Oracle® Retail Price Optimization

Configuration Guide

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Preface

Price 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 Price.

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Related Documents

For more information, see the following documents in the Oracle Retail Price Optimization Release 12.0 documentation set:

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

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" on page 1
- "Getting Started with Configuring Price" on page 2
- "Price Required Skill Sets" on page 3
- "Configuration Points" on page 5
- "Change Management" on page 9
- "Applying Patches" on page 10
- "Concepts" on page 11

Introduction

Price 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 Price 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 Price environment consists of the following integrated pieces:

- Oracle database
- Application server: OAS or WebLogic
- Price 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 Price

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

The best approach to configuring Price 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 Price GUI configuration (worksheets, columns, and metrics).
3. Install the Price application. (See Price 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 optimization run, using primarily default Price settings.
8. Use the diagnostic tools to assess and troubleshoot the optimization run and modify the configuration as needed.
9. Perform weekly optimization runs in a production environment.
10. Configure Price incrementally according to customer requirements.
11. Do additional optimization 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.

Price Required Skill Sets

The following skill sets are required to run Price.

Operations

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

- Basic UNIX knowledge. Price 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 Price 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 Price 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 Price 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 Price storage administration staff is responsible for managing a SAN environment and should be familiar with basic LUN management.

Application Server Administration

The Price application server administration staff should be familiar with the management of WebLogic and 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.

MicroStrategy Administration (optional)

If Merchant Desktop with MicroStrategy reporting is part of a client configuration, then the following MicroStrategy administration skills are needed:

- Installing and configuring an I-server on a Microsoft Windows server.
- Installing metadata provided by Oracle.
- Tuning and maintaining the I-server.

- Installing patches and updates containing metadata changes.
- Customizing MicroStrategy reports.

Configuration Points

The following are the specific aspects of Price that can require configuration. Inference rules are views into the database and are used, for example, to provide information to the optimization engine, calculate KPIs, and configure the UI. The standard load is used to load customer data, as specified in the standard interface, into Price. 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 Price 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_ITEM_ATTR	Additional attributes defined for each item
IR_LOCATION_ATTR	Additional attributes defined for each location
IR_MERCHANDISE_ATTR	Additional attributes defined for each merchandise
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 Optimization 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

Table 1–1 (Cont.) Inference Rules

Inference Rule Name	Description
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
IR_MODEL_START	Custom model start configuration
IR_MODEL_START_OPTION	Which of four 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 Price 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	plloadclient 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 Markdowns accepted in Price	Internal sendback: clients can send accepted markdowns in a data feed. Forecast recommendations are taken from the Price application.
external_sendback_views.sql 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 Price Application 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.

Table 1–5 (Cont.) Price Application UI

UI xml File/Feature	Description
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	
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.
Alerts for Merchant Desktop only	

Table 1–5 (Cont.) Price Application UI

UI xml File/Feature	Description
p4p-view-underperforming-item-alert -details-grid.xml	Used to configure the under-performing alerts Detail grid only if Merchant Desktop is available.
p4p-view-buy-more-alert-details-grid.xml	Used to configure the Buy More Alert grid only if Merchant Desktop is available.
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 Price configuration after it has been implemented.

Table 1–7 Typical Price 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. Change to database backup schedule. Change to sendback schedule.
Changes to hardware or software infrastructure	OS security patch. Hardware replacement or addition. Application server patch. DBMS software patch.
Changes or enhancements to Price application configuration	New custom metric added as column to a worksheet. New business rule value.
Changes to data hierarchies that impact the Price functional or analytical configuration	Major merchandise reclassification. 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 Price 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 optimization 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 optimization 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 Price 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 price 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 Price concepts that you should be familiar with.

Common Start Dates

Price 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, Price 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).
- 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 Price data.

2

User Management

This chapter contains the following:

- "Introduction" on page 1
- "About User Roles and User Actions" on page 1
- "User Management Bulk Loader Utility" on page 2
- "User Management Security" on page 4
- "Plan Sample xml Files" on page HIDDEN

Introduction

User Management is a utility that lets you create, modify, and inactivate 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.

Price comes with a default set of roles, loaded into ROLE_ACTION_TBL. For more information about theses roles, see the Price User Guide.

- PRICE_APPROVER - can approve submitted worksheets at the specified level in the hierarchy.
- PRICE_SUBMITTER - can submit worksheets at the speicified level in the hierarchy.
- PRICE_VIEWER has read-only access to worksheets at the specified level in the hierarchy.
- PRICE_USER - allows access to the UI.

Default actions cannot be deleted.

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 level.

Here is an example of the information to use when assigning a user to a certain department of merchandise in the role assignment file:

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

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

About User Management Roles

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 Price UI. (For more information on using the User Management utility, consult the Price 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 WebLogic, typical values are:

  java.naming.factory.initial=weblogic.jndi.WLInitialContextFactory
  java.naming.provider.url=t3://localhost:7001
- 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: 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 Price 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>/modules/tools/conf.

Table 2–1 User Management xml Files

Schema	Sample	Database Table
user-set.xsd	test_user_set.xml	USERS_TBL
role-set.xsd	test_role_set.xml	ROLES_TBL
role-assignment-set.xsd	test_assignment_set.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 Price 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: The three files can be loaded separately or at the same time.

$bash **bulkloader.sh** -apphome /usr/local/bin/bea/weblogic81/server -assignfile ../conf/test_assign_set.xml -rolefile ../conf/test_role_set.xml -userfile ../conf/test_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 timeout 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 timeout value is independent of the session timeout and should be of a shorter time period than the session timeout. If configure timeout value is not set, it defaults to the session timeout value. By default, it is set to 120 seconds.

  <ConfigRoot>/suite/suite.properties/suite.userlogin.timeout = 120

- 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

Price 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. User username must be unique among all applications.
      2. <user-set> has a flag indicating whether the password should be hashed
         prior to persistence. This supports migration from prior          implementations of Price
so that users can keep existing passwords
      3. Passwords must be alphanumeric
```

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.
      2. The action key attributes must be present in the ACTION_TBL
         before the bulkloader is run. Action key values should also
         be unique among all applcations. Names such as PRICE_APPROVE,
         PLAN_EDIT, and PLACE_SUBMIT are expected.
      3. All elements and attributes are case sensitive and all are
         lower case.
```

Role Assignment Sample xml File

```
 <?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=""/>
      </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=":1|:1:31|:1:31:311"/>
       <!-- worksheet 1, merchandise 165649 -->
       <node location=""merchandise=":1|:1:31|:1:31:312"/>
       <!-- worksheet 2, merchandise 165645 -->
       <node location=""merchandise=":1|:1:31|:1:31:316"/>
       <!-- worksheet 3, merchandise 165653 -->
       <node location=""merchandise=":1|:1:32|:1:32:327"/>
       <!-- worksheet 4, merchandise 165647 -->
       <node location=""merchandise=":1|:1:32|:1:32:328"/>
       <!-- worksheet 5, merchandise 165651 -->
       <node location=""merchandise=":1|:1:34|:1:34:343"/>
     </user-assignment>
     -<user-assignment username="titusten">
       <node location=""merchandise=":1|:1:32|:1:32:327"/>
      </user-assignment>
     -<user-assignment username="chain">
       <node location=""merchandise=""/>
      </user-assignment>
</role>
 -<role key="PRICE_MARKDOWN_APPROVER">
    -<user-assignment username="markdown_approve">
       <node location=""merchandise=""/>
     </user-assignment>
     -<user-assignment username="titusten">
       <node location=""merchandise=""/>
      </user-assignment>
     -<user-assignment username="chain">
       <node location=""merchandise=""/>
      </user-assignment>
  </role>
 -<role key="PRICE_SUBMITTER">
    -<user-assignment username="submit">
```

```
      <node location=""merchandise=":1|:1:31|:1:31:311"/>
      <!-- worksheet 1, merchandise 165649 -->
      <node location=""merchandise=":1|:1:31|:1:31:312"/>
      <!-- worksheet 2, merchandise 165645 -->
      <node location=""merchandise=":1|:1:31|:1:31:316"/>
      <!-- worksheet 3, merchandise 165653 -->
      <node location=""merchandise=":1|:1:32|:1:32:327"/>
      <!-- worksheet 4, merchandise 165647 -->
      <node location=""merchandise=":1|:1:32|:1:32:328"/>
      <!-- worksheet 5, merchandise 165651 -->
      <node location=""merchandise=":1|:1:34|:1:34:343"/>
    </user-assignment>
    -<user-assignment username="titusten">
      <node location=""merchandise=":1|:1:31|:1:31:312"/>
      <node location=""merchandise=":1|:1:31|:1:31:316"/>
     </user-assignment>
   -<user-assignment username="markdown_approve">
      <node location=""merchandise=""/>
    </user-assignment>
 </role>
-<role key="PRICE_VIEWER">
   -<user-assignment username="view">
      <node location=""merchandise=":1|:1:31|:1:31:311"/>
      <!-- worksheet 1, merchandise 165649 -->
      <node location=""merchandise=":1|:1:31|:1:31:312"/>
      <!-- worksheet 2, merchandise 165645 -->
      <node location=""merchandise=":1|:1:31|:1:31:316"/>
      <!-- worksheet 3, merchandise 165653 -->
      <node location=""merchandise=":1|:1:32|:1:32:327"/>
      <!-- worksheet 4, merchandise 165647 -->
      <node location=""merchandise=":1|:1:32|:1:32:328"/>
      <!-- worksheet 5, merchandise 165651 -->
      <node location=""merchandise=":1|:1:34|:1:34:343"/>
    </user-assignment>
    -<user-assignment username="titusten">
      <node location=""merchandise=":1|:1:31|:1:31:311"/>
     </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 laready 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 the TitusTenInc dataset.
```

3

Business Rule Manager

This chapter contains the following:

- “Introduction” on page 1
- “Business Rule Manager” on page 2
- “Getting Started” on page 2
- “Default Business Rules” on page 2
- "Business Rule Definitions" on page 5
- “Loading Business Rule Definitions” on page 7
- “Configuring Business Rule Definitions” on page 7
- “Business Rule Instances” on page 7
- "Custom Attributes" on page 8
- “Business Rules and Inference Rules” on page 9
- “Business Rule Manager Bulk Loader” on page 9
- “Business Rule Manager Properties” on page 11
- “Business Rule Manager Grid Configuration” on page 12

Introduction

Once you have completed the initial installation and configuration of Price, you must load all the data required by Price, in a format specified by the standard interface specifications and using the standard load procedure. (See the Price Operations Guide for information about the standard load.) You can then configure Price 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 Price application through the UI. You can perform an initial model run using the default values provided with Price. 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 Price.

Business Rule Manager

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

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 Price UI (Merchandise Maintenance). If you are going to use Planned Start Date as you Model Start Date, you should enter that value as well.

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

Default Business Rules

Price 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 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 No Touch Between	The minimum number of weeks between markdowns (after the first one).	7
MAX_MKDN_NO Max #	The maximum number of markdowns permitted for an item during its entire life cycle.	3
MIN_FIRST_MKDN 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 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 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 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 Start Date	The date when an item will first be sold.	-
OUT_DT Out Date	The date planned for the end of inventory or by which a specific sell-through target is to be reached.	-

Table 3–1 (Cont.) Default Business Rules

Business Rule Name and UI Display Name	Business Rule Description	Default Value
INVENTORY_TARGET 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 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 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) No Touch EOL	The number of weeks before the outdate when markdowns are no longer permitted.	14
MIN_MKDN_FROM_FULL (Administrative Business Rule) 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) 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) 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
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

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 Price 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.

  Note: 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*>

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

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 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 Price 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 Price Maintaining Merchandise screen. For more information, see the application 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.

Note: 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 Price 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 Price application. LoadBRMAttributes loads values into BRM_ATTRIBUTE_VALUE_TBL. The Price application derives the values for the attributes displayed on the BRM page from this table.

Business Rules and Inference Rules

The Price 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 (see the application Operations Guide for more information), 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 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 Note: 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	Y

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.

Note: Business rule definitions are contained in config/businessrulemgr/rule_definitions.xml and 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 Price worksheet merchandise hierarchy levels.
- The number of browsable location hierarchy levels should equal the Price 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 uncommenting 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_busines_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" on page 1
- "Inference Rule Access" on page 2
- "Performance Tuning Recommendations" on page 3
- "Inference Rule Categories" on page 3
- "Inference Rule Descriptions" on page 5

Introduction

Inference rules define queries specifying particular views into the database that provide customization points for Price. 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.)

Price 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 Price.

