br>You must configure this row to display on the What If screen if you want to create Promo hyperlinks that enable the client to display the Promo Details popup screen. |

An example of a predefined row for the What If screen is What If Price. This definition is found in the p4pgui-config.xml file.

```
<what-if-view-row
display name="p4pgui.whatIfRow.priceLadder.label"
description="p4pgui.whatIfRow.priceLadder.description"
use-as="whatIfPrice"
type="forecast-dropdown"
format=p4pgui.whatIfRow.forecastPrice.format"/>
```

The following table describes these row attributes.

*Table 10–22 Row Attributes for What If Screen*

| Tag | Description | Additional Information |
|---|---|---|
| display-name | Alias that points to the comparable label in the gridResources.properties file containing the label text that displays to the left of the row. | |
| description | Alias that points to the comparable label description in the gridResources.properties file containing the context-sensitive label description for the row. | |

*Table 10–22 (Cont.) Row Attributes for What If Screen*

| Tag | Description | Additional Information |
|---|---|---|
| use-as | The calculation performed to produce the result displayed in the row. | Acceptable values are:<br>ladderID<br>inventoryUnits<br>inventoryDollars<br>inventoryDollarsCost<br>inventoryDollarsRetail<br>sellThroughPercent Remaining<br>sellThrough Percent Total<br>gMPercentCost<br>gMDollarsCost<br>gMPercentRetail<br>gMDollars Retail<br>salesUnits<br>sales Dollars<br>markdownDollars<br>forecastPriceAverage<br>forecastPriceExact<br>forecastPriceAveragePercent<br>forecastPriceExactPercent<br>promoFlag |
| type | Data type, for example, floating point, integer, string | Acceptable values are:<br>integer<br>money<br>percent<br>flag |
| format | Alias that points to the comparable formatting information in the gridResources.properties file | This formatting information determines the formatting of numeric data, for example, the use of commas and decimal points. |

### Configuring Input Columns for What If Screen Rows

The What If screen takes data from certain column definitions found in the p4p-column-list.xml file. The application uses this data to calculate the information displayed in the What If screen rows. These required column definitions, which are pre-configured as part of the application, are shown in the following table.

The following table shows the required columns for the P4P_DISPLAY_ITEMS database view. These column definitions are contained in the p4pgui-config.xml file.

Note that for items to display properly on the What If screen, you must verify that the following column keywords are correctly configured in the p4pgui-config.xml file. If an item has missing or incomplete data, the What If screen does not factor that item into its calculations and therefore may display obsolete data.

*Table 10–23 Correct Configurations for What If Keywords*

| Column Name | Keyword | Description |
|---|---|---|
| | INT_OUT_OF_STOCK_DATE | If an item has no outdate, it does not receive a forecast (markdown recommendation) and is therefore ignored. |
| Internal inventory | INT_INVENTORY | What If ignores items with null or zero current inventory. |
| | INT_MOST_RECENT_RETAIL | Not needed for truncating the price ladders presented to the client or for correct calculation of markdown costs. |
| | INT_TICKET_PRICE | Not needed for truncating the price ladders presented to the client or for correct calculation of markdown costs. |
| Internal unit cost | INT_UNIT_COST | Determines the outcome of certain other calculations such as inventory valuation and gross margin. |
| Internal season-to-date average price | INT_STD_AVG_PRICE | Determines the calculation of several other season-to-date metrics such as STD sales dollars and STD GM%. |
| Internal cumulative sales | INT_CUM_SALES | Determines the calculation of several other season-to-date metrics such as STD sales dollars and STD GM%. |

*Table 10–24 Required Column Definitions in p4p-column-list.xml for What If Screen Rows*

| Column Name | Column Key |
|---|---|
| Internal season-to-date average price | INT_STD_AVG_PRICE |
| Internal cumulative sales | INT_CUM_SALES |
| Internal inventory | INT_INVENTORY |
| Internal unit cost | INT_UNIT_COST |

*Table 10–24 (Cont.) Required Column Definitions in p4p-column-list.xml for What If Screen Rows*

| Column Name | Column Key |
|---|---|
| Internal season-to-date sell-through percent | INT_STD_SELLTHRU_PERC |
| Internal current percent off original | INT_CURRENT_PERC_OFF_ORIG |

Note that when you configure the What If screen, you must ensure that all these column definitions are specified in the p4p-column-list.xml file.

### Configuring Other Features of the What If Screen

In addition to configuring the rows and columns for the What If screen, you may need to configure the following screen features.

- Forecast parameters
- Display of metrics such as:
  - Price ladder
  - Price
  - Markdown cost
  - Gross margin dollars
  - Gross margin percent
  - Sell-through percent
  - Sales dollars and inventory dollars

spreadCurrentInventoryUnits – By default, Current Inventory Units are applied to each item, but the value is spread across items for a spread based on the specified method.

Specifying the forecast parameters: The only currently supported attributes for the <forecast-params> element in the p4pgui-config.xml file are shown in the following table.

*Table 10–25 Forecast Parameters Supported Attributes*

| Attribute | Description | Acceptable Values |
|---|---|---|
| number-forecast-weeks | Number of weeks of forecast data to display on the screen | Up to 104 (which enables the display of two years' worth of data) |
| edit-before-effective-date | Whether have option of modifying the price before the effective date | true (yes)<br>false (no) |

**Note:**

Note that if any other elements are listed within the <forecast-params> element, delete them because they are no longer supported.

Specifying the metrics: The following table shows the What If row metrics.

*Table 10–26 What If Row Metrics*

| Row Metric | Description |
|---|---|
| Price ladder | Contain the drop-down selection list (widgets) in which users specify the markdown selection.<br>Note that you must ensure that the <grid-display> attribute for this metric is set at "allowed." Otherwise, the What If screen does not function. |
| Price | Prices recommended by the optimizer, that is, the suggested values of the register price.<br>Note that the ticket price may be higher than the register price because of point-of-sale (POS) markdowns. |
| Markdown Cost | The value of the price change multiplied by the inventory on hand at the moment the markdown takes effect. (Price change is defined as the difference between the last ticket price and the current register price). |
| Gross Margin Dollars | Gross margin dollars calculated without regard to business rules or restrictions that define alteration costs and cash discounts.<br>As a result, the What If screen may calculate markdowns that make the EOL gross margin larger than the recommended forecast. |
| Sell Through Percent | Percentage of inventory sold through a specified time period. |
| Sales Dollars | Dollar value of merchandise sold in a period. |
| Inventory Dollars | Dollar value of the on-hand inventory. |

## The Recommended Forecast Screen

The Recommended Forecast screen displays view-only summary metrics for the weekly forecast for all items with forecast information, which is based on Markdown Optimization's markdown recommendations. Because its rows and columns are already defined, this screen requires minimal configuration.

Before configuring this screen, ensure that the ITEM_DATA table is populated with data. This table stores the following forecast-related fields:

- Forecast identifier
- Opportunity cost
- Projected end-of-life (EOL) inventory
- Projected gross margin
- Current and next week's sales
- Markdown information

### Configuring Columns for the Recommended Forecast Screen

The following table shows the predefined columns that you can select for the Recommended Forecast screen.

*Table 10–27 Predefined Columns for Recommended Forecast Screen*

| Key | Display Name | Column Name | Description |
|---|---|---|---|
| STD | STD | Season to Date | The total dollars or units from the beginning of the season to today. |
| TTOOS | TTOOS | Total Till Out of Stock | The forecasted total from today until the exit date. |
| FCEOL | FCEOL | Forecasted End of Life | The sum of the Life to Date and Total Till Out of Stock totals, representing the forecasted total from the beginning of the season to the exit date, using the application recommended markdown schedule. |
| EOL | EOL | The sum of the Life to Date and Total Till Out of Stock totals. | End of Life |

Following are the definitions for the above columns, as found in the p4pgui-config.xml file. Note that these column definitions begin with the element tag <what-if-view-column>.

Note that all columns defined as What If columns in the p4pgui-config.xml file can also be used as Recommended Forecast columns.

```
<what-if-view-column
display name="p4pgui.whatIfCol.EOL.label"
description="p4pgui.whatIfCol.EOL.description"
use-as="EOL"/>
<what-if-view-column
display name="p4pgui.whatIfCol.TTOOS.label"
description="p4pgui.whatIfCol.TTOOS.description"
use-as="TTOOS"/>
<what-if-view-column
display name="p4pgui.whatIfCol.STD.label"
description="p4pgui.whatIfCol.STD.description"
use-as="STD"/>
<what-if-view-column
display name="p4pgui.whatIfCol.FCEOL.label"
description="p4pgui.whatIfCol.FCEOL.description"
use-as="FCEOL"/>
```

The following table describes the column attributes found in these column definitions.

*Table 10–28 Column Attributes for Recommended Forecast Screen*

| Tag | Description |
|---|---|
| display-name | Alias that points to the comparable label in the gridResources.properties file containing the label text that displays at the top of the column. |
| description | Alias that points to the comparable label description in the gridResources.properties file containing the context-sensitive label description for the top of the column. |
| use-as | The calculation performed to produce the result displayed in the column. |

### Configuring Rows for the Recommended Forecast Screen

The following table shows the predefined rows for the Recommended Forecast screen.

***Table 10–29 Predefined Rows for the Recommended Forecast Screen***

| Key | Display Name | Pop-Up Description |
|---|---|---|
| salesDollars | Sales $ | The total sales dollars for the specified time period. |
| salesUnits | Sales Units | The total sales units for the specified time period. |
| gmDollarsRetail | GM $ (Retail) | The gross margin percent derived by calculating the cost of goods as follows:<br>(sales dollars + markdown dollars) * (unit cost / original retail price) |
| gmPercentRetail | GM % (Retail) | The gross margin derived by calculating the cost of goods as follows:<br>(sales dollars + markdown dollars) * (unit cost / original retail price) |
| markdownDollars | Markdown $ | The forecasted markdown cost for the specified time period based on both permanent and temporary markdowns. |
| sellThrough PercentRemaining | Sell Thru % | The percentage of inventory sold through at the end of the specified time period. |
| inventoryUnits | EOH Units | The remaining units on hand at the end of the specified time period. |

An example of a predefined row for the What If screen is Gross Margin Dollars Cost. This definition is found in the p4pgui-config.xml file.

```
<what-if-view-row
display-name="p4pgui.forecastWhatIfRow.gMDollarsCost.label"
description="p4pgui.forecastWhatIfRow.gMDollarsCost.description"
use-as="gMDollarsCost"
type="money"/>
Another, more complex, example is shown as follows. This example contains a format
attribute.
<what-if-view-row
display name="p4pgui.whatIfRow.priceLadder.label"
description="p4pgui.whatIfRow.priceLadder.description"
type="forecast-dropdown"
use-as="whatIfPrice"
format=p4pgui.whatIfRow.forecastPrice.format"/>
```

The following table describes these row attributes.

*Table 10–30 Row Attributes for Recommended Forecast Screen*

| Tag | Description |
|---|---|
| display-name | Alias that points to the comparable label in the gridResources.properties file containing the label text that displays to the left of the row. |
| description | Alias that points to the comparable label description in the gridResources.properties file containing the context-sensitive label description for the row. |
| use-as | The calculation performed to produce the result displayed in the row. Acceptable values are:<br>ladderID<br>inventoryUnits<br>inventoryDollars<br>inventoryDollarsCost<br>inventoryDollarsRetail<br>sellThroughPercentRemaining<br>sellThroughPercentTotal<br>gMPercentCost<br>gMDollarsCost<br>gMPercentRetail<br>gMDollarsRetail<br>salesUnits<br>salesDollars<br>markdownDollars<br>forecastPriceAverage<br>forecastPriceExact<br>forecastPriceAveragePercent<br>forecastPriceExactPercent<br>promoFlag |
| type | Data type, for example, floating point or integer.<br>Acceptable values are:<br>integer<br>money<br>percent<br>flag |
| format | Alias that points to the comparable formatting information in the gridResources.properties file.<br>This formatting information determines the formatting of numeric data. |

## Configuring Other Features of the What If and Recommended Forecast Screens

In addition to configuring the rows and columns for the What If and Recommended Forecast screens, you also can configure the following screen features:

- Number of weeks to display
- Calculations such as:

- price ladder
- price
- markdown cost
- gross margin dollars
- gross margin percent
- sell-through percent
- sales dollars and inventory dollars

Information about each of these settings is as follows:

***Table 10–31 Recommended Forecast Row Metrics***

| Row Metric | Description |
|---|---|
| Price ladder | Contain the drop-down selection list (widgets) in which users specify the markdown selection. (The configuration of price ladders is discussed in the section on advanced functional configuration.)<br>Note that you must ensure that the <grid-display> attribute for this metric is set at "allowed." Otherwise, the Recommended Forecast screen does not function. |
| Price | Prices recommended by the optimizer, that is, the suggested values of the register price.<br>Note that the ticket price may be higher than the register price because of point-of-sale (POS) markdowns. |
| Markdown Cost | The value of the price change multiplied by the inventory on hand at the moment the markdown takes effect. (Price change is defined as the difference between the last ticket price and the current register price). |
| Gross Margin Dollars | Gross margin dollars calculated without regard to business rules or restrictions that define alteration costs and cash discounts.<br>As a result, the What If screen may calculate markdowns that make the EOL gross margin larger than the recommended forecast. |
| Sell Through Percent | Percentage of inventory sold through a specified time period. |
| Sales Dollars | Dollar value of merchandise sold in a period. |
| Inventory Dollars | Dollar value of the on-hand inventory. |

## Configuring the User Administration and Edit User Screens

The User Administration screens, which consist of an initial User Administration screen that displays after login and an associated Edit User screen, enable the system administrator to:

- add or delete system users
- manage passwords
- determine access control by defining the following attributes for users:
  - Role definitions

- Assignment to roles
- Access to the application components
- Access to the application (merchandise) items

The User Administration screens are shown in the following table.

***Table 10–32 User Administration Screens***

| Screen | Access Method | Description |
|---|---|---|
| User Administration | Log into the application | Initial screen that displays after login using root password. |
| Edit User | On the User Administration screen, click Edit. | Has two works areas:<br>• Modify Worksheets<br>• Add Worksheets |

### Configuring the User Administration Screen

The user administration screen displays information about users, as shown in the following illustration.

The initial list of users displayed in the User Administration screen is specified in the following tags in the p4pgui-config.xml file. Note that the description and display-name attributes in these tags point to the gridResources.properties file, where the display text for these attributes is specified.

Note that typically you do not need to modify the following code for the User Administration screen.

```
<user-admin-list-column
id="999"
db-column-name="user_id"
use-as="UA_EDIT_DEL_BUTTONS"
db-table-name="p4p_user_info"
type="editdeletebutton"
sortable="false"/>
<user-admin-list-column
id="1000"
description="p4pgui.username.column.description"
display-name="p4pgui.username.column.label"
db-column-name="user_id"
db-table-name="p4p_user_info"
use-as="USERNAME"
sortable="true"/>
<user-admin-list-column
id="1001"
display-name="p4pgui.lastname.column.label"
description="p4pgui.lastname.column.description"
db-column-name="lastname"
db-table-name="p4p_user_info"
sortable="true"/>
<user-admin-list-column
id="1002"
display-name="p4pgui.firstname.column.label"
description="p4pgui.firstname.column.description"
db-column-name="firstname"
db-table-name="p4p_user_info"
sortable="true"/>
```

### Configuring the Edit User Screen

The management hierarchies used by the client are reflected in the Edit User screen. Thus, if the client uses three hierarchies that correspond to the company, division, and department levels, you set up the Edit User screen to display three columns that correspond to these hierarchies.

The following table shows some commonly used predefined column definitions for the Edit User screen.

***Table 10–33 Commonly Used Predefined Column Definitions for the Edit User Screen***

| Key | Display Name | Pop-Up Description |
|---|---|---|
| username | Username | The user's (case sensitive) login ID |
| lastname | Last Name | The user's last name |
| firstname | First Name | The user's first name |
| HIERARCHY1 | Company | hierarchy1 |
| HIERARCHY2 | Division | hierarchy2 |
| HIERARCHY3 | Department | hierarchy3 |
| lastMod | Last Modified | Date and time when changes were last made to the worksheet |
| modBy | Modified By | Name of user who last modified the worksheet |
| totalItems | Total Items | Total number of items in a worksheet |
| viewers | Viewers | Number of users who have View-Only access to a worksheet |
| submitters | Submitters | Number of users who have Submit access to this worksheet |
| approvers | Approvers | Number of users who have Approve access to this worksheet |
| permission | Permission | Highest level of access that a particular user has for a worksheet |

**Configuring the Modify Worksheets Area** You configure the Modify Worksheets area of the Edit User screen by modifying the <user-admin-user-summary-column> tags in the p4pgui-config.xml file.

The order in which the tabs are listed is the order in which the columns display from left to right in the Modify Worksheets area of the Edit User screen.

**Configuring the Add Worksheets Area** You configure the Add Worksheets area of the Edit User screen by modifying the <user-admin-nonuser-summary-column> tags in the p4pgui-config.xml file.

You make the configurations for this screen in the p4pgui-config.xml file.

# Markdown Optimization Display-Only Screens

The application display-only screens, which display static text updates, cannot be configured at all. The following screens comprise the display-only type:

- Item information
- Promo details

## Item Information Screen

The Item Info screen displays detailed information about a particular item. The client accesses this screen by clicking the underlined item label in the Description column in the Item Worksheet. The client can select links on the Item Info screen to view pages with even more detailed information.

To configure this screen, you insert the data fields using the following files:

- item-details-layout.xml
- p4p-column-list.xml

## Promo Details

Promo details is a popup window associated with the What If screen. This window provides additional details about promotions that are not available on the What If screen. To display this window, click Promo in the Promo Flag row of the What If screen.

Typically, you accept the default configuration found in the p4p-promo-details-grid.xml file.

This file, which uses the same syntax as the XML column configuration files, is shown as follows.

```
<?xml version="1.0" encoding="UTF-8" ?>
- <!--
Sample XML file generated by XML Spy v4.4 U (http://www.xmlspy.com)
-->
<grid xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Grid.xsd" key="p4p-promo-details-grid">
<grid-properties name="p4pgui.grid.label.EditItemWorksheet" defaultrowlevel="1" />

<column-group-spec>
<column>
<key>INT_P_ITEM_ID</key>
<parent-key />
<column-properties display-type="integer" />
</column>
<column>
<key>P_PROMO_DESC</key>
<parent-key />
<column-properties />
</column>
<column>
<key>P_OFFER_LADDER_RUNG</key>
<parent-key />
<column-properties />
</column>
<column>
<key>P_OFFER_LADDER_PCT</key>
<parent-key />
```

```
<column-properties />
</column>
<column>
<key>P_START_DT</key>
<parent-key />
<column-properties />
</column>
<column>
<key>P_END_DT</key>
<parent-key />
<column-properties />
</column>
</column-group-spec>
<row-group>
<key>INT_P_ITEM_ID</key>
<rowgroup-properties expandable="true" isexpanded="true">
<groupby>INT_P_ITEM_ID</groupby>
</rowgroup-properties>
<summary-info />
</row-group>
<summary-info />
</grid>
```

# Price Ladders

This section provides information about configuring price ladders.

## Data Sources and Pre-configured Properties for Price Ladders

The following database views serve as data sources for the price ladders.

The properties for the price ladder rungs are pre-configured and have been loaded into the database tables. This means that you need to perform only minimal configuration for the price ladders.

The rung properties that are already loaded into the database are:

- dollar amount or percentage
- price ladder name
- price ladder type

## Configuring Price Ladder Properties

Your configuration activities for price ladders consist of verifying that the following specifications are made in the appropriate files. (Note that these specifications come pre-configured with the baseline application code and should be present in the appropriate files unless a team member from your installation has modified the files in question.)

The specifications you need to verify are shown in the following table:

***Table 10–34 Price Ladder Specifications***

| File Name | Specifications to Verify | Description |
|---|---|---|
| p4p-column-list.xml | The following column definitions: | |
| | INT_PROPOSED_PRICE | Markdown price display column |
| | INT_LADDER_ID | Markdown type display column |
| | INT_TICKET_PRICE | Ticket price not including promotions |
| | INT_LADDER_INITIAL_VAL | Non-displayed column |
| p4p-[grid-name]-grid.xml | The following column dependency tags: | These tags ensure that the needed calculations are performed on the price ladder metrics. |
| | <ColumnDependency>INT_LADDER_INITIAL_VAL</ColumnDependency> | You must ensure that these tags are present in the XML grid file(s) for that application screen. |
| | <ColumnDependency>INT_TICKET_PRICE</ColumnDependency> | |
| | The column keys that map to the required column keys in the XML grid files. These are: | You must ensure that these columns are correctly configured for the hierarchy level at which they are to display on the screen (parent or leaf level). The code for both parent and leaf-level column definitions is shown as follows. |
| | INT_PROPOSED_PRICE (markdown price display column) | |
| | INT_LADDER_ID (markdown type display column) | |

Following are column definitions in a p4p-[grid-name]-grid.xml file for price ladders that display at the parent level.

```
<ColumnDependency>INT_LADDER_INITIAL_VAL</ColumnDependency>
<grid-properties
<ColumnDependency>INT_TICKET_PRICE_WT_AVG</ColumnDependency>
</grid-properties>
<column-group-spec>
<column>
<key>INT_PROPOSED_PRICE</key>
<parent-key>INT_PROPOSED_PRICE</parent-key>
<column-properties
type="double"
editable-in-readmode="false">
<function key="P4P_PRICELADDER/">
</column-properties>
</column>
<column>
<key>INT_LADDER_INITIAL_VALUE</key>
<parent-key>INT_PROPOSED_PRICE</parent-key>
<column-properties
visibility="not-visible"
orderable="false"
hideable="false">
<function key="P4P_PRICELADDER/">
</column-properties>
</column>
Following are column definitions in a p4p-[grid-name]-grid.xml file for price
ladders that display at the leaf level.
<grid-properties
```

```
<ColumnDependency>INT_LADDER_INITIAL_VAL</ColumnDependency>
<ColumnDependency>INT_TICKET_PRICE_WT_AVG</ColumnDependency>
<ColumnDependency>INT_COLLECTION_NAME</ColumnDependency>
</grid-properties>
<column-group-spec>
<column>
<key>INT_PROPOSED_PRICE</key>
<parent-key>INT_PROPOSED_PRICE</parent-key>
<column-properties
type="double"
editable-in-readmode="false">
<function key="P4P_PRICELADDER"/>
</column-properties>
</column>
<column>
<key>INT_LADDER_ID</key>
<column-properties
displaytype="dropdown"
editable-in-readmode="false"
read-only type="static-text"
<function key="P4P_LADDERPICKER"/>
</column-properties>
</column>
<column>
<key>INT_LADDER_INITIAL_VAL</key>
<parent-key>INT_PROPOSED_PRICE</parent-key>
<column-properties
visibility="not-visible"
orderable="false"
hideable="false>
<function key="P4P_AVG">
<args>INT_INVENTORY</args>
</column-properties>
</column>
```

# 11

# Configuring the Application (GUI)

This chapter contains the following:



## Introduction

This chapter describes how to set up the Markdown Optimization application, which consists of the user interface and those software and hardware components that support it.

## Overview of the Markdown Optimization Application Configuration Process

This section provides an overview of the application configuration process.

### Completing Pre-Configuration Requirements

Before you begin the application configuration, you must ensure that these basic pre-configuration activities have been completed:

- The client's business requirements have been gathered and captured on an Excel spreadsheet.
- The following key tables of the application database have been configured and populated with at least a minimal set of data – either sample data or a subset of the client's data
  - ITEM_DATA
  - PRICE_LADDERS_TBL
  - P4P_SUBMITTAL_WORKSHEETS

  This data load is needed because Markdown Optimization is a data-driven application that cannot function without data.

### High-Level View of Configuration Tasks

Following is a high-level view of all possible tasks that you might perform to configure each user interface screen. As described in Chapter 10, "Understanding the Application (GUI) Configuration" the scope of configuration tasks that you do for a given screen depends on its configuration type — total, limited, or display-only. You perform all of these tasks for total configuration type screens and only a subset of them for the other configuration types.

The following tasks are listed in the order in which you perform them; each of them is described in detail later in this chapter.

1. Set up your workstation and user permissions.
2. Set up the screen hierarchy levels.
3. Configure the limited configuration type screens.
4. Configure the display-only type screens.
5. Set up the user administration features.
6. Perform advanced functional configuration for Price Ladders, Budget, and Markdown Accounting.

## Setting Up the Workstation and User Permissions

Once you have ensured that the client business requirements have been captured and the application database tables have been loaded with the needed data, the next steps are to:

1. load the required software onto your local workstation.
2. obtain user administrative permissions for yourself.

## Setting Up the Hierarchy Levels

After setting up your local workstation and obtaining the needed user access, your next step is to set up the hierarchy levels. You must set up the hierarchy levels before you can begin configuring the total configuration type screen.

The three major steps for setting up the hierarchy levels are:

1. Determine the client hierarchy levels.
2. Set up the hierarchy information in the appropriate XML configuration files.

   After editing the files, it is helpful to search them for the string HIERARCHY to ensure that you have properly set up the hierarchy levels.
3. Reboot WebLogic and test the setup.

### Determining the Hierarchy Levels

There are two options for determining the client hierarchy levels, depending on whether the client data has been already loaded into P4P_SUBMITTAL_WORKSHEETS.

To determine the client hierarchy levels:

- If the client data has not been loaded:

  Examine the application metrics spreadsheet that contains the client's business requirements.

