



Agile Product Lifecycle Management

MDS Configurator and Data Mapping Guide

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Preface

Oracle's Agile PLM documentation set includes Adobe® Acrobat PDF files. The [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technetwork/documentation/agile-085940.html) <http://www.oracle.com/technetwork/documentation/agile-085940.html> contains the latest versions of the Agile PLM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Agile PLM Documentation folder available on your network from which you can access the Agile PLM documentation (PDF) files.

Note To read the PDF files, you must use the free Adobe Acrobat Reader version 9.0 or later. This program can be downloaded from the [Adobe Web site](http://www.adobe.com) <http://www.adobe.com>.

The [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technetwork/documentation/agile-085940.html) <http://www.oracle.com/technetwork/documentation/agile-085940.html> can be accessed through **Help > Manuals** in both Agile Web Client and Agile Java Client. If you need additional assistance or information, please contact My Oracle Support (<https://support.oracle.com>) for assistance.

Note Before calling Oracle Support about a problem with an Agile PLM manual, please have the full part number, which is located on the title page.

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Readme

Any last-minute information about Agile PLM can be found in the Readme file on the [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technetwork/documentation/agile-085940.html) <http://www.oracle.com/technetwork/documentation/agile-085940.html>

Agile Training Aids

Go to the [Oracle University Web page](http://www.oracle.com/education/chooser/selectcountry_new.html) http://www.oracle.com/education/chooser/selectcountry_new.html for more information on Agile Training offerings.

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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Introduction

This chapter includes the following:

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In order to support enterprise reporting and analysis needs, accurate operational data encompassing millions of product records must be made available for use within analytics applications. This data must be organized and formatted in meaningful ways to support different query modes and ensure that business analysts derive the right information for decision making. Typically, Extract-Transform-Load (ETL) processes are used to reorganize source data before loading it into the target system. Field-level mappings can be done manually with the help of a configurator tool to resolve differences in field names.

The MDS Configurator tool described in this document allows you to map attributes from the Agile PLM application to fields in the data layer of the PLM Business Intelligence application.

Note When users open an object in Agile PLM Web Client or Java Client, they see a tabbed window with fields. These fields are called 'attributes' in Agile PLM. Detailed information on Agile PLM attributes is provided in the *Agile Administrator Guide*.

This document is intended for data warehouse administrators who are familiar with Agile PLM or Agile PLM administrators who have database warehousing skills.

MDS Configurator Overview

The PLM BI application queries data for reports and dashboards from the Multi-Dimensional Schema (MDS) database. The MDS database schema contains a set of tables and columns to support PLM business reporting and analytics requirements. The data for this MDS schema is sourced from Agile PLM.

Each customer defines fields in Agile PLM according to their business process requirements. The PLM BI application can retrieve accurate field data for analysis only if the data in the MDS fields and Agile PLM fields are synchronized. The MDS Configurator is an easy-to-use graphical interface that simplifies the process of mapping fields from Agile PLM to the tables and columns in the MDS database schema. These saved field-level mappings are used by the ETL process to load data into the target MDS database schema.

Note Refer to *Agile PLM Business Intelligence Setup Guide* for details on the Agile PLM BI architecture.

Acronyms Used in This Document

A list of acronyms used in this document is provided here for your reference.

Acronym	Expansion
BI	Business Intelligence
CAPA	Corrective and Preventive Action
CRM	Customer Relationship Management
DM	Data Mart
ECO	Engineering Change Order
ECR	Engineering Change Request
ETL	Extract-Transform-Load
FS	Fact Staging
MCO	Manufacturing Change Order
MDS	Multi-Dimensional Schema
NCR	Non-Conformance Report
OBIEE	Oracle Business Intelligence Enterprise Edition
ODI	Oracle Data Integrator
ODM	Operational Data Mart
PLM	Product Lifecycle Management
PLM BI	Product Lifecycle Management Business Intelligence
PLM DM	Product Lifecycle Management Data Mart
PPM	Product Portfolio Management
PQM	Product Quality Management
PR	Problem Report
SCM	Supply Chain Management

Acronym	Expansion
SS	Stop Ship

Accessing the Software

The MDS Configurator is a standalone executable that is provided along with the installation software for Agile PLM BI. When you install Agile PLM BI, the executable is automatically downloaded to the *bin* folder within the PLM BI installation directory on your computer. All dependent files are downloaded to the *lib* folder. Configuration files are in *config* folder and the configuration logs are stored in *log* folder.