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: 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 Optimization 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 Optimization 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 optimization 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 optimization 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 Price 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_PRICES and IR_ITEM_PRICES_C	on page 4-11
IR_ITEM_DATES and IR_ITEM_DATES_C	on page 4-10
IR_MODEL_START_OPTION	on page 4-13
IR_MODEL_START	on page 4-13
IR_SEASONALITY_ATTRIBUTE	on page 4-18
IR_PENDING_MARKDOWNS	on page 4-15
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_MARKDOWN_CALENDAR and IR_MARKDOWN_CALENDAR_C	on page 4-12
IR_BLOCKED_MARKDOWN and IR_BLOCKED_MARKDOWN_C	on page 4-6
IR_MARKDOWN_CALENDAR_EX and IR_MARKDOWN_CALENDAR_EX_C	on page 4-12
IR_PRICE_LADDER and IR_PRICE_LADDER_C	on page 4-17
IR_PLANNED_PROMOS	on page 4-16
IR_COLLECTION_INFO	on page 4-8
Inference rules that are provided by Analytical Services.	
IR_ITEM_PARAMETERS	on page 4-11
IR_MODEL_VALUES	on page 4-14
IR_PLANNED_PROMOS	on page 4-16
Inference rules that are typically not changed.	
IR_ACTIVITY_DATA	on page 4-5
IR_PAST_TICKET_PRICES	on page 4-15
IR_ITEM_IDS and IR_ITEM_IDS_C	on page 4-11
IR_ELIGIBLE	on page 4-8
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_FRONT_END_IDS	on page 4-9
IR_ITEM_DATES	on page 4-10
IR_ITEM_PRICES	on page 4-11
IR_WAREHOUSE	on page 4-19
IR_COLLECTION_INFO	on page 4-8
IR_USER_TEXTS	on page 4-19
IR_USER_DATES	on page 4-19
IR_USER_FLOATS	on page 4-19

Table 4–3 (Cont.) Inference Rules

Inference Rule Name	Discussed On...
IR_WORKSHEET_IDS	on page 4-19
Inference rules that use forecast and markdown recommendation information and that populate the ITEM_DATA table.	
IR_FORECAST_METRICS	on page 4-9
IR_PROJ_MKDNS	on page 4-18
IR_O_USER_TEXTS	on page 4-14
IR_O_USER_DATES	on page 4-14
IR_O_USER_FLOATS	on page 4-14
Inference rules used to configure Pricing Groups.	
IR_ITEM_COLLECTION_OPTION	on page 4-10
IR_ITEM_COLLECTION	on page 4-10
Inference rules used by What If.	
WIF_FORECAST_DATA	on page 4-19
Additional inference rules.	
IR_ITEM_INFO and IR_ITEM_INFO_C	on page 4-11
IR_MERCHANDISE_HIERARCHY	on page 4-13
IR_LOCATION_HIERARCHY	on page 4-12
IR_HISTORIC_METRICS	on page 4-9
IR_METRICS	on page 4-13
IR_ROLLUPS	on page 4-18
IR_SEASON_METRICS	on page 4-18
IR_DISPLAY_PROMOS	on page 4-8
IR_FE_WAREHOUSE	on page 4-9
IR_PRIOR_DISTRIBUTION	on page 4-18
IR_FORCED_MARKDOWNS	on page 4-9
IR_MISSING_WEEKS	on page 4-13
IR_P4P_ITEMS_CONFIG	on page 4-14
IR_FORECAST_METRICS_POSTRUN	on page 4-9
IR_LOC_OPT_LEVEL	on page 4-12
IR_MERCH_OPT_LEVEL	on page 4-12
IR_PROCESS_NULL_OUTDT	on page 4-18

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.

Note: 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 Price 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 optimization 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 optimization 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.

IR_ELIGIBLE

The IR_ELIGIBLE inference rule is used to provide a list of the eligible items and eligible collections to the optimization 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_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_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: 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 Price 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 optimization run makes a markdown recommendation for this day, then it will be available for approval in the Price 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 optimization 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 optimization 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: 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 and IR_MARKDOWN_CALENDAR_C

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.)

Note: 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 optimization 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 Sunday preceding the actual computed date. It is converted to Sunday when computed by the LoadModelStartDt procedure.)

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
- Threshold - The numeric value of the threshold, for InventoryRatio and storeRatio only.

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 optimization 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 optimization 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 optimization 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 optimization 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.
- Actual_Price - the actual promo price. It can be derived by multiplying relative price (Price) by full price. It is only used by the KPI to calculate the promo floor and ceiling prices. It is not used by the Calc Engine.
- 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. Generally not used. 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 fewer 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 Price 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 optimization 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 optimization 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 Price 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_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 optimization 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 optimization 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 optimization 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_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 Price 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.

5

What If

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Introduction

The Price 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 Price 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 Price 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 Price through an API call to the Optimization 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 Price Worksheet and is described in detail in the Price User Guide.

This chapter provides details about the configuration of What If.

Configuring the RMI Server

The RMI server, which is part of the Optimization Engine and which facilitates remote Java method calls, provides What If with access to the optimization 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 Price 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

Price 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 Price 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 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 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 Price 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 Price 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 10, 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 optimization 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 optimization 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 optimization 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 TEMP = 2 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 optimization 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 optimization 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:

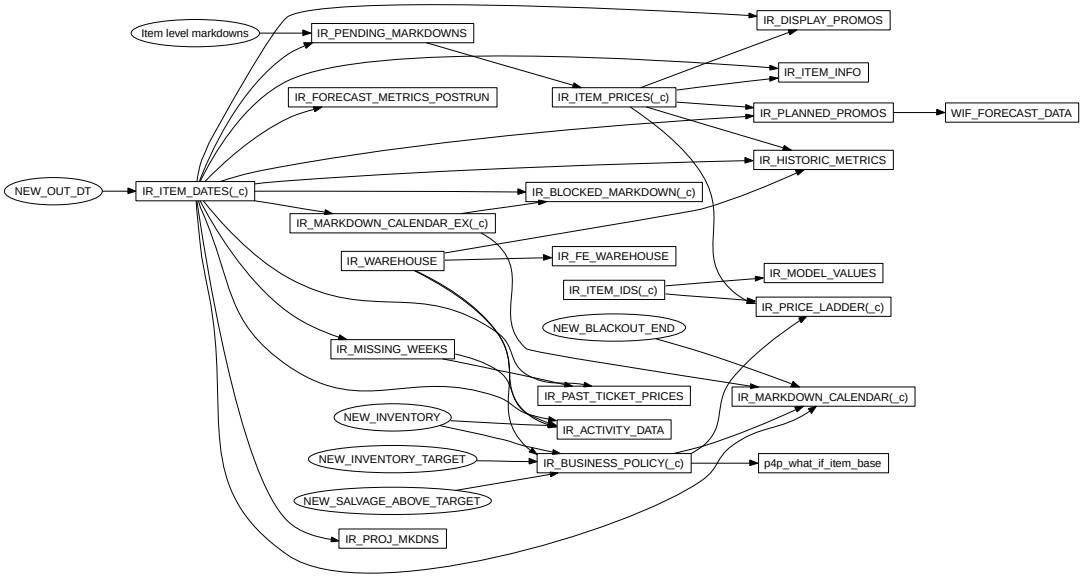
- Inference rules that have a column for scenario_ID and contain override logic so that they can pick up the override values from WIF_SCENARIO_TBL:
  - IR_BUSINESS_POLICY
  - IR_ITEM_DATES
  - IR_ITEM_DATES_C
  - IR_MARKDOWN_CALENDAR
  - IR_PENDING_MARKDOWNS
  - IR_ACTIVITY_DATA
- Inference rules that 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. This figure shows the key dependencies among inference rules and the What If overrides in the default inference rules. 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
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
Weekly (corresponds to date in function) 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

Table 5–9 (Cont.) Ticket Price Metric Calculation

Category/time Period	Tag Value/Calculation
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 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 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(): 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): Sum for all items (getSalesDollars(itemId,date)) getSalesDollars(item,date): (getItemSalesPrice(itemId, date) * getSalesUnits(itemId, date));

Table 5–11 (Cont.) Sales Dollars Metric Calculation

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

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

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() :getTTOOSGrossMarginDollarsCost() + getSTDGrossMarginDollarsCost()

Table 5–13 (Cont.) GM $ Cost Metric Calculation

Category/Time Period	Tag Value/Calculation
Total Till Out of Stock (TTOOS)	Remove from UI - for calc of EOL only) getTTOOSGrossMarginDollarsCost(): getTTOOSSalesDollars(item) - getTTOOSCostDollars(item) - getTTOOSEndingInventoryDollars Cost(item) + getSalvage(item) getTTOOSCostDollars(item): (getUnitCost(item) * getTTOOSSalesUnits(item)) getSalvage(itemid)= salvageValue * 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 $

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

Table 5–15 (Cont.) MU % Metric Calculation

Category/Time Period	Tag Value/Calculation
Weekly (corresponds to date in function)	getMarkupPerc(date)= 100*getMarkup(date) /getForecastTicketPrice(date) 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
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) Note: This accounts for the cost of permanent markdowns only.	getMarkdownDollars()= sum (lastTicketPrice - currentTicketPrice) * getStartingItemInventory(itemId, date) of all items This calculation now uses the OWNED_RTL_ PRICE to calculate the ticket Prices as follows: TicketPrice = min(TicketPrice, OwnedPrice)
Monthly	sumof getMarkdownDollars (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) Note: This accounts for permanent and temporary markdowns as well as promotions.	getDiscountDollars()= sum (lastTicketPrice - currentTicketPrice) * startingInventory + Math.max(currentTicketPrice - currentSalesPrice, 0.0) * currentSalesUnits) of all items 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()) 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() 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

Table 5–22 (Cont.) EOP Units Metric Calculation

Category/Time Period	Tag Value/Calculation
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 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
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

Table 5–24 (Cont.) EOP Dollars (Retail) Metric Calculation

Category/Time Period	Tag Value/Calculation
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 is the sum of permanent and temporary markdown costs as well as promotions.

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 optimization 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 simualtion to the exit date. This displays the weekly optimization run's recommended scenario, initially or after a Show Initial Recommendations action. It also displays the forecast and markdwons 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" on page 1
- "Defining Configurable Data Attributes" on page 1
- "Using the CDA Administrative Utility" on page 2

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.

Note: CDAs are disabled by default. The column PL_DD_ATTRIBUTES.ISDISABLED 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 unassociated 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

Table 6–1 (Cont.) CDA Data Type

Data Attribute Type	Data Type
Currency	VARCHAR
Currency	NUMBER (2 columns)

The following tables support extension by the CDA Administrative Utility:

Table 6–2 Standard Interface Tables with CDAs

Entity Name	Staging Table	Active Table	CDA Table
Item	ASH_ITEMS_TBL	ITEMS_TBL	ITEMS_CDA_TBL
Budget	ASH_BUDGET_TBL	BUDGET_TBL	BUDGET_CDA_TBL
Location	ASH_LH_TBL	LOCATION_HIERARCHY_TBL	LH_CDA_TBL
Merchandise	ASH_MH_TBL	MERCHANDISE_HIERARCHY_TBL	MH_CDA_TBL

Using the CDA Administrative Utility

Complete the following steps to define a CDA. The CDA Administrative Utility is included in the application Kit and is accessed from the command line. It is assumed that a flat file containing the appropriate data has been received from the client.

1. Stop all application servers in the cluster that supports products that will host the new CDA.
2. Set the DISPLAY environment variable as follows:

   export DISPLAY=ipaddress:0.0

   where the IP address is a machine that has the X-Window system configured - either Linux or the X server on Windows
3. From the bash shell, change the current working directory to /<install directory>/modules/tools/cdaadmin/bin.
4. Run the CDA Administrative Utility. Make sure that no one else is running the CDA utility on another node.

   bash cdaadmin.sh /<install directory>/config.variables

   where config.variables is the config.variables file that was generated during installation.
5. Enable the appropriate number of CDA columns.
6. Enter or choose the appropriate property, such as name, type, or restriction, as well as the business entity for the CDA.
7. Save and exit from the CDA Administrative Utility. The Standard Data Interface is configured for staging and loading CDAs.
8. Once the CDAs are defined and enabled using the CDA Administrative Utility, run the staging and loading procedure to make the CDA available to the database.
9. Customize the grid configuration to make the CDA visible in the user interface. The CDAs are available to the grid configuration via p4p_items and p4p_display_items.
10. Re-start all applications in the cluster that you stopped.

7

Localization

This chapter contains the following:

- "Introduction" on page 1
- "Files" on page 1
- "Configuration Settings" on page 4
- "Formatting for Localization" on page 4
- "Editing Files" on page 7

Introduction

Price supports the following nine languages:

- Chinese (Taiwan)
- Chinese (Simplified)
- French
- German
- Japanese
- Korean
- Portuguese (Brazil)
- Spanish (Spain)
- English (United States)

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

Price does support multiple languages within a single installation. Price does not support multiple currencies within a single installation.