- If the client data has already been loaded:

  Use Rapid SQL or another similar tool to view a snapshot of the database. Following is a view of the data from P4P_SUBMITTAL_WORKSHEETS as viewed through RapidSQL.

  In this view, each column represents a column on the grid display. Note that the HIERARCHY1 and HIERARCHY2 columns contain data representing department or division numbers as defined by the client. The presence of data in these columns means that the data for these department or divisions numbers are displayed on the grid. The absence of data in the HIERARCHY3 and HIERARCHY4 columns means that these hierarchies do not display on the grid.

| HIERARCHY1 | HIERARCHY1_MID | HIERARCHY2 | HIERARCHY2_MID | HIERARCHY3 | HIERARCHY3_MID | HIERARCHY4 |
|---|---|---|---|---|---|---|
| 0002 | [NULL] | 077 | [NULL] | [NULL] | [NULL] | [NULL] |
| 0004 | [NULL] | 126 | [NULL] | [NULL] | [NULL] | [NULL] |
| 0008 | [NULL] | 006 | [NULL] | [NULL] | [NULL] | [NULL] |

## Configuring the Hierarchy Levels

After you determine the hierarchy levels, configure the appropriate hierarchy elements in the appropriate XML configuration files. The files and elements to configure are shown in the following table.

***Table 11–1 XML Configuration Files for Hierarchy Updates***

| File | Hierarchy Elements to Configure |
|---|---|
| p4p-custom-columns.xml | INT_WKSHT_HIERARCHY<br>INT_STYLE_DESC |
| p4pgui-config.xml | hierarchy-html-form-name=<br>worksheet-params findKey= |
| p4pgui-wksht-summary-grid.xml | <column> <key><br>row-group<br>override-column-group |

An example for each of these three file types is shown as follows.

### Example of p4p-custom-columns.xml File

This example shows how the INT_WKSHT_HIERARCHY and INT_STYLE_DESC elements are configured to set up the hierarchy levels.

```
W<?xml version="1.0" encoding="UTF-8" ?>
- <!--
 edited with XML Spy v4.3 U (http://www.xmlspy.com)
--> - <columnlist xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="Grid.xsd" key="customColumns">
- <!--
 START : Columns overridden from p4p-columns-list.xml
--> - <column-def>
<key>INT_WKSHT_HIERARCHY</key>
<column-def-properties label="p4pgui.HIERARCHY4.column.label"
description="p4pgui.HIERARCHY4.column.description" db-table-name="p4p_submittal_
```

```
worksheets"
db-column-name="HIERARCHY4" groupId="GROUP_HEADER" filterable="true"
sortable="true"
orderable="true" operatortype="equals" />
</column-def> - <column-def>
<key>INT_STYLE_DESC</key>
- <column-def-properties composeable="false" label="p4pgui.HIERARCHY8_
NAME.column.label"
 type="string" db-column-name="HIERARCHY8_NAME"
description="p4pgui.HIERARCHY8_NAME.column.description" db-table-name="P4P_
DISPLAY_ITEMS"
filterable="true" sortable="true" orderable="true" hideable="false"
expandable="false" filtertype="text"
operatortype="equals" groupId="GROUP_HEADER">
<function key="P4P_SAME_OR_NULL" />
</column-def-properties>
</column-def>
- <!--
 END : Columns overridden from p4p-columns-list.xml
-->
- <!--
```

### Example of p4pgui-config.xml File

This example shows how the hierarchy html-form-name and worksheet-params findKey elements are configured to set up the hierarchy levels.

```
<?xml version="1.0" encoding="US-ASCII"?>
<!DOCTYPE xml PUBLIC "-//DTD p4pgui config//EN" "p4pgui-config.dtd">
<xml>
.
.
<hierarchy html-form-name="hierarchy1" id="1" key="HIERARCHY1"/>
<hierarchy html-form-name="hierarchy2" id="3" key="HIERARCHY2"/>
<hierarchy html-form-name="hierarchy3" id="5" key="HIERARCHY3"/>
<hierarchy html-form-name="hierarchy4" id="7" key="HIERARCHY4"/>
<hierarchy html-form-name="hierarchy5" id="9" key="HIERARCHY5"/>
<hierarchy html-form-name="hierarchy6" id="11" key="HIERARCHY6"/>
<hierarchy html-form-name="hierarchy7" id="13" key="HIERARCHY7"/>
<hierarchy html-form-name="hierarchy8" id="15" key="HIERARCHY8"/>
.
.
<worksheet-params findKey="HIERARCHY8" allow-sendback-date="true"/>
  <merchandise-maint-params endingInv-input-type="tgtSellThruPerc">
    <items>
      <outdate-constraints range="365">
        <excluded-days/>
      </outdate-constraints>
    </items>
    <collections>
      <outdate-constraints range="365">
        <excluded-days/>
      </outdate-constraints>
    </collections>
  </merchandise-maint-params>
  <page name="worksheet">
    <view gridname="collectionsGrid"/>
    <view gridname="itemsGridGroupStyle"/>
    <view gridname="itemsGridFlat"/>
  </page>
  <page name="merchandise">
```

```
    <view gridname="maintGridCollections"/>
    <view gridname="maintGridFlat"/>
  </page>
  <export-filenames mkdn-to-client="pma_mkdn" mkdn-to-pl="pma_mkdn_pl"
outdates-to-pl="pma_outdate_pl"/>
  <hints on="true">
    <hint name="RULE">RULE</hint>
    <hint name="ORDERED">ORDERED</hint>
  </hints>
</xml>
```

### Example of p4p-wksht-summary.xml File

This example shows how the column, row-group, and override-column-group elements are configured to set up the hierarchy levels.

```
<?xml version="1.0" encoding="UTF-8" ?>
- <!--
 edited with XML Spy v4.3 U (http://www.xmlspy.com)
--> <column>
<key>ROWSELECT</key>
<parent-key>SELECT_ROW</parent-key>
<column-properties />
</column>
.
.
.
- <!--
//
--> - <row-group>
<key>CHAIN</key> - <rowgroup-properties expandable="true" isexpanded="true"
name="ALL">
<groupby>EMPTY</groupby>
</rowgroup-properties> -
<override-column-group> -
 <column>
<key>INT_WKSHT_HIERARCHY</key>
<column-properties display-type="blank" />
</column> - <column>
</override-column-group> - <row-group>
<key>WKSHT_HIERARCHY4</key>
<rowgroup-properties expandable="true" isexpanded="true" />
<override-column-group />
</row-group>
</row-group>
</grid>
```

## Configuring Total Configuration Type Screens

Because total configuration type screens contain the largest number of elements to configure, they are the most complex to work with. Therefore, it is best to begin the configuration process by configuring screens of this type first. The majority of your application configuration effort consists of configuring these screens.

The total configuration type screens are as follows:

- Worksheet summaries
- Worksheets
- Edit item worksheet

- Maintaining merchandise screens
- Collections
- Edit collection
- Reports

The Worksheet Summaries screen serves as a good example of how to configure the total configuration type screen because of the following:

- This screen is the first screen that the user sees upon startup. Therefore, for optimal testing, this screen should be working first.
- Most of the other screen types are built upon it.
- The Worksheet Summaries screen has the most complex configuration of all the application screens.

## Configuring a Sample Screen

In this section, the configuration of the Worksheet Summaries is described by reviewing the configuration procedures for a screen.

Following are the high-level steps for configuring a screen. These steps are described in detail in the following pages:

1. Identify the application screen metrics.
2. Identify the data source.
3. Create the columns.
4. Configure the grid features.
5. Test the display.

## Identifying the Application Screen Metrics

Your first step in the configuration process is to determine the screen metrics.

Following are selected application metrics. Note that each row in this spreadsheet corresponds to a column in the Worksheet Summaries screen.

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | **Use** | **Column Key** | **Display Name** | **Pop-Up Description** | **DB Table Name** | **DB Column Name** | **Function** |
| 2 | yes | HIERARCHY1 | Chain | Chain | p4p_items | HIERARCHY1_ID | p4p_same_or_null |
| 3 | yes | HIERARCHY1_NAME | Chain | Chain | p4p_items | HIERARCHY1_NAME | p4p_same_or_null |
| 4 | yes | HIERARCHY2 | Division number | Division number | p4p_items | HIERARCHY2_ID | p4p_same_or_null |
| 5 | yes | HIERARCHY2_NAME | Division name | Division name | p4p_items | HIERARCHY2_NAME | p4p_same_or_null |
| 6 | yes | HIERARCHY3 | Department number | Department number | p4p_items | HIERARCHY3_ID | p4p_same_or_null |
| 7 | yes | HIERARCHY3_NAME | Department name | Department name | p4p_items | HIERARCHY3_NAME | p4p_same_or_null |
| 8 | yes | WKSHT_STATUS | Worksheet status | Worksheet status | p4p_submittal_worksheets | STATUS_DESC | p4p_same_or_null |
| 9 | yes | NUM_REC | # Rec MD | Total number of items recommended for markdown this week. | p4p_submittal_worksheets | RECOMMENDED_MARKDOWN_PRICE | p4p_sum |
| 10 | yes | REC_MARKDOWN_DOLLARS | Rec MD $ | Markdown cost (using retail accounting) of taking the recommended markdown. | p4p_submittal_worksheets | REC_MARKDOWN_DOLLARS | p4p_sum |
| 11 | yes | REC_MARKDOWN_DOLLAR_COST | Rec MD $ Cost | Cost of the inventory recommended for markdown. | p4p_submittal_worksheets | REC_MARKDOWN_DOLLAR_COST | p4p_sum |
| 12 | yes | TAKEN_MARKDOWN_DOLLARS | Taken MD$ | Markdown cost (using retail accounting) of the taken markdown. | p4p_submittal_worksheets | TAKEN_MARKDOWN_DOLLARS | p4p_sum |
| 13 | yes | TAKEN_MARKDOWN_DOLLAR_COST | Taken MD$ Cost | Cost of the inventory taken for markdown. | p4p_submittal_worksheets | TAKEN_MARKDOWN_DOLLAR_COST | p4p_sum |
| 14 | yes | NUM_ADDED_MARKDOWNS | # Added MD | Number of additional markdowns taken. | p4p_submittal_worksheets | NUM_ADDED_MARKDOWNS | p4p_sum |
| 15 | yes | NUM_TAKEN_MARKDOWNS | # Taken MD | Number of markdowns taken. | p4p_submittal_worksheets | NUM_TAKEN_MARKDOWNS | p4p_sum |

The columns in this spreadsheet is described in the following table.

***Table 11–2 Application Metrics Spreadsheet Columns***

| Column | Header | Description |
|---|---|---|
| A | Use | Whether the column is used in the grid – Yes or No |
| B | Column Key | Unique identifier for the column |
| C | Display Name | Label to appear at the top of the column on the screen display |
| D | Pop-Up Description | Context-sensitive description that appears when the user selects the column label |

## Identifying the Data Source

To configure the Worksheet Summaries screen, you must determine the data source for each column in the grid. The data source types are:

- Direct metric – direct reference to a database column
- Derived metrics:
  - Simple derivation – derived from an operation on a database metric
  - Complex derivation – derived from a user-defined column that is derived from a database column

To create columns for the Worksheet Summaries screen, you must identify and specify data sources in both of the XML column files — p4p-column-list.xml and p4p-custom-columns.xml. You must use both column files because you need to configure two columns for each column that appears on the Worksheet Summaries screen.

In the column files, you specify the data source within the <column-def-properties> element. The following table shows:

- The data sources for the two columns that you configure to create the # Rec MD column, which is the sample column described in this example.
- The configuration files in which these data sources are defined

***Table 11–3 Data Sources and Configuration Files for Worksheet Summaries Columns***

| Database Table Name | Database Column Name | XML Configuration File |
|---|---|---|
| P4P_DISPLAY_ITEMS | RECOMMENDED_ITEM_FLAG | p4p-column-list |
| p4p_submittal_worksheets | NUM_RECOMMENDED_MARKDOWNS | p4p-custom-columns |

## Creating Columns

Columns are the basic building blocks of the application screens. Each column, as defined in the application metrics spreadsheet represents one metric (type of data) for each row. When you configure the screens, you must define both displayed and hidden columns.

You do not define the standard, out-of-the-box application columns, which are already configured.

### Configuring Multiple Columns in the Spreadsheet

The sample screen configuration described in this section shows the configuration of only one column — # Rec MD (Number of Recommended Markdowns). Once you understand how this column is created, you can use the same process to create the other needed columns for the screen.

Typically, when configuring a Markdown Optimization screen, you define several related columns at a time and then test them.

### Creating the #Rec MD Column

Creating the # Rec MD column in the sample Worksheet Summaries screen requires defining elements in five different Markdown Optimization configuration files. Each

of these files has elements that map to the comparable elements in the other files used for the column configuration.

The Worksheet Summaries screen aggregates and displays data from other screens, specifically, from the Items Worksheet screens. That is, this screen shows metrics (item-level calculations) that do not exist at the Item Worksheet level. Because of this aggregation of data from other screens, you must configure two columns for each column that appears on the Worksheet Summaries screen.

The following table shows the files used in configuring the # Rec MD column and the metrics configured in each file. These files are listed in the suggested order of configuration:

***Table 11–4 Configuration Files and Metrics to Define # Rec MD Column***

| File | Metrics |
|---|---|
| 1. p4pgui-config.xml | Worksheet-level variable |
| | Column key reference |
| | Aggregation type |
| 2. p4p-column-list.xml | Column key |
| | Data source definition |
| | Column display features |
| 3. p4p-custom-columns.xml | Custom column to display variable |
| | Data source definition |
| | Alias for column label text |
| | Alias for context-sensitive column label description |
| | Column display features |
| 4. p4p-wksht-summary-grid.xml | Column key<br>This section describes only the column-specific configurations for this file. |
| 5. gridResources.properties | Display text for column label |
| | Display text for context-sensitive column label description. |

For each configuration file, the following sections describe the following:

- Configurations to specify in this file
- Procedures for specifying each of these configurations

### Configuring p4pgui-config.xml

This file is the best place to begin the column configuration because it is where you set up the hierarchies.

To configure this file, define the following within the <metrics> element:

- Create a worksheet-level variable
- Populate this variable by defining a reference to the column key
- Specify a formula for this variable

**To create the worksheet-level variable,** create a metric that defines the number of recommended markdowns, as follows:

```
<metrics>
<metric-items
name = "num_recommended markdowns"
</metrics>
```

This metric points to the corresponding column metric in the p4p-custom-columns.xml file, which in turn points to the database

As you continue defining the screen grid, create a new worksheet-level variable (column metric) for each column.

The <items-metric> element in p4pgui-config.xml is used to specify the footnote summary metrics. The valid type attributes for the <items-metric> element are date, numeric, percent, money, and status. Here is a configuration example that includes a custom format. If the type is numeric and no format is specified, then the format defaults to the suite-wide integer format. In order to get a decimal format, a specific format must be supplied.

```
<items-metric id="oh" display-name="p4pgui.metrics.oh.label" type="numeric"
format="p4pgui.metrics.format.numeric" row="3" column="1"/>
```

**To populate this worksheet-level variable,** create a reference to the corresponding column key, as follows:

```
<metrics>
<metric-items
column-ref="INT_RECOMMENDED_ITEM_FLAG"
</metrics>
```

In this example, the corresponding column key is contained in the p4p-column-list.xml file. (In other cases, the key might be found in the p4p-custom-columns.xml file.) By creating this reference you are creating a link between the worksheet and the item.

**To define the aggregation type**, enter an acceptable value for this element.

Note that when using the summary metrics tag, the aggregation type is a required field.

In this example, the aggregation type is defined as follows:

```
<metrics>
<metric-items
aggregationType = "SUM"
</metrics>
```

The aggregation type in this example defines the value of "num_recommended markdowns" as the sum of INT_RECOMMENDED_ITEM_FLAG.

Following is the code in the p4pgui-config.xml file to use to review the configured file after all the preceding elements have been configured.

```
<metrics>
<metric-items
name = "num_recommended markdowns"
column-ref="INT_RECOMMENDED_ITEM_FLAG"
aggregationType = "SUM"
</metrics>
```

### Configuring p4p-column-list.xml

This file contains the configurations for the following Worksheet Summaries screen column metrics:

- Column key
- Data source definition
- Column display features

**To create the column key** (unique identifier for the column), define the key in the <column-def> element, as follows:

```
<key>INT_RECOMMENDED-ITEM-FLAG</key>
```

This is an item-level piece of information.

This key is referenced by the column reference in the p4pgui-config.xml file as follows:

```
column-ref="INT_RECOMMENDED_ITEM_FLAG"
```

**To create the data source definition** (that is, to assign a value to the int_recommended_item_flag variable), specify the database table name and column name within the <column-def-properties> element, as follows:

```
<column-def>
<column-def-properties
db-table-name="P4P_DISPLAY_ITEMS"
db-column-name="RECOMMENDED_ITEM_FLAG"/>
</column-def>
```

The result of creating this data source definition is that the column reference INT_RECOMMENDED_ITEM_FLAG (defined in the p4pgui-config.xml file) takes the corresponding value in the database.

**To define the column display features**, assign values to the column attributes, as follows:

```
<column-def>
<column-def-properties
type="integer"
display-type="integer"
orderable="false/>
</column-def-properties>
</column-def>
```

For information on acceptable values for the <column-def-properties> element, see Table.

Note that if the display type attribute of a column is date, the date displays in the same format as the operating system's date.

Following is the configuration of the p4p-column-list.xml file to use to review the configured file after all the preceding elements have been defined.

```
<column-def>
<key>INT_RECOMMENDED_ITEM_FLAG</key>
<column-def-properties
db-table-name="P4P_DISPLAY_ITEMS"
db-column-name="RECOMMENDED_ITEM_FLAG"
type="integer"
display-type="integer"
orderable="false/>
</column-def>
```

Note that the INT_TICKET_PRICE and the INT_TICKET_PRICE_WT_AVG metrics specified in p4p-column-list.xml refer to PERM_TICKET_PRICE (the second derivation), but they have different aggregations. INT_TICKET_PRICE is an internal

metric that is used to truncate price ladder drop-down values, so the maximum value in the price ladder drop-down menu will not exceed the minimum ticket price in the grouping. This could happen, for example, when the price ladder is at the collection level and there is a group of items below that level. This is done to disallow markups. You should not override the aggregation type for INT_TICKET_PRICE. It must always be of type MIN. In addition, it should be hidden, because the ticket price that is usually visible to the client has an average type of aggregation weighted by the inventory (see INT_TICKET_PRICE_WT_AVG) not MIN. To display a ticket price, INT_TICKET_PRICE_WT_AVG should be used and it should be made visible.

### Configuring p4p-custom-columns.xml

This file contains the configurations for the following Worksheet Summaries screen column metrics:

- Custom column to display the variable
- Data source definition
- Alias for the column label text
- Alias for the context-sensitive label description
- Column display features

**To define a custom column to display this variable** that you have created for the worksheet, create a column key as follows:

```
<key>NUM_REC</key>
```

This key name must be unique because it serves as the unique identifier for the # Rec MD column.

To create the data source definition (that is, to assign a value to the num_recommended_markdowns variable), specify the database table name and column name within the <column-def-properties> element, as follows:

```
<column-def>
<column-def-properties
db-table-name="p4p_submittal_worksheets"
db-column-name="NUM_RECOMMENDED_MARKDOWNS"/>
</column-def-properties >
</column-def>
```

This data source definition acts as an intermediary between the database and the corresponding definition in the p4pgui-config.xml file.

That is, this definition points directly to the database, from which it takes the corresponding value for that variable. From the other end, the corresponding element in the p4pgui-config.xml file points to this definition. Therefore, the metric-items name = "num_recommended markdowns" element in the p4pgui-config.xml file gets populated with data by referring to this column reference.

**To define an alias (pointer) to the column label text**, create the following label definition:

```
label = "p4pgui.numRec.column.label"
```

This label definition, which points to the gridResources.properties file, contains the actual label text to display at the top of the column.

To define an alias (pointer) to the context-sensitive label description for the column, create the following label definition:

```
description = "p4pgui.numRec.column.description"
```

This label definition, which points to the gridResources.properties file, contains the text that displays when the user hovers the mouse over the label text at the top of the column.

**To define the column display features,** assign values to the column attributes, as follows:

```
<column-def>
<column-def-properties
display-type=”integer”
orderable=”true”
sortable=”true”
hideable=”true
</column-def-properties>
</column-def>
```

Following is the configuration of the p4p-custom-columns.xml file to use to review the configured file after all the preceding elements have been defined.

```
<column-def>
<key>NUM_REC</key>
<column-def-properties
db-table-name=”p4p_submittal_worksheets”
db-column-name=”NUM_RECOMMENDED_MARKDOWNS”/>
label = “p4pgui.numRec.column.label”
description = “p4pgui.numRec.column.description”
display-type=”integer”
orderable=”true”
sortable=”true”
hideable=”true
</column-def-properties>
</column-def>
```

### Configuring p4p-wksht-summary-grid.xml

To get the column properties, this file contains a reference to the NUM_REC column key in the p4p-custom-columns.xml file.

In this example, this reference is defined as follows:

```
<column-properties>
<key>NUM_REC</key>
</column-properties>
```

When the p4p-wksht-summary-grid.xml file contains column property definitions, these definitions override the ones defined in either of the column files.

### Configuring gridResources.properties

This file contains configurations for:

- The label that appears at the top of the # Rec MD column
- The description that displays when the user hovers the mouse over the column label display

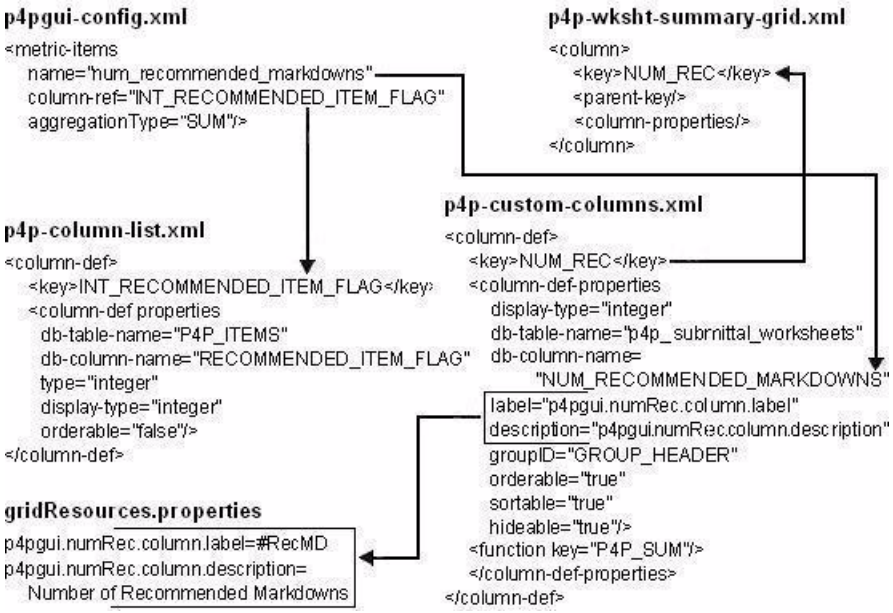
The text label and description are defined in this file as follows:

p4pgui.numRec.column.label = # Rec MD

p4pgui.numRec.column.description = Number of recommended markdowns

### The Mapping Between the Column Configuration Files

Each of the five column-related configuration files contains elements that map to the comparable elements in the other files used for the column configuration. The mapping of these elements from one file to the other is shown in the following illustration.




## Configuring the Grid Features

After the columns are configured, the next step is to configure the grid.

Each Markdown Optimization grid screen enables you to group columns of information. To prevent blank columns being grouped together, it is recommended that you enable grouping only on required fields.

The p4p-wksht-summary-grid.xml file for the sample Worksheet Summaries screen used in this section specifies

- The column group specification, which determines:
  - The columns to display on the grid
  - The display order of these columns

  The column specifications in this file do not include column configurations such as data source, display properties, and function keys. These properties are specified in the <column-def-properties> element in the application XML column files.
- The row group specification, which determines:
  - The nesting of the rows
  - The different formats in parent and child rows
  - If applicable, specifications that override column group settings
- Identifying, functional, and display properties for the row and column groups

### Configuring Maintaining Merchandise Grids

In the Maintaining Merchandise grids, P4P_DISPLAY_ITEMS has been replaced by P4P_MAINTAIN_ITEMS. Maintaining Merchandise grids do not use the P4P_DISPLAY_ITEMS view as db-table-name. Instead, they use the P4P_MAINTAIN_ITEMS view.

The following metrics are only available on the Maintaining Merchandise views. These metrics must have the following property set for them to filter on (which is in the Maintaining Merchandise grids):

```
<custom-property name= "useMaintainView" value= "true" custom-type=
"application"/>
```

| Metric Name | Metric Key |
|---|---|
| New Out Date | INT_MOD_OUTDATE |
| New Salvage Value% | INT_MOD_SALVAGE_VAL_PERC |
| New Sell Through% | INT_MOD_INV_TARGET_ST_PERC |
| New Ending Inventory | INT_MOD_INV_TARGET_END_UNITS |
| New Start Date | modifiedStartDate |

### Specifying the Columns That Comprise the Grid

The p4p-wksht-summary-grid.xml file for the sample Worksheet Summaries screen used in this section specifies the columns that comprise the grid. The column group specification in this grid file contains the twelve columns that display on the screen. It also contains one column that is not visible on the screen.