For information on running the MDS Configurator, see [Running the MDS Configurator](#) on page 20.

Connection Information

The MDS Configurator uses database authentication to connect to the Data Mart and MDS databases. There are no additional database privileges required.

Connection information is maintained in the property file *<install dir>/config/BIDataLayerConfig.properties*. The password used for the connection is encrypted as per the prescribed Oracle Agile algorithm.

To change the password:

1. Run the *BIEncoder.bat* file available at the path *<install directory>\bin* and enter the password string for ODM / PLM BI MDS database users.
2. Copy the generated strings for ODM_PASSWORD and BI_PASSWORD respectively.
3. Open the *<install directory>\config\BIDataLayerConfig.properties* file where the password is initialized for the Data Mart database schema user and MDS database schema user.
4. Replace the copied strings as values for ODM_PASSWORD and BI_PASSWORD respectively.
5. Save changes and close the file.

Prerequisites

Before you run the MDS Configurator, you must ensure that the following prerequisites are met:

- Agile PLM BI is installed.
- JRE 1.5 is installed.
- DM and MDS Instances are running.

Related Documentation

Agile PLM BI product installation documentation and database schema documentation that you may

need as reference during the data mapping process are available on **Oracle Technology Network** <http://www.oracle.com/technology/documentation/agile.html>.

- *Agile PLM BI Setup Guide* - Describes the installation and deployment of BI product components.
- *Agile PLM BI Data Reference Manual* - Describes the entities of the published model of the MDS schema.

Data Mapping Process

The configuration capabilities of the MDS Configurator include the mapping of Cover Page, Page Two, Page Three, and Flex attributes of supported Agile PLM classes, as follows:

- MDS fact fields to PLM source fields.
- MDS dimension fields to PLM source lists that are assigned to PLM fields.

Data accessed by the tool is located in the MDS and ODM database tables.

Important Any changes to the Data Dictionary definitions in Agile PLM Datamart or MDS will impact the tool. Please refer to the latest published model as documented in the relevant *Data Reference Manual* available on **Oracle Technology Network** <http://www.oracle.com/technology/documentation/agile.html>.

The BI reports derive data from fixed target columns within the database tables. Using the MDS Configurator, the data elements in these target columns are mapped to the source columns from which data needs to be derived.

In order for the changes made in the MDS Configurator to take effect, actions must occur in the correct sequence:

1. Before you begin mapping, the PLM Data Mart ETL should have been run.
2. After you finish mapping, the MDS ETL should be run.

Note The MDS Configurator is purely a mapping tool. Data is retrieved and updated through the ETL processes. If there are any configuration mapping changes, MDS ETL is automatically set to Full Load. When you change the PLM version, set MDS ETL to 'Full Load' by using **ETL Configurations > Runtime Options**.