Files

The following Price files are translated for each language that is supported by an installation. These files are the resource files used by Price 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.

```
./config/Price/resources/formats_de.properties
./config/Price/resources/formats_de.properties.native
```

```
./config/Price/resources/formats_es.properties
./config/Price/resources/formats_es.properties.native
.
.
.
./config/Price/resources/formats_zh_TW.properties
./config/Price/resources/formats_zh_TW.properties.native
./config/Price/resources/gridResources_de.properties
./config/Price/resources/gridResources_de.properties.native
./config/Price/resources/gridResources_es.properties
./config/Price/resources/gridResources_es.properties.native
.
.
.
./config/Price/resources/gridResources_zh_TW.properties
./config/Price/resources/gridResources_zh_TW.properties.native
./config/Price/resources/p4pguiResources_de.properties
./config/Price/resources/p4pguiResources_de.properties.native
./config/Price/resources/p4pguiResources_es.properties
./config/Price/resources/p4pguiResources_es.properties.native
.
.
.
./config/Price/resources/p4pguiResources_zh_TW.properties
./config/Price/resources/p4pguiResources_zh_TW.properties.native
./config/Price/resources/UserMessageResources_de.properties
./config/Price/resources/UserMessageResources_de.properties.native
./config/Price/resources/UserMessageResources_es.properties
./config/Price/resources/UserMessageResources_es.properties.native
.
.
.
./config/Price/resources/UserMessageResources_zh_TW.properties
./config/Price/resources/UserMessageResources_zh_TW.properties.native
./config/suite/resources/businessrulemgrResources_de.properties
./config/suite/resources/businessrulemgrResources_de.properties.native
./config/suite/resources/businessrulemgrResources_es.properties
./config/suite/resources/businessrulemgrResources_es.properties.native
.
.
.
./config/suite/resources/businessrulemgrResources_zh_TW.properties
./config/suite/resources/businessrulemgrResources_zh_TW.properties.native
./config/suite/resources/CommonMessages_de.properties
./config/suite/resources/CommonMessages_de.properties.native
./config/suite/resources/CommonMessages_es.properties
./config/suite/resources/CommonMessages_es.properties.native
.
.
.
./config/suite/resources/CommonMessages_zh_TW.properties
./config/suite/resources/CommonMessages_zh_TW.properties.native
./config/suite/resources/EngineResources_de.properties
./config/suite/resources/EngineResources_de.properties.native
./config/suite/resources/EngineResources_es.properties
./config/suite/resources/EngineResources_es.properties.native
.
.
.
./config/suite/resources/EngineResources_zh_TW.properties
```

```
./config/suite/resources/EngineResources_zh_TW.properties.native
./config/usermanagement/resources/gridResources_de.properties
./config/usermanagement/resources/gridResources_de.properties.native
./config/usermanagement/resources/gridResources_es.properties
./config/usermanagement/resources/gridResources_es.properties.native
.
.
.
./config/usermanagement/resources/gridResources_zh_TW.properties
./config/usermanagement/resources/gridResources_zh_TW.properties.native
./config/usermanagement/resources/UsermanagementResources_de.properties
./config/usermanagement/resources/UsermanagementResources_de.properties.native
./config/usermanagement/resources/UsermanagementResources_es.properties
./config/usermanagement/resources/UsermanagementResources_es.properties.native
.
.
.
./config/usermanagement/resources/UsermanagementResources_zh_TW.properties
./config/usermanagement/resources/UsermanagementResources_zh_TW.properties.native
./config/usermanagement/UserAccount_de.properties
./config/usermanagement/UserAccount_de.properties.native
./config/usermanagement/UserAccount_es.properties
./config/usermanagement/UserAccount_es.properties.native
.
.
.
./config/usermanagement/UserAccount_zh_TW.properties
./config/usermanagement/UserAccount_zh_TW.properties.native
```

Directory Structure

Beneath the configuration root directory is the Price 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 using gridResources.properties as an 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.

German	gridResources_de.properties
Spanish	gridResources_es.properties
French	gridResources_fr.properties
Japanese	gridResources_ja.properties
Korean	gridResources_ko.properties
Portuguese	gridResources_pt.properties
Chinese (Simplified)	gridResources_zh_CN.properties
Chinese (Taiwan)	gridResources_zh_TW.properties

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

Configuration Settings

In order for Price 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)
Japanese [ja]	Japanese
Korean [ko]	Korean
Portuguese (Brazil) [pt-br]	Portuguese (Brazil)
Spanish (International Sort) [es]	Spanish (Spain)

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_<*locale*>.properties.native, using the procedure described below, to update your edits into CommonMessages_<*locale*>.properties.

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

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

Then, run a native-to-Unicode conversion tool, described in "Editing Files" on page 7, to update the edited string, into CommonMessages_fr.properties. The result is as follows:

```
cc.currencySymbol.localOverride=\u20AC
```

Note: \u20AC is the symbol for the Euro.

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, edit the native file and run the conversion at a later time, 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 Price, 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

Table 7–2 (Cont.) Date Format Patterns

Letter	Date/Time Component	Presentation	Example
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
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, Price 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 Price. 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.

Editing Files

Price expects ASCII Unicode-encoded properties files. However, these are difficult to edit because accented and wide characters are represented as "\uXXXX". Therefore, a UTF-8 version of these files is provided. These files have .native appended to the filename.

You should edit the native file for any properties file that needs to be changed. For example, edit CommonMessages fr.properties.native and then run a tool that coverts UTF-8 encoding to ASCII encoding, as described below.

Any UTF-8 or UNICODE-capable editor can be used to edit the native files that need to be updated with new or changed properties.

Once you have edited the native file, it must be converted to the ascii-encoded file expected by Price.

Oracle does not provide the native file editors or converters with its software. Such tools can be found and downloaded from the internet. Some tools are shareware and others are commercial. Price has used BabelPad and UltraEdit® from IDM Computer Solutions, Inc. to edit UTF-8 files and uses native2ascii, a Java ™ 2 SDK tool, as a converter.

To run the native2ascii converter, do the following:

native2ascii.exe -encoding UTF-8 <*InputFile.properties.native*> <*OutputFile.properties*>

Note the following:

- native2ascii.exe is part of the Java SDK and is available by downloading and installing the SDK from Sun Microsystems.
- Before you run this command, you must remove the existing properties file because this command does not overwrite the existing file.
- The input file is the native edited file.

- The output file is the .properties file.

8

Pricing Group Management

This chapter contains the following:

- "Introduction" on page 1
- "Load Procedures" on page 2
- "Inference Rule Configuration" on page 3
- "Front End Configuration" on page 4
- "Collection Functionality - An Example" on page 5

Introduction

Pricing groups in Price are traditionally managed at the optimization level (non-chain pricing groups). Price 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 Price 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 Price: 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 optimization run, see the Price 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 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 Price 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 optimization run.

Front End Configuration

The Price 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 Price configuration. (For more information, see Chapter 10, "Understanding the Price Application (GUI) Configuration" and Chapter 11, "Configuring the Price 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 Price 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 Price 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
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
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

Collections_tbl	
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
1	M3	L4

Items	
m_id	l_id
M1	L1
M1	L2
M2	L1

Items	
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
4 (for L3)	1
5 (for L4)	1

Collection_maps_tbl		
col_id	m_id	l_id
2	M1	L1
2	M2	L1

Collection_maps_tbl		
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
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

Collection_maps_tbl		
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 Price 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
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
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

Collection_maps_tbl		
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" on page 1
- "Technical Details" on page 1

Introduction

Flexible Store Clustering is an optional feature of Price that permits customers to groups 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 Price 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 Price 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.

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.

10

Understanding the Price Application (GUI) Configuration

This chapter contains the following:

- "Introduction" on page 1
- "Capturing Client Business Requirements" on page 1
- "Understanding the Price Application Software" on page 3
- "Price Total Configuration Screens" on page 21
- "Price Limited Configuration Screens" on page 22
- "Price Display-Only Screens" on page 39
- "Advanced Functional Configuration" on page 40

Introduction

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

This chapter covers the following:

- Client business requirements
- The Price application software
- The Price screen configuration types

Capturing Client Business Requirements

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

Table 10–1 Typical Price Business Requirements

Category	Business Requirement	Description
Merchandise display hierarchy	Level for creating worksheet	
	Level for processing markdowns	
Display information criteria	Summary metrics	See on-line Help for description
Display information criteria (con't)	What If	Enables user to experiment with various markdown scenarios.
	Sorting and filtering	
	Number and value of price ladders	
	Formulas	Multiply one column by another
Text strings	Screen header	
	Row and column headings	
	Buttons	
	Drop-down menus	
	Diagnostic messages	
Layout	Needed grids	Which screens the client wants displayed.
	Column configuration	Number and names of fields for each record
	Column display	Appearance of columns
	Column content	Data that appears in this field
	Item details	
User related	Default view label and structure	
	User administrative data	

Following are examples of the many possible Price application metrics:

- Item information, including item number, item description, and item class
- Hierarchies, including description, division, department, key, class, subclass, and item
- Prices, including original retail price, current retail price, and recommended retail price
- Markdowns, incluidng number of recommended markdowns, number of accepted markdowns, planned markdown dollars, and status (submitted or not submitted)
- Total dollar sales

- Units on hand
- Opportunity cost
- Gross margins, including planned gross margin percent, recommended gross margin percent, planned margin dollars, and recommended gross margin dollars

You configure these grid elements based on the client's business requirements.

Understanding the Price Application Software

The next three major sections in this chapter describe the Price screen configuration types, which are:

- Total
- Limited
- Display-Only

The section after the configuration-type sections describes advanced functional configuration, consisting of price ladders and optimize-to-budget.

The Price Application Architecture

The Price user interface (UI) enables the client to view selected markdown data that is derived from Price's database tables.

The Price application components are described in the following table.

Table 10–2 Price Application Components

Component	Comments
Client's PC	Must be networked to either the Internet or the client's private Intranet
p4pgui server	Runs under a WebLogic application server
Application database	Provides views into the database

The Price Application Configuration Files

To configure the Price application, you need to modify various files belonging to the Price application configuration set. These files are located in the configroot/p4pgui/ directory.

A functional classification of the files in this directory is as follows:

- Application-level files
- Column files
- Grid files
- Data definition files
- User message files

You must reconfigure the Price configuration files for each new customer installation of Price. 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 Price application.

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

Table 10–3 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 Price application starts up. This file shows Price 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. Note: The valid elements for this file are defined in the following table.
p4pguiResources.properties	Define Price properties such as markdowns.
UserMessagesResources.properties	A user message that is triggered by an event within Price.
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 10–4 Valid Elements and Nested Elements for p4pgui-config.xml File

Element	Nested Elements	Element Description	Valid Attributes for Element
client		Miscellaneous configuration settings.	name hierarchy-levels-above-worksheet last-displayed-hierarchy-level hierarchy-price ladder item-worksheet-title feedback-email feedback-dev-email feedback-mailhost report-email temp-markdowns-active (true or false) max-worklist-query-size excel-export-leaf-nodes-only collectionCentricOTB (true or false)
forecast-params		Miscellaneous attributes for the What If and Recommended Forecast screens.	show-weeks extended-summary edit-before-effective-date decreasing -prices number-forecast-weeks label-position-in-week 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 id key
items-metric		Specifies the layout of the summary metrics area at the bottom of worksheets.	
merchandise-maint-params		Specifies the following: ■ Valid outdate range ■ Whether users modify Target Sell thru or Ending Inventory Target	
	outdate-constraints		
	excluded-days		

Table 10–4 (Cont.) Valid Elements and Nested Elements for p4pgui-config.xml File

Element	Nested Elements	Element Description	Valid Attributes for Element
metrics		Defines which summary worksheet-level metrics to compute, for example: ■ Name ■ Column reference ■ Aggregation type	
	metric-m1budget		
	metric-m2budget		
	metric-fixed		
	metric-items		
metrics-params		Specifies the display of the effective date on worksheets.	
page		Specifies which grids are available on the Worksheet and Maintaining Merchandise screens.	
sendback	select-query	Defines database queries that report changes made to the application metrics.	sendback name
	pre-sendback-update		
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: ■ Specifies column on which to search in the Find dialog box ■ Toggles the availability of the accelerated markdowns functionality.	

Price Column Configuration Files

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

Table 10–5 Price 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 Price 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 Price XML column configuration files — p4p-column-list.xml and p4p-custom-columns.xml — provide a set of fields (columns) that are available in the Price 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 10–6 File Key Names for Price 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 Price installation that come out of the box with the Price application.

  These column definitions are listed in the Price Application 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: The definitions in p4p-custom-columns.xml override the definitions in p4p-column-list.xml.

The columns defined in the Price 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 Price 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 10–7 Elements in Price 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 values that define such attributes as:

- Column key
- Location of label text and description
- Data type
- Data source
- Display type
- Filtering and sorting properties
- Functions and arguments

The following table shows the acceptable values for this element.

Table 10–8 Acceptable Values for <column-def-properties> Element in Price 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 10–8 (Cont.) Acceptable Values for <column-def-properties> Element in Price 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 date double integer number percent string	The type of data that can appear in this column, such as text, date, number, percent. This data type must match the data type of the comparable field in the database table from which it is drawn.
display-type	blank button checkbox combobox date dropdown edit float hyperlink integer lock owner-drawn pic picture static-text time	How to render this column data on the screen.
read-only-type	blank button checkbox combobox date dropdown edit float hyperlink integer lock owner-drawn pic picture static-text 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. Note: The value of the db-column-name property must be UPPER CASE.
composeable	true false	Indicates columns that the client can use to create custom columns.
filterable	true false	Indicates whether the client can choose to not display this column.