The columns and their keys are shown in the following table. Except for the standard columns (select row, expand-collapse, worksheet ID, and worksheet status), specifications for all these columns can be found in the business requirements spreadsheet.

***Table 11–5 Columns Specified in Sample p4p-wksht-summary-grid.xml File***

| Column Name | XML Element or Attribute | Additional Information |
|---|---|---|
| Select row | ROWSELECT | Check box for selecting the row |
| Expand-Collapse | EXPCOL | Additional column to allow expansion and collapsing. Required if any of the columns have the value “true” in the expandable attribute. |
| Worksheet ID | INT_WORKSHEET_ID | For internal use |
| Chain | HIERARCHY1 | Not displayed in the sample Worksheet Summaries screen. |
| Division | HIERARCHY2 | |
| Department | HIERARCHY3 | |
| Status | WKSHT_STATUS | |
| Number of recommended markdowns | | Sample column used as configuration example for this worksheet. |

*Table 11–5 (Cont.) Columns Specified in Sample p4p-wksht-summary-grid.xml File*

| Column Name | XML Element or Attribute | Additional Information |
|---|---|---|
| Recommended markdown dollars | REC_MARKDOWN_DOLLARS | |
| Recommended markdown dollar cost | REC_MARKDOWN_ DOLLAR_COST | |
| Taken markdown dollars | TAKEN_MARKDOWN_ DOLLARS | |
| Taken markdown dollar cost | TAKEN_MARKDOWN_ DOLLAR_COST | |
| Number of added markdowns | NUM_ADDED_MARKDOWNS | |
| Number of taken markdowns | NUM_TAKEN_MARKDOWNS | |

Following are the column specifications in the p4p-wksht-summary-grid.xml file for the sample Worksheet Summaries spreadsheet. These specifications indicate:

- Which columns (both visible and non-visible) should be included in the Worksheet Summaries screen.

  Note that every column key in this file must point to the identical key in one of the column files. If the column key is not correct, the column will not display on the screen.

- The order in which these columns display on the screen.

  The first column specified in this file indicates the left-most column that displays on the screen, and so on.

```
<?xml version="1.0" encoding="UTF-8" ?>
<grid xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Grid.xsd" key="summary">
<grid-properties name="grid" defaultrowlevel="1" firstrowheadercolumn="2"
columnsFrozen="5" filterable="false" />
<column-group-spec>
<column>
<key>ROWSELECT</key>
<parent-key>SELECT_ROW</parent-key>
<column-properties/>
</column>
<column>
<key>EXPCOL</key>
<parent-key>EXPCOL</parent-key>
</column>
<column-properties/>
<column>
<key>INT_WORKSHEET_ID</key>
<column-properties/>
</column>
<column>
<key>HIERARCHY1</key>
<parent-key/>
<column-properties
visibility=”not-visible”
hideable=”false”
```

```
orderable="true"
sortable="true"/>
</column>
<column>
<key>HIERARCHY2</key>
<parent-key/>
<column-properties
type="double"
orderable="true"
sortable="true"
display-type="integer/>
</column>
<column>
<key>HIERARCHY3</key>
<parent-key/>
<column-properties
type="double"
sortable="true"
orderable="true"
display-type="integer/>
</column>
<column>
<key>WKSHT_STATUS</key>
<parent-key>WKSHT_STATUS</parent-key>
<column-properties
orderable="true"
sortable="true"
hideable="true"/>
</column>
<key>NUM_REC</key>
<column>
<parent-key/>
<column-properties/>
</column>
<column>
<key>REC_MARKDOWN_DOLLARS</key>
<parent-key/>
<column-properties/>
</column>
<column>
<key>REC_MARKDOWN_DOLLAR_COST</key>
<parent-key/>
<column-properties/>
</column>
<column>
<key>TAKEN_MARKDOWN_DOLLARS</key>
<parent-key/>
<column-properties/>
</column>
<column>
<key>TAKEN_MARKDOWN_DOLLAR_COST</key>
<parent-key/>
<column-properties/>
</column>
<column>
<key>NUM_ADDED_MARKDOWNS</key>
<parent-key/>
<column-properties/>
</column>
<column>
```

```
<key>NUM_TAKEN_MARKDOWNS</key>
<parent-key>PARENT_KEY</parent-key>
<column-properties/>
</column>
</column-group-spec>
```

### Specifying Row Hierarchies in the Grid

Typically, you configure worksheets so that some rows display summarized data from other rows. For example, a worksheet might contain a set of adjoining rows that display the data for several different colors of the same item, with each row displaying the data for a different color. To display the aggregated data from all the different item colors, you create a summary row.

The row hierarchies that you create are shown in the following table.

***Table 11–6 Row Hierarchies in the Grid***

| Definition | Display Data |
|---|---|
| Parent-level row | Summary data, that is, a defined aggregation of database records. |
| Child-level row | Item-level data, that is an individual database record. |

Markdown Optimization enables you to define multiple levels of child rows. Child rows are nested within the next highest level of row, which may be either the parent row or a higher-level child row. Each row represents either a record in the database or a defined aggregation of records.

### Aggregated Data View

Data views in Markdown Optimization can be configured to display items in various ways. Items can be aggregated so that merchandise is displayed at the style level (or another level, depending on the implementation) instead of the item level.

To configure an aggregated view:

- Modify p4pgui-config.xml as follows:

  In <page name = “worksheet”>, enter <view gridname=”aggregated-items-grid”/>

  where gridname is the key found in p4p-aggregated-grid.xml.

- The default value for max-worklist-query in p4pgui-config.xml, which determines the maximum number of rows that are displayed in a grid, is set to 500 for maximum performance.
- Set the max-visible-columns in the <grid-properties> section of any grid file to 30 to maximize performance.

### Specifying Other Grid Attributes

As defined in Chapter 10, "Understanding the Application (GUI) Configuration" the XML grid file is where you define properties for the grid as a whole. These properties include:

- Rows and columns frozen
- Default row level
- Filtering properties

- First-row header column
- Grid name

The following excerpt from the wksht-summaries-grid.xml file for the sample worksheet shows the grid properties for the sample Worksheet Summaries screen.

```
<grid xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Grid.xsd"
key="summary">
<grid-properties
name="grid
defaultrowlevel="1"
firstrowheadercolumn="2"
columnsFrozen="2"
filterable=false/>
```

# Configuring Limited Configuration Type Screens

When you configure limited configuration screens, you choose from a predefined selection of rows and columns. Because of these predefined elements, the configuration process for limited configuration type screens is much simpler than for the total configuration type screens. The predefined rows and columns are specified in the p4pgui-config.xml file, which is located in the grids folder.

The following screens are limited configuration screens:

- What If
- Recommended Forecast
- User profile
- Administration

## Configuring the What If Screen

Configuring the What If screen involves the following high-level steps:

1. Identify the screen metrics.
2. Verify that the database tables are populated with data.
3. Make local copies of the configuration files on your workstation.
4. Edit the configuration files.
5. Save the files under source control.
6. Test the configuration.

### Identifying the Screen Metrics

To identify the screen metrics for the What If screen, locate the following metrics in the business requirements spreadsheet:

- Required rows
- Required columns
- Other metrics such as:
  - Forecast parameters such as number of forecast weeks
  - Display parameters such as price ladders, markdown cost, and gross margin dollars.

### Verifying Data in Database Tables

Make sure that the following database tables are populated with data:

- FORECAST_ACTIVITIES
- ITEM_DATA

### Copying, Editing, and Saving the Configuration Files

To copy, edit, and save the configuration files:

1. Ensure that you have made a copy of the p4pgui-conf.xml file on your local workstation.
2. In this copy of p4pgui-config.xml, identify the row and column definitions, which are as follows:

   <what-if-view-column>

   [properties]

   <what-if-view-row>

   [properties]
3. Do either of the following to the row and column definitions that you do not plan to use for the implementation:
   - Delete them.

     or
   - Insert comment delimiters around them so that the application does not read them,
     for example:

     ```
     <!--forecast-view-row
     display-name="p4pgui.forecastWhatIfRow.salesDollars.label"
     description="p4pgui.forecastWhatIfRow.salesDollars.description"
     use-as="salesDollars"type="money"
     format="p4pgui.forecastWhatIfRow.gMDollarsRetail.format/>-->
     ```

     After you complete this step, the only functioning row and columns definitions left in the p4pgui-conf.xml file should be those to be used in the implementation.
4. Save the file and, when appropriate, check it into source control.

### Testing the configuration

Test the screens for proper display of the selected metrics.

## Configuring the Recommended Forecast screen

The steps for configuring the Recommended Forecast screen are as follows:

1. Identify the screen metrics.
2. Ensure that the ITEM_DATA database table is populated with data.
3. Identify the required rows, columns, and other metrics (such as number of weeks to display) specified in the business requirements spreadsheet for the Recommended Forecast screen.
   1. Use the following syntax for defining rows and columns.

<what-if-view-column>

[properties]

<forecast-view-row>

[properties]

4. In the p4pgui-config.xml file, identify the available columns and rows.

   An example of a What If column definition is as follows:

   ```
   <what-if-view-column
   display name="p4pgui.whatIfCol.TTOOS.label"
   description="p4pgui.whatIfCol.TTOOS.description"
   use-as="TTOOS"/>
   ```

   If the business requirements spreadsheet specifies rows or columns that are not listed in the p4pgui-config.xml file, see the Contract Solutions Manager or Business Consultant for the customer installation.

5. Make a copy of the p4pgui-conf.xml file on your local workstation.

6. In this copy of p4pgui-config.xml, do either of the following to the row and column definitions that you do not want to use for the implementation:

   - Delete them.
   - Insert comment delimiters around them, for example:

     ```
     <!--forecast-view-row
     display-name="p4pgui.forecastWhatIfRow.salesDollars.label"
     description="p4pgui.forecastWhatIfRow.salesDollars.description"
     use-as="salesDollars"type="money"
     format="p4pgui.forecastWhatIfRow.gMDollarsRetail.format/>-->
     ```

     In other words, after completing this step, only those row and column definitions to be used for the implementation should be left in the p4pgui-config.xml file.

7. Save the file and, when appropriate, check it into source control.

8. Test the screens for proper display of the selected metrics.

# 12

# Configuration Properties Files

This appendix contains the following:



## Introduction

The configuration properties files enable you to set up and configure various parameters in the MDO application. This chapter lists the settings for config.properties and suite.properties.

Although you can update or set the values for the properties in these configuration files to configure the MDO application, Oracle recommends that you make a copy of the file in the client sub-folder, and then update the configuration file. The properties defined in the configuration file (in the client sub-folder) override those found in the original configuration file.

Once you update the value of any parameter in the configuration files, you must restart the application server for the changes to take effect.

## config.properties Settings

The following settings are contained in config.properties. Each property is shown with its default value.

***Table 12–1 Settings for config.properties***

| Property | Description |
|---|---|
| p4pgui.what-if.max.size=1000 | The maximum weighted size (hard limit) of a What-If selection. This value should not be set to greater than 1,000. The What-If recalculation will not be initiated if the number of items exceeds this value. Use this parameter to limit the size of a user's What If recalculation so that overall performance is acceptable. |
| p4pgui.what-if.warn.size=100 | The practical maximum weighted size (soft limit) of a What-If selection. This value is best if set to 100. Setting this to a higher value can impact performance. The What-If recalculation can still be initiated if the number of items exceeds this value; however, the user will receive a warning. Use this parameter to warn users of particularly expensive recalculations. |
| p4pgui.what-if.pricing-group-item.weight=0.7 | The weight to use for each item after the first in a pricing group in a What-If recalculation. Use this value as a variable when recalculating items in a pricing group. The value reflects the relative cost of optimizing individual items as compared to optimizing items in a pricing group. |
| pricefe.systemwide.itemDominance=true | Flag for setting pricing group dominance or item dominance at the system level. This includes OTB and What If. |
| pricefe.otb.enabled=true | Flag for exposing the OTB functionality in the UI. |
| pricefe.otb.excludeDCInventory=false | Flag for setting how the markdown budget is calculated. If set to true, then the calculation will exclude the markdown costs of the distribution center inventory. |
| pricefe.seasoncodes.error.limit=100 | The maximum weighted size (hard limit) of a Seasonality Curve selection. This value should not be set to greater than 100. The Seasonality Curve selection will not be initiated if the number of curves exceeds this value. |
| pricefe.seasoncodes.warn.limit=20 | The practical maximum weighted size (soft limit) of a Seasonality Curve selection. The recommended value is 20. Setting this to a higher value can impact performance. The Seasonality Curve selection can still be initiated if the number of curves exceeds this value; however, the user will receive a warning. |
| p4pgui.whatif.fcstSalesUnitsSeries.color = #87CEEB | Sets the color for the forecast (model run) sales units curve. |
| p4pgui.whatif.currSalesUnitsSeries.color = #4169E1 | Sets the color for the current (recalc) sales units curve. |
| p4pgui.whatif.fcstInvSeries.color = #FF6347 | Sets the color for the forecast (model run) inventory curve. |
| p4pgui.whatif.currInvSeries.color = #FF0000 | Sets the color for the current (recalc) inventory curve. |
| p4pgui.whatif.fcstTicketPriceSeries.color = #CD5C5C | Sets the color for the forecast (model run) ticket price curve. |
| p4pgui.whatif.currTicketPriceSeries.color = #8B0000 | Sets the color for the current (recalc) ticket price curve. |
| p4pgui.whatif.fcstSalesPriceSeries.color = #90EE90 | Sets the color for the forecast (model run) sales price curve. |
| p4pgui.whatif.currSalesPriceSeries.color = #008000 | Sets the color for the current (recalc) sales price curve. |
| p4pgui.whatif.fcstBaseSalesSeries.color = #FFD700 | Sets the color for the forecast (model run) base sales (de_promo_de_price) curve. |

*Table 12–1 (Cont.) Settings for config.properties*

| Property | Description |
|---|---|
| p4pgui.whatif.currBaseSalesSeries.color = #DAA520 | Sets the color for the current (recalc) base sales (de_promo_de_price) curve. |
| p4pgui.whatif.promotions.color = #FFE4B5 | Sets the color for the promotions. |
| pricefe.itemListFilter.delimiters=newline, tab, space, colon, semicolon, comma | Identifies the delimiters used to separate the hierarchy list. Remove any delimiters if they occur in the identifier that is being filtered. |
| pricefe.itemListFilter.identifier=INT_UNIQUE_ID | In conjunction with the INT_UNIQUE_ID derivation in p4p-column-list.xml file, this is used to define the hierarchy combination for filtering. |
| pricefe.showItemLevelFilter.WarningMsg=false | Use to obtain more details on which items are invalid or hidden in item level filtering. When this is set to true, Item Level Find by Filter is implemented, and the hidden item warning message and the invalid item (or hierarchy) warning message are displayed. By default, this is set to false and the hierarchy level Find by Filter is implemented. |
| pricefe.showRegionFilter=true | Determines whether or not the region filter in the quick filter is displayed. |

# suite.properties Settings

The following settings are contained in suite.properties. Each property is shown with its default value.

*Table 12–2 Parameters in the suite.properties File*

| Parameter | Description |
|---|---|
| common.dbdialect.dialect | Use this parameter to specify the database dialect used within the suite. |
| usermanagement.login.url | Use this parameter to specify the User Management login URL. |
| usermanagement.manageUsers.url | Use this parameter to specify the URL for the Manage Users screen in the User Management utility. |
| usermanagement.changePassword.url | Use this parameter to specify the URL for the Change Password screen in the User Management utility. |
| businessrulemgr.entry.url | Use this parameter to specify the Business Rule Manager URL. |
| storesets.entry.url | Use this parameter to specify the Store Set Management URL. |
| p4pgui.login.url | The MDO application login URL. |
| common.hierarchy.cache.timeout .hours | Number of hours for the hierarchy caches to become stale. |
| common.hierarchy.fetch.merch .maxlevels | Maximum number of merchandise hierarchy levels to fetch at a time. |
| common.hierarchy.fetch.loc.maxlevels | Maximum number of location hierarchy levels to fetch at a time. |
| common.hierarchy.merch.chainid | Identification number of the merchandise hierarchy chain. |

*Table 12–2 (Cont.) Parameters in the suite.properties File*

| Parameter | Description |
|---|---|
| common.hierarchy.loc.chainid | Identification number of the location hierarchy chain. |
| common.jdbc.oracle.fetchsize | The JDBC fetch size for result set on a Oracle database. |
| common.jdbc.db2.fetchsize | The JDBC fetch size for result set on a DB2 database. |
| common.dump.csv.forecast.response | Use this parameter to specify that *.csv* files are created for forecast response. |
| common.help.columnDef | Use this parameter to specify the HTML online help file that contains the column definitions for context-sensitivity. |
| common.help.customizeTable | Use this parameter to specify the HTML online help file that contains the customized table definitions for context sensitivity. |
| common.help.printExport | Use this parameter to specify the HTML online help file that appears when an user chooses to print or export information on the user interface. |
| delphi.rmi.host | Use this parameter to specify the Delphi URL for interactive Calc Engine use. |
| delphi.rmi.port | Use this parameter to specify the Delphi port for interactive Calc Engine use. |
| suite.loginform.autocomplete | Use this parameter to use the AutoComplete feature in the User Management utility. |
| suite.httpsession.timeout | Use this parameter to specify the duration, in seconds, for the HTTP session time out. This parameter applies across the suite. |
| suite.userlogin.timeout | Use this parameter to specify the duration, in seconds, for the user login time out. This parameter applies across the suite. |
| suite.cookie.secure | Use this parameter to specify a secure cookie. This parameter applies across the suite. |
| suite.cookie.domain | Defines the domain where the SSO cookie is. If left empty, then the default value is used. |
| suite.logoutpage.show | Used when MDO is integrated with Oracle SSO. Either shows successful logout page or redirects to login page. Default is false. |
| suite.logintimeout.manage | Use this parameter to manage login time outs. The value defaults to *Fault*, and indicates the login time out defaults to session time out. |
| common.spread.fontname | Use this parameter to specify the font used in the Spread feature. |
| hierarchy.displayType | Use this parameter to set the hierarchy display type that displays in the hierarchy control. The acceptable values are ID, DESC, ID-DESC, and DESC-ID. |
| audit.groupname.excluded | Use this parameter to specify the list of audit event groups that will not be logged. The value defaults to USER_GROUP, and indicates that all User Management events are excluded. To log auditing, leave the value blank. A value of MDO_WS_GROUP turns off auditing of the worksheet status. A value of COS_GROUP turns off auditing of the remote user. |
| copyright.date | Used by Installer to resolve the copyright date. |

# 13

# Standard Reports

The chapter contains the following:



## Introduction

Markdown Optimization provides standard reports, which users generate and view from the application UI. These standard reports and plug-in custom reports can be configured using XML.

The generated reports are presented to the user as Excel spreadsheets. Basic formatting of the spreadsheets is defined in the XML configuration file. for complex formatting, use VBA macros in Excel spreadsheet templates.

Development and maintenance of standard reports is easier using XML. A set of report requirements can be satisfied through the use of standard reports if the following qualifications are met:

- the generated report must include a single table of results that is comprised of rows and columns
- all of the required report data can be selected directly or derived from data contained in the p4p_display_items database view
- the aggregated data is hierarchical in nature
- the data for the report can be filtered by the selection of one or more Markdown Optimization worksheets

  Or

- the generated report can be developed using VBA macros that manipulate data in a spreadsheet that satisfies the above requirements

## The Configuration Process for Standard Reports

The Markdown Optimization standard reporting infrastructure is based on a standard report generator Java class (GenericP4PItemReportGenerator) and a standard report filter Java class (GenericP4PItemReportFilter). Report XML files are identified in the config.properties files and located in the grids directory in the application configuration directory structure. Each report XML file configures a single standard report. The report XML files use string resources that are defined in the gridResources.properties file.

## The Config.Properties File Setup

The config.properties file is used to identify the standard reports to be configured using XML. The reportKeys property is a comma-separated list of the properties that are used to specify the name of the XML file for the report. Here is a sample setup of the config.properties file:

```
# Reports
reportKeys=sample-plugin-report,sample-md-analysis-report-1,sample-price-change-report-1
sample-plugin-report=sample-plugin-report.xml
sample-md-analysis-report-1=sample-md-analysis-report-1.xml
sample-price-change-report-1=sample-price-change-report-1.xml
```

## The Report XML Structure

The report XML structure is based on the grid XML structure in Markdown Optimization:

report
  worksheet-filter
  page-setup
  column-group-spec
    column
      key
      parent-key
      column-properties
      custom-property
  row-group
    key
    rowgroup-properties
    column-group-override
      column
        key
        parent-key
        column-properties
        custom-property
  row-group

## Report Element Definitions

The report XML structure contains the following elements:

- report: the root element in the XML file. It includes the following attributes:
  - name: the resource string that indicates the name of the report (shown in the report list displayed in the UI)
  - generator-class: the Java class used to generate the report.
    For standard reports, this is com.profitlogic.p4pgui.reports.appcommon.GenericP4PItemReportGenerator
  - show-row-group-only: used ti indicate that the report does not show any detail lines, only row groups. Values are true or false.
  - show-report-header: used to indicate if the report header is shown. Values are true and false.

- where-clause: the SQL used to filter data for the result set.
- order-by-clause: the SQL used to establish the order of data in the result set. This must include the order of aggregations.
- template: the name of the Excel spreadsheet used as a template for the report output.
- report-group: the resource string that indicates the name of the report group. The report-group defines the reporting tabs in the application UI.

- worksheet-filter: used to configure parts of the filter that are displayed before a user runs a report. It includes the following attributes:
  - filter-class: the Java class used to render the filters UI. For standard reports, this is com.profitlogic.p4pgui.reports.uicommon.GenericP4PItemReportFilter
  - subtotals-check box: indicates if a check box to allow the user to enable/disable subtotals is shown in the UI
  - select: the SQL statement that indicates which worksheets to select for filter display
  - where-clause: the SQL used to filter which worksheets are displayed in the filter
  - order-by-clause: the SQL used to order the worksheets in the filter
  - label: the resource string for the worksheet filter label
  - allow-all-worksheets - indicates if all worksheets or only those to which a user has view access are available
- page-setup: used to configure the page setup options for the output Excel report. It includes the following attributes:
  - orientation: portrait or landscape
  - fit-to-page-height: the fit-to-page-height option in Excel
  - fit-to-page-width: the fit-to-page-width option in Excel
  - page-size: letter, legal, A4, or A5

The other elements used in the report XML are the same as those used in the grid XML, which is described in the grid configuration documentation.

## Report XML Validations and Rules

These rules and validations must be followed when configuring the standard report using the report XML:

- Only one column-group-spec is allowed in the report XML. The single column-group-spec includes the list of columns that are shown in the report (as long as the column is visible)
- A custom-property called "style" is required for every report column. The value of the style property must be one of the legal column styles for the reports.

  <custom-property name="style" value="STRING" custom-type="application"/>
- The report element can have at most one child row-group element, and each row-group can contain at most one child row-group. This allows the aggregations in the report to be shown in a hierarchical fashion.

- The row-group group by element must refer to a column key that is included in the report column list.
- Only columns defined in the override-column-group are shown in a row-group (aggregation).
- Each column in the override-column-group in a row-group must also be a column in the report column-group-spec that is visible. The reference is done via the column key child element.
- The legal functions available for columns in the override-column-group in the row-group are listed, along with their behaviors.
- The column type cannot be overridden in a column in an override-column-group. The type is assumed to be the same as the type identified in the column in the report column list.
- The following properties included in the column-properties element are ignored by reports: description, resource, template, display-type, read-only-type, format, db-table-name, groupId, group-description, filterable, sortable, orderable, hideable, expandable, editable, editable-in-readmode, composeable, operatortype, filter-enum-sql, and columntype
- The following properties are the only ones honored in an override column specified in a row-group: db-column-name, and visibility. All other properties are taken from the column as defined in the report column list.
- Show Row Group Only / Subtotals Checkbox: If the show-row-group-only option is set to true, then the subtotals check box option must be false.

## Additional Guidelines

Here are some additional guidelines to consider when configuring the report XML.

### Weighted Averages

If a report needs to show a unit cost weighted average based on inventory units and unit cost, use the following weighted average formula:

S (inv units * unit cost) / S (inv units)

The column used to display the weighted average is the unit cost column. A invisible derived column must be created that is defined as the unit cost multiplied by the inventory units. The row grouping that displays the weighted average must use the P4P_DIVIDE function specifying the derived column name as the first argument and the inventory units column as the second argument. For example:

```
<column-properties>
  <function key="P4P_DIVIDE">
    <args>total_cost</args>
    <args>unit_cost</args>
  </function>
</column-properties>
```

### Aggregation Rows

This section describes how to show an aggregation row that is neither the value of the aggregated string nor a value that can be read from a resource file.

A report is required to aggregate the initial and subsequent recommendations. The department header must show whether it is the initial grouping or the subsequent grouping. The report includes a derived column that prepares the initial/subsequent

grouping string. The derived column is not visible in the standard column list, but is used in the row group aggregation for department. For example, the derived column in the column list could have the following derivation:

derivation="(case when markdown_number < 2 then 'Initial Markdowns' else 'Further Markdowns' end)"

In the row grouping, the hierarchy column that displays the derived column data overrides the db-column-name to show the derived column instead of the standard column data:

```
<column>
        <key>HIERARCHY3</key>
        <parent-key/>
        <column-properties db-column-name="derived_column_name">
                <function key="P4P_MULTI_STRING"/>
        </column-properties>
        <custom-property name="style" value="STRING" custom-type="application"/>
</column>
```

### Custom Plug-In Report XML

Custom reports that are developed using Java and plugged into Markdown Optimization also require an XML specification so that they are registered with the application. The XML required is a subset of the XML required for specifying standard reports. The XML must include the report and worksheet-filter elements.

Note that if the custom report is developed to use other configuration information from the XML file, other elements may be required for that specific custom report.

Here is sample custom plug-in report

```
XML:<?xml version="1.0" encoding="UTF-8"?>
<report
        xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance
        xsi:noNamespaceSchemaLocation="Grid.xsd"
        name="p4pgui.reports.testPluginReport"
        generator-class="com.profitlogic.p4pgui.reports.test.TestReport"
        report-group="p4pgui.reports.sampleGroupName">
        <worksheet-filter
           filter-class="com.profitlogic.p4pgui.reports.test.TestReportFilter"/>
</report>
```

This report configuration registers a custom report with the application that uses the specified Java generator and filter classes. The report name and group specifications are resource strings that refer to the gridResources.properties file.

### Additional Information

Here is some additional reference information.

#### Valid Formats

*Table 13–1 Valid Formats for Markdown Optimization Standard Reports*

| Entity | description | Example |
|---|---|---|
| Strings | | |
| STRING | A left-aligned string | SAMPLE |
| CENTER_STRING | A centered string | SAMPLE |
| Numeric Data Types | | |

***Table 13–1 (Cont.) Valid Formats for Markdown Optimization Standard Reports***

| Entity | description | Example |
|---|---|---|
| CURRENCY | A numeric column shown with a $ and two decimal places | $34.23 |
| CURRENCY_ONE_DP | A numeric column shown with a $ and one decimal place | $34.2 |
| WHOLECURRENCY | A numeric column shown with a $ and no decimal places | $34 |
| PERCENT | A numeric column shown with a % symbol, multiplied by 100 and with two decimal places | 34.23% |
| WHOLEPERCENT | A numeric column shown with the % symbol, multiplied by 100 and with no decimal places | 34% |
| NUMBER | A numeric column shown with two decimal places | 34.23 |
| NUMBER_ONE_DP | A numeric column shown with one decimal place | 34.2 |
| WHOLENUMBER | A numeric column shown with no decimal places | 34 |
| Dates | | |
| DATE_MM_DD_YYYY | A date format following mm/dd/yyyy | 10/23/2005 |
| DATE_MM_DD | A date format following mm/dd | 10/23 |
| DATE_DD_MMM_YY | A date format following dd-mmm-yy | 23-Oct-05 |

**Available Column Functions** Valid functions for numeric columns include:

- P4P_SUM – the sum of all columns
- P4P_MIN – the minimum numeric value
- P4P_MAX – the maximum numeric value
- P4P_AVG – the average of all numeric values
- P4P_DIVIDE – requires two argument children elements. The arguments must be references to columns defined in either the override column list of the row group or in the top level column list. If the columns are specified in the override column list of the row group, then the divide function divides by how the column functions are specified in that row group. For example, if the first column is specified as a SUM and the other is specified as a MIN, then the divide function divides the SUM of the first by the MIN of the second. If either of the columns are not specified in the override column list, the column value used is the sum.

Valid functions for date columns include:

- P4P_MIN – the minimum date
- P4P_MAX – the maximum date

Valid functions for string columns are:

- P4P_MULTI_STRING – used to show the string itself if it is the same for all detail records within a column group, blank, or a resource string identified by the arguments element, and if multiple values exist within the group row.

- P4P_STRING_COUNT – the total number of unique strings

#### Functions Summary

***Table 13–2 Standard Reports Functions Summary***

| Function | Available for Data Type | | | Arguments |
|---|---|---|---|---|
| | Numeric | Date | String | |
| P4P_SUM | X | | | No |
| P4P_MIN | X | X | | No |
| P4P_MAX | X | X | | No |
| P4P_AVG | X | | | No |
| P4P_DIVIDE | X | | | Two required |
| P4P_MULTI_STRING | | | X | One optional |
| P4P_STRING_COUNT | | | X | No |

**Available Paper Sizes** The valid page sizes available for use in the page-setup element include Letter, Legal, A4, and A5.

## Limitations on Reports

Consider the following application-specific guidelines:

- No limitations exist on the number of users who can access reports.
- No limitations exist on the size of the spreadsheet.
- Large reports may take some time to download.
- Generating reports is a memory intensive operation. The amount of memory actually required depends on the amount of underlying report data and the complexity of the report. It is indeed possible to consume all available server memory or severely compromise performance of the application if you are running too many reports simultaneously or generating large reports.
- Reports are generated using SQL queries to fetch report data and process the data further in java code. So the performance for generating reports is also tied to performance of database queries and the java code that generates reports.

## Report Generator

Note the following.

A new report generator class called com.profitlogic.p4pgui.reports.appcommon.GenericFlatItemReportGenerator should replace the standard class in the grid configuration file for reports. This file differs from the standard class in that the new class does not support hierarchical reports, and hence it does not use the accumulators to stage the data. Instead, it feeds directly into POI for generating the Excel stream. The name of the class should be set as the value for the generator-class attribute of the report element. This cuts down the memory usage by a third.

A per-report optionally configurable throttle should be added to the reports. An attribute max-rows can be specified in the report element. The number that is set for

this attribute will represent the maximum number of rows returned in the report. If the report SQL gives more rows, the first max-rows number of rows will be returned

A per-report optionally configurable attribute should be added to the reports. An attribute zip-stream can be specified in the report element and can have value of either false (default) or true. When true, the report stream will be zipped before persisting to the database. Empirical tests have shown reports having rows > 20,000 to be ~= 32 MB, which is the size of the database BLOB field.

```
The JVM settings for JRockit must include the following:
-Xgc:gencon -Xgcpause -Xns=<1/5th to 1/4th MAX_HEAP>m -Xms<MIN_HEAP>m -Xmx<MAX_
HEAP>m
```

# 14

# RDM Data Mapping

This chapter contains the following:



## Overview of RDM Data Mapping

The Retail Data Mart (RDM) abstracts forecasting and historic data from the base applications for use with Business Intelligence tools.

The following are RDM concepts:

- Fact

  A fact is a discrete item of business information. Facts are typed as descriptive or metric.

- Metric

  Metric refers to a piece of measurable data, which is a derivative of a quantifiable fact. Metrics capture quantifiable business facts that may be used as business measures - any data that may be mathematically manipulated to produce meaningful information.

- Attribute

  An attribute is a property or characteristic of a dimension that may be stored as a data fact. Attributes represent descriptive elements of a certain level of the dimension hierarchy.

- Dimension

  A dimension is an aspect or perspective by which the facts or metrics may be accessed, selected, sequenced, grouped, filtered, and aggregated. Each dimension consists of multiple dimension levels. A dimension is typically a text value, such as a region or a department, or has a date value.

## RDM Facts

In order to obtain facts, the RDM uses data located in the following schemas:

CDW Schema

P4P Schema

PMA Schema

To enable analysis of the various measures and metrics at different levels of the hierarchy and to enhance performance, Roll-ups or Summary Tables may be needed at these Levels.

## RDM Tables Mapped to Markdown Optimization Tables

The following table shows the mapping between the base application tables and RDM tables.

***Table 14–1 RDM Tables Mapped to Markdown Optimization Tables***

| RDM Table | RDM Table Details | Related Markdown Optimization Table |
|---|---|---|
| RDM_MERCHANDISE_TBL | Reflects the current state of the corresponding application table, which is loaded weekly. | MERCHANDISE_TBL |
| RDM_LOCATION_TBL | Reflects the current state of the corresponding application table, which is loaded weekly. | LOCATION_TBL |
| RDM_PERIODS_TBL | Part of initial setup. Refreshed weekly. This table contains a client's fiscal calendar. | PERIODS_TBL |
| RDM_HIERARCHY_LEVELS_TBL | Reflects the current state of the corresponding application table, which is loaded once when the application is initially configured. | HIERARCHY_LEVELS_TBL |
| RDM_ITEMS_TBL | Reflects the current state of the corresponding application table, which is loaded weekly. | ITEMS_TBL |
| RDM_BUDGETS | Refreshed weekly to reflect corresponding application changes. | P4P_BUDGETS |
| RDM_ACTIVITIES | Refreshed weekly to reflect corresponding application changes. This table stores sales and inventory data. | ACTIVITIES |
| RDM_FORECAST_ACTIVITIES | Part of initial setup. Refreshed weekly. | FORECAST_ACTIVITIES |
| RDM_HIST_MARKDOWNS | Reflects the current state of the corresponding application table, which is loaded weekly. | HIST_MARKDOWNS_TBL |
| RDM_ITEM_DATA | Part of initial setup. Refreshed during incremental load. | ITEM_DATA |
| RDM_MV_ACT_n (Optional summary table) | Refreshed at the time of the mview install. | MERCHANDISE_TBL, LOCATION_TBL, ACTIVITIES |
| RDM_MV_FA_n (Optional summary table) | Refreshed at the time of the mview install. | MERCHANDISE_TBL, LOCATION_TBL, FORECAST_ ACTIVITIES |

# RDM Data Mapped to Markdown Optimization Data

This section shows how RDM columns map to Markdown Optimization data.

## RDM Item Data

The following table shows how the Retail Data Mart derives data from the application data. All of these columns are refreshed immediately following the weekly load. Some columns are also refreshed immediately following the incremental run, as noted in the table below.

***Table 14–2 RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| ACCEPTED_MARKDOWN | This column is refreshed after both the incremental and weekly loads. | CASE WHEN ( ID.recommended_retail_price IS NOT NULL AND ID.TAKEN_ PRICE IS NOT NULL AND ID.recommended_retail_price = ID.TAKEN_PRICE) THEN 1 ELSE 0 END |
| ACCEPTED_PRICE | Accepted mark down price. This column is refreshed after both the incremental load and the weekly load. | ID.TAKEN_PRICE |
| ADDED_MD_FLAG | Shows for a taken markdown on a non-recommended item, else 0. Summary rows show the total number of taken, non-recommended items underneath. | CASE WHEN (ID.recommended_retail_price IS NULL AND ID.collection_ recommended_price IS NULL) THEN 1 ELSE 0 END |
| AVG_PRICE | Average price of an item | ID.average_price |
| AVG_PRICE_LTD | The average unit retail price of the item life to date. | ID.std_average_price |
| AVG_PRICE_LW | The average unit retail price of the item last week. | CASE WHEN (ID.unit_sales_ through_week = 0) THEN 0 ELSE (ID.dollar_sales_through_ week / ID.unit_sales_through_ week) END |
| CHAIN_MAX_PRICE | The maximum price at the chain level. | rtrp.current_retail_price_max |
| CHAIN_MIN_PRICE | The minimum price at the chain level. | rtrp.current_retail_price_min |
| COL_OPPORTUNITY_COST | The opportunity cost (margin loss) of deferring taking a recommended markdown until the next available markdown date. Assumes that the deferred markdown will then be taken as recommended by the application. | ID.collection_opportunity_cost |
| COMMITTED_INV_UNITS | Committed inventory units | ID.committed_inv_units |
| CURRENT_RTL_PRICE | Current retail price as of last week's sales history. | ID.current_retail_price |
| CURRTL_PERC_OFF_ORRTL | Current retail price as a percentage off original retail price | ID.current_percent_off |
| DC_OH_UNITS | Distribution center on hand item units | ID.warehouse_on_hand |
| DC_OO_UNITS | Distribution center on order item units | ID.warehouse_on_order |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| DELAYED_MARKDOWN | Number of recommended markdowns not taken before sendback. This column is refreshed after both the incremental load and the weekly load. | CASE WHEN ( ID.recommended_retail_price IS NOT NULL AND ID.TAKEN_ PRICE IS NULL AND ID.markdown_flag = 0) THEN 1 ELSE 0 END |
| EFFECTIVE_DATE | Date on which a MD taken on the item will be effective in stores. | ID.effective_date |
| ENDING_INV_UNITS | Projected inventory units on hand at the client specified out date. | ID.ENDING_INVENTORY_ UNITS |
| FA_INVENTORY_UNITS_NW | Forecasted inventory units NW | rfa2.inventory_units |
| FA_INVENTORY_UNITS_TW | Forecasted inventory units TW | rfa1.inventory_units |
| FA_SALES_DOLLARS_NW | Forecasted sales dollars NW | rfa2.inventory_units |
| FA_SALES_DOLLARS_TW | Forecasted sales dollars TW | rfa1.sales_dollars |
| FA_SALES_UNITS_NW | Forecasted sales units NW | rfa2.sales_units |
| FA_SALES_UNITS_TW | Forecasted sales units TW | rfa1.sales_units |
| FA_TICKET_PRICE_NW | Forecasted ticket price NW | rfa2.ticket_price |
| FA_TICKET_PRICE_TW | Forecasted ticket price TW | rfa1.ticket_price |
| FIRST_RECEIPT_DATE | First item receipt date | ID.FIRST_RECEIPT_DATE |
| FIRST_SALE_DATE | Date of first retail sale | fsd.first_sale_dt |
| FTB_RATIO | First Time Buyers ratio | CASE WHEN (CASE WHEN (ID.recommended_retail_price IS NOT NULL OR ID.collection_ recommended_price IS NOT NULL) THEN ID.committed_ inv_units * ( ID.current_retail_ price- ID.recommended_retail_ price) ELSE 0 END) = 0 THEN 0 ELSE ( ID.opportunity_cost / (CASE WHEN (ID.recommended_retail_price IS NOT NULL OR ID.collection_ recommended_price IS NOT NULL) THEN ID.committed_ inv_units * (ID.current_retail_ price - ID.recommended_retail_ price) ELSE 0 END)) END |
| GROSS_PROFIT_AMT | Gross Margin money amount | NULL |
| GROSS_PROFIT_AMT_LTD | Life to Date gross margin money | ID.cumm_gross_profit_dollar |
| GROSS_PROFIT_PERC_LTD | Life to Date gross margin percentage. | ID.cumm_gross_profit_perc |
| GROSS_PROFIT_PERCENT | Gross Margin percent | NULL |
| INV_COST_AMT_OH | Cost of the inventory on hand in the stores. | (ID.current_units_on_hand * ID.unit_cost) |
| INV_COST_AMT_OO | Cost of the inventory on order in the stores. | (ID.current_units_on_order * ID.unit_cost) |
| INV_RTL_AMT_OH | Retail value of the inventory on hand in the stores. | ID.current_units_on_hand * ID.current_retail_price |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| INV_RTL_AMT_OO | Retail value of the inventory on order in the stores. | ID.current_units_on_order * ID.current_retail_price |
| INV_UNITS_OH | Inventory on hand in the stores as of the beginning of this week (end of last week) | ID.current_units_on_hand |
| INV_UNITS_OO | Inventory on order in the stores as of the beginning of this week (end of last week) | ID.current_units_on_order |
| INV_UNITS_WM1 | Inventory on hand in the stores as of the end last week minus one week. | ID.week_minus_1_units_on_ hand |
| INV_UNITS_WM2 | Inventory on hand in the stores as of the end last week minus two weeks. | ID.week_minus_2_units_on_ hand |
| INV_UNITS_WM3 | Inventory on hand in the stores as of the end last week minus three weeks. | ID.week_minus_3_units_on_ hand |
| IS_FIRST_MD | 1/0 flag if first markdown - 1 | CASE WHEN (ID.markdown_ number = 1) THEN 1 ELSE 0 END |
| LAST_MD_EFFECTIVE_DT | The date of the last markdown | hm.caldt |
| LAST_RECEIPT_DATE | Last item receipt date | ID.LAST_RECEIPT_DATE |
| LAST_REFRESH_DATE | Last time item data is refreshed. This column is refreshed after both the incremental and weekly loads. | TRUNC (SYSDATE) |
| LOCATION_ID | The location identifier | ID.LOCATION_ID |
| LOWEST_PROMO_PRICE | Planned lowest promo price for the item, on-going or at any point in the future. | ID.lowest_future_promotes_ price |
| MARKUP_PERC | Initial markup percent is the percentage of the initial retail price that is markup above cost. | ID.markup_percent |
| MD_AMT | Markdown amount | (ID.current_units_on_hand + ID.current_units_on_order - ID.weekly_projected_unit_sales) * (ID.current_retail_price - ID.recommended_retail_price) |
| MD_FLAG | Indicator for whether the item/pricing group received a markdown recommendation for the next effective date. This column is refreshed after both the incremental and weekly loads. | ID.MARKDOWN_FLAG |
| MD_NUMBER | The markdown number | ID.markdown_number |
| MD_TAKEN_THRU_OTB | Indicator for whether the item was assigned a markdown via the Optimize To Budget function. | CASE WHEN (ID.markdown_ flag = 4 AND w.worksheet_ status_id > 2) THEN 1 ELSE 0 END |
| MD_TYPE | The type of markdown | NULL -> daily MARKDOWN_ TYPE |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| MODIFIED_MARKDOWN | Number of modified markdowns from original recommendation. This column is refreshed after both the incremental and weekly loads. | CASE WHEN (ID.recommended_retail_price IS NOT NULL AND ID.TAKEN_ PRICE IS NOT NULL AND ID.recommended_retail_price <> ID.TAKEN_PRICE) THEN 1 ELSE 0 END |
| MODIFIED_OUT_OF_ STOCK_DATE | Modified target date by which the item should achieve its sell-through. | ID.out_of_stock_date |
| MODIFIED_TARGET_ST_ PERC | New target sell-through percentage. | NULL |
| NEXT_MD_DATE | Next recommended markdown date after the current markdown effective date. | ID.PROJECTED_NEXT_ MARKDOWN |
| NEXT_REC_PERC_OFF_ ORRTL | Recommended price as a percentage off original retail price | ID.NEXT_REC_PERC_OFF_ ORRTL |
| NEXT_RTL_PRICE | Next recommended markdown price after the current markdown effective date. | ID.NEXT_RTL_PRICE |
| NO_STORE_WITH_OH | Number of stores with inventory on hand at the end of last week. | ID.no_store_with_on_hand |
| NON_REC_MARKDOWN | Number of non recommended markdowns - calculated by looking at recommended item flag. This column is refreshed after both the incremental and weekly loads. | CASE WHEN ( ID.recommended_retail_price IS NULL AND ID.TAKEN_PRICE IS NULL) THEN 0 WHEN ( ID.recommended_retail_price IS NULL AND ID.TAKEN_PRICE IS NOT NULL) THEN 1 WHEN (ID.recommended_retail_price IS NOT NULL) THEN 0 END |
| O_USER_DATE_1 (1-6) | Custom metrics defined in inference rules. | ID.o_user_date_1 (1-6) |
| O_USER_FLOAT_1 (1-12) | Custom metrics defined in inference rules. | ID.o_user_float_1 (1-12) |
| O_USER_TEXT_1 (1-4) | Custom metrics defined in inference rules. | ID.o_user_text_1 (1-4) |
| OPPORTUNITY_COST | Margin loss. Opportunity cost of deferring taking a recommended markdown until the next available markdown date assuming that the deferred markdown will then be taken as recommended by the application. | ID.OPPORTUNITY_COST |
| ORIGINAL_EXIT_DATE | Original exit date setting for the item. | imt.out_dt |
| ORIGINAL_EXIT_DATE_ MOD_DT | Date/time when exit date was last changed. | NULL |
| ORIGINAL_RTL_PRICE | The retail price at the start of life of the item. | ID.original_retail_price |
| OUT_OF_STOCK_DATE | The target date by which the item should achieve its sell-through. This column is refreshed after both the incremental and weekly loads. | ID.OUT_OF_STOCK_DATE |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| OWNED_RTL_PRICE | The current "owned at" price for the item this week (including any pending markdowns expected to be effective this week). | ID.owned_rtl_price |
| PI_ID | Product ID. | ID.PI_ID |
| PLANNED_START_SELL _DATE | Date on which an item is scheduled to begin activity. | ITEM_BRM_RULES.PLANNED_ START_DT |
| PRICE_LADDER_DESC | Label for the item's current price ladder. | l.ladder_name |
| PRICE_LADDER_TYPE | Indicator for whether the current price ladder is Price Point or Percent Off Ticket. | TO_CHAR (l.ladder_type) |
| PROJ_GM_AMT_EOL | The forecasted gross margin dollars for an item at the client specified inventory exit date. | ID.proj_std_eol_gm_amount |
| PROJ_GM_AMT_EOL_GRP | The forecasted gross margin dollars for an item at the client specified inventory exit date. | ID.proj_std_eol_gm_amount_c |
| PROJ_GM_PERC_EOL | The forecasted gross margin percent for an item at the client specified inventory exit date. | ID.proj_std_eol_gm_perc |
| PROJ_GM_PERC_EOL_GRP | The forecasted gross margin percent for an item at the client specified inventory exit date. | ID.proj_std_eol_gm_perc_c |
| PROJ_OH_COST_EOL | Projected cost of the inventory remaining at the out date. | ID.proj_oh_cost_eol |
| PROJ_OH_RTL_EOL | Projected inventory units on hand at the client specified out date. | ID.PROJ_OH_RTL_EOL |
| PROJ_OH_UNITS_EFF_DT | Expected number of units in stores when the markdown becomes effective. | ID.PROJ_OH_UNITS_EFF_DT |
| PROJ_OH_UNITS_EOL | Projected inventory units on hand at the client specified out date. | CASE WHEN (ID.original_ retail_price = 0) THEN 0 ELSE (ID.proj_oh_rtl_eol / ID.original_retail_price) END |
| PROJ_OUT_OF_STOCK | The projected date is either:<br>– the date at which all inventory is projected to see through completely (i.e., 100% sellthru)<br>or<br>– if the model does not expect it to sell through completely, then the projected outdate becomes the week-ending Saturday of the outdate itself | ID.PROJECTED_OUT_OF_ STOCK |
| PROJ_RTL_PRICE_EOL | Projected retail price at the out date. | CASE WHEN (ID.ending_ inventory_units = 0) THEN 0 ELSE (ID.proj_oh_rtl_eol / ID.ending_inventory_units) END |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| PROJ_SALES_AMT_EOL | Projected total sales dollars for an item at the end of its life, assuming all application recommendations are taken. | ID.EOL_CUM_DOLLARS_ SALES |
| PROJ_SALES_UNITS_EOL | Projected total sales units for an item at the end of its life, assuming all application recommendations are taken. | ID.EOL_CUM_UNIT_ SALES+id.CUMULATIVE_ QUANTITY_SOLD |
| PROJ_ST_PERC_EOL | Projected percent of total inventory quantity sold by the client specified out date, assuming all application recommendations are taken. | NULL |
| PROJ_UNITS_OH_NW | Projected unit inventory of recommended markdowns for markdown week. | (ID.current_units_on_hand + ID.current_units_on_order - ID.weekly_projected_unit_sales) |
| PROMO_DESC | This is the client's text description of a planned promotional event. | pp.promo_desc |
| PROMO_END_DT | The date the promotion ends. | pp.end_dt |
| PROMO_FLAG | Identifies items that have a planned promotion this week or in the future. | ID.promotion_flag |
| PROMO_PCT_OFF | The value for the percentage off promotion | pp.promo_pct_off |
| PROMO_PRICE | The value for the promotion price. | pp.promo_price |
| PROMO_START_DT | the date the promotion starts. | pp.start_dt |
| REC_AS_COLLECTION | Shows 1 for a recommended pricing group, 0 for a non-recommended pricing group. Summary rows show the total number of recommended pricing groups underneath. | CASE WHEN (ID.collection_ recommended_price IS NOT NULL) THEN 1 ELSE 0 END |
| REC_AS_ITEM | Shows 1 for a recommended item, 0 for a non-recommended item. Summary rows show the total number of recommended items underneath. | CASE WHEN (ID.recommended_retail_price IS NOT NULL) THEN 1 ELSE 0 END |
| REC_COLLECTION_PRICE | Recommended markdown price for a pricing group. | ID.collection_recommended_ price |
| REC_ITEM_FLAG | Indicator for whether the item/pricing group received a markdown recommendation for the next effective date. This column is refreshed after both the incremental and weekly loads. | ID.RECOMMENDED_ITEM_ FLAG |
| REC_MD_AMT | Markdown cost (using retail accounting) of taking the recommended markdown. | CASE WHEN (ID.recommended_retail_price IS NOT NULL OR ID.collection_ recommended_price IS NOT NULL) THEN ID.committed_ inv_units * (ID.current_retail_ price - ID.recommended_retail_ price) ELSE 0 END |
| REC_MD_INV_COST | Cost of inventory that is recommended for markdown. | ID.COMMITTED_INV_UNITS * ID.UNIT_COST |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| REC_PERC_OFF_CURTL | Recommended markdown price as a percentage off of current retail. | CASE WHEN ID.current_retail_price = 0 THEN 0 ELSE ( 1 - ( (CASE WHEN ID.process_as_item = 1 THEN ID.recommended_retail_price ELSE ID.collection_recommended_price END) / ID.current_retail_price)) END |
| REC_PERC_OFF_ORRTL | Recommended markdown price as a percentage off of original retail. | CASE WHEN ID.original_retail_price = 0 THEN 0 ELSE ( 1 - ( (CASE WHEN ID.process_as_item = 1 THEN ID.recommended_retail_price ELSE ID.collection_recommended_price END) / ID.original_retail_price)) END |
| REC_RTL_MAX | The maximum recommended retail price for the merchandise within a grouping. | ID.recommended_retail_price |
| REC_RTL_MIN | The minimum recommended retail price for the merchandise within a grouping. | ID.rec_rtl_min |
| REC_RTL_PRICE | Recommended markdown price for an item. | ID.RECOMMENDED_RETAIL_PRICE |
| RECOMMENDED_MARK-DOWN | 1/0 recommended for markdown or not. This column is refreshed after both the incremental and the weekly loads. | CASE WHEN ( ID.recommended_retail_price IS NOT NULL OR ID.collection_recommended_price IS NOT NULL) THEN 1 ELSE 0 END |
| REVENUE_LOST_BUDGET_CONST | Projected revenue difference between the recommended price and the OTB accepted price. | ID.revenue_lost_budget_const |
| SALES_AMT | Last week's sales dollars. | ID.dollar_sales_through_week |
| SALES_AMT_LTD | The total sales dollars since the item's Start Sell Date. | ID.cumulative_sales_dollars |
| SALES_AMT_WM1 | The total dollar sales two weeks ago (last week minus one week) | ID.dollar_sales_week_minus_1 |
| SALES_AMT_WM2 | The total dollar sales three weeks ago (last week minus two weeks). | ID.dollar_sales_week_minus_2 |
| SALES_AMT_WM3 | The total dollar sales four weeks ago (last week minus three weeks). | ID.dollar_sales_week_minus_3 |
| SALES_UNITS | The number of units sold for the week. | ID.unit_sales_through_week |
| SALES_UNITS_LTD | The total number of units sold since the item's Start Sell Date. | ID.cumulative_quantity_sold |
| SALES_UNITS_WM1 | The number of units sold two weeks ago (last week minus one week). | ID.unit_sales_week_minus_1 |
| SALES_UNITS_WM2 | The number of units sold three weeks ago (last week minus two weeks). | ID.unit_sales_week_minus_2 |
| SALES_UNITS_WM3 | The number of units sold four weeks ago (last week minus three weeks). | ID.unit_sales_week_minus_3 |