Table 10–8 (Cont.) Acceptable Values for <column-def-properties> Element in Price XML Column Files

Attribute	Value	Description
sortable	true false	Allows the grid's rows to be sorted by the column
orderable	true false	Allows the column to be reordered in the grid relative to the columns around it
hideable	true false	Indicates whether the user can hide the column.
expandable	true false	Indicates whether the user can expand the column.
visibility	never visible not visible 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 false	Indicates whether the user can make edits to the column
filtertype	date dropdown text text area	Specifies the type of user-entry widget to use for each filterable column in the Customize Table user interface.
operatortype	equals list numeric	Specifies operator list types that are available for each filterable column in the Customize Table user interface.
columntype	none expand-collapse row-select 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. Note: 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 10–9 Available Functions for <column-def-properties> Element in Price 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 Note: This function requires a column key as an argument, using the XML tag <args>
P4P_PRICELADDER	Generates price ladders

Table 10–9 (Cont.) Available Functions for <column-def-properties> Element in Price XML Column Files

Function	Description
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
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

Following are excerpts from a p4p-column-list.xml file. Note the key name for the file is internalColumns.

```
<?xml version="1.0" encoding="UTF-8" ?>
<columnlist xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="../../../../CommonComponents/
conf/Grid.xsd" key="internalColumns">
<column-def>
<key>INT_ITEM_ID</key>
<column-def-properties
db-column-name="ITEM_ID"
type="integer"
display-type="integer"
db-table-name="P4P_ITEMS"
orderable="false"
hideable="false"
expandable="false"
visibility="never-visible"
</column-def>
editable="false" />
<column-def>
<key>INT_ITEMS_WORKSHEET_ID</key>
<column-def-properties
db-table-name="P4P_ITEMS"
db-column-name="SUBMITTAL_WORKSHEET_ID"
expandable="false" />
</column-def>
<column-def>
<key>HIERARCHY1</key>
<column-def-properties
label="p4pgui.hierarchy1.column.label"
type="string"
display-type="integer"
db-column-name="HIERARCHY1"
description="p4pgui.hierarchy1.column.description"
db-table-name="P4P_ITEMS"
filterable="true"
sortable="true"
orderable="true"
hideable="false"
expandable="false"
```

```
groupId="GROUP_HEADER" />
</column-def>
<column-def>
<key>HIERARCHY1_NAME</key>
<column-def-properties
label="p4pgui.hierarchy1name.column.label"
type="string"
db-column-name="HIERARCHY1_NAME"
description="p4pgui.hierarchy1name.column.description"
db-table-name="P4P_ITEMS"
filterable="true"
sortable="true"
orderable="true"
hideable="true"
operatortype="equals"
groupId="GROUP_HEADER" />
</column-def>
<column-def>
<key>INT_RECOMMENDED_RETAIL</key>
<column-def-properties
label="p4pgui.recRetl.column.label"
type="double"
db-column-name="RECOMMENDED_RETAIL_PRICE"
description="p4pgui.recRetl.column.description"
db-table-name="P4P_ITEMS"
filterable="true"
sortable="true"
orderable="true"
hideable="false"
expandable="false"
filtertype="text"
operatortype="numeric"
display-type="currency"
groupId="GROUP_HEADER"
composeable="true" />
</column-def>
<column-def>
<key>INT_MOST_RECENT_RETAIL</key>
<column-def-properties
label="p4pgui.currRetl.column.label"
type="double"
db-column-name="CURRENT_RETAIL_PRICE"
description="p4pgui.currRetl.column.description"
db-table-name="P4P_ITEMS"
composeable="true"
filterable="true"
sortable="true"
orderable="true"
hideable="false"
expandable="false"
filtertype="text"
operatortype="numeric"
display-type="currency"
groupId="GROUP_HEADER" />
</column-def>
<column-def>
<key>INT_TICKET_PRICE</key>
<column-def-properties
label="p4pgui.ticketPrice.column.label"
type="double"
```

```
db-column-name="PERM_TICKET_PRICE"
description="p4pgui.ticketPrice.column.description"
db-table-name="P4P_ITEMS"
composeable="true"
filterable="true"
sortable="true"
orderable="true"
hideable="false"
expandable="false"
filtertype="text"
operatortype="numeric"
display-type="currency"
groupId="GROUP_HEADER">
<function key="P4P_MIN" />
</column-def-properties>
</column-def>
<column-def>
<key>INT_TICKET_PRICE_WT_AVG</key>
<column-def-properties
label="p4pgui.ticketPrice.column.label"
type="double"
db-column-name="WT_TICKET_PRICE"
derivation="PERM_TICKET_PRICE"
description="p4pgui.ticketPrice.column.description"
db-table-name="P4P_ITEMS"
filterable="false"
sortable="false"
orderable="false"
hideable="false"
display-type="currency"
groupId="GROUP_HEADER"
visibility="not-visible">
<function key="P4P_AVG">
<args>INT_INVENTORY</args>
</function>
</column-def-properties>
</column-def>
</columnlist>
```

Following are excerpts from a p4p-custom-columns.xml file. Note that the key name is customColumns.

```
<columnlist xmlns:xsi="http://www.w8.org/2004/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Grid.xsd" key="customColumns">
<column-def>
<key>INT_INVENTORY</key>
<column-def-properties
label="p4pgui.inventory.column.label"
description="p4pgui.inventory.column.description"
db-table-name="P4P_ITEMS"
db-column-name="INITIAL_INVENTORY"
derivation="CURRENT_UNITS_ON_HAND+
CURRENT_UNITS_ON_ORDER"
type="integer" display-type="integer" filterable="false" sortable="false"
orderable="false" visibility="never-visible" composeable="false"
groupId="GROUP_HEADER">
<function key="P4P_SUM" />
</column-def-properties>
</column-def>
<column-def>
<key>NUM_ACCEPTED</key>
<column-def-properties
```

```
display-type="integer"
label="p4pgui.numAccept.column.label"
description="p4pgui.numAccept.column.description"
db-table-name="p4p_submittal_worksheets"
db-column-name="NUM_TAKEN_MARKDOWNS"
groupId="GROUP_HEADER" orderable="true" sortable="true" hideable="true">
<function key="P4P_SUM" />
</column-def-properties>
</column-def>
<column-def>
<key>NUM_REC</key>
<column-def-properties
display-type="integer"
label="p4pgui.numRec.column.label"
description="p4pgui.numRec.column.description"
db-table-name="p4p_submittal_worksheets"
db-column-name="NUM_RECOMMENDED_MARKDOWNS"
groupId="GROUP_HEADER" orderable="true" sortable="true" hideable="true">
<function key="P4P_SUM" />
</column-def-properties>
</column-def>
<column-def>
<key>NUM_MODIFIED</key>
<column-def-properties
display-type="integer"
label="p4pgui.numMod.column.label"
description="p4pgui.numMod.column.description"
db-table-name="p4p_submittal_worksheets"
db-column-name="NUM_MODIFIED_MARKDOWNS"
groupId="GROUP_HEADER" orderable="true" sortable="true" hideable="true">
<function key="P4P_SUM" />
</column-def-properties>
</column-def>
<column-def>
<key>OPPTY_COST</key>
<column-def-properties
db-column-name="OPPORTUNITY_COST"
label="p4pgui.opptyCost.column.label"
description="p4pgui.opptyCost.column.description"
db-table-name="P4P_ITEMS"
type="double" sortable="true" orderable="true" hideable="false" expandable="false"
operatortype="numeric" display-type="currency" groupId="GROUP_HEADER"
filterable="true">
<function key="P4P_SUM" />
</column-def-properties>
</column-def>
</columnlist>
```

Data Sources in XML Column Files The metrics that display on Price 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.

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

Price XML Grid Configuration Files

A grid is a spreadsheet-like table that defines how columns and rows display on a Price 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 10–10 Standard Set of Price Grid Configuration Files

XML File Name	Screen Elements Defined in File
add-remove-collections-grid.xml	Elements for adding and removing items from the collections grid
add-remove-items-grid.xml	Elements for adding and removing items from the Worksheet grid
coll-maint-grid.xml	Elements for maintaining collections.
coll-wksht-grid.xml	Elements for maintaining worksheets
edit-items-collection-grid.xml	Elements that enable editing items within a collection
items-grid-flat.xml	Elements that open the items worksheet
items-grid-group-style.xml	Elements that open the items worksheet
maint-grid-flat.xml	The element that opens the lowest aggregation of the Maintaining Merchandise worksheet
promo-details-grid.xml	Define details about promotions s for a particular item
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: The <row-group> element is required when configuring hierarchies of rows for a Price 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 10–11 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: 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 10–12 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”

Following is an example from a wksht-summary-grid.xml file:

```
<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/>
<column-group-spec>
<row-group>
<key>CHAIN</key>
<rowgroup-properties
expandable=”true”
isexpanded=”true”
<groupby>HIERARCHY2</groupby>
</rowgroup-properties>
<override-column-group>
<column>
<key>NUM_REC</key>
<column-properties>
<function key=
”P4P_NUM_REC_MARKDOWNS”/>
</column>
</column-properties>
</override-column-group>
</row-group>
</summary-info>
</grid>
```

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/

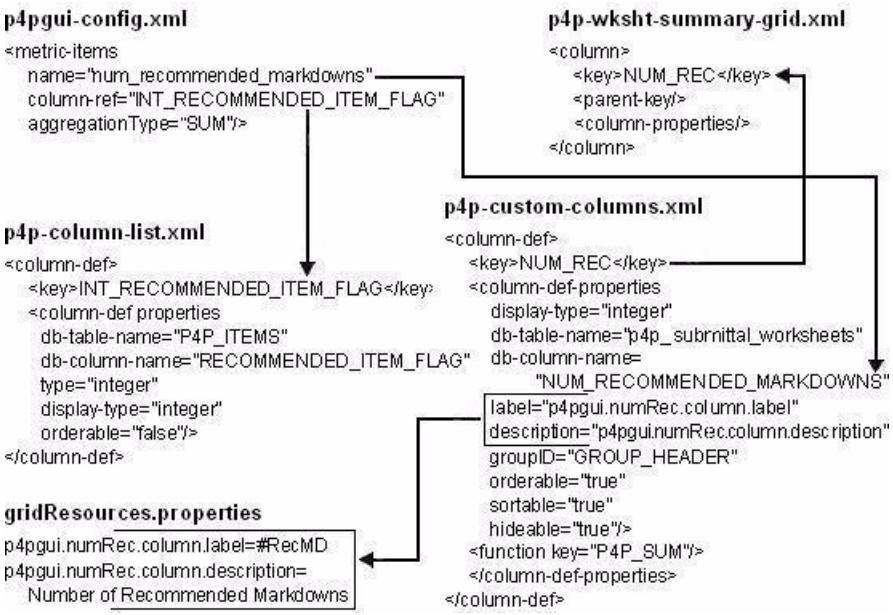
The content of each XML file in the configuration set must conform to the schema or DTD that defines it.

Table 10–13 Data Definition Files for Price XML Files

File Name	Purpose
grid.xsd	The XML schema that defines all but two of the Price 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 Price 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 Price 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 10–14 Mapping of Price Screens and Configuration Files

Screen	Grid File	Other Files
Worksheet Summaries	wksht-summary-grid.xml	
Item Worksheet	gui-items-grid-flat.xml gui-items-grid-group-style.xml	
Edit Item Worksheet	add-remove-items-grid.xml	
Maintaining Merchandise	maint-grid-flat.xml coll-maint-grid.xml	
Collections	coll-wksht-grid.xml	
Edit Collections	add-remove-collections-grid.xml edit-items-collection-grid.xml	
User Profile		
What If		
Recommended Forecast		
Promo Details	promo-details-grid.xml	
Collection Info		item-details-layout.xml
Item Info		item-details-layout.xml

The Price Screens

Clients view and work with their markdown data using a series of Price 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 Price 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 Price 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 Price worksheet screens are shown in the following table:

Table 10–15 Price 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	
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 Price 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 Price 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: 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 Price Screens

The three configuration types of Price screens are:

- Total
- Limited
- Display Only

A summary of all Price screens, categorized by configuration type, is shown in the following table:

Table 10–16 Price Screen Configuration Types

Configuration Type	Elements to Configure	Related Screens
Total	Column metrics Filter and sort options Aggregation	Worksheet summaries
		Worksheet
		Maintaining Merchandise
		Reports
Limited	Row and column selections	What If
		Recommended Forecast
		User Administration
		Edit User
Display only	Static text updates	Item Information Promo Details

Price 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 Price total configuration type screens and their functions are shown in the following table.

Table 10–17 Price Total Configuration Type Screens

Screen(s)	Function
Worksheet summaries	Summary screen that displays the following: ■ A list of the item worksheets that the client can access ■ A summary of each worksheet and its current status
(Item) Worksheets	Main screen used by client for pricing (markdown) decisions. Main functions are: ■ Evaluating recommendations for markdowns ■ 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.

Table 10–17 (Cont.) Price Total Configuration Type Screens

Screen(s)	Function
Maintaining merchandise	A page used for the following tasks: ■ Item-level tasks such as setting or removing exit dates and setting exit inventory or sell-through targets, ■ 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.
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 Price data in alternative ways that are not available in the Price worksheets. Markdown Analysis provides information to enable the client to assess how markdowns are being implemented throughout departments. It includes the following: ■ Items ■ Pricing information such as original current ticketed, current ticketed or recommended price. ■ Inventory information such as on hand or on order. ■ Financial summary metrics

Price 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:

- 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 Price 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, Price 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 Price 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 optimization 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 optimization 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.
- Price database views (which are described in the following table)

Note: Before configuring the What If screen, verify that the database tables are populated with forecast data calculated by the optimization run.