***Table 14–2 (Cont.) RDM Item Data Mapping***

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| SALVAGE_VALUE_AMT | The amount of the salvage value. | ID.salvage_value_perc * ID.proj_oh_rtl_eol |
| SALVAGE_VALUE_PERC | The salvage value expressed as a percentage. | ID.salvage_value_perc |
| SELL_THROUGH | The number of units sold last week divided by the units on hand at the start of that week. | ID.sell_thrupercent_current_week |
| SELL_THROUGH_LTD | This is the percent of store inventory sold from the beginning of the life up to the current date. | ID.cumulative_sellthru_percent |
| SELL_THROUGH_WM1 | The number of units sold 2 weeks ago divided by the units on hand at the start of that week. | ID.sell_thrupercent_week_minus_1 |
| SELL_THROUGH_WM2 | The number of units sold 3 weeks ago divided by the units on hand at the start of that week. | ID.sell_thrupercent_week_minus_2 |
| SELL_THROUGH_WM3 | The number of units sold 4 weeks ago divided by the units on hand at the start of that week. | ID.sell_thrupercent_week_minus_3 |
| SENDBACK_DATE | Sendback date for the markdown. | ID.sendback_date |
| SENT_DATE | The date the markdown was sent to the price change system. | ID.sent_date |
| SENT_LADDER_ID | The price ladder that was sent to the price change system. | ID.sent_ladder_id |
| SENT_MARKDOWN_PRICE | The markdown price that was sent to the price change system. | ID.sent_markdown_price |
| START_SELL_DATE | Date on which an item is to begin activity. | ID.START_SELL_DATE |
| SUBMITTAL_WORKSHEET_ID | Key to P4P_SUBMITTAL _WORKSHEET, linking item to worksheet. | ID.submittal_worksheet_id |
| TAKEN_DEEPER | 1/0 per item indicating whether a recommended item was taken to a price at least 10% deeper than the recommended price. This column is refreshed after both the incremental and weekly loads. | CASE WHEN ( ID.TAKEN_PRICE < ID.recommended_retail_price) THEN 1 ELSE 0 END |
| TAKEN_MARKDOWN | Markdown status of the item- Taken or Not Taken. This column is refreshed after both the incremental and weekly loads. | CASE WHEN (ID.TAKEN_PRICE IS NOT NULL AND ID.markdown_flag <> 0) THEN 1 ELSE 0 END |
| TAKEN_MD_AMT | Taken markdown amount | CASE WHEN (ID.TAKEN_PRICE IS NOT NULL AND ID.markdown_flag <> 0) THEN ID.committed_inv_units * (ID.current_retail_price - ID.TAKEN_PRICE) ELSE 0 END |

*Table 14–2 (Cont.) RDM Item Data Mapping*

| RDM_ITEM_DATA | Description | ITEM_DATA (ID) |
|---|---|---|
| TAKEN_MD_INV_COST | Inventory cost associated with markdowns taken. | (ID.committed_inv_units * ID.unit_cost)+((ID.current_ units_on_hand + ID.current_ units_on_order-ID.weekly_ projected_unit_sales)*ID.unit_ cost) |
| TAKEN_MD_PRICE | Taken markdown price | CASE WHEN (ID.TAKEN_ PRICE IS NOT NULL AND ID.markdown_flag <> 0) THEN TAKEN_PRICE ELSE 0 END |
| TAKEN_PERC_OFF_CURTL | Taken markdown price as a percentage off of current retail. | NULL |
| TAKEN_PERC_OFF_ORRTL | Taken markdown price as a percentage off of original retail. | ID.recommended_markdown_ perc |
| TAKEN_SHALLOWER | 1/0 per item indicating whether a recommended item was taken to a price at least 10% higher than the recommended price. This column is refreshed after both the incremental and weekly loads. | CASE WHEN ( ID.recommended_retail_price < ID.TAKEN_PRICE ) THEN 1 ELSE 0 END |
| TARGET_INV_UNITS_OH_ EOL | Target inventory remaining. | imt.target_inventory_units |
| TARGET_ST_PERC | Target sell-through percentage considered by the last optimization. | 1 - ID.ending_inventory_perc |
| TEMP_MD_FLAG | Indicates whether a taken markdown is permanent or temporary. | CASE WHEN (l.ladder_type > 1) THEN 1 ELSE 0 END |
| TOTAL_INV | Total inventory units | ID.committed_inv_units |
| UNIT_COST | Unit cost | ID.unit_cost |
| USER_DATE_1 (1-6) | Custom pass-through metrics. | ID.user_date_1 (1-6) |
| USER_FLOAT_1 (1-12) | Custom pass-through metrics. | ID.user_float_1 (1-12) |
| USER_TEXT_1 (1-4) | Custom pass-through metrics. | ID.user_text_1 (1-4) |
| WORKSHEET_STATUS_ID | The ID for the status of the submittal worksheet. | p4p_submittal_ worksheets.worksheet_status_id |
| WOS | Number of weeks of supply on hand at the start of this week. | ID.weeks_of_supply |

## RDM Item Synonyms

The RDM_ITEMS_TBL table contains Item synonyms pointing to Markdown Optimization.

*Table 14–3 RDM Item Synonym Mapping*

| RDM_ITEMS_TBL | ITEMS_TBL |
|---|---|
| ITEM_ID | ITEM_ID |
| PI_ID | PI_ID |
| MERCHANDISE_ID | MERCHANDISE_ID |
| LOCATION_ID | LOCATION_ID |

*Table 14–3 (Cont.) RDM Item Synonym Mapping*

| RDM_ITEMS_TBL | ITEMS_TBL |
|---|---|
| FULL_PRICE | FULL_PRICE |
| FIRST_RECEIPT_DT | FIRST_RECEIPT_DT |
| CLEARANCE_IND_DT | CLEARANCE_IND_DT |
| TARGET_INVENTORY_UNITS | TARGET_INVENTORY_UNITS |
| ITEM_STATUS | ITEM_STATUS |
| VENDOR_ID | VENDOR_ID |
| CLEARANCE_DT | CLEARANCE_DT |
| CURRENT_COST_AMT | CURRENT_COST_AMT |
| CURRENT_RETAIL_BEGIN_DT | CURRENT_RETAIL_BEGIN_DT |
| LAST_RECEIPT_DT | LAST_RECEIPT_DT |
| VENDOR | VENDOR |
| VENDOR_DESC | VENDOR_DESC |
| UNIT_COST | UNIT_COST |
| SEASON_CODE | SEASON_CODE |
| MODEL_START_DT | MODEL_START_DT |

## RDM Item CDA Data Views

The RDM_ITEMS_CDA_VW view maps to the PL_DD_ATTRIBUTES column where tablename='ITEMS_CDA_TBL' (ITEMS_CDA_TBL=ict, RDM_ITEMS_TBL=rit).

*Table 14–4 RDM Item CDA View Data Mapping*

| RDM_ITEMS_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| ITEM_ID | ict.ITEM_ID ITEM_ID |
| PI_ID | rit.PI_ID PI_ID |
| LOCATION_ID | rit.LOCATION_ID LOCATION_ID |
| ATTRIBUTE1_CH_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_ NAME |
| ATTRIBUTE1 (1-8) | ict.ATTRIBUTE1 ATTRIBUTE1 |
| ATTRIBUTE1_CH_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_ ISDISABLED |
| ATTRIBUTE1_DT_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_ DT_NAME |
| ATTRIBUTE1_DATE (1-8) | ict.ATTRIBUTE1_DATE ATTRIBUTE1_DATE |

*Table 14–4 (Cont.) RDM Item CDA View Data Mapping*

| RDM_ITEMS_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| ATTRIBUTE1_DT_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_ DT_ISDISABLED |
| ATTRIBUTE1_NU_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_NAME |
| ATTRIBUTE1_NUMBER (1-8) | ict.ATTRIBUTE1_NUMBER ATTRIBUTE1_NUMBER |
| ATTRIBUTE1_NU_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='ITEMS_CDA_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_ISDISABLED |

## RDM Activities Data

The RDM_ACTIVITIES table maps to the ACTIVITIES table as shown below.

*Table 14–5 RDM Activities Data Mapping*

| RDM_ACTIVITIES | ACTIVITIES |
|---|---|
| ITEM_ID | ITEM_ID |
| CALENDAR_DT | CALENDAR_DT |
| PI_ID | PI_ID |
| LOCATION_ID | LOCATION_ID |
| PERIOD_ID | PERIOD_ID |
| NET_SALES_UNITS | NET_SALES_UNITS |
| NET_SALES_AMT | NET_SALES_AMT |
| GROSS_SALES_UNITS | GROSS_SALES_UNITS |
| GROSS_SALES_AMT | GROSS_SALES_AMT |
| POS_SALES_UNITS | POS_SALES_UNITS |
| POS_SALES_AMT | POS_SALES_AMT |
| FULL_SALES_UNITS | FULL_SALES_UNITS |
| FULL_SALES_AMT | FULL_SALES_AMT |
| CLR_SALES_UNITS | CLR_SALES_UNITS |
| CLR_SALES_AMT | CLR_SALES_AMT |
| RETURNED_UNITS | RETURNED_UNITS |
| FULL_PRICE | FULL_PRICE |
| CURRENT_RETAIL | CURRENT_RETAIL |
| CURRENT_INV_PRICE | CURRENT_INV_PRICE |
| TICKET_PRICE | TICKET_PRICE |
| SALES_PRICE | SALES_PRICE |
| NET_SALES_PRICE | NET_SALES_PRICE |

*Table 14–5 (Cont.) RDM Activities Data Mapping*

| RDM_ACTIVITIES | ACTIVITIES |
|---|---|
| GROSS_SALES_PRICE | GROSS_SALES_PRICE |
| ITEM_COST | ITEM_COST |
| INVENTORY_UNITS | INVENTORY_UNITS |
| DELIVERED_UNITS | DELIVERED_UNITS |
| ORDERED_UNITS | ORDERED_UNITS |
| SALVAGED_UNITS | SALVAGED_UNITS |
| BOH_UNITS | BOH_UNITS |
| BOH_AMT | BOH_AMT |
| STORE_COUNT | STORE_COUNT |
| STORE_COUNT_ON_ORDER | STORE_COUNT_ON_ORDER |
| STORE_COUNT_WITH_INV | STORE_COUNT_WITH_INV |
| COST_OF_SALES | NET_SALES_UNITS * items_tbl.UNIT_COST COST_OF_SALES |

## RDM Forecast Data

The RDM_FORECAST_ACTIVITIES contains only forecasts for future dates.

*Table 14–6 RDM Forecast Data Mapping*

| RDM_FORECAST_ACTIVITIES | FORECAST_ACTIVITIES |
|---|---|
| PI_ID | PI_ID |
| LOCATION_ID | LOCATION_ID |
| PERIOD_ID | PERIOD_ID |
| SALES_UNITS | SALES_PRICE |
| TICKET_PRICE | TICKET_PRICE |
| SALES_PRICE | SALES_PRICE |
| SALES_DOLLARS | SALES_UNITS * SALES_PRICE |
| COST_OF_SALES | SALES_UNITS * ITEMS_TBL.UNIT_COST |
| INVENTORY_UNITS | INVENTORY_UNITS |
| COLLECTION_SALES_UNITS | NULL |
| COLLECTION_TICKET_PRICE | NULL |
| COLLECTION_SALES_PRICE | NULL |
| COLLECTION_INVENTORY_UNITS | NULL |
| COLLECTION_SALES_DOLLARS | NULL |
| COLLECTION_COST_OF_SALES | NULL |

## RDM Budget Data

The RDM_BUDGETS table maps to the P4P_BUDGET table.

*Table 14–7 RDM Budget Data Mapping*

| RDM_BUDGETS | P4P_BUDGET |
|---|---|
| PI_ID | PI_ID |
| LOCATION_ID | LOCATION_ID |
| PERIOD_ID | PERIOD_ID |
| MARKDOWN_BUDGET | BUDGET |
| PLANNED_GM_AMT | PLANNED_GM_DOLLARS |
| PLANNED_GM_PERC | PLANNED_GM_PERC |
| FISCAL_MO | FISCAL_MONTH |
| FISCAL_YR | FISCAL_YR |
| BOH_UNITS | NULL (could be in RDM_BUDGETS_CDA_VW) |
| BOH_AMT | NULL (could be in RDM_BUDGETS_CDA_VW) |
| SALES_UNITS | NULL (could be in RDM_BUDGETS_CDA_VW) |
| SALES_AMT | NULL (could be in RDM_BUDGETS_CDA_VW) |
| TICKET_PRICE | NULL (could be in RDM_BUDGETS_CDA_VW) |
| OUTDATE | NULL (could be in RDM_BUDGETS_CDA_VW) |

## RDM Budget CDA Data Views

The RDM_BUDGETS_CDA_VW view maps to the PL_DD_ATTRIBUTES column where tablename='P4P_BUDGET' (bu=P4P_BUDGET).

*Table 14–8 RDM CDA Budget Data View Mapping*

| RDM_BUDGETS_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| PI_ID | bu.PI_ID PI_ID |
| LOCATION_ID | bu.LOCATION_ID LOCATION_ID |
| FISCAL_MONTH | bu.FISCAL_MONTH FISCAL_MONTH |
| FISCAL_YR | bu.FISCAL_YR FISCAL_YR |
| ATTRIBUTE1_NU_ NAME(1-10) | (select attributename from PL_DD_ATTRIBUTES where tablename='P4P_BUDGET' and columnname='ATTRIBUTE1') ATTRIBUTE1_NU_ NAME |
| ATTRIBUTE1 (1-10) | bu.ATTRIBUTE1 ATTRIBUTE1 |
| ATTRIBUTE1_NU_ ISDISABLED (1-10) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='P4P_BUDGET' and columnname='ATTRIBUTE1') ATTRIBUTE1_NU_ ISDISABLED |

## RDM Time-Period Data

The RDM_PERIODS_TBL table uses child aliases from the PERIODS_TBL table.

*Table 14–9 RDM Time-Period Data Mapping*

| RDM_PERIODS_TBL | PERIODS_TBL |
|---|---|
| PERIOD_ID | PERIOD_ID |

***Table 14–9 (Cont.) RDM Time-Period Data Mapping***

| RDM_PERIODS_TBL | PERIODS_TBL |
|---|---|
| BEGIN_CALENDAR_DT | BEGIN_CALENDAR_DT |
| END_CALENDAR_DT | END_CALENDAR_DT |
| PERIOD_TYPE | PERIOD_TYPE |
| PERIOD_DESC | PERIOD_DESC |
| FISCAL_YR | FISCAL_YR |
| FISCAL_MO | FISCAL_MO |
| FISCAL_WK | FISCAL_WK |
| FISCAL_QUARTER | FISCAL_QUARTER |
| FISCAL_HALF | FISCAL_HALF |
| CALENDAR_YR | CALENDAR_YR |
| CALENDAR_MO | CALENDAR_MO |
| CALENDAR_WK | CALENDAR_WK |
| CALENDAR_QUARTER | CALENDAR_QUARTER |
| CALENDAR_HALF | CALENDAR_HALF |
| WK_PERIOD_ID | case when child.period_type in ('FD','FW') then (select period_id from periods_tbl parent where parent.begin_ calendar_dt <= child.begin_calendar_dt and parent.end_calendar_dt >= child.end_calendar_dt and parent.period_type = 'FW') end |
| MO_PERIOD_ID | case when child.period_type in ('FD','FW','FM') then (select period_id from periods_tbl parent where parent.begin_calendar_dt <= child.begin_calendar_dt and parent.end_calendar_dt >= child.end_ calendar_dt and parent.period_type = 'FM') end |
| QUARTER_PERIOD_ID | case when child.period_type in ('FD','FW','FM','FQ') then (select period_ id from periods_tbl parent where parent.begin_calendar_dt <= child.begin_calendar_dt and parent.end_calendar_dt >= child.end_ calendar_dt and parent.period_type = 'FQ') end |
| HALF_PERIOD_ID | case when child.period_type in ('FD','FW','FM','FQ','FH') then (select period_id from periods_tbl parent where parent.begin_calendar_dt <= child.begin_calendar_dt and parent.end_calendar_dt >= child.end_ calendar_dt and parent.period_type = 'FH') end |

*Table 14–9 (Cont.) RDM Time-Period Data Mapping*

| RDM_PERIODS_TBL | PERIODS_TBL |
|---|---|
| YR_PERIOD_ID | case when child.period_type in ('FD','FW','FM','FQ','FH','FY') then (select period_id from periods_tbl parent where parent.begin_calendar_dt <= child.begin_calendar_dt and parent.end_calendar_dt >= child.end_ calendar_dt and parent.period_type = 'FY') end |
| HOLIDAY_FLAG | HOLIDAY_FLAG |
| HOLIDAY_DESC | HOLIDAY_DESC |
| SEASON | SEASON |
| SEASON_DESC | SEASON_DESC |
| SEASON_SEQ | NA. Unique to RDM. |

## RDM Merchandise Data

The RDM_MERCHANDISE_TBL table has synonym data pointing to Markdown Optimization.

*Table 14–10 RDM Merchandise Data Mapping*

| RDM_MERCHANDISE_TBL | MERCHANDISE_TBL |
|---|---|
| PI_ID | PI_ID |
| MERCHANDISE_ID | MERCHANDISE_ID |
| PARENT_PI_ID | PARENT_PI_ID |
| PARENT_MERCHANDISE_ID | PARENT_MERCHANDISE_ID |
| CLIENT_LOAD_ID | CLIENT_LOAD_ID |
| HIERARCHY1_ID (1-15) | HIERARCHY1_ID (1-15) |
| HIERARCHY1_DESC (1-15) | HIERARCHY1_DESC (1-15) |
| HIERARCHY1_PID (1-15) | HIERARCHY1_PID (1-15) |
| HIERARCHY1_MID (1-15) | HIERARCHY1_MID (1-15) |
| MERCHANDISE_DESC | MERCHANDISE_DESC |
| BRAND | BRAND |
| BRAND_DESC | BRAND_DESC |
| ITEM_SIZE | ITEM_SIZE |
| REPORT_CLIENT_ID | REPORT_CLIENT_ID |
| START_DT | START_DT |
| END_DT | END_DT |
| FIRST_EFF_DT | FIRST_EFF_DT |
| LAST_EFF_DT | LAST_EFF_DT |
| LEVEL_SQC | LEVEL_SQC |
| LEVEL_DESC | LEVEL_DESC |

## RDM Merchandise CDA View Data

The RDM_MERCH_CDA_VW view maps to the PL_DD_ATTRIBUTES column where tablename='MERCH_ATTR_TBL' (mat=MERCH_ATTR_TBL).

***Table 14–11 RDM Merchandise CDA View Mapping***

| RDM_MERCH_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| PI_ID | mh.pi_id pi_id |
| ATTRIBUTE1_CH_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_ NAME |
| ATTRIBUTE1 (1-8) | mat.ATTRIBUTE1 ATTRIBUTE1 |
| ATTRIBUTE1_CH_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_ ISDISABLED |
| ATTRIBUTE1_DT_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_ DT_NAME |
| ATTRIBUTE1_DATE (1-8) | mat.ATTRIBUTE1_DATE ATTRIBUTE1_DATE |
| ATTRIBUTE1_DT_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_ DT_ISDISABLED |
| ATTRIBUTE1_NU_ NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_NAME |
| ATTRIBUTE1_ NUMBER (1-8) | mat.ATTRIBUTE1_NUMBER ATTRIBUTE1_ NUMBER |
| ATTRIBUTE1_NU_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='MERCH_ATTR_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_ISDISABLED |

## RDM Location Data

The RDM_LOCATION_TBL table has synonyms pointing to Markdown Optimization geographic location data.

***Table 14–12 RDM Location Data Mapping***

| RDM_LOCATION_TBL | LOCATION_TBL |
|---|---|
| LOCATION_ID | LOCATION_ID |
| HIERARCHY1_ID (1-12) | HIERARCHY1_ID (1-12) |
| HIERARCHY1_DESC (1-12) | HIERARCHY1_DESC (1-12) |
| HIERARCHY1_LID (1-12) | HIERARCHY1_LID (1-12) |
| LEVEL_DESC | LEVEL_DESC |
| LOCATION_DESC | LOCATION_DESC |
| STORE_CITY | STORE_CITY |

*Table 14–12 (Cont.) RDM Location Data Mapping*

| RDM_LOCATION_TBL | LOCATION_TBL |
|---|---|
| STORE_STATE | STORE_STATE |
| STORE_ZIP | STORE_ZIP |
| VOLUME_GR | VOLUME_GR |
| STORE_CLASS | STORE_CLASS |
| MARKET_DESC | MARKET_DESC |
| NSLS_SQFT | NSLS_SQFT |
| GRS_ARE_SQFT | GRS_ARE_SQFT |
| START_DT | START_DT |
| END_DT | END_DT |
| FIRST_CREATE_DT | FIRST_CREATE_DT |
| LAST_MODIFIED_DT | LAST_MODIFIED_DT |
| STORE_DESC | STORE_DESC |
| GRSS_SQFT | GRSS_SQFT |
| CLIMATE | CLIMATE |
| STORE_FASHION_SEGMENT | STORE_FASHION_SEGMENT |
| STORE_AD_GROUP | STORE_AD_GROUP |
| STORE_SSC | STORE_SSC |
| SSC_IND | SSC_IND |
| STORE_CHST_1 (1-3) | STORE_CHST_1 (1-3) |
| FIRST_EFF_DT | FIRST_EFF_DT |
| LAST_EFF_DT | LAST_EFF_DT |
| STORE_CLSS_IND | STORE_CLSS_IND |
| LOCATION_TYPE | LOCATION_TYPE |
| LEVEL_SQC | LEVEL_SQC |
| CLIENT_LOAD_ID | CLIENT_LOAD_ID |
| CLIENT_ID | CLIENT_ID |

## RDM Location CDA View Data

The RDM_LOCATION_CDA_VW maps to the PL_DD_ATTRIBUTES table where tablename='LOCATION_ATTR_TBL' (lat=LOCATION_ATTR_TBL).

*Table 14–13 RDM Location CDA View Data Mapping*

| RDM_LOCATION_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| LOCATION_ID | LOCATION_ID |
| ATTRIBUTE1_CH_NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_NAME |
| ATTRIBUTE1 (1-8) | lat.ATTRIBUTE1 ATTRIBUTE1 |

*Table 14–13 (Cont.) RDM Location CDA View Data Mapping*

| RDM_LOCATION_CDA_VW | PL_DD_ATTRIBUTES |
|---|---|
| ATTRIBUTE1_CH_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1') ATTRIBUTE1_CH_ ISDISABLED |
| ATTRIBUTE1_DT_NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_DT_NAME |
| ATTRIBUTE1_DATE (1-8) | lat.ATTRIBUTE1_DATE ATTRIBUTE1_DATE |
| ATTRIBUTE1_DT_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1_DATE') ATTRIBUTE1_DT_ISDISABLED |
| ATTRIBUTE1_NU_NAME (1-8) | (select attributename from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_NAME |
| ATTRIBUTE1_NUMBER | lat.ATTRIBUTE1_NUMBER ATTRIBUTE1_ NUMBER |
| ATTRIBUTE1_NU_ ISDISABLED (1-8) | (select isdisabled from PL_DD_ATTRIBUTES where tablename='LOCATION_ATTR_TBL' and columnname='ATTRIBUTE1_NUMBER') ATTRIBUTE1_NU_ISDISABLED |

## RDM Markdown History Data

The RDM_HIST_MARKDOWNS table is a view pointing to Markdown Optimization.