Table 10–18 Database Data Sources for What If Screen

DatabaseView (CDW.P4P_ ...)	DatabaseTable (CDW.P4P_ ...)	Type of Data	Additional Information
FORECAST_DATA	FORECAST_ ACTIVITIES	Forecast data such as: • Week-by-week set of prices and sales • Base demand information	This view must be populated with forecast data calculated from the model run. The optimization engine calculates this forecast data, and then stores it in the FORECAST_ ACTIVITIES database table. The FORECAST_DATA view contains one row for each week of an item's forecast. **Note:** 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 optimization engine.
WHAT_IF	ITEM_DATA	Forecast data such as: • Full price • Price elasticity • Inventory effect parameters	This view pulls price elasticity, inventory effect, and other parameters that were used as inputs to the optimization engine in the model run. Note: If the price elasticity parameter in the CDW.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 • 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. These keys are the key attributes of the <column-def> tags in the XML column files. 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 10–19 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. 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. 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 10–20 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. This sum represents the forecasted total from the beginning of the season to the exit date, using the Price 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 10–21 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 10–22 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: sales units * unit cost.
gmPercentCost	GM % (Cost)	The gross margin percent derived by calculating the cost of goods as follows: sales units * unit cost.
gmDollarsRetail	GM $ (Retail)	The gross margin percent derived by calculating the cost of goods as follows: (sales dollars + markdown dollars) * (unit cost / original retail price).
gmPercentRetail	GM % (Retail)	The gross margin derived by calculating the cost of goods as follows: (sales dollars + markdown dollars) * (unit cost / original retail price).

Table 10–22 (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. **Note:** 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 10–23 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 10–23 (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: ladderID inventoryUnits inventoryDollars inventoryDollarsCost inventoryDollarsRetail sellThroughPercent Remaining sellThrough Percent Total gMPercentCost gMDollarsCost gMPercentRetail gMDollars Retail salesUnits sales Dollars markdownDollars forecastPriceAverage forecastPriceExact forecastPriceAveragePercent forecastPriceExactPercent promoFlag
type	Data type, for example, floating point, integer, string	Acceptable values are: integer money percent 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. Price 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 Price application, are shown in the following table.

The following table shows the required columns for the CDW.P4P_DISPLAY_ITEMS database view. These column definitions are contained in the p4pgui-config.xml file.

Note: 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 10–24 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 10–25 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 10–25 (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: 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

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 10–26 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) false (no)

Note: 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 10–27 What If Row Metrics

Row Metric	Description
Price ladder	Contain the drop-down selection list (widgets) in which users specify the markdown selection. Note: You must ensure that the <grid-display> attribute for this metric is set at "allowed." Otherwise, the What If screen does not function.

Table 10–27 (Cont.) What If Row Metrics

Row Metric	Description
Price	Prices recommended by the optimizer, that is, the suggested values of the register price. 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. 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 Price'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 10–28 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.

Table 10–28 (Cont.) Predefined Columns for Recommended Forecast Screen

Key	Display Name	Column Name	Description
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 Price 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: 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 10–29 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 10–30 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: (sales dollars + markdown dollars) * (unit cost / original retail price)
gmPercentRetail	GM % (Retail)	The gross margin derived by calculating the cost of goods as follows: (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 10–31 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.

Table 10–31 (Cont.) Row Attributes for Recommended Forecast Screen

Tag	Description
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: ladderID inventoryUnits inventoryDollars inventoryDollarsCost inventoryDollarsRetail sellThroughPercentRemaining sellThroughPercentTotal gMPercentCost gMDollarsCost gMPercentRetail gMDollarsRetail salesUnits salesDollars markdownDollars forecastPriceAverage forecastPriceExact forecastPriceAveragePercent forecastPriceExactPercent promoFlag
type	Data type, for example, floating point or integer. Acceptable values are: integer money percent flag
format	Alias that points to the comparable formatting information in the gridResources.properties file. 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 10–32 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.) Note: 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. 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. 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 Price application components

- Access to Price application (merchandise) items

The User Administration screens are shown in the following table.

Table 10–33 User Administration Screens

Screen	Access Method	Description
User Administration	Log into Price	Initial screen that displays after login using root password.
Edit User	On the User Administration screen, click Edit.	Has two works areas: • Modify Worksheets • 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: 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 10–34 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.

The User Administration screen enables the system administrator to:

You make the configurations for this screen in the p4pgui-config.xml file.

Price Display-Only Screens

The Price 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>
```

Advanced Functional Configuration

This section discusses two special configuration areas: price ladders and optimize-to-budget.

Price Ladders

The price ladders supported in Price are shown in the following table:

Given that the PP and PO types can be configured as either permanent or temporary, Price supports a total of five price ladder types. Typically, clients present their price ladder requirements in the form of a table, with each ladder fully described in the table.

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 Price 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 10–35 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>	**Note:** You must ensure that these tags are present in the XML grid file(s) for that Price screen.
	<ColumnDependency>INT_TICKET_PRICE</ColumnDependency>	
	The column keys that map to the required column keys in the XML grid files. These are:	Note: 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>
```

Optimize-to-Budget

The optimize-to-budget feature assesses all items with pending markdowns on a particular worksheet and applies the client's markdown budget dollars to those items that can provide the largest gross margin and inventory sell-through. The goal is to minimize lost opportunity cost within the constraints of a markdown budget.

To configure the Optimize-to-Budget feature, you set collectionCentricOTB, which is an attribute of the <client> tag in the p4pgui-config.xml file, to either true or false. The following code shows this tag set to "true".

```
<xml>
<client
. . . [other non-related attributes] . . .
collectionCentricOTB="true"/>
```

11

Configuring the Price Application (GUI)

This chapter contains the following:

- "Introduction" on page 1
- "Overview of the Price Application Configuration Process" on page 1
- "Setting Up the Workstation and User Permissions" on page 3
- "Setting Up the Hierarchy Levels" on page 5
- "Configuring Total Configuration Type Screens" on page 9
- "Configuring Limited Configuration Type Screens" on page 22

Introduction

This chapter describes how to set up the Price application, which consists of the user interface and those software and hardware components that support it.

Overview of the Price 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
  - CDW.ITEM_DATA
  - CDW.PRICE_LADDERS_TBL
  - CDW.P4P_SUBMITTAL_WORKSHEETS

  This data load is needed because Price 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 Price user interface screen. As described in Chapter 10, Understanding the Price 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, Fit-to-Budget, Budget, and Markdown Accounting.

Requirements and Best Practices

This section discusses requirements and best practices that you should attend to while configuring the Price XML configuration files. These requirements and best practices are:

- Keeping the required software open
- Using source control software
- Managing your project's scheduling and interdependencies

Keeping Required Software Open

While you are configuring the Price XML files, you must keep the required software tools open. These tools are shown in the following table.

Table 11–1 Third-Party Software Tools to Keep Open During Configuration

Tool	Description
WebLogic server	Connects your computer to the Price database. **Note:** Before you open the Price Console Tool and the BEA WebLogic Server Console Tool, ensure that the WebLogic server has been started.
Price console tool	Use to refresh the Price screen after you make updates to the configuration files.
BEA WebLogic Server Console Tool	Checks and updates your connection to the WebLogic server.
Rapid SQL, Toad, or other Oracle developer's application	Use to work with the Oracle database tables to see views for the client instance.
Spy IDE or other XML editor	Use to edit the Price XML configuration files.

Table 11–1 (Cont.) Third-Party Software Tools to Keep Open During Configuration

Tool	Description
Source control software	Saves revisions and controls read-write access to Price files.

Using Source Control Software

While you configure the Price XML configuration files, you should use source control software. Configuring the XML files and checking them into source control software involves an iterative process, described as follows. This procedure assumes that the XML files have been set up on your local workstation.

To work with source control software as you configure the Price XML files:

1. Open and modify (configure) the XML file to configure on your local workstation.
2. Test the configuration by checking to see whether the following screen elements (which are controlled by the file's configuration) work correctly on the user interface:
   - Grid
   - Metrics
   - Formulas

   If all these screen elements work correctly, the file is stable. Note that the grid elements that display at this point consist only of the baseline grids with the standard columns that come out of the box with Price.
3. Once the file is stable, check it into the source control software so that other members of your team may access these files if necessary.

As described, certain XML files, such as grid files, point to certain other XML files, such as column files. As you configure files that point to others, you may discover problems with the file that is pointed to. If so, you can reopen and reconfigure the file that is pointed to at any time.

You continue this process iteratively until all the files have been configured.

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.

Loading the Required Software onto Your Local Workstation

You carry out the configuration process on your local workstation. Therefore, your first activity is to load the required software onto your local hard drive. (This procedure is also referred to as local client setup.) The two types of software that you load, in the order listed, are:

1. Required third-party software
2. A local version of Price

Loading the Required Third-Party Software

To configure the Price configuration files, you must ensure that the required third-party software applications have been installed onto your machine. The following table shows the required third-party software for setting up your local workstation.

Table 11–2 Required Third-Party Software for Local Workstation Setup

Software	Purpose
Source control software	Controls access to the Price configuration files
BEA WebLogic	Enables access to the application during the configuration process
Spy IDE or other XML editor	Tool for editing the Price XML configuration files
Either Oracle or DB2 database application.	Database application to support the Price database
Rapid SQL, Toad, or other Oracle developer's application	For working with the Oracle database tables to see views for the client instance and testing data access
MS Office	Enables work with Excel and Word files containing business requirements
Cygwin	Provides a Linux-like environment for Windows
J2SDK	Web platform for application components
Defect tracking software	Enables you to track software defects
Project scheduling software	Enables tracking of scheduling and dependencies

Loading a Local Version of Price

Before beginning configuration, you must load the Price XML configuration files onto your local workstation's hard drive.

To load a local version of the Price configuration files onto your machine:

1. In your local workstation directory, create a new folder named client immediately under configroot\p4pgui.
2. Copy the following from the configroot\p4pgui level into the configroot\p4pgui\client level:
   - All grid files
   - Help
   - Resources folders and contents
   - The config.properties file

   Now you are ready to make edits from your local workstation.

Setting Up Your User Access to Price

After you have loaded the required third-party software and a local version of Price onto your hard drive, the next step is to obtain user access for yourself. Doing this requires carrying out the following tasks:

1. Logging in

2. Adding yourself as a user
3. Updating your password.
4. Setting up your user access

To log in to the Price application:

1. In your Web browser, enter the following URL:

   http://localhost:7001/p4pgui/index.jsp

   You should now be at your local Price application.
2. Log in using the following password:

   User Name - root/Password – root
3. Click

   Change User Password and enter a new password.
4. Click Change Password.

To add yourself as a user:

- Click Add User and enter your:
  - User name
  - First name
  - Last name

To update your password:

- On the User Administration screen, click Edit next to your name.

To set up your user access:

1. In the Edit User screen, select your own record.
2. Select Approve for your access level.

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 CDW.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 a CDW table 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 11–3 XML Configuration Files for Hierarchy Updates

File	Hierarchy Elements to Configure
p4p-custom-columns.xml	INT_WKSHT_HIERARCHY INT_STYLE_DESC
p4pgui-config.xml	hierarchy-html-form-name= worksheet-params findKey=
p4pgui-wksht-summary-grid.xml	<column> <key> row-group 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_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>
```

Best Practices and Troubleshooting

As you update each file, you should do the following practices in the order listed:

1. Save all updates to the file.
2. Use the Price console tool to refresh the grid configuration.
3. Refresh the Price screen by clicking Refresh on the Web browser.
4. If WebLogic is running, reboot it to see the hierarchy changes on the screen. If WebLogic is not running, start it up.

If an error occurs during your configuration activities, first check the BEA WebLogic Start Server screen and read the error message to determine how to solve the problem. For example, the error message NullPointerException is typically related to the database.

Testing the Setup

Note: Before you test the setup, you must reboot WebLogic.

To test the setup, access Price through the user interface and check to ensure that you can do the following:

1. Log in to Price.
2. View the Markdowns > Worksheet Summaries screen and the data in it.
3. Click on an item and navigate to the Items screen
4. View the Items screen, including the summary metrics and item information

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 Price 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 11–4 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 11–5 Data Sources and Configuration Files for Worksheet Summaries Columns

Database Table Name	Database Column Name	XML Configuration File
P4P_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 Price screens. Each column, as defined in the application metrics spreadsheet represents one metric (type of data) for each row. When you configure Price screens, you must define both displayed and hidden columns.

Note: You do not define the standard, out-of-the-box Price 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 Price 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 Price 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 11–6 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 Note: 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.

Note: 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_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_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>
```

Note: 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

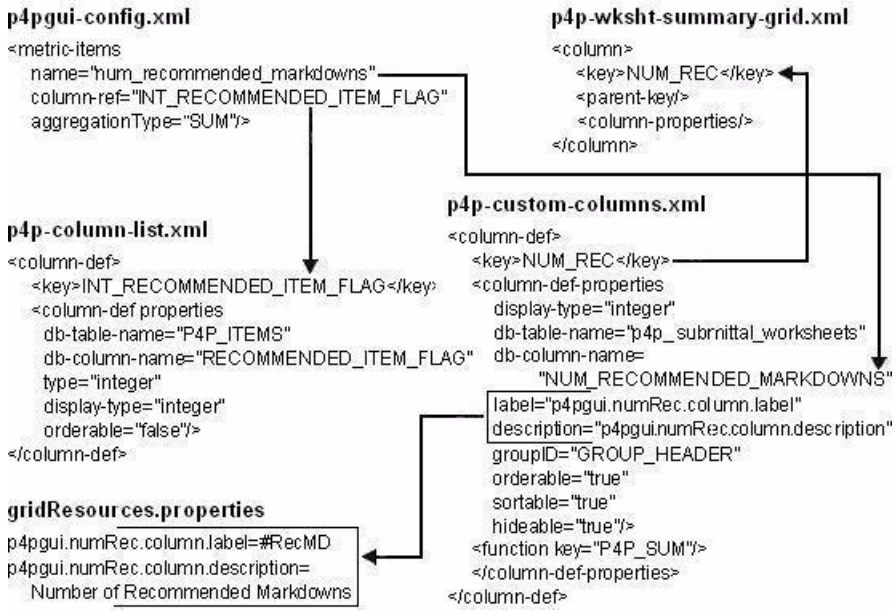
The text label and description are defined in this file as follows:

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.

Note: Each Price grid screen enables you to group columns of information. To prevent blank columns being group 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

Note: 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 Price 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

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 11–7 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.
Recommended markdown dollars	REC_MARKDOWN_DOLLARS	
Recommended markdown dollar cost	REC_MARKDOWN_ DOLLAR_COST	
Taken markdown dollars	TAKEN_MARKDOWN_ DOLLARS	

Table 11–7 (Cont.) Columns Specified in Sample p4p-wksht-summary-grid.xml File

Column Name	XML Element or Attribute	Additional Information
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 11–8 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.

Price 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 Price 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 Price 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 Price 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 Price 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"/>
   ```

   Note:

   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.

Setting Up User-Related Administrative Features

You can use the screens to administer user accounts, including assigning permissions to worksheets.

- Configure user profile screens.
- Create default views for users.

Performing Advanced Functional Configuration

Make sure that you don't put eligibility queries in this list.

- Price ladders
- Optimize to budget
- Markdown accounting

Price Ladders

To configure the price ladders:

1. At the very minimum, ensure that the three required columns for the price ladders are found in the p4p-column-list.xml file. These columns are:

- INT_LADDER_ID
- INT_LADDER_INITIAL_VAL
- INT_PROPOSED_PRICE

If you need to customize any of these columns, copy the column(s) to be modified into the p4p-custom-columns.xml file, and make the modifications in that file. Do not modify any of the column definitions in the p4p-column-list.xml file.

- Ensure that all required definitions are listed in the appropriate files.

12

Config.properties

This appendix contains the following:

- "Introduction" on page 1
- "config.properties Settings" on page 1

Introduction

This chapter describes some of the settings found in config.properties.

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.

Table 12–1 (Cont.) Settings for config.properties

Property	Description
pricefe.systemwide.itemDominant=true	Flag for setting pricing group dominance or item dominance at the system level. The setting in What-If or OTB will override the system-wide setting. When the Item recommendation = the Pricing Group recommendation, this flag is used to determine whether to set the Markdown flag to Pricing Group Rec or Item Rec. Note that pricefe.whatif.itemDominant=true and pricefe.otb.itemDominant=true are commented out by default.
pricefe.whatif.itemDominant=true	Flag for setting pricing group or item What-If recalculations. This setting is commented out by default. See also pricefe.systemwide.itemDominant=true.
pricefe.otb.itemDominant=true	Flag for setting a pricing group or an item preference for OTB. This setting is commented out by default. See also pricefe.systemwide.itemDominant=true.

13

Standard Reports

The chapter contains the following:

- "Introduction" on page 1
- "The Configuration Process for Standard Reports" on page 1

Introduction

Price provides standard reports, which Price users generate and view from the Price 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_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 Price 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 Price 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 Price 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 Price:

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 Price 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 too 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 Price also require an XML specification so that they are registered with Price. 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: 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 Price 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 Price Standard Reports

Entity	description	Example
Strings		
STRING	A left-aligned string	SAMPLE
CENTER_STRING	A centered string	SAMPLE
Numeric Data Types		
CURRENCY	A numeric column shown with a $ and two decimal places	$34.23

Table 13–1 (Cont.) Valid Formats for Price Standard Reports

Entity	description	Example
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 Price-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

Configuring Merchant Desktop

This chapter contains the following:

- "Introduction" on page 1
- "Configuring Merchant Desktop Alerts" on page 1
- "Configuring Merchant Desktop Reports" on page 2

Introduction

If you use Merchant Desktop, an optional management tool, you have access to alerts and reports.

Configuring Merchant Desktop Alerts

Alerts notify users when merchandise requires some action. Alerts are specific to each user's assigned merchandise and location hierarchy levels. To configure alerts:

1. From the UI, create one or more alerts. Over time, create, modify, or delete alerts as according to your business needs.

2. Generate alerts weekly, after the plpostmodelrun.sh script.

3. Register alerts weekly, after the alerts have been generated.

Creating Alerts

From the user interface, create at least one alert configuration. For information on configuring alerts, see the Merchant Desktop Administrator Online Help.

Alert configurations are stored in the CC_ALERT_CONFIG_TBL and CC_ALERT_CONFIG_PARAMS_TBL tables.

Generating Alerts

You generate alerts weekly. Before you generate alerts, ensure that your application server is running.

If the script fails, it displays the message EXIT_CODE_FAILURE and returns a value of 1 for failure.

To generate alerts:

1. Navigate to the <PL_HOME>/modules/tools/bin directory and enter the following command:

   bash ./plAlerts.sh <PL_HOME>

This populates the P4P_ALERT_ITEMS table.

2. Enter the following command:

   bash ./**generateAlerts.sh** <server> <host>:<port> <Category> <maxThreads>

   Use any of the optional arguments listed below as needed.

app server	Either: was (WebSphere) or wls (WebLogic)
host	The name of the computer on which the application server is running
portno	The port number configured for Price on the application server.
category	How often the alerts are generated. The only value is Weekly.
maxThreads	The number of threads the process requires. A value of 1 is recommended.

   This populates the CC_TRIGGERED_ALERTS_TBL table with the new alerts, displays the message EXIT_CODE_SUCCESS, and returns a value of 0 for success. The alerts are now available for use through Merchant Desktop.

   Alerts are based on data updated during the model run, so they must be generated immediately after the plpostmodelrun.sh script.

Registering Alerts

You register alerts weekly.

Navigate to the <PL_Home>/modules/tools/admin directory and register your alerts as follows.