*Table 14–14 RDM Markdown History Data Mapping*

| RDM_HIST_MARKDOWNS | HIST_MARKDOWNS_TBL |
|---|---|
| PI_ID | PI_ID |
| LOCATION_ID | LOCATION_ID |
| PERIOD_ID | PERIOD_ID |
| MARKDOWN_NUM | MARKDOWN_NUM |
| ACCEPTED_PRICE | ACCEPTED_PRICE |
| ACCEPTED_PCT_OFF | ACCEPTED_PCT_OFF |
| MD_TYPE | MD_TYPE |
| TEMP_ACCOUNTING_FG | TEMP_ACCOUNTING_FG |
| TAKEN_MARKDOWN_AMT | TAKEN_MARKDOWN_AMT |
| TAKEN_MARKDOWN | case when (accepted_price is not null) then 1 else 0 end |

# RDM System Tables

The following tables are used to report the status of the load/refresh tasks.

***Table 14–15 RDM System Tables***

| RDM Table | RDM Table Description |
|---|---|
| RDM_SYSTEM_STATUS_TBL | Maintains a record for each of the latest weekly and incremental refreshes. |
| RDM_LOAD_STATUS_TBL | Maintains a detailed record for the tasks and subtasks that are part of the weekly and incremental refreshes. |
| RDM_TASK_LOOKUP_TBL | Maintains the master list of tasks and subtasks. |
| RDM_SYSTEM_DB | Maintains the information needed for the load scripts to recover after a failure. |
| RDM_MVIEWS | Maintains the information regarding the rollup tables that have been created. This information is used for the refreshes. |

# 15

# Metadata Metrics

This chapter contains the following:



## Overview

This chapter shows how RDM data maps to OBI EE data. The data is grouped in the following table according to the Logical Tables Item, Location, Merchandise, Time, Actuals Facts, Analysis Facts, Budget Facts, Forecast Facts, Historical Markdown Facts, and Item Data Facts. Within each group of Logical Tables, the Logical Columns are arranged alphabetically.

## Metadata Metrics

The metadata includes the following metrics:

***Table 15–1 Metadata Metrics***

| Name | Expression |
|---|---|
| **Item** | |
| Clearance Dt | RDM_ITEMS_TBL.CLEARANCE_DT |
| Clearance Ind Dt | RDM_ITEMS_TBL.CLEARANCE_IND_DT |
| Current Retail Begin Dt | RDM_ITEMS_TBL.CURRENT_RETAIL_BEGIN_DT |
| First Receipt Dt | RDM_ITEMS_TBL.FIRST_RECEIPT_DT |
| Item ID | RDM_ITEMS_TBL.ITEM_ID |
| Item Status | RDM_ITEMS_TBL.ITEM_STATUS |
| Item Vendor | RDM_ITEMS_TBL.VENDOR_ID |
| Merchandise ID | RDM_ITEMS_TBL.MERCHANDISE_ID |
| Season | RDM_ITEMS_TBL.SEASON_CODE |
| **Location** | |
| Location Hierarchy1 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY1_DESC |
| Location Hierarchy1 ID | RDM_USER_LOCATIONS_VW.HIERARCHY1_LID |
| Location Hierarchy2 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY2_DESC |
| Location Hierarchy2 ID | RDM_USER_LOCATIONS_VW.HIERARCHY2_LID |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| Location Hierarchy3 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY3_DESC |
| Location Hierarchy3 ID | RDM_USER_LOCATIONS_VW.HIERARCHY3_LID |
| Location Hierarchy4 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY4_DESC |
| Location Hierarchy4 ID | RDM_USER_LOCATIONS_VW.HIERARCHY4_LID |
| Location Hierarchy5 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY5_DESC |
| Location Hierarchy5 ID | RDM_USER_LOCATIONS_VW.HIERARCHY5_LID |
| Location Hierarchy6 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY6_DESC |
| Location Hierarchy6 ID | RDM_USER_LOCATIONS_VW.HIERARCHY6_LID |
| Location Hierarchy7 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY7_DESC |
| Location Hierarchy7 ID | RDM_USER_LOCATIONS_VW.HIERARCHY7_LID |
| Location Hierarchy8 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY8_DESC |
| Location Hierarchy8 ID | RDM_USER_LOCATIONS_VW.HIERARCHY8_LID |
| Location Hierarchy9 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY9_DESC |
| Location Hierarchy9 ID | RDM_USER_LOCATIONS_VW.HIERARCHY9_LID |
| Location Hierarchy10 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY10_DESC |
| Location Hierarchy10 ID | RDM_USER_LOCATIONS_VW.HIERARCHY10_LID |
| Location Hierarchy11 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY11_DESC |
| Location Hierarchy11 ID | RDM_USER_LOCATIONS_VW.HIERARCHY11_LID |
| Location Hierarchy12 Desc | RDM_USER_LOCATIONS_VW.HIERARCHY12_DESC |
| Location Hierarchy12 ID | RDM_USER_LOCATIONS_VW.HIERARCHY12_LID |
| **Merchandise** | |
| Product Hierarchy1 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY1_DESC |
| Product Hierarchy1 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY1_PID |
| Product Hierarchy2 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY2_DESC |
| Product Hierarchy2 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY2_PID |
| Product Hierarchy3 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY3_DESC |
| Product Hierarchy3 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY3_PID |
| Product Hierarchy4 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY4_DESC |
| Product Hierarchy4 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY4_PID |
| Product Hierarchy5 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY5_DESC |
| Product Hierarchy5 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY5_PID |
| Product Hierarchy6 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY6_DESC |
| Product Hierarchy6 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY6_PID |
| Product Hierarchy7 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY7_DESC |
| Product Hierarchy7 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY7_PID |
| Product Hierarchy8 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY8_DESC |
| Product Hierarchy8 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY8_PID |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Product Hierarchy9 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY9_DESC |
| Product Hierarchy9 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY9_PID |
| Product Hierarchy10 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY10_DESC |
| Product Hierarchy10 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY10_PID |
| Product Hierarchy11 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY11_DESC |
| Product Hierarchy11 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY11_PID |
| Product Hierarchy12 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY12_DESC |
| Product Hierarchy12 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY12_PID |
| Product Hierarchy13 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY13_DESC |
| Product Hierarchy13 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY13_PID |
| Product Hierarchy14 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY14_DESC |
| Product Hierarchy14 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY14_PID |
| Product Hierarchy15 Desc | RDM_USER_MERCHANDISE_VW.HIERARCHY15_DESC |
| Product Hierarchy15 ID | RDM_USER_MERCHANDISE_VW.HIERARCHY15_PID |
| Merchandise Desc | RDM_USER_MERCHANDISE_VW.MERCHANDISE_DESC |
| Merchandise ID | RDM_USER_MERCHANDISE_VW.MERCHANDISE_ID |
| **Time** | |
| Yr Period | RDM_PERIODS_TBL.YR_PERIOD_ID |
| Fiscal Yr | RDM_PERIODS_TBL.FISCAL_YR |
| Half Period | RDM_PERIODS_TBL.HALF_PERIOD_ID |
| Fiscal Half | RDM_PERIODS_TBL.FISCAL_HALF |
| Quarter Period | RDM_PERIODS_TBL.QUARTER_PERIOD_ID |
| Fiscal Quarter | RDM_PERIODS_TBL.FISCAL_QUARTER |
| Month Period | RDM_PERIODS_TBL.MO_PERIOD_ID |
| Fiscal Mo | RDM_PERIODS_TBL.FISCAL_MO |
| Wk Period | RDM_PERIODS_TBL.WK_PERIOD_ID |
| Fiscal Wk | RDM_PERIODS_TBL.FISCAL_WK |
| **Actuals** | |
| Act AUR | Sum(RDM_ACTIVITIES.NET_SALES_AMT) / Sum(RDM_ACTIVITIES.NET_SALES_UNITS) |
| Act Avg Full Price | Sum([RDM_ACTIVITIES.FULL_PRICE] *[RDM_ACTIVITIES.BOH_UNITS]) / Sum([RDM_ACTIVITIES.BOH_UNITS]) |
| Act Avg Sales Price | Sum([RDM_ACTIVITIES.SALES_PRICE] * [RDM_ACTIVITIES.BOH_UNITS]) / Sum ([RDM_ACTIVITIES.BOH_UNITS]) |
| Act Avg Selling Price | Sum([RDM_ACTIVITIES.NET_SALES_AMT]) / Sum([RDM_ACTIVITIES.NET_SALES_UNITS]) |
| Act Avg Ticket Price | Sum([RDM_ACTIVITIES.TICKET_PRICE] * [RDM_ACTIVITIES.BOH_UNITS]) / Sum([RDM_ACTIVITIES.BOH_UNITS]) |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| Act BOH Units | Sum([RDM_ACTIVITIES.INVENTORY_UNITS] + [RDM_ACTIVITIES.NET_SALES_UNITS]) |
| Act Delivered Units | Sum([RDM_ACTIVITIES.DELIVERED_UNITS]) |
| Act GM Amt | Sum([RDM_ACTIVITIES.NET_SALES_AMT] - [RDM_ACTIVITIES.COST_OF_SALES]) |
| Act GM% | [Act GM Amt] / [Act Sales Amt Net] |
| Act Inventory Units | Sum([RDM_ACTIVITIES.INVENTORY_UNITS]) |
| Act Markdown Amt | Sum([RDM_HIST_MARKDOWNS.TAKEN_MARKDOWN_AMT]) |
| Act OH Rtl Amt | [RDM_ACTIVITIES.NET_SALES_AMT] * [RDM_ACTIVITIES.NET_SALES_UNITS] |
| Act On Order Amt | Sum([RDM_ACTIVITIES.ITEM_COST] * [RDM_ACTIVITIES.ORDERED_UNITS]) |
| Act On Order Units | Sum([RDM_ACTIVITIES.ORDERED_UNITS]) |
| Act Pct Off TW | 1 - ((Sum([RDM_ACTIVITIES.CURRENT_RETAIL] * [RDM_ACTIVITIES.BOH_UNITS] * [RDM_ACTIVITIES.FULL_PRICE]) / Sum([RDM_ACTIVITIES.FULL_PRICE] * [RDM_ACTIVITIES.BOH_UNITS] * [RDM_ACTIVITIES.FULL_PRICE])) |
| Act Returned Units | Sum([RDM_ACTIVITIES.RETURNED_UNITS]) |
| Act Sales Amt Clearance | Sum([RDM_ACTIVITIES.CLR_SALES_AMT]) |
| Act Sales Amt Full Price | Sum([RDM_ACTIVITIES.FULL_SALES_AMT]) |
| Act Sales Amt Net | Sum([RDM_ACTIVITIES.NET_SALES_AMT]) |
| Act Sales Amt POS | Sum([RDM_ACTIVITIES.POS_SALES_AMT]) |
| Act Sales Cost Amt | Sum([RDM_ACTIVITIES.COST_OF_SALES]) |
| Act Sales Units Clearance | Sum([RDM_ACTIVITIES.CLR_SALES_UNITS]) |
| Act Sales Units Full Price | Sum([RDM_ACTIVITIES.FULL_SALES_UNITS]) |
| Act Sales Units Net | Sum([RDM_ACTIVITIES.NET_SALES_UNITS]) |
| Act Sales Units POS | Sum([RDM_ACTIVITIES.POS_SALES_UNITS]) |
| Act Salvaged Units | Sum([RDM_ACTIVITIES.SALVAGED_UNITS]) |
| Act Stock Sales Ratio | Sum([RDM_ACTIVITIES.BOH_UNITS]) / Sum([RDM_ACTIVITIES.NET_SALES_UNITS]) |
| **Analysis Metrics** | |
| GM Amt vs Planned GM Amt | [Act GM Amt] - [Planned GM Amt] |
| GM% vs Planned GM% | [Act GM%] - [Planned GM Pct] |
| Sales Amt vs Planned Sales Amt | [Act Sales Amt Net] - [Planned Sales Amt] |
| **Budget** | |
| Planned AUR | Sum([RDM_BUDGETS.TICKET_PRICE] * [RDM_BUDGETS.SALES_UNITS]) / Sum([RDM_BUDGETS.SALES_UNITS]) |
| Planned GM Amt | [RDM_BUDGETS.SALES_AMT] - ([RDM_BUDGETS.SALES_UNITS] * [RDM_ITEMS_TBL.UNIT_COST]) |
| Planned GM Pct | [Planned GM Amt] / [Planned Sales Amt] |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Planned Markdown Amt | Sum([RDM_BUDGETS.MARKDOWN_BUDGET]) |
| Planned Sales Amt | Sum([RDM_BUDGETS.SALES_AMT]) |
| Planned Sales Cost | [Planned Sales Units] * [Avg Unit Cost] |
| Planned Sales Units | Sum([RDM_BUDGETS.SALES_UNITS]) |
| **Forecast** | |
| Fcst Cost Sls | Sum([RDM_FORECAST_ACTIVITIES.COST_OF_SALES]) |
| Fcst Grp Inv Units BOW | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS] + [RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) |
| Fcst Grp Inv Units EOW | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS]) |
| Fcst Grp Sales Price | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS] * [RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_PRICE]) / Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS]) |
| Fcst Grp Sales Units | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) |
| Fcst Grp Stock Sales Ratio | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS] + [RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) / Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) |
| Fcst Grp Ticket Price | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS] * [RDM_FORECAST_ACTIVITIES.COLLECTION_TICKET_PRICE]) / Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS]) |
| Fcst Grp WOS | Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_INVENTORY_UNITS] * [RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) / Sum([RDM_FORECAST_ACTIVITIES.COLLECTION_SALES_UNITS]) |
| Fcst Inv Units BOW | Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS] + [RDM_FORECAST_ACTIVITIES.SALES_UNITS]) |
| Fcst Inv Units EOW | Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS]) |
| Fcst Sales Amt | Sum([RDM_FORECAST_ACTIVITIES.SALES_UNITS] * {RDM_FORECAST_ACTIVITIES.SALES_PRICE]) |
| Fcst Sales Price | Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS] * {RDM_FORECAST_ACTIVITIES.SALES_PRICE]) / Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS]) |
| Fcst Sales Units | Sum([RDM_FORECAST_ACTIVITIES.SALES_UNITS]) |
| Fcst Stock Sales Ratio | Sum([RDM_FORECADT_ACTIVITIES.INVENTORY_UNITS] + [RDM_FORECAST_ACTIVITIES.SALES_UNITS]) / Sum([RDM_FORECAST_ACTIVITIES.SALES_UNITS]) |
| Fcst Ticket Price | Sum([RDM_FORECAST_ACTIVITIES.TICKET_PRICE] * [RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS]) / Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS]) |
| Fcst WOS | Sum([RDM_FORECAST_ACTIVITIES.INVENTORY_UNITS] * [RDM_FORECAST_ACTIVITIES.SALES_UNITS]) / Sum([RDM_FORECAST_ACTIVITIES.SALES_UNITS]) |
| **Hist Markdowns** | |
| Hist Accepted Pct Off | Avg([RDM_HIST_MARKDOWNS.ACCEPTED_PCT_OFF]) |
| Hist Taken MD Amt | Sum([RDM_HIST_MARKDOWNS.TAKEN_MARKDOWN]) |
| MarkDown Count | Count([RDM_HIST_MARKDOWNS.MARKDOWN_NUM]) |
| **Item Data** | |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| Accepted MDs | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.ACCEPTED_MARKDOWN]) |
| Added MD Amt | Sum(([RDM_ITEM_DATA.NON_REC_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA>ACCEPTED_PRICE])) |
| Added MD Cost Amt | Sum(([RDM_ITEM_DATA.NON_REC_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) * ([RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.UNIT_COST])) |
| Added MDs | Sum([RDM_ITEM_DATA.NON_REC_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Added Unit Inv | Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS] * ([RDM_ITEM_DATA.NON_REC_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_MARKDOWN])) |
| AUC | Sum([RDM_ITEM_DATA.UNIT_COST] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| AUR LLW | Sum([RDM_ITEM_DATA.SALES_AMT_WM1] / Sum([RDM_ITEM_DATA.SALES_UNITS_WM1]) |
| AUR LTD | Sum([RDM_ITEM_DATA.SALES_AMT_LTD]) / Sum([RDM_ITEM_DATA.SALES_UNITS_LTD]) |
| AUR LW | Sum([RDM_ITEM_DATA.SALES_AMT]) / Sum([RDM_ITEM_DATA.SALES_UNITS]) |
| AUR NW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_NW]) / Sum([RDM_ITEM_DATA.FA_SALES_UNITS_NW]) |
| AUR TW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_TW]) / Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW]) |
| Avg Accepted Price | Sum([RDM_ITEM_DATA.ACCEPTED_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.INV_UNITS_OH]) |
| Avg Cur Rtl Pct Off Orig Rtl | Avg([RDM_ITEM_DATA.CURRTL_PERC_OFF_ORRTL]) |
| Avg FTB Ratio | Avg([RDM_ITEM_DATA.FTB_RATIO]) |
| Avg Markup Pct | Avg([RDM_ITEM_DATA.MARKUP_PERC]) |
| Avg Next Rtl Price | Avg([RDM_ITEM_DATA.NEXT_RTL_PRICE]) |
| Avg Owned Rtl Price | Avg([RDM_ITEM_DATA.OWNED_RTL_PRICE]) |
| Avg Price | Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Avg Price LTD | Sum([RDM_ITEM_DATA.AVG_PRICE_LTD] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Avg Rec Pct Off Cur Rtl | Avg([RDM_ITEM_DATA.REC_PERC_OFF_CURTL]) |
| Avg Rec Pct Off Orig Rtl | Avg([RDM_ITEM_DATA.REC_PERC_OFF_ORRTL]) |
| Avg Rec Rtl Price | Sum([RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Avg Taken Pct Off Cur Rtl | Avg([RDM_ITEM_DATA.TAKEN_PERC_OFF_CURTL]) |
| Avg Taken Pct Off Orig Rtl | Avg([RDM_ITEM_DATA.TAKEN_PERC_OFF_ORRTL]) |
| Avg Target Inv Units | Avg([RDM_ITEM_DATA.TARGET_INVENTORY_UNITS]) |
| Avg Unit Cost | Avg([RDM_ITEM_DATA.UNIT_COST]) |
| Chain Avg Price | Sum([RDM_ITEM_DATA.AVG_PRICE] * [RDM_ITEM_ DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_ DATA.COMMITTED_INV_UNITS]) |
| Chain Max Price | Max([RDM_ITEM_DATA.CHAIN_MAX_PRICE]) |
| Chain Min Price | Min([RDM_ITEM_DATA.CHAIN_MIN_PRICE]) |
| Cost Sls (TW-EOL) | Sum(([RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL] - [RDM_ITEM_ DATA.SALES_UNITS_LTD]) * [RDM_ITEM_DATA.UNIT_COST])) |
| Cost Sls LTD | Sum([RDM_ITEM_DATA.SALES_UNITS_LTD] * [RDM_ITEM_DATA.UNIT_ COST]) |
| Cost Sls LW | Sum([RDM_ITEM_DATA.SALES_UNITS] * [RDM_ITEM_DATA.UNIT_ COST]) |
| Cost Sls NW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_NW] * [RDM_ITEM_ DATA.UNIT_COST]) |
| Cost Sls TW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW] * [RDM_ITEM_ DATA.UNIT_COST]) |
| Cur Rtl Price | Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_ DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_ DATA.COMMITTED_INV_UNITS]) |
| Current Cost Amt | Sum([RDM_ITEM_DATA.CURRENT_COST_AMT]) |
| Date Sent | Max([RDM_ITEM_DATA.SENT_DATE]) |
| DC OH Units | Sum([RDM_ITEM_DATA.DC_OH_UNITS]) |
| DC OO Units | Sum([RDM_ITEM_DATA.DC_OO_UNITS]) |
| Delayed MDs | Sum([RDM_ITEM_DATA.DELAYED_MARKDOWN]) |
| Exit Date | Min([RDM_ITEM_DATA.PROJ_OUT_OF_STOCK]) |
| Exit Date Last Mod Date | Max([RDM_ITEM_DATA.ORIGINAL_EXIT_DATE_MOD_DT]) |
| First MDs | Sum([RDM_ITEM_DATA.IS_FIRST_MD]) |
| First Rcpt Dt | Max([RDM_ITEM_DATAFIRST_RECEIPT_DATE]) |
| First Sale Date | Min([RDM_ITEM_DATA.FIRST_SALE_DATE]) |
| Full Price | Avg([RDM_ITEMS_TBL.FULL_PRICE]) |
| GM Amt LTD | Sum([RDM_ITEM_DATA.SALES_AMT_LTD] - ([RDM_ITEM_DATA.UNIT_ COST] * [RDM_ITEM_DATA.SALES_UNITS_LTD])) |
| GM Pct LTD | [GM Amt LTD] / [Sales Amt LTD] |
| Gross Profit Amt | Sum([RDM_ACTIVITIES.NET_SALES_AMT] - [RDM_ACTIVITIES.COST_ OF_SALES]) |
| Gross Profit Amt LTD | Sum([RDM_ITEM_DATA.GROSS_PROFIT_AMT_LTD]) |
| Group MDs | Sum([RDM_ITEM_DATA.REC_AS_COLLECTION]) |
| Inv Units EOW LLLLW | Sum([RDM_ITEM_DATA.INV_UNITS_WM3]) |
| Inv Units EOW LLLW | Sum([RDM_ITEM_DATA.INV_UNITS_WM2]) |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| Inv Units EOW LLW | Sum([RDM_ITEM_DATA.INV_UNITS_WM1]) |
| Inv Units EOW LW | Sum([RDM_ITEM_DATA.INV_UNITS_OH]) |
| Item MDs | Sum([RDM_ITEM_DATA.REC_AS_ITEM]) |
| Last MD Date | Max([RDM_ITEM_DATA.LAST_MD_EFFECTIVE_DT]) |
| Last Rcpt Dt | Max([RDM_ITEM_DATA.LAST_RECEIPT_DATE]) |
| Lost Opportunity Cost | Sum([RDM_ITEM_DATA.OPPORTUNITY_COST] * (1 - [RDM_ITEM_DATA.TAKEN_MARKDOWN])) |
| Lost Opportunity Cost(Grp) | Sum(([RDM_ITEM_DATA.OPPORTUNITY_COST] * [RDM_ITEM_DATA.AS_COLLECTION]) * (1 - [RDM_ITEM_DATA.TAKEN_MARKDOWN])) |
| Max MD Number | Max([RDM_ITEM_DATA.MD_NUMBER]) |
| MD Effective Date | Min([RDM_ITEM_DATA.EFFECTIVE_DATE]) |
| Mod Not Acc MDs | Sum([RDM_ITEM_DATA.MODIFIED_MARKDOWN]) |
| Modified Exit Date | Max([RDM_ITEM_DATA.MODIFIED_OUT_OF_STOCK_DATE]) |
| Modified MDs | Sum([RDM_ITEM_DATA.MODIFIED_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Modified Target ST Pct | Sum([RDM_ITEM_DATA.MODIFIED_TARGET_ST_PERC] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| MU Pct Init | Sum(([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] - [RDM_ITEM_DATA.UNIT_COST]) * [RDM_ITEM_DATA.COMMITTED_INV_UNITS])) / Sum([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| MU Pct NW | Sum(([RDM_ITEM_DATA.FA_TICKET_PRICE_NW] - [RDM_ITEM_DATA.UNIT_COST]) * [RDM_ITEM_DATA.FA_INVENTORY_UNITS_NW]) / Sum([RDM_ITEM_DATA.FA_TICKET_PRICE_NW] * [RDM_ITEM_DATA.FA_INVENTORY_UNITS_NW]) |
| MU Pct TW | Sum(([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.UNIT_COST]) * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Next Rec Date | Min([RDM_ITEM_DATA.NEXT_MD_DATA]) |
| Next Rec Pct Off | Max([RDM_ITEM_DATA.NEXT_REC_PERC_OFF_ORRTL]) |
| Num Items | Count([RDM_ITEM_DATA.UNIT_COST]) |
| Num Stores OH | Sum([RDM_ITEM_DATA.NO_STORE_WITH_OH]) |
| OH Cost Amt | Sum([RDM_ITEM_DATA.INV_COST_AMT_OH]) |
| OH Rtl Amt | Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] / [RDM_ITEM_DATA.INV_UNITS_OH]) |
| On Hand Inv | Sum([RDM_ITEM_DATA.INV_UNITS_OH]) |
| On Order Inv | Sum([RDM_ITEM_DATA.INV_UNITS_OO]) |
| OO Cost Amt | Sum([RDM_ITEM_DATA.INV_COST_AMT_OH]) |
| OO Rtl Amt | Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.INV_UNITS_OO]) |
| Opportunity Cost | Sum([RDM_ITEM_DATA.OPPORTUNITY_COST]) |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Opportunity Cost(Grp) | Sum([RDM_ITEM_DATA.OPPORTUNITY_COST] * [RDM_ITEM_DATA.REC_AS_COLLECTION]) |
| Orig Rtl Price | Sum([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Original Exit Date | Max([RDM_ITEM_DATA.ORIGINAL_EXIT_DATE]) |
| OTB MDs | Sum([RDM_ITEM_DATA.MD_TAKEN_THRO_OTB]) |
| OTB Taken MDs | Sum([RDM_ITEM_DATA.MD_TAKEN_THRU_OTB] * [RDM_ITEM_DATA.TEMP_MD_FLAG]) |
| Owned Rtl | Sum([RDM_ITEM_DATA.OWNED_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Pct Tlt Inv Allocated | Sum([RDM_ITEM_DATA.SALES_UNITS_LTD] + [RDM_ITEM_DATA.INV_UNITS_OH]) + [RDM_ITEM_DATA.INV_UNITS_OO]) / Sum([RDM_ITEM_DATA.SALES_UNITS_LTD] + [RDM_ITEM_DATA.INV_UNITS_OH] + [RDM_ITEM_DATA.INV_UNITS_OO] + [RDM_ITEM_DATA.DC_OH_UNITS] + [RDM_ITEM_DATA.DC_OO_UNITS]) |
| Perm MDs | Sum(1 - [RDM_ITEM_DATA.TEMP_MD_FLAG]) |
| Planned Start Date | Min([RDM_ITEM_DATA.PLANNED_START_SELL_DATE]) |
| Price Ladder Description | Max([RDM_ITEM_DATA.PRICE_LADDER_DESC]) |
| Price Ladder Sent | Min([RDM_ITEM_DATA.SENT_LADDER_ID]) |
| Price Ladder Type | Max([RDM_ITEM_DATA.PRICE_LADDER_TYPE]) |
| Price Sent | Sum([RDM_ITEM_DATA.SENT_MARKDOWN_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Proj Cost Sls EOL | Sum([RDM_ITEM_DATA.UNIT_COST] * [RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL]) |
| Proj Exit Date | Min([RDM_ITEM_DATA.PROJ_OUT_OF_STOCK]) |
| Proj GM Amt EOL(Grp) | Sum([RDM_ITEM_DATA.PROJ_GM_AMT_EOL_GRP]) |
| Proj GM Amt EOL(Item) | Sum([RDM_ITEM_DATA.PROJ_GM_AMT_EOL]) |
| Proj GM Amt NW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_NW] - ([RDM_ITEM_DATA.FA_SALES_UNITS_NW] * [RDM_ITEM_DATA.UNIT_COST])) |
| Proj GM Amt TW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_TW] - ([RDM_ITEM_DATA.FA_SALES_UNITS_TW] * [RDM_ITEM_DATA.UNIT_COST])) |
| Proj GM Pct EOL | Sum([RDM_ITEM_DATA.PROJ_GM_PERC_EOL] * [RDM_ITEM_DATA.PROJ_SALES_AMT_EOL]) / Sum([RDM_ITEM_DATA.PROJ_SALES_AMT_EOL]) |
| Proj GM Pct EOL(Grp) | Sum([RDM_ITEM_DATA.PROJ_GM_AMT_EOL_GRP] / [RDM_ITEM_DATA.PROJ_SALES_AMT_EOL]) / Sum([RDM_ITEM_DATA.PROJ_SALES_AMT_EOL]) |
| Proj MU Pct EOL | Avg (([RDM_ITEM_DATA.REC_RTL_MIN] - [RDM_ITEM_DATA.UNIT_COST]) / [RDM_ITEM_DATA.REC_RTL_MIN]) |
| Proj OH Cost Amt EOL | Sum([RDM_ITEM_DATA.ENDING_INV_UNITS] * [RDM_ITEM_DATA.UNIT_COST]) |
| Proj OH EOL | Sum([RDM_ITEM_DATA.ENDING_INV_UNITS]) |
| Proj OH NW | Sum([RDM_ITEM_DATA.PROJ_UNITS_OH_NW]) |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| Proj OH Rtl Amt EOL | Sum([RDM_ITEM_DATA.ENDING_INV_UNITS] * [RDM_ITEM_DATA.PROJ_OH_RTL_EOL]) |
| Proj OH Rtl EOL | Sum([RDM_ITEM_DATA.PROJ_OH_RTL_EOL]) |
| Proj Out Of Stock Dt | Min([RDM_ITEM_DATA.PROJ_OUT_OF_STOCK]) |
| Proj Rtl Price EOL | Sum([RDM_ITEM_DATA.REC_RTL_MIN] * [RDM_ITEM_DATA.ENDING_INV_UNITS]) / Sum([RDM_ITEM_DATA.ENDING_INV_UNITS]) |
| Proj Sales Amt EOL | Sum([RDM_ITEM_DATA.PROJ_SALES_AMT_EOL]) |
| Proj Sales Units EOL | Sum([RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL]) |
| Proj ST Pct EOL | [RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL] / ([RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL] + [RDM_ITEM_DATA.ENDING_INV_UNITS]) |
| Promo Desc | Min([RDM_ITEM_DATA.PROMO_DESC]) |
| Promo End Dt | Max([RDM_ITEM_DATA.PROMO_END_DT]) |
| Promo Flag | Max([RDM_ITEM_DATA.PROMO_FLAG]) |
| Promo Pct Off | Max([RDM_ITEM_DATA.PROMO_PCT_OFF]) |
| Promo Rtl | Min([RDM_ITEM_DATA.LOWEST_PROMO_PRICE]) |
| Promo Start Dt | Min([RDM_ITEM_DATA.PROMO_START_DT]) |
| Rec Md Amt | Sum(([RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW]) * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE])) |
| Rec MD Amt Cost | Sum(([RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW]) * [RDM_ITEM_DATA.UNIT_COST]) |
| Rec MD Amt Cost Not Taken | Sum([RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * (1 - [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.UNIT_COST])) |
| Rec MD Amt Not Taken | Sum(([RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * (1 - [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW]) * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE])) |
| Rec MD Inv | Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN]) |
| Rec Md Inv Cost | Sum([RDM_ITEM_DATA.REC_MD_INV_COST]) |
| Rec MDs | Sum([RDM_ITEM_DATA.RECOMMENDED_MARKDOWN]) |
| Rec MDs (Group) | Sum([RDM_ITEM_DATA.REC_AS_COLLECTION]) |
| Rec MDs (Item) | Sum([RDM_ITEM_DATA.REC_AS_ITEM]) |
| Rec MU Pct | Sum(([RDM_ITEM_DATA.REC_RTL_PRICE] - [RDM_ITEM_DATA.UNIT_COST]) * [RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Rec Pct Off Curr | ZeroToNull(Sum(([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE]) / ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS])) / Sum([RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS])) |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Rec Pct Off Orig | ZeroToSum(Sum(([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE]) / ([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum(([RDM_ITEM_DATA.ORIGINAL_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS])) |
| Rec Rtl (Grp) | Sum([RDM_ITEM_DATA.REC_COLLECTION_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Rec Rtl (Item) | ZeroToNull(Sum([RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS])) |
| Rec Rtl Max | Max([RDM_ITEM_DATA.REC_RTL_PRICE]) |
| Rec Rtl Min | Min([RDM_ITEM_DATA.REC_RTL_PRICE]) |
| Rec Unit Inv | Sum([RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN]) |
| Rec Units Not Taken | Sum(([RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN]) * (1 - [RDM_ITEM_DATA.RECOMMENDED_MARKDOWN])) |
| Sales Amt (TW-EOL) | [RDM_ITEM_DATA.PROJ_SALES_AMT_EOL] - [RDM_ITEM_DATA.SALES_AMT_LTD] |
| Sales Amt LLLLW | Sum([RDM_ITEM_DATA.SALES_AMT_WM3]) |
| Sales Amt LLLW | Sum([RDM_ITEM_DATA.SALES_AMT_WM2]) |
| Sales Amt LLW | Sum([RDM_ITEM_DATA.SALES_AMT_WM1]) |
| Sales Amt LTD | Sum([RDM_ITEM_DATA.SALES_AMT_LTD]) |
| Sales Amt LW | Sum([RDM_ITEM_DATA.SALES_AMT]) |
| Sales Amt NW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_NW]) |
| Sales Amt TW | Sum([RDM_ITEM_DATA.FA_SALES_DOLLARS_TW]) |
| Sales Units (TW-EOL) | [RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL] - [RDM_ITEM_DATA.SALES_UNIT_LTD] |
| Sales Units LLLLW | Sum([RDM_ITEM_DATA.SALES_UNITS_WM3]) |
| Sales Units LLLW | Sum([RDM_ITEM_DATA.SALES_UNITS_WM2]) |
| Sales Units LLW | Sum([RDM_ITEM_DATA.SALES_UNITS_WM1]) |
| Sales Units LTD | Sum([RDM_ITEM_DATA.SALES_UNITS_LTD]) |
| Sales Units LW | Sum([RDM_ITEM_DATA.SALES_UNITS]) |
| Sales Units NW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_NW]) |
| Sales Units TW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW]) |
| Salvage Amt | Sum([RDM_ITEM_DATA.SALVAGE_VALUE_AMT]) |
| Salvage Pct | Sum([RDM_ITEM_DATA.SALVAGE_VALUE_PERC] * [RDM_ITEM_DATA.ENDING_INV_UNITS]) / Sum([RDM_ITEM_DATA.ENDING_INV_UNITS]) |
| Sendback Date | Max([RDM_ITEM_DATA.SENDBACK_DATE]) |
| ST Pct (TW-EOL) | [RDM_ITEM_DATA.PROJ_SALES_UNITS_EOL] / [RDM_ITEM_DATA.SALES_UNITS_LTD] |

***Table 15–1 (Cont.) Metadata Metrics***

| Name | Expression |
|---|---|
| ST Pct LLLLW | Sum([RDM_ITEM_DATA.SELL_THROUGH_WM3] * ([RDM_ITEM_DATA.SALES_UNITS_WM3] + [RDM_ITEM_DATA.INV_UNITS_WM3])) / Sum([RDM_ITEM_DATA.SALES_UNITS_WM3] + [RDM_ITEM_DATA.INV_UNITS_WM3]) |
| ST Pct LLLW | Sum([RDM_ITEM_DATA.SELL_THROUGH_WM2] * ([RDM_ITEM_DATA.SALES_UNITS_WM2] + [RDM_ITEM_DATA.INV_UNITS_WM2])) / Sum([RDM_ITEM_DATA.SALES_UNITS_WM2] + [RDM_ITEM_DATA.INV_UNITS_WM2]) |
| ST Pct LTD | Sum([RDM_ITEM_DATA.SELL_THROUGH_LTD] * ([RDM_ITEM_DATA.SALES_UNITS_LTD] + [RDM_ITEM_DATA.INV_UNITS_OH])) / Sum([RDM_ITEM_DATA.SELL_THROUGH_LTD] + [RDM_ITEM_DATA.INV_UNITS_OH]) |
| ST Pct LW | Sum([RDM_ITEM_DATA.SELL_THROUGH] * ([RDM_ITEM_DATA.SALES_UNITS] + [RDM_ITEM_DATA.INV_UNITS_OH])) / Sum([RDM_ITEM_DATA.SALES_UNITS] + [RDM_ITEM_DATA.INV_UNITS_OH]) |
| Start Date | Min([RDM_ITEM_DATA.START_SELL_DATE]) |
| Stock Sales Ratio TW | Sum([RDM_ITEM_DATA.INV_UNITS_OH]) / Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW]) |
| Taken Curr Rtl Value | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.CURRENT_RTL_PRICE]) |
| Taken Deeper MDs | Sum([RDM_ITEM_DATA.TAKEN_DEEPER] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Taken MD Amt (Perm) | Sum(([RDM_ITEM_DATA.TAKEN_MARKDOWN] * (1 - [RDM_ITEM_DATA.TEMP_MD_FLAG])) * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE])) |
| Taken MD Amt (Temp) | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN_FLAG] * [RDM_ITEM_DATA.TEMP_MD_FLAG] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.REC_RTL_PRICE])) |
| Taken MD Amt (Total) | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN_FLAG] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * ([RDM_ITEM_DATA.CURRENT_RTL_PRICE] - [RDM_ITEM_DATA.ACCEPTED_PRICE])) |
| Taken MD Amt Cost (Perm) | Sum(([RDM_ITEM_DATA.TAKEN_MARKDOWN] * (1 - [RDM_ITEM_DATA.TEMP_MD_FLAG]) * ([RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.UNIT_COST])) |
| Taken MD Amt Cost (Temp) | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.TEMP_MD_FLAG] * [RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.UNIT_COST]) |
| Taken MD Amt Cost (Total) | [Taken MD Amt Cost (Perm)] + [Taken MD Amt Cost (Temp)] |
| Taken Md Inv Cost | Sum([RDM_ITEM_DATA.TAKEN_MD_INV_COST]) |
| Taken MDs | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Taken Mod MDs | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.MODIFIED_MARKDOWN]) |
| Taken MU Pct | Sum(([RDM_ITEM_DATA.TAKEN_MD_PRICE] - [RDM_ITEM_DATA.UNIT_COST]) * [RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.TAKEN_MD_PRICE]) / Sum([RDM_ITEM_DATA.REC_RTL_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.TAKEN_MD_PRICE]) |

*Table 15–1 (Cont.) Metadata Metrics*

| Name | Expression |
|---|---|
| Taken Pct Off Curr | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) * [RDM_ITEM_DATA.CURRENT_RTL_PRICE] * [RDM_ITEM_DATA.TAKEN_PERC_OFF_CURTL]) / Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.CURRENT_RTL_PRICE]) |
| Taken Pct Off Orig | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.TAKEN_PERC_OFF_ORRTL]) * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) * [RDM_ITEM_DATA.ORIGINAL_RTL_PRICE]) / Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.ORIGINAL_RTL_PRICE]) |
| Taken Rec MDs | Sum([RDM_ITEM_DATA.TAKEN_MARKDOWN] * [RDM_ITEM_DATA.ACCEPTED_MARKDOWN]) |
| Taken Rtl | Sum([RDM_ITEM_DATA.TAKEN_MD_PRICE] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Taken Shallower MDs | Sum([RDM_ITEM_DATA.TAKEN_SHALLOWER] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Taken Unit Inv | Sum([RDM_ITEM_DATA.PROJ_UNITS_OH_NW] * [RDM_ITEM_DATA.TAKEN_MARKDOWN]) |
| Target St Inv Units | Sum([RDM_ITEM_DATA.TARGET_ST_PERC] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Target OH EOL | Sum([RDM_ITEM_DATA.TARGET_INV_UNITS_OH_EOL]) |
| Target ST Pct | Sum([RDM_ITEM_DATA.TARGET_ST_PERC] * [RDM_ITEM_DATA.COMMITTED_INV_UNITS]) / Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Temp MDs | Sum([RDM_ITEM_DATA.TEMP_MD_FLAG]) |
| Total Cost Inv | Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS] * [RDM_ITEM_DATA.UNIT_COST]) |
| Total Cost Inv NW | Sum([RDM_ITEM_DATA.FA_INVENTORY_UNITS_TW] * [RDM_ITEM_DATA.UNIT_COST]) |
| Total EOW Inv | Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Total Inv | Sum([RDM_ITEM_DATA.COMMITTED_INV_UNITS]) |
| Total Inv NW | Sum([RDM_ITEM_DATA.FA_INVENTORY_UNITS_NW]) |
| Weekly Build LLLW | Sum([RDM_ITEM_DATA.SALES_UNITS_WM2]) / Sum([RDM_ITEM_DATA.SALES_UNITS_WM3]) |
| Weekly Build LLW | Sum([RDM_ITEM_DATA.SALES_UNITS_WM1]) / Sum([RDM_ITEM_DATA.SALES_UNITS_WM2]) |
| Weekly Build LW | Sum([RDM_ITEM_DATA.SALES_UNITS]) / Sum([RDM_ITEM_DATA.SALES_UNITS_WM1]) |
| Weekly Build NW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_NW]) / Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW]) |
| Weekly Build TW | Sum([RDM_ITEM_DATA.FA_SALES_UNITS_TW]) / Sum([RDM_ITEM_DATA.SALES_UNITS]) |
| WOS | Sum([RDM_ITEM_DATA.WOS] * [RDM_ITEM_DATA.SALES_UNITS]) / Sum([RDM_ITEM_DATA.SALES_UNITS]) |

# A

# Standard Columns

This appendix contains a list of the standard columns that are included by default in the Markdown Optimization application. The information about each column listed in the following table includes the column key, default name, default description, calculation, DB column name, and function.