```
bash ./registerAlerts.sh wls <appserver>:<7001> [register | unregister]
register - if alerts have never been registered before.
unregister - if alerts have been previously registered.
```

This populates the CC_ALERTS_DEF_TBL table with your alerts.

Configuring Merchant Desktop Reports

If you are using Merchant Desktop and have installed RDM to access reports, you must perform an initial setup of the product. In addition, incremental and weekly updates are required.

For information about which tables and columns have data relevant to the reports you want to configure, see to the Price Operations Guide.

15

RDM Data Mapping

This chapter contains the following:

- "Overview of RDM Data Mapping" on page 1
- "RDM Facts for Price" on page 1
- "RDM Tables Mapped to Price Tables" on page 2
- "RDM Data Mapped to Price Data" on page 3
- "RDM System Tables" on page 20

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 for Price

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 Price Tables

The following table shows the mapping between the base application tables and RDM tables.

Table 15–1 RDM Tables Mapped to Price Tables

RDM Table	RDM Table Details	Related Price Table
RDM_MERCHANDISE_TBL	Reflects the current state of the corresponding Price table, which is loaded weekly.	MERCHANDISE_TBL
RDM_LOCATION_TBL	Reflects the current state of the corresponding Price 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 Price table, which is loaded once when Price is initially configured.	HIERARCHY_LEVELS_TBL
RDM_ITEMS_TBL	Reflects the current state of the corresponding Price table, which is loaded weekly.	ITEMS_TBL
RDM_BUDGETS	Refreshed weekly to reflect corresponding Price changes.	P4P_BUDGETS
RDM_ACTIVITIES	Refreshed weekly to reflect corresponding Price 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 Price 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 Price Data

This section shows how RDM columns map to Price data.

RDM Item Data

The following table shows how the Retail Data Mart derives data from the Price 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 15–2 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 Price.	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 15–2 (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 15–2 (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 15–2 (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 Price.	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 15–2 (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 when the item will meet its sell-through target.	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
PROJ_SALES_AMT_EOL	Projected total sales dollars for an item at the end of its life, assuming all Price 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 Price recommendations are taken.	ID.EOL_CUM_UNIT_ SALES+id.CUMULATIVE_ QUANTITY_SOLD

Table 15–2 (Cont.) RDM Item Data Mapping

RDM_ITEM_DATA	Description	ITEM_DATA (ID)
PROJ_ST_PERC_EOL	Projected percent of total inventory quantity sold by the client specified out date, assuming all Price 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
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

Table 15–2 (Cont.) RDM Item Data Mapping

RDM_ITEM_DATA	Description	ITEM_DATA (ID)
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
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

Table 15–2 (Cont.) RDM Item Data Mapping

RDM_ITEM_DATA	Description	ITEM_DATA (ID)
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 chang 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
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

Table 15–2 (Cont.) RDM Item Data Mapping

RDM_ITEM_DATA	Description	ITEM_DATA (ID)
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 Price.

Table 15–3 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
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

Table 15–3 (Cont.) RDM Item Synonym Mapping

RDM_ITEMS_TBL	ITEMS_TBL
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 15–4 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
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 15–5 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
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 15–6 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 15–7 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 15–8 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 15–9 RDM Time-Period Data Mapping

RDM_PERIODS_TBL	PERIODS_TBL
PERIOD_ID	PERIOD_ID
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

Table 15–9 (Cont.) RDM Time-Period Data Mapping

RDM_PERIODS_TBL	PERIODS_TBL
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
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 Price.

Table 15–10 RDM Merchandise Data Mapping

RDM_MERCHANDISE_TBL	MERCHANDISE_TBL
PI_ID	PI_ID
MERCHANDISE_ID	MERCHANDISE_ID

Table 15–10 (Cont.) RDM Merchandise Data Mapping

RDM_MERCHANDISE_TBL	MERCHANDISE_TBL
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 15–11 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

Table 15–11 (Cont.) RDM Merchandise CDA View Mapping

RDM_MERCH_CDA_VW	PL_DD_ATTRIBUTES
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 Price geographic location data.

Table 15–12 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
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

Table 15–12 (Cont.) RDM Location Data Mapping

RDM_LOCATION_TBL	LOCATION_TBL
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 15–13 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
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

Table 15–13 (Cont.) RDM Location CDA View Data Mapping

RDM_LOCATION_CDA_VW	PL_DD_ATTRIBUTES
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 Price.

Table 15–14 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 15–15 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.

16

MicroStrategy Data Mapping

This chapter contains the following:

- "Overview of MicroStrategy Data Mapping" on page 1
- "MicroStrategy Facts" on page 1
- "MicroStrategy Attributes" on page 1
- "MicroStrategy Metrics" on page 4

Overview of MicroStrategy Data Mapping

This chapter shows how RDM data maps to MicroStrategy data.

Note: MicroStrategy enables you to generate your own metadata documentation. For information, see the MicroStrategy documentation.

MicroStrategy Facts

The MicroStrategy metadata uses the following Facts:

Actuals

Budget

Forecast

Historical Markdowns

Item Data

Item Info

MicroStrategy Attributes

The MicroStrategy metadata uses the following Attributes:

Act Full Price

Act Ticket Price

Brand

Budget Outdate

Clearance Dt

Clearance Ind Dt

Current Week

First Receipt Date

First Receipt Dt

Fiscal Half

Fiscal Mo

Fiscal Quarter

Fiscal Wk

Fiscal Yr

Half Period

Hierarchy Type

Holiday Desc

Holiday Flag

Item

Item CDA Char Attribute (columns 1-8)

Item CDA Number Attribute (columns 1-8)

Item Current Retail Begin Dt

Item Last Receipt Date

Item Last Refresh Date

Item Out Of Stock Date

Item Proj Out Of Stock

Item Promo Flag

Item Size

Item Start Sell Date

Item Status

Item Vendor

ItemData Price Ladder Desc

ItemData Price Ladder Type

Levels Level Sqc

Location Climate

Location

Location CDA Char Attribute (column 1-8)

Location CDA Date Attribute (column 1-8)

Location CDA Number Attribute (columns 1-8)

Location Client Id

Location Desc

Location First Create Dt

Location First Eff Dt

Location Grs Are Sqft

Location Grss Sqft

Location Hierarchy (columns 1-10)

Location Last Eff Dt

Location Last Modified Dt

Location Level Sqc

Location Ssc Ind

Location Start Dt

Location Type

Markdown Num

Merchandise

Month Period

Next Md Date

Parent Product

Period

Period Begin Calendar Dt

Period Type

Product

Product CDA Char Attribute (columns 1-8)

Product CDA Number Attribute (columns 1-8)

Product First Eff Dt

Product Hierarchy (columns 1-10)

Product Last Eff Dt

Product Level Sqc

Product Start Dt

Quarter Period

Rec Item Flag

Report Client Id

Season

Season Code

Store Ad Group

Store Chst 1 (columns 1-3)

Store City

Store Class

Store Clss Ind

Store Fashion Segment

Store Ssc

Store State

Store Zip

Volume Gr

Week Period

Year Period

MicroStrategy Metrics

The MicroStrategy metadata includes the following Metrics:

Table 16–1 Sources of MicroStrategy Metrics

Name	Expression
Actuals	
Act AUR	Sum([Act Net Sales Amt]){~+} / Sum([Act Net Sales Units]){~+}
Act Avg Full Price	Sum(([Act Full Price] * [Act Inv Units BOW])){~+} / Sum([Act Inv Units BOW]){~+}
Act Avg Sales Price	Sum(([Act Sales Price] * [Act Inv Units BOW])){~+} / Sum([Act Inv Units BOW]){~+}
Act Avg Selling Price	Sum([Act Net Sales Amt]){~+} / Sum([Act Net Sales Units]){~+}
Act Avg Ticket Price	Sum(([Act Ticket Price] * [Act Inv Units BOW])){~+} / Sum([Act Inv Units BOW]){~+}
Act BOH Units	Sum(([Act Inventory Units EOW] + [Act Net Sales Units]))
Act Delivered Units	Sum([Act Delivered Units])
Act GM Amt	Sum(([Act Net Sales Amt] - [Act Cost Of Sales]))
Act GM%	[Act GM Amt] / [Act Sales Amt Net]
Act Inventory Units	Sum([Act Inventory Units EOW])
Act Markdown Amt	Sum([Hist Taken Md Amt])
Act OH Rtl Amt	[Act Avg Selling Price] * [Act BOH Units]
Act On Order Amt	Sum(([Act Ordered Units] * [Act Item Cost]))
Act On Order Units	Sum([Act Ordered Units])
Act Pct Off TW	1 - (Sum((([Act Current Retail] * [Act Inv Units BOW]) * [Act Full Price])){~+} / Sum((([Act Inv Units BOW] * [Act Full Price]) * [Act Full Price])){~+})
Act Returned Units	Sum([Act Returned Units])
Act Sales Amt Clearance	Sum([Act Clr Sales Amt])
Act Sales Amt Full Price	Sum([Act Full Sales Amt])
Act Sales Amt Net	Sum([Act Net Sales Amt])
Act Sales Amt POS	Sum([Act POS Sales Amt])
Act Sales Cost Amt	Sum([Act Cost Of Sales])
Act Sales Units Clearance	Sum([Act Clr Sales Units])
Act Sales Units Full Price	Sum([Act Full Sales Units])
Act Sales Units Net	Sum([Act Net Sales Units])
Act Sales Units POS	Sum([Act POS Sales Units])
Act Salvaged Units	Sum([Act Salvaged Units])

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Act Stock Sales Ratio	Sum([Act Inv Units BOW]){~+} / Sum([Act 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(([Planned Ticket Price] * [Planned Sales Units])){~+} / Sum([Planned Sales Units]){~+}
Planned GM Amt	[Planned Sales Amt] - [Planned Sales Cost]
Planned GM Pct	[Planned GM Amt] / [Planned Sales Amt]
Planned Markdown Amt	Sum([Planned Markdown Budget])
Planned Sales Amt	Sum([Planned Sales Amt])
Planned Sales Cost	[Planned Sales Units] * [Avg Unit Cost]
Planned Sales Units	Sum([Planned Sales Units])
Forecast	
Fcst Cost Sls	Sum([Forecast Cost Of Sales])
Fcst Grp Inv Units BOW	Sum(([Forecast Collection Inventory Units] + [Forecast Collection Sales Units]))
Fcst Grp Inv Units EOW	Sum([Forecast Collection Inventory Units])
Fcst Grp Sales Price	Sum(([Forecast Collection Sales Price] * [Forecast Collection Inventory Units])){~+} / Sum([Forecast Collection Inventory Units]){~+}
Fcst Grp Sales Units	Sum([Forecast Collection Sales Units])
Fcst Grp Stock Sales Ratio	Sum(([Forecast Collection Inventory Units] + [Forecast Collection Sales Units])){~+} / Sum([Forecast Collection Sales Units]){~+}
Fcst Grp Ticket Price	Sum(([Forecast Collection Ticket Price] * [Forecast Collection Inventory Units])){~+} / Sum([Forecast Collection Inventory Units]){~+}
Fcst Grp WOS	Sum(([Forecast Collection Inventory Units] * [Forecast Collection Sales Units])){~+} / Sum([Forecast Collection Sales Units]){~+}
Fcst Inv Units BOW	Sum(([Forecast Inventory Units] + [Forecast Sales Units]))
Fcst Inv Units EOW	Sum([Forecast Inventory Units])
Fcst Sales Amt	Sum(([Forecast Sales Units] * [Forecast Sales Price]))
Fcst Sales Price	Sum(([Forecast Sales Price] * [Forecast Inventory Units])){~+} / Sum([Forecast Inventory Units]){~+}
Fcst Sales Units	Sum([Forecast Sales Units])
Fcst Stock Sales Ratio	Sum(([Forecast Inventory Units] + [Forecast Sales Units])){~+} / Sum([Forecast Sales Units]){~+}
Fcst Ticket Price	Sum(([Forecast Ticket Price] * [Forecast Inventory Units])){~+} / Sum([Forecast Inventory Units]){~+}
Fcst WOS	Sum(([Forecast Inventory Units] * [Forecast Sales Units])){~+} / Sum([Forecast Sales Units]){~+}

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Hist Markdowns	
Hist Accepted Pct Off	Avg([Hist Accepted Pct Off])
Hist Taken MD Amt	Sum([Hist Taken Md Amt])
MarkDown Count	Count([Hist Markdown Num])
Item\Item Definition Metrics	
Avg Target Inv Units	Avg([Item Target Inventory Units])
Avg Unit Cost	Avg([Item Unit Cost])
Current Cost Amt	Sum([Item Current Cost Amt])
Full Price	Avg([Item Full Price])
Item\Item Definition Metrics	
Avg Target Inv Units	Avg([Item Target Inventory Units])
Avg Unit Cost	Avg([Item Unit Cost])
Current Cost Amt	Sum([Item Current Cost Amt])
Full Price	Avg([Item Full Price])
Item\Item Data Metrics	
Accepted MDs	Sum(([ItemData Accepted MD Flag] * [ItemData Taken MD Flag]))
Added MD Amt	Sum(((([ItemData Added Md Flag] * [ItemData Taken MD Flag]) * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Accepted Price])))
Added MD Cost Amt	Sum(((([ItemData Added Md Flag] * [ItemData Taken MD Flag]) * [ItemData Proj Units Oh Nw]) * [ItemData AUC]))
Added MDs	Sum(([ItemData Added Md Flag] * [ItemData Taken MD Flag]))
Added Unit Inv	Sum((([ItemData Committed Inv Units] * [ItemData Added Md Flag]) * [ItemData Taken MD Flag]))
AUC	Sum(([ItemData AUC] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
AUR LLW	Sum([ItemData Sales Amt LLW]){~+} / Sum([ItemData Sales Units LLW]){~+}
AUR LTD	Sum([ItemData Sales Amt LTD]){~+} / Sum([ItemData Sales Units LTD]){~+}
AUR LW	Sum([ItemData Sales Amt LW]){~+} / Sum([ItemData Sales Units LW]){~+}
AUR NW	Sum([ItemData Sales Amt NW]){~+} / Sum([ItemData Sales Units NW]){~+}
AUR TW	Sum([ItemData Sales Amt TW]){~+} / Sum([ItemData Sales Units TW]){~+}
Avg Accepted Price	Sum(([ItemData Accepted Price] * [ItemData EOW Inv Units OH LW])){~+} / Sum([ItemData EOW Inv Units OH LW]){~+}
Avg Cur Rtl Pct Off Orig Rtl	Avg([ItemData Cur Rtl Perc Off Orig Rtl])
Avg FTB Ratio	Avg([ItemData Ftb Ratio])
Avg Markup Pct	Avg([ItemData Markup Perc])
Avg Next Rtl Price	Avg([ItemData Next Rtl Price])
Avg Owned Rtl Price	Avg([ItemData Owned Rtl Price])