***Table A–1 MDO Standard Columns***

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| HIERARCHY1 | | 1 | HIERARCHY1 | P4P_SAME_OR_NULL |
| HIERARCHY1_NAME | | 1 | HIERARCHY1_NAME | P4P_SAME_OR_NULL |
| HIERARCHY2 | | 1 | HIERARCHY2 | P4P_SAME_OR_NULL |
| HIERARCHY2_NAME | | 1 | HIERARCHY2_NAME | P4P_SAME_OR_NULL |
| HIERARCHY3 | | 1 | HIERARCHY3 | P4P_SAME_OR_NULL |
| HIERARCHY3_NAME | | 1 | HIERARCHY3_NAME | P4P_SAME_OR_NULL |
| HIERARCHY4 | | 1 | HIERARCHY4 | P4P_SAME_OR_NULL |
| HIERARCHY4_NAME | | 1 | HIERARCHY4_NAME | P4P_SAME_OR_NULL |
| HIERARCHY5 | | 1 | HIERARCHY5 | P4P_SAME_OR_NULL |
| HIERARCHY5_NAME | | 1 | HIERARCHY5_NAME | P4P_SAME_OR_NULL |
| HIERARCHY6 | | 1 | HIERARCHY6 | P4P_SAME_OR_NULL |
| HIERARCHY6_NAME | | 1 | HIERARCHY6_NAME | P4P_SAME_OR_NULL |
| HIERARCHY7 | | 1 | HIERARCHY7 | P4P_SAME_OR_NULL |
| HIERARCHY7_NAME | | 1 | HIERARCHY7_NAME | P4P_SAME_OR_NULL |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| HIERARCHY8 | | 1 | HIERARCHY8 | P4P_SAME_OR_NULL |
| HIERARCHY8_NAME | | 1 | HIERARCHY8_NAME | P4P_SAME_OR_NULL |
| HIERARCHY9 | | 1 | HIERARCHY9 | P4P_SAME_OR_NULL |
| HIERARCHY9_NAME | | 1 | HIERARCHY9_NAME | P4P_SAME_OR_NULL |
| HIERARCHY10 | | 1 | HIERARCHY10 | P4P_SAME_OR_NULL |
| HIERARCHY10_NAME | | 1 | HIERARCHY10_NAME | P4P_SAME_OR_NULL |
| HIERARCHY11 | | 1 | HIERARCHY11 | P4P_SAME_OR_NULL |
| HIERARCHY11_NAME | | 1 | HIERARCHY11_NAME | P4P_SAME_OR_NULL |
| HIERARCHY12 | | 1 | HIERARCHY12 | P4P_SAME_OR_NULL |
| HIERARCHY12_NAME | | 1 | HIERARCHY12_NAME | P4P_SAME_OR_NULL |
| HIERARCHY13 | | 1 | HIERARCHY13 | P4P_SAME_OR_NULL |
| HIERARCHY13_NAME | | 1 | HIERARCHY13_NAME | P4P_SAME_OR_NULL |
| HIERARCHY14 | | 1 | HIERARCHY14 | P4P_SAME_OR_NULL |
| HIERARCHY14_NAME | | 1 | HIERARCHY14_NAME | P4P_SAME_OR_NULL |
| HIERARCHY15 | | 1 | HIERARCHY15 | P4P_SAME_OR_NULL |
| HIERARCHY15_NAME | | 1 | HIERARCHY15_NAME | P4P_SAME_OR_NULL |
| HIERARCHY16 | | 1 | HIERARCHY16 | P4P_SAME_OR_NULL |
| HIERARCHY16_NAME | | 1 | HIERARCHY16_NAME | P4P_SAME_OR_NULL |
| HIERARCHY17 | | 1 | HIERARCHY17 | P4P_SAME_OR_NULL |
| HIERARCHY17_NAME | | 1 | HIERARCHY17_NAME | P4P_SAME_OR_NULL |
| firstReceiptDate/ 1st Rcpt Date | First receipt date. | 0 | FIRST_RECEIPT_DATE | P4P_MAX |
| lastReceiptDate/ Last Rcpt Date | Last receipt date. | 0 | LAST_RECEIPT_DATE | P4P_MAX |
| vendorName/ Vendor | Vendor name. | 1 | VENDOR_DESCRIPTION | P4P_SAME_OR_NULL |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| vendorID/ Vendor # | Vendor number. | 1 | VENDOR | P4P_SAME_ OR_NULL |
| startDate/ startDate | The date of the start of the item's life in the application. | 1 | START_SELL_DATE | P4P_MIN |
| INT_OUT_OF_STOCK_ DATE/ Out Date | The target date by which the item should achieve its sell-thru. | 0 | OUT_OF_STOCK_ DATE | P4P_MAX |
| INT_MOD_OUTDATE/ New Out Date | New target date by which the item should achieve its sell-thru. | 1 | MODIFIED_OUT_ OF_STOCK_DATE | P4P_MAX |
| seasonCode/ Season Code | The item's season code. | 1 | SEASON_CODE | P4P_SAME_ OR_NULL |
| INT_ORIG_RETAIL/ Orig Rtl Price | The retail price at the start of life of the item which is typically the same as the original retail price. | 1 | ORIGINAL_RETAIL_ PRICE | P4P_AVG |
| INT_UNIT_COST/ AUC | The unit cost of the item. | 1 | UNIT_COST | P4P_AVG |
| markupPercInit/ MU% Init | Initial markup percent is the percentage of the initial retail price that is markup above cost. | 1 | MARKUP_PERCENT | P4P_AVG |
| INT_ACCELERATED_ SENDBACK_DATE/ Sendback Date | Sendback date for accelerated markdown. | 1 | SENDBACK_DATE | P4P_MAX |
| INT_ACCELERATED_ SENDBACK_DATE_SENT/ Date Sent | The date the markdown was sent to the price change system. | 1 | SENT_DATE | P4P_MAX |
| INT_ACCELERATED_ SENDBACK_PRICE/ Price Sent | The price that was sent to the price change system. | 1 | SENT_ MARKDOWN_PRICE | P4P_AVG |
| INT_ACCELERATED_ SENDBACK_LADDER_ID/ Ladder Sent | The price ladder that was sent to the price change system. | 1 | SENT_LADDER_ID | |
| INT_SALVAGE_VALUE/ Salvage $ | The $ salvage value for this item. | 1 | SALVAGE_VALUE | P4P_AVG |
| INT_SALVAGE_VAL_ PERC/ Salvage % | The salvage value for this item expressed as a % of original retail price. | 1 | SALVAGE_VALUE_ PERC | P4P_MAX |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| projSalesUnitsTW/ Proj Sls Units TW | The forecasted number of units that will be sold this week. | 1 | WEEKLY_ PROJECTED_UNIT_ SALES | P4P_SUM |
| projSalesDollarsTW/ Proj Sls $ TW | The forecasted sales dollars this week. | 1 | WEEKLY_ PROJECTED_ DOLLAR_SALES | P4P_SUM |
| projSalesUnitsEOL/ Proj Sls Units EOL | Projected total sales units for an item at the end of its life, assuming all application recommendations are taken. | 1 | XML_EOL_CUM_ UNIT_SALES | P4P_SUM |
| projSalesDollarsEOL/ Proj Sales $ EOL | Projected total sales dollars for an item at the end of its life, assuming all application recommendations are taken. | 1 | XML_EOL_CUM_ DOLLARS_SALES | P4P_SUM |
| projSellThruEOL/ Proj ST% EOL | Projected percent of total inventory quantity sold by the client specified out date, assuming all application recommendations are taken. | 1 | XML_ PROJSELLTHRUEOL | P4P_AVG |
| INT_TGT_SELLTHRU_ PERC/ Target ST% EOL | Target sell-thru percent. | (1 - ENDING_ INVENTORY_PERC) | TGT_SELL_THRU_ PERC | P4P_MAX |
| INT_ENDING_INV/ Target OH EOL | Target inventory remaining. | | ENDING_ INVENTORY_UNITS | P4P_SUM |
| projOutDate/ Proj Out Date | The projected date when the item will meet its sell-thru target. | | PROJECTED_OUT_ OF_STOCK | P4P_MIN |
| projOnHandUnitsEOL/ Proj OH EOL | Projected inventory units on hand at the client specified out date. | | ENDING_ INVENTORY_UNITS | P4P_SUM |
| projRtlPriceEOL/ Proj Rtl Price EOL | Project retail price at the out date. | | REC_RTL_MIN | P4P_AVG |
| projOnHandRtlDollars EOL/ Proj OH Rtl $ EOL | Projected retail value of the inventory remaining at the out date. | projOnHandUnitsEOL * projRtlPriceEOL | PROJ_OH_RTL_EOL | P4P_SUM |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| projOnHandCostDollars EOL/ Proj OH Cost $ EOL | Projected cost of the inventory remaining at the out date. | projOnHandUnitsEOL * INT_UNIT_COST | PROJ_OH_COST_ EOL | P4P_SUM |
| projMarginDollarsEOL/ Proj GM$ EOL (Item) | The forecasted gross margin dollars over the life of an item (including salvage value). | projSalesDollarsEOL - (projSalesUnitsEOL + projOnHandUnitsEOL) * INT_UNIT_COST + salvValuePerc * INT_ ORIG_RETAIL * projOnHandUnitsEOL | PROJ_STD_EOL_ GM_AMOUNT | P4P_SUM |
| projMarginPercEOL/ Proj GM% EOL (Item) | The forecasted gross margin percent over the life of an item (including salvage value). | projMarginDollarsEOL / projSalesDollarsEOL | PROJ_STD_EOL_ GM_PERC | P4P_AVG |
| projMarginDollarsEOLGrp/ Proj GM$ EOL (Grp) | The forecasted gross margin dollars over the life of an item in its pricing group context (including salvage value). | projSalesDollarsEOL - (projSalesUnitsEOL + projOnHandUnitsEOL) * INT_UNIT_COST + salvValuePerc * INT_ ORIG_RETAIL * projOnHandUnitsEOL | PROJ_STD_EOL_ GM_AMOUNT_C | P4P_SUM |
| projMarginPercEOLGrp/ Proj GM% EOL (Grp) | The forecasted gross margin percent over the life of an item in its pricing group context (including salvage value). | projMarginDollarsEOL / projSalesDollarsEOL | PROJ_STD_EOL_ GM_PERC_C | P4P_AVG |
| projSalesPriceTW/ Proj Sls Price TW | The forecasted average selling price of units that will be sold this week. | | WEEKLY_ PROJECTED_SALES_ PRICE | P4P_AVG |
| projSalesDollarsEOLGrp/ Proj Sales $ EOL (Grp) | Projected total sales dollars for a group at the end of its life, assuming all application recommendations are taken. | EOL_CUM_DOLLARS_ SALES_C + salesDollarsLTD | XML_EOL_CUM_ DOLLARS_SALES_C | P4P_SUM |
| INT_TICKET_PRICE_WT_ AVG/ Rtl Price TW | The current retail price for the item this week (including any pending markdowns expected to be effective this week). | | PERM_TICKET_ PRICE | P4P_AVG |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| ownedRtlPriceTW/ Owned Rtl | The current "owned at" price for the item this week (including any pending markdowns expected to be effective this week). | | OWNED_RTL_PRICE | P4P_AVG |
| percOffOrigRtlTW/ %Off TW | Current retail price as a percentage off of original retail. | 1 - (INT_TICKET_PRICE / INT_ORIG_RETAIL) | CURRENT_ PERCENT_OFF | P4P_AVG |
| markupPercTW/ MU% TW | Current markup percent is the percentage of this week's retail price that is markup above cost. | (INT_TICKET_PRICE - INT_UNIT_COST)/ INT_ TICKET_PRICE | XML_ MARKUPPERCTW | P4P_AVG |
| numStoresWithOn HandLW/ # Stores OH | Number of stores with inventory on hand at the end of last week. | | NO_STORE_WITH_ ON_HAND | P4P_SUM |
| onHandUnitsLW/ On Hand | Inventory on hand in the stores as of the beginning of this week (end of last week). | | CURRENT_UNITS_ ON_HAND | P4P_SUM |
| onHandUnitsLLW/ On Hand LLW | Inventory on hand in the stores as of the end last week minus one week. | | WEEK_MINUS_1_ UNITS_ON_HAND | P4P_SUM |
| onHandUnitsLLLW/ On Hand LLLW | Inventory on hand in the stores as of the end last week minus two weeks. | | WEEK_MINUS_2_ UNITS_ON_HAND | P4P_SUM |
| onHandUnitsLLLLW/ On Hand LLLLW | Inventory on hand in the stores as of the end last week minus three weeks. | | WEEK_MINUS_3_ UNITS_ON_HAND | P4P_SUM |
| onOrderUnitsLW/ On Order | Inventory that is in transit to or otherwise committed to the stores as of the beginning of this week (end of last week). | | CURRENT_UNITS_ ON_ORDER | P4P_SUM |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| dcOnHandUnitsLW/ DC On Hand | Inventory on hand in the DC location that is not yet committed to any store as of the beginning of this week (end of last week). | | WAREHOUSE_ON_ ORDER | P4P_SUM |
| dcOnOrderUnitsLW/ DC On Order | Inventory that is on order to the DC location as of the beginning of this week (end of last week). | | WAREHOUSE_ON_ HAND | P4P_SUM |
| onHandRtlDollarsLW/ OH Rtl $ | Retail value of the inventory on hand in the stores. | onHandUnitsLW * rtlPriceLW | XML_CURRENT_ ON_HAND_ DOLLAR | P4P_SUM |
| onOrderRtlDollarsLW/ OO Rtl $ | Retail value of the inventory that is in transit or otherwise committed to the stores. | onOrderUnitsLW * rtlPriceLW | XML_CURRENT_ ON_ORDER_ DOLLAR | P4P_SUM |
| onHandCostDollarsLW/ OH Cost $ | Cost of the inventory on hand in the stores. | onHandUnitsLW * INT_ UNIT_COST | XML_ ONHANDCOST DOLLARS | P4P_SUM |
| onOrderCostDollarsLW/ OO Cost $ | Cost of the inventory that is in transit or otherwise committed to the stores. | onOrderUnitsLW * INT_ UNIT_COST | XML_ ONORDERCOST DOLLARS | P4P_SUM |
| INT_INVENTORY/ Total Inv | The remaining inventory commitment for the item including store and DC on hand and on order units. | dcOnHandUnitsLW + dcOnOrderUnitsLW + onHandUnitsLW + onOrderUnitsLW | COMMITTED_INV_ UNITS | P4P_SUM |
| weeksOfSupplyLW/ WOS | The weeks of supply on hand at the start of this week. | onHandUnitsLW / salesUnitsLW | XML_WEEKS_OF_ SUPPLY | P4P_AVG |
| promoFlag/ Promo Flag | This is a flag to identify items that have a planned promotion this week or in the future. | | PROMOTION_FLAG | P4P_MAX |
| promoRtlLowest/ Promo Rtl Lowest | Lowest planned promo price for the item at any point in the future. | | LOWEST_FUTURE_ PROMOTES_PRICE | P4P_MIN |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| projOnHandUnitsEffDt/ Proj OH Eff Dt | The projected inventory level on hand in the stores at the recommended effective date. | Does not include DC OH or DC OO | PROJ_OH_UNITS_ EFF_DT | P4P_SUM |
| INT_PROPOSED_PRICE/ MD Price | Drop-down for selecting markdown price. | The dropdown will default to the Rec MD Price | PROPOSED_PRICE | |
| INT_LADDER_ID/ MD Type | Drop-down for selecting price ladder. | | LADDER_ID | |
| markdownNumber/ MD # | The number of past MD's +1. | | MARKDOWN_ NUMBER | P4P_SAME_ OR_NULL |
| OPPTY_COST/ Oppy Cost | This is the opportunity cost (margin loss) of deferring taking a recommended item-context markdown until the next available markdown date assuming that the deferred markdown will then be taken as recommended (for item-context) by the application. | | OPPTY_COST | P4P_SUM |
| INT_RECOMMENDED_ RETAIL/ Rec Rtl | Recommended markdown price. | | RECOMMENDED_ RETAIL_PRICE | P4P_AVG |
| recPercOffOrigRtl/ Rec %Off Orig | Recommended markdown price as a percentage off of original retail. | (INT_ORIG_RETAIL - INT_RECOMMENDED_ RETAIL) / INT_ORIG_ RETAIL | XML_RECPERCOFF ORIGRTL | P4P_AVG |
| recPercOffCurrRtl/ Rec %Off Curr | Recommended markdown price as a percentage off of current retail. | (INT_TICKET_PRICE - INT_RECOMMENDED_ RETAIL) / INT_TICKET_ PRICE | XML_RECPERCOFF CURRRTL | P4P_AVG |
| takenPercOffOrigRtl/ Taken %Off Orig | Taken markdown price as a percentage off of original retail. | If markdown_flag = 'y' Then (INT_ORIG_RETAIL - takenRtlPrice) / INT_ ORIG_RETAIL | XML_ TAKENPERCOFF ORIGRTL | P4P_AVG |
| takenPercOffCurrRtl/ Taken %Off Curr | Taken markdown price as a percentage off of current retail. | If markdown_flag = 'y' Then (INT_TICKET_ PRICE - takenRtlPrice) / INT_TICKET_PRICE | XML_ TAKENPERCOFF CURRRTL | P4P_AVG |
| INT_TAKEN_PRICE/ Taken Rtl | Taken markdown price. | If markdown_flag = 'y' Then TAKEN_PRICE | TAKEN_PRICE | P4P_AVG |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| effectiveDate/ Effective Date | Markdown effective date. | | EFFECTIVE_DATE | P4P_MIN |
| nextRecMDDate/ Next Rec Date | Next recommended markdown date after the current markdown effective date. | | PROJECTED_NEXT_ MARKDOWN | P4P_MIN |
| nextRecRtlPrice/ Next Rec Rtl | Next recommended markdown price after the current markdown effective date. | | NEXT_RTL_PRICE | P4P_MIN |
| nextRecPercOffOrigRtl/ Next Rec %Off | Next recommended markdown price after the current markdown effective date as a percentage off of original retail. | (INT_ORIG_RETAIL - NextRecRtlPrice) / INT_ ORIG_RETAIL | NEXT_REC_PERC_ OFF_ORRTL | P4P_MAX |
| INT_REC_MD_COST/ Rec MD $ | Markdown cost (using retail accounting) of taking the recommended markdown. | projOnHandUnitsTW * (ownedRtlPriceTW - INT_ RECOMMENDED_ RETAIL) | INT_REC_MD_COST | P4P_SUM |
| recMDDollarsCost/ Rec MD $ Cost | The cost of the inventory recommended for markdown. | For recommended items: projOnHandUnitsTW * INT_UNIT_COST | XML_ RECMDDOLLARS COST | P4P_SUM |
| INT_TAKEN_MD_COST/ Taken MD $ | Markdown cost (using retail accounting) of the taken markdown. | projOnHandUnitsTW * (ownedRtlPriceTW - takenRtlPrice) | INT_TAKEN_MD_ COST | P4P_SUM |
| takenMDDollarsCost/ Taken MD $ Cost | The cost of the inventory taken for markdown. | For taken items: projOnHandUnitsTW * INT_UNIT_COST | XML_ TAKENMDDOLLARS COST | P4P_SUM |
| recRetailPriceMin/ Rec Rtl Min | The minimum recommended retail price for the items underneath. | MIN(INT_ RECOMMENDED_ RETAIL) | RECOMMENDED_ RETAIL_PRICE | P4P_MIN |
| recRetailPriceMax/ Rec Rtl Max | The maximum recommended retail price for the items underneath. | MAX(INT_ RECOMMENDED_ RETAIL) | RECOMMENDED_ RETAIL_PRICE | P4P_MAX |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| INT_RECOMMENDED_ ITEM_FLAG/ # Item Recs | Shows 1 for a recommended item, 0 for a non-recommende d item. Summary rows show the total number of recommended items underneath. | | RECOMMENDED_ ITEM_FLAG | P4P_SUM |
| numItems/ # Items | For summary rows only- shows the number of items underneath. | 1 | XML_NUMITEMS | P4P_SUM |
| MD_FLAG_VIEW/ Taken MD | Markdown status of the item. | If MARKDOWN_FLAG = 1 Then 'Taken Item Rec' Else If MARKDOWN_ FLAG = 2 Then 'Taken Pricing Grp Rec' Else If MARKDOWN_FLAG = 3 Then 'Taken Modified' Else If MARKDOWN_ FLAG = 4 Then 'Taken Budget Const.' Else 'Not Taken' | MARKDOWN_FLAG | P4P_MAP_ STATUS_ AND_ SAME_OR_ TEMPLATE |
| numTakenMarkdowns/ # Taken MD | Shows 1 for an item with a taken markdown, 0 for an item without a taken markdown. Summary rows show the total number of items with taken markdowns. | If MARKDOWN_FLAG = 'y' Then 1 Else 0 | XML_ NUMRECTAKEN | P4P_SUM |
| GRP_OPPTY_COST/ Grp Oppy Cost | This is the opportunity cost (margin loss) of deferring taking a recommended group-context markdown until the next available markdown date assuming that the deferred markdown will then be taken as recommended (for group context) by the application. | | GRP_OPPTY_COST | P4P_SUM |
| INT_COLLECTION_ RECOMMENDED_PRICE/ Grp Rec Rtl | Recommended markdown price if item is optimized as part of a pricing group. | | COLLECTION_ RECOMMENDED_ PRICE | P4P_AVG |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| INT_REC_COLLECTION_FLAG/ # Grp Recs | Shows 1 for an item with a group recommendation, 0 for items without. Summary rows show the total number of recommended items underneath. | | RECOMMENDED_COLLECTION_FLAG | P4P_SUM |
| RevenueLostBudgetConst/ GM $ (Optimal) - GM$ (Budget Constrained) | Amount of margin forced to be forfeited by limited markdown budget. | | REVENUE_LOST_BUDGET_CONST | P4P_SUM |
| salesDollarsLLLLW/ Sls $ LLLLW | The total dollar sales four weeks ago (last week minus three weeks). | | DOLLAR_SALES_WEEK_MINUS_3 | P4P_SUM |
| sellThruLLLLW/ ST% LLLLW | The number of units sold 4 weeks ago divided by the units on hand at the start of the week. | salesUnitsLLLLW / (onHandUnitsLLLLW + salesUnitsLLLLW) | SELL_THRUPERCENT_WEEK_MINUS_3 | P4P_AVG |
| salesUnitsLLLLW/ Sls Units LLLLW | The number of units sold four weeks ago (last week minus three weeks). | | UNIT_SALES_WEEK_MINUS_3 | P4P_SUM |
| salesDollarsLLLW/ Sls $ LLLW | The total dollar sales three weeks ago (last week minus two weeks). | | DOLLAR_SALES_WEEK_MINUS_2 | P4P_SUM |
| sellThruLLLW/ ST% LLLW | The number of units sold 3 weeks ago divided by the units on hand at the start of the week. | salesUnitsLLLW / (onHandUnitsLLLW + salesUnitsLLLW) | SELL_THRUPERCENT_WEEK_MINUS_2 | P4P_AVG |
| salesUnitsLLLW/ Sls Units LLLW | The number of units sold three weeks ago (last week minus two weeks). | | UNIT_SALES_WEEK_MINUS_2 | P4P_SUM |
| salesDollarsLLW/ Sls $ LLW | The total dollar sales two weeks ago (last week minus one week) | | DOLLAR_SALES_WEEK_MINUS_1 | P4P_SUM |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| sellThruLLW/ ST% LLW | The number of units sold 2 weeks ago divided by the units on hand at the start of the week. | salesUnitsLLW/(onHand UnitsLLW + salesUnitsLLW) | SELL_ THRUPERCENT_ WEEK_MINUS_1 | P4P_AVG |
| salesUnitsLLW/ Sls Units LLW | The number of units sold two weeks ago (last week minus one week). | | UNIT_SALES_ WEEK_MINUS_1 | P4P_SUM |
| salesDollarsLW/ Sls $ LW | The total dollar sales last week. | | DOLLAR_SALES_ THROUGH_WEEK | P4P_SUM |
| sellThruLW/ ST% LW | The number of units sold last week divided by the units on hand at the start of the week. | salesUnitsLW/(onHandU nitsLW + salesUnitsLW) | SELL_ THRUPERCENT_ CURRENT_WEEK | P4P_AVG |
| salesUnitsLW/ Sls Units LW | The number of units sold last week. | | UNIT_SALES_ THROUGH_WEEK | P4P_SUM |
| INT_MOST_RECENT_ RETAIL/ Rtl Price LW | The retail price for the item as of the end of last week (start of this week). | | CURRENT_RETAIL_ PRICE | P4P_AVG |
| averRtlPriceLW/ AUR LW | The average unit retail price of the item last week. | salesDollarsLW / salesUnitsLW | AVERAGE_PRICE | P4P_AVG |
| INT_STD_AVG_PRICE/ AUR LTD | The average unit retail price of the item life to date. | salesDollarsLTD / salesUnitsLTD | STD_AVERAGE_ PRICE | P4P_AVG |
| INT_CUM_SALES/ Sls Units LTD | The total number of units sold since the item's Start Sell Date. | Sum of LW Unit Sls from each weekly client data feed for all weeks from the Start Date | CUMULATIVE_ QUANTITY_SOLD | P4P_SUM |
| salesDollarsLTD/ Sls $ LTD | The total sales dollars since the item's Start Sell Date. | Sum of LW Sls $ from each weekly client data feed for all weeks from the Start Date or First Fiscal Week of the Season, whichever is later | CUMULATIVE_ SALES_DOLLARS | P4P_SUM |
| INT_STD_SELLTHRU_ PERC/ ST% LTD | This is the percent of store inventory sold from the beginning of the life up to the current date. | 100 * ((TD Sls Units) / (TD Sls Units + EOP Inv TTT + SOO) | CUMULATIVE_ SELLTHRU_ PERCENT | P4P_AVG |
| marginDollarsLTD/ GM$ LTD | Life to Date gross margin dollars. | salesDollarsLTD - (salesUnitsLTD *INT_ UNIT_COST) | CUMM_GROSS_ PROFIT_DOLLAR | P4P_SUM |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| marginPercLTD/ GM% LTD | Life to Date gross margin %. | marginDollarsLTD / salesDollarsLTD | CUMM_GROSS_ PROFIT_PERC | P4P_AVG |
| totalInventoryInitDollars LW/ Total Inv Init$ LW | REQUIRED FOR AGGREGATION | | XML_ TOTALINVINIT DOLLARSLW | P4P_SUM |
| totalInventoryRtlDollars TW/ Total Inv Rtl$ TW | REQUIRED FOR AGGREGATION | | XML_TOTALINVRTL DOLLARSTW | P4P_SUM |
| totalUnitsLW/ Total Units LW | REQUIRED FOR AGGREGATION | | XML_ TOTALUNITSLW | P4P_SUM |
| totalUnitsLLW/ Total Units LLW | REQUIRED FOR AGGREGATION | | XML_ TOTALUNITSLLW | P4P_SUM |
| totalUnitsLLLW/ Total Units LLLW | REQUIRED FOR AGGREGATION | | XML_ TOTALUNITSLLLW | P4P_SUM |
| totalUnitsLLLLW/ Total Units LLLLW | REQUIRED FOR AGGREGATION | | XML_ TOTALUNITSLLLLW | P4P_SUM |
| totalUnitsLTD/ Total Units LTD | REQUIRED FOR AGGREGATION | | XML_ TOTALUNITSLTD | P4P_SUM |
| INT_ITEM_REGION/ locHierarchy1 | locHierarchy1 | | REGION | P4P_SAME_ OR_NULL |
| INT_ITEM_REGION_ DESCRIPTION/ locHierarchy1Name | locHierarchy1 Name | | REGION_ DESCRIPTION | P4P_SAME_ OR_NULL |
| INT_COLLECTION_REC_ MD_COST/ Grp Rec MD $ | Markdown cost (using retail accounting) of taking the recommended group markdown. | | INT_COLLECTION_ REC_MD_COST | P4P_SUM |
| INT_COLLECTION_ NAME/ Grp Desc. | Group Description | | | P4P_SAME_ OR_ TEMPLATE |
| INT_MOD_INV_TARGET_ ST_PERC/ New Sell Thru % | New Sell Thru % | | | P4P_MAX |
| INT_MOD_INV_TARGET_ END_UNITS/ New End Inv | New End Inv | | | P4P_SUM |
| INT_CURR_PERC_OFF_ ORIG/ Curr % Off | Curr % Off | | | P4P_MAX |
| INT_STYLE_DESC/ HIERARCHY6_NAME | HIERARCHY6_ NAME | This is set to the hierarchy level that will display the hyperlink for the item pop-up. | | P4P_SAME_ OR_NULL |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| projSalesUnitsEOLandEIU/ Total Buy | The number of units sold life to date plus the forecastable (committed) inventory. | projSalesUnitsEOL + + projOnHandUnitsEOL | XML_PROJ_SLS_ UNITS_EOL_EIU | P4P_SUM |
| projSalesUnitsEOLGrp/ Proj Sls Units EOL (Grp) | Projected total sales units for a group item at the end of its life, assuming all application recommendations are taken. | | XML_EOL_CUM_ UNIT_SALES_GRP | P4P_SUM |
| projSellThruEOLGrp/ Proj ST% EOL (Grp) | Projected percent of total inventory quantity sold by the client specified out date, assuming all application group recommendations are taken. | | XML_ PROJSELLTHRUEOL GRP | P4P_AVG |
| projOnHandUnitsEOLgrp/ Proj OH EOL (Grp) | Projected inventory units on hand at the client specified out date for an item as part of a price group. | | ENDING_ INVENTORY_ UNITS_C | P4P_SUM |
| projOnHandCostDollarsEO Lgrp/ Proj OH Cost $ EOL (Grp) | Projected cost of the inventory remaining at the out date for an item as part of a price group. | | PROJ_OH_COST_ EOL_GRP | P4P_SUM |
| projSalesUnitsEOLand EIUgrp/ Total Buy (Grp) | The number of units sold life to date plus the forecastable (committed) inventory for an item as part of a price group. | projSalesUnitsEOLGrp + projOnHandUnitsEOLgrp | XML_PROJ_SLS_ UNITS_EOL_EIU_ GRP | P4P_SUM |
| grpRecPercOffOrigRtl/ Grp Rec %Off Orig | Group recommended markdown price as a percentage off of original retail. | (INT_ORIG_RETAIL - INT_COLLECTION_ RECOMMENDED_ PRICE) / INT_ORIG_ RETAIL | XML_ GRPRECPERCOFFOR IGRTL | P4P_AVG |
| grpRecPercOffCurrRtl/ Grp Rec %Off Curr | Group recommended markdown price as a percentage off of current retail. | (INT_TICKET_PRICE -INT_COLLECTION_ RECOMMENDED_ PRICE) / INT_TICKET_ PRICE | XML_ GRPRECPERCOFFCU RRRTL | P4P_AVG |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| IATTRIBUTE1/ IATTRIBUTE1 | IATTRIBUTE1 | | IATTRIBUTE1 | P4P_SAME_ OR_NULL |
| IATTRIBUTE1_DATE/ IATTRIBUTE1_DATE | IATTRIBUTE1_ DATE | | IATTRIBUTE1_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE1_NUMBER/ IATTRIBUTE1_NUMBER | IATTRIBUTE1_ NUMBER | | IATTRIBUTE1_ NUMBER | P4P_SUM |
| IATTRIBUTE2/ IATTRIBUTE2 | IATTRIBUTE2 | | IATTRIBUTE2 | P4P_SAME_ OR_NULL |
| IATTRIBUTE2_DATE/ IATTRIBUTE2_DATE | IATTRIBUTE2_ DATE | | IATTRIBUTE2_DATE | P4P_MIN |
| IATTRIBUTE2_NUMBER/ IATTRIBUTE2_NUMBER | IATTRIBUTE2_ NUMBER | | IATTRIBUTE2_ NUMBER | P4P_SUM |
| IATTRIBUTE3/ IATTRIBUTE3 | IATTRIBUTE3 | | IATTRIBUTE3 | P4P_SAME_ OR_NULL |
| IATTRIBUTE3_DATE/ IATTRIBUTE3_DATE | IATTRIBUTE3_ DATE | | IATTRIBUTE3_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE3_NUMBER/ IATTRIBUTE3_NUMBER | IATTRIBUTE3_ NUMBER | | IATTRIBUTE3_ NUMBER | P4P_SUM |
| IATTRIBUTE4/ IATTRIBUTE4 | IATTRIBUTE4 | | IATTRIBUTE4 | P4P_SAME_ OR_NULL |
| IATTRIBUTE4_DATE/ IATTRIBUTE4_DATE | IATTRIBUTE4_ DATE | | IATTRIBUTE4_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE4_NUMBER/ IATTRIBUTE4_NUMBER | IATTRIBUTE4_ NUMBER | | IATTRIBUTE4_ NUMBER | P4P_SUM |
| IATTRIBUTE5/ IATTRIBUTE5 | IATTRIBUTE5 | | IATTRIBUTE5 | P4P_SAME_ OR_NULL |
| IATTRIBUTE5_DATE/ IATTRIBUTE5_DATE | IATTRIBUTE5_ DATE | | IATTRIBUTE5_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE5_NUMBER/ IATTRIBUTE5_NUMBER | IATTRIBUTE5_ NUMBER | | IATTRIBUTE5_ NUMBER | P4P_SUM |
| IATTRIBUTE6/ IATTRIBUTE6 | IATTRIBUTE6 | | IATTRIBUTE6 | P4P_SAME_ OR_NULL |
| IATTRIBUTE6_DATE/ IATTRIBUTE6_DATE | IATTRIBUTE6_ DATE | | IATTRIBUTE6_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE6_NUMBER/ IATTRIBUTE6_NUMBER | IATTRIBUTE6_ NUMBER | | IATTRIBUTE6_ NUMBER | P4P_SUM |
| IATTRIBUTE7/ IATTRIBUTE7 | IATTRIBUTE7 | | IATTRIBUTE7 | P4P_SAME_ OR_NULL |
| IATTRIBUTE7_DATE/ IATTRIBUTE7_DATE | IATTRIBUTE7_ DATE | | IATTRIBUTE7_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE7_NUMBER/ IATTRIBUTE7_NUMBER | IATTRIBUTE7_ NUMBER | | IATTRIBUTE7_ NUMBER | P4P_SUM |

*Table A–1 (Cont.) MDO Standard Columns*

| Column Key/Default Name | Default Description | Calculation | DB Column Name | Function |
|---|---|---|---|---|
| IATTRIBUTE8/ IATTRIBUTE8 | IATTRIBUTE8 | | IATTRIBUTE8 | P4P_SAME_ OR_NULL |
| IATTRIBUTE8_DATE/ IATTRIBUTE8_DATE | IATTRIBUTE8_ DATE | | IATTRIBUTE8_DATE | IATTRIBU TE1_DATE |
| IATTRIBUTE8_NUMBER/ IATTRIBUTE8_NUMBER | IATTRIBUTE8_ NUMBER | | IATTRIBUTE8_ NUMBER | P4P_SUM |