Avg Price	Sum(([ItemData Cur Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Avg Price LTD	Sum(([ItemData Avg Price Ltd] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Avg Rec Pct Off Cur Rtl	Avg([ItemData Rec Perc Off Cur Rtl])
Avg Rec Pct Off Orig Rtl	Avg([ItemData Rec Perc Off Orig Rtl])
Avg Rec Rtl Price	Sum(([ItemData Rec Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Avg Taken Pct Off Cur Rtl	Avg([ItemData Taken Perc Off Cur Rtl])
Avg Taken Pct Off Orig Rtl	Avg([ItemData Taken Perc Off Orig Rtl])
Chain Avg Price	Sum(([ItemData Chain Avg Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Chain Max Price	Max([ItemData Chain Max Price])
Chain Min Price	Min([ItemData Chain Min Price])
Cost Sls (TW-EOL)	Sum((([ItemData Proj Sales Units EOL] - [ItemData Sales Units LTD]) * [ItemData AUC]))
Cost Sls LTD	Sum(([ItemData AUC] * [ItemData Sales Units LTD]))
Cost Sls LW	Sum(([ItemData AUC] * [ItemData Sales Units LW]))
Cost Sls NW	Sum(([ItemData AUC] * [ItemData Sales Units NW]))
Cost Sls TW	Sum(([ItemData AUC] * [ItemData Sales Units TW]))
Cur Rtl Price	Sum(([ItemData Cur Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Date Sent	Max([ItemData Date Sent])
DC OH Units	Sum([ItemData Dc OH Units])
DC OO Units	Sum([ItemData Dc OO Units])
Delayed MDs	Sum([ItemData Delayed Md Flag])
Exit Date	Min([ItemData Proj Out Of Stock Dt])
Exit Date Last Mod Date	Max([ItemData Orig Exit Date Mod Dt])
First MDs	Sum([ItemData First Md Flag])
First Rcpt Dt	Max([ItemData First Receipt Date])
First Sale Date	Min([ItemData First Sale Date])
GM Amt LTD	Sum(([ItemData Sales Amt LTD] - ([ItemData AUC] * [ItemData Sales Units LTD])))
GM Pct LTD	[GM Amt LTD] / [Sales Amt LTD]
Gross Profit Amt	Sum(([Act Net Sales Amt] - [Act Cost Of Sales]))
Gross Profit Amt LTD	Sum([ItemData Gross Profit Amt LTD])
Group MDs	Sum([ItemData Group Recommend MD Flag])
Inv Units EOW LLLLW	Sum([ItemData EOW Inv Units LLLLW])
Inv Units EOW LLLW	Sum([ItemData EOW Inv Units LLLW])
Inv Units EOW LLW	Sum([ItemData EOW Inv Units LLW])
Inv Units EOW LW	Sum([ItemData EOW Inv Units OH LW])

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Item MDs	Sum([ItemData Item Recommended MD Flag])
Last MD Date	Max([ItemData Last Md Effective Date])
Last Rcpt Dt	Max([ItemData Last Receipt Date])
Lost Opportunity Cost	Sum(([ItemData Opportunity Cost] * (1 - [ItemData Taken MD Flag])))
Lost Opportunity Cost(Grp)	Sum((([ItemData Opportunity Cost] * [ItemData Group Recommend MD Flag]) * (1 - [ItemData Taken MD Flag])))
Max MD Number	Max([ItemData Md Number])
MD Effective Date	Min([ItemData Effective Date])
Mod Not Acc MDs	Sum([ItemData Modified Md Flag])
Modified Exit Date	Max([ItemData Modified Out Of Stock Date])
Modified MDs	Sum(([ItemData Modified Md Flag] * [ItemData Taken MD Flag]))
Modified Target ST Pct	Sum(([ItemData Modified Target St Perc] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
MU Pct Init	Sum((([ItemData Orig Rtl Price] - [ItemData AUC]) * [ItemData Committed Inv Units])){~+} / Sum(([ItemData Orig Rtl Price] * [ItemData Committed Inv Units])){~+}
MU Pct NW	Sum((([ItemData Ticket Price NW] - [ItemData AUC]) * [ItemData Inv Units NW])){~+} / Sum(([ItemData Ticket Price NW] * [ItemData Inv Units NW])){~+}
MU Pct TW	Sum((([ItemData Cur Rtl Price] - [ItemData AUC]) * [ItemData Committed Inv Units])){~+} / Sum(([ItemData Cur Rtl Price] * [ItemData Committed Inv Units])){~+}
Next Rec Date	Min([ItemData Next Rec Md Date])
Next Rec Pct Off	Max([ItemData Next Rec Perc Off Orig Rtl])
Num Items	Count([ItemData AUC])
Num Stores OH	Sum([ItemData Num Store With OH])
OH Cost Amt	Sum([ItemData Inv Cost Amt OH])
OH Rtl Amt	Sum(([ItemData Cur Rtl Price] * [ItemData EOW Inv Units OH LW]))
On Hand Inv	Sum([ItemData EOW Inv Units OH LW])
On Order Inv	Sum([ItemData EOW Inv Units OO LW])
OO Cost Amt	Sum([ItemData Inv Cost Amt OO])
OO Rtl Amt	Sum(([ItemData Cur Rtl Price] * [ItemData EOW Inv Units OO LW]))
Opportunity Cost	Sum([ItemData Opportunity Cost])
Opportunity Cost(Grp)	Sum(([ItemData Opportunity Cost] * [ItemData Group Recommend MD Flag]))
Orig Rtl Price	Sum(([ItemData Orig Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Original Exit Date	Max([ItemData Orig Exit Date])
OTB MDs	Sum([ItemData OTB MD Flag])
OTB Taken MDs	Sum(([ItemData OTB MD Flag] * [ItemData Temp Md Flag]))
Owned Rtl	Sum(([ItemData Owned Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Pct Tlt Inv Allocated	Sum((([ItemData Sales Units LTD] + [ItemData EOW Inv Units OO LW]) + [ItemData EOW Inv Units OO LW])){~+} / Sum((((([ItemData Sales Units LTD] + [ItemData EOW Inv Units OH LW]) + [ItemData EOW Inv Units OO LW]) + [ItemData Dc OH Units]) + [ItemData Dc OO Units])){~+}
Perm MDs	Sum((1 - [ItemData Temp Md Flag]))
Planned Start Date	Min([ItemData Planned Start Sell Date])
Price Ladder Description	Max([ItemData Price Ladder Desc])
Price Ladder Sent	Min([ItemData Sent Ladder])
Price Ladder Type	Max([ItemData Price Ladder Type])
Price Sent	Sum(([ItemData Price Sent] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Proj Cost Sls EOL	Sum(([ItemData AUC] * [ItemData Proj Sales Units EOL]))
Proj Exit Date	Min([ItemData Proj Out Of Stock Dt])
Proj GM Amt EOL(Grp)	Sum([ItemData Proj Gm Amt Eol Grp])
Proj GM Amt EOL(Item)	Sum([ItemData Proj Gm Amt EOL])
Proj GM Amt NW	Sum(([ItemData Sales Amt NW] - ([ItemData Sales Units NW] * [ItemData AUC])))
Proj GM Amt TW	Sum(([ItemData Sales Amt TW] - ([ItemData Sales Units TW] * [ItemData AUC])))
Proj GM Pct EOL	Sum(([ItemData Proj Gm Perc EOL] * [ItemData Proj Sales Amt EOL])){~+} / Sum([ItemData Proj Sales Amt EOL]){~+}
Proj GM Pct EOL(Grp)	Sum(([ItemData Proj Gm Amt Eol Grp] / [ItemData Proj Sales Amt EOL])){~+} / Sum([ItemData Proj Sales Amt EOL]){~+}
Proj MU Pct EOL	Avg((([ItemData Rec Rtl Min] - [ItemData AUC]) / [ItemData Rec Rtl Min]))
Proj OH Cost Amt EOL	Sum(([ItemData Outdate Inv Units] * [ItemData AUC]))
Proj OH EOL	Sum([ItemData Outdate Inv Units])
Proj OH NW	Sum([ItemData Proj Units Oh Nw])
Proj OH Rtl Amt EOL	Sum(([ItemData Outdate Inv Units] * [ItemData Proj Oh Rtl EOL]))
Proj OH Rtl EOL	Sum([ItemData Proj Oh Rtl EOL])
Proj Out Of Stock Dt	Min([ItemData Proj Out Of Stock Dt])
Proj Rtl Price EOL	Sum(([ItemData Rec Rtl Min] * [ItemData Outdate Inv Units])){~+} / Sum([ItemData Outdate Inv Units]){~+}
Proj Sales Amt EOL	Sum([ItemData Proj Sales Amt EOL])
Proj Sales Units EOL	Sum([ItemData Proj Sales Units EOL])
Proj ST Pct EOL	[Proj Sales Units EOL] / ([Proj Sales Units EOL] + [Proj OH EOL])
Promo Desc	Min([ItemData Promo Desc])
Promo End Dt	Max([ItemData Promo End Dt])
Promo Flag	Max([ItemData Promo Flag])
Promo Pct Off	Max([ItemData Promo Pct Off])
Promo Rtl	Min([ItemData Lowest Promo Price])
Promo Start Dt	Min([ItemData Promo Start Dt])

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Rec Md Amt	Sum((([ItemData Rec MD Flag] * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Rec Rtl Price])))
Rec MD Amt Cost	Sum((([ItemData Rec MD Flag] * [ItemData Proj Units Oh Nw]) * [ItemData AUC]))
Rec MD Amt Cost Not Taken	Sum(((([ItemData Rec MD Flag] * (1 - [ItemData Taken MD Flag])) * [ItemData Proj Units Oh Nw]) * [ItemData AUC]))
Rec MD Amt Not Taken	Sum(((([ItemData Rec MD Flag] * (1 - [ItemData Taken MD Flag])) * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Rec Rtl Price])))
Rec MD Inv	Sum(([ItemData Committed Inv Units] * [ItemData Rec MD Flag]))
Rec Md Inv Cost	Sum([ItemData Rec Md Inv Cost])
Rec MDs	Sum([ItemData Rec MD Flag])
Rec MDs (Group)	Sum([ItemData Group Recommend MD Flag])
Rec MDs (Item)	Sum([ItemData Item Recommended MD Flag])
Rec MU Pct	Sum((([ItemData Rec Rtl Price] - [ItemData AUC]) * ([ItemData Committed Inv Units] * [ItemData Rec Rtl Price])){~+} / Sum((([ItemData Rec Rtl Price] * [ItemData Committed Inv Units]) * [ItemData Rec Rtl Price])){~+}
Rec Pct Off Curr	ZeroToNull((Sum(((((([ItemData Cur Rtl Price] - [ItemData Rec Rtl Price]) / [ItemData Cur Rtl Price]) * [ItemData Committed Inv Units]) * [ItemData Cur Rtl Price])){~+} / Sum(([ItemData Cur Rtl Price] * [ItemData Committed Inv Units])){~+}))
Rec Pct Off Orig	ZeroToNull((Sum(((((([ItemData Orig Rtl Price] - [ItemData Rec Rtl Price]) / [ItemData Orig Rtl Price]) * [ItemData Committed Inv Units]) * [ItemData Orig Rtl Price])){~} / Sum(([ItemData Orig Rtl Price] * [ItemData Committed Inv Units])){~}))
Rec Rtl (Grp)	Sum(([ItemData Group Recommended Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Rec Rtl (Item)	ZeroToNull((Sum(([ItemData Rec Rtl Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}))
Max([ItemData Rec Rtl Price])	Rec Rtl Max
Rec Rtl Min	Min([ItemData Rec Rtl Price])
Rec Unit Inv	Sum(([ItemData Proj Units Oh Nw] * [ItemData Rec MD Flag]))
Rec Units Not Taken	Sum((([ItemData Rec MD Flag] * [ItemData Proj Units Oh Nw]) * (1 - [ItemData Taken MD Flag])))
Sales Amt (TW-EOL)	[Proj Sales Amt EOL] - [Sales Amt LTD]
Sales Amt LLLLW	Sum([ItemData Sales Amt LLLLW])
Sales Amt LLLW	Sum([ItemData Sales Amt LLLW])
Sales Amt LLW	Sum([ItemData Sales Amt LLW])
Sales Amt LTD	Sum([ItemData Sales Amt LTD])
Sales Amt LW	Sum([ItemData Sales Amt LW])
Sales Amt NW	Sum([ItemData Sales Amt NW])
Sales Amt TW	Sum([ItemData Sales Amt TW])
Sales Units (TW-EOL)	[Proj Sales Units EOL] - [Sales Units LTD]
Sales Units LLLLW	Sum([ItemData Sales Units LLLLW])

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Sales Units LLLW	Sum([ItemData Sales Units LLLW])
Sales Units LLW	Sum([ItemData Sales Units LLW])
Sales Units LTD	Sum([ItemData Sales Units LTD])
Sales Units LW	Sum([ItemData Sales Units LW])
Sales Units NW	Sum([ItemData Sales Units NW])
Sales Units TW	Sum([ItemData Sales Units TW])
Salvage Amt	Sum([ItemData Salvage Amt])
Salvage Pct	Sum(([ItemData Salvage Pct] * [ItemData Outdate Inv Units])){~+} / Sum([ItemData Outdate Inv Units]){~+}
Sendback Date	Max([ItemData Sendback Date])
ST Pct (TW-EOL)	[Sales Units (TW-EOL)] / [Inv Units EOW LW]
ST Pct LLLLW	Sum(([ItemData Sell Through LLLLW] * ([ItemData Sales Units LLLLW] + [ItemData EOW Inv Units LLLLW]))){~+} / Sum(([ItemData Sales Units LLLLW] + [ItemData EOW Inv Units LLLLW])){~+}
ST Pct LLLW	Sum(([ItemData Sell Through LLLW] * ([ItemData Sales Units LLLW] + [ItemData EOW Inv Units LLLW]))){~+} / Sum(([ItemData Sales Units LLLW] + [ItemData EOW Inv Units LLLW])){~+}
ST Pct LTD	Sum(([ItemData Sell Through LTD] * ([ItemData EOW Inv Units OH LW] + [ItemData Sales Units LTD]))){~+} / Sum(([ItemData EOW Inv Units OH LW] + [ItemData Sales Units LTD])){~+}
ST Pct LW	Sum(([ItemData Sell Through LW] * ([ItemData EOW Inv Units OH LW] + [ItemData Sales Units LW]))){~+} / Sum(([ItemData Sales Units LW] + [ItemData EOW Inv Units OH LW])){~+}
Start Date	Min([ItemData Start Sell Date])
Stock Sales Ratio TW	Sum([ItemData EOW Inv Units OH LW]){~+} / Sum([ItemData Sales Units TW]){~+}
Taken Deeper MDs	Sum(([ItemData Taken Deeper Flag] * [ItemData Taken MD Flag]))
Taken MD Amt (Perm)	Sum((((([ItemData Taken MD Flag] * (1 - [ItemData Temp Md Flag])) * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Rec Rtl Price])))
Taken MD Amt (Total)	Sum((([ItemData Taken MD Flag] * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Accepted Price])))
Taken MD Amt Cost (Perm)	Sum((((([ItemData Taken MD Flag] * (1 - [ItemData Temp Md Flag])) * [ItemData Proj Units Oh Nw]) * [ItemData AUC]))
Taken MD Amt Cost (Temp)	Sum((((([ItemData Taken MD Flag] * [ItemData Temp Md Flag]) * [ItemData Proj Units Oh Nw]) * [ItemData AUC]))
Taken MD Amt Cost (Total)	[Taken MD Amt Cost (Perm)] + [Taken MD Amt Cost (Temp)]
Taken Md Inv Cost	Sum([ItemData Taken Md Inv Cost])
Taken MDs	Sum([ItemData Taken MD Flag])
Taken Mod MDs	Sum(([ItemData Taken MD Flag] * [ItemData Modified Md Flag]))
Taken Pct Off Curr	Sum((((([ItemData Taken MD Flag] * [ItemData Committed Inv Units]) * [ItemData Cur Rtl Price]) * [ItemData Rec Perc Off Cur Rtl])){~+} / Sum((([ItemData Taken MD Flag] * [ItemData Committed Inv Units]) * [ItemData Cur Rtl Price])){~+}

Table 16–1 (Cont.) Sources of MicroStrategy Metrics

Name	Expression
Taken Pct Off Orig	Sum(((([ItemData Taken MD Flag] * [ItemData Rec Perc Off Cur Rtl]) * [ItemData Committed Inv Units]) * [ItemData Orig Rtl Price])){~+} / Sum((([ItemData Taken MD Flag] * [ItemData Committed Inv Units]) * [ItemData Orig Rtl Price])){~+}
Taken Rec MDs	Sum(([ItemData Taken MD Flag] * [ItemData Accepted MD Flag]))
Taken Rtl	Sum(([ItemData Taken Md Price] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Taken Shallower MDs	Sum(([ItemData Taken Shallower Flag] * [ItemData Taken MD Flag]))
Taken Unit Inv	Sum(([ItemData Proj Units Oh Nw] * [ItemData Taken MD Flag]))
Target OH EOL	Sum([ItemData Target Inv Units Oh Eol])
Target ST Pct	Sum(([ItemData Target St Perc] * [ItemData Committed Inv Units])){~+} / Sum([ItemData Committed Inv Units]){~+}
Total Cost Inv	Sum(([ItemData Committed Inv Units] * [ItemData AUC]))
Total Cost Inv NW	Sum(([ItemData EOW Inv Units TW] * [ItemData AUC]))
Total EOW Inv	Sum([ItemData Committed Inv Units])
Total Inv	Sum([ItemData Committed Inv Units])
Total Inv NW	Sum([ItemData Inv Units NW])
Weekly Build LLLW	Sum([ItemData Sales Units LLLW]){~+} / Sum([ItemData Sales Units LLLLW]){~+}
Weekly Build LLW	Sum([ItemData Sales Units LLW]){~+} / Sum([ItemData Sell Through LLLW]){~+}
Weekly Build LW	Sum([ItemData Sales Units LW]){~+} / Sum([ItemData Sales Units LLW]){~+}
Weekly Build NW	Sum([ItemData Sales Units NW]){~+} / Sum([ItemData Sales Units TW]){~+}
Weekly Build TW	Sum([ItemData Sales Units TW]){~+} / Sum([ItemData Sales Units LW]){~+}
WOS	Sum(([ItemData Weeks of Supply] * [ItemData Sales Units LW])){~+} / Sum([ItemData Sales Units LW]){~+}
ST Pct LLW	Sum(([ItemData Sell Through LLW] * ([ItemData EOW Inv Units LLW] + [ItemData Sales Units LLW]))){~+} / Sum(([ItemData Sales Units LLW] + [ItemData EOW Inv Units LLW])){~+}
Taken MD Amt (Temp)	Sum(((([ItemData Taken MD Flag] * [ItemData Temp Md Flag]) * [ItemData Proj Units Oh Nw]) * ([ItemData Cur Rtl Price] - [ItemData Rec Rtl Price])))
Taken MU Pct	Sum((([ItemData Taken Md Price] - [ItemData AUC]) * ([ItemData Committed Inv Units] * [ItemData Taken Md Price]))){~+} / Sum(((([ItemData Rec Rtl Price] * [ItemData Committed Inv Units]) * [ItemData Taken Md Price])){~+}
Temp MDs	Sum([ItemData Temp Md Flag])