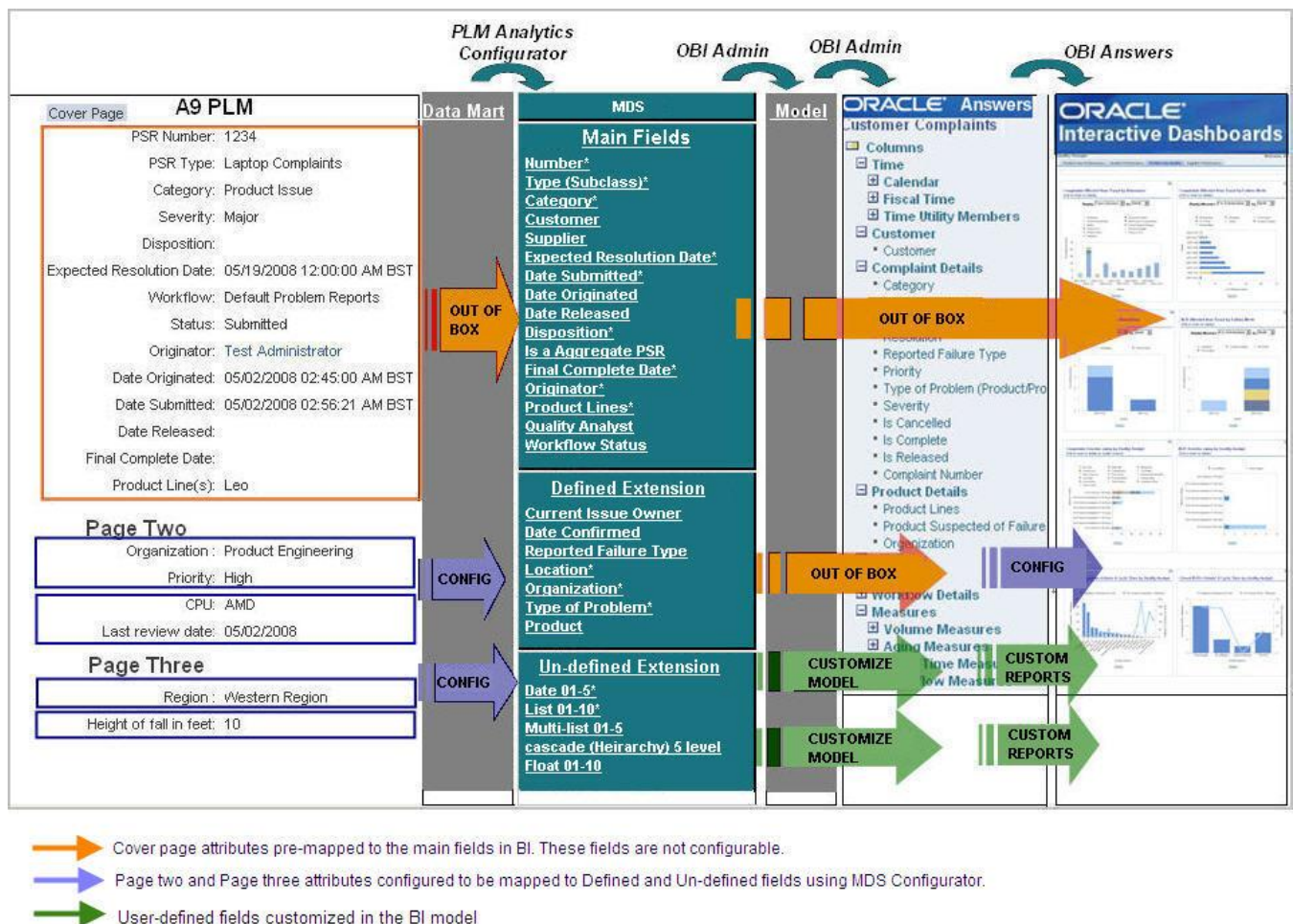
What's Configurable?

The MDS has 3 types of fields:

- **Main fields (Not configurable)** - These fields correspond to an object's Cover Page attributes in Agile PLM. Some Cover Page attributes such as text and multi-text fields are not relevant for analysis and are therefore excluded from the MDS. Since these fields have predefined meaning they are embedded in the OBIEE model and used to compute relevant predefined metrics. These are exposed in the presentation layer of the model as measures and dimensions. Reports created using these measures and dimensions are embedded in the out-of-the-box role-based and functional dashboards.

- **Defined extensions (Configurable)** - Defined extension fields in each fact or subject area capture important information about the subject area. They have predefined semantics and can be configured to Cover Page, Page Two, Page Three and flex attributes in Agile PLM. Out of the box, they are not mapped to any Agile PLM attribute. These defined fields are mapped as dimensions and measures in the OBIEE model.
- **User-defined extensions (Configurable)** - User-Defined extension fields in each fact or subject area can be used to capture important information about the subject area. They have predefined semantics and can be configured to Cover Page, Page Two, Page Three and flex attributes in Agile PLM. Out of the box, they are not mapped to any Agile PLM attribute. If you want to use these fields you need to customize the model. Contact your BI administrator for further information.

The following figure illustrates how each type of MDS field is mapped from one layer to the next, and shows the field that you can configure or customize. Additional configuration and customization can be performed using OBIEE Admin features.



Supported Mappings

The following table shows the data sources for the listed target MDS tables. The first column shows

the target MDS tables from which BI reports and dashboards take information. The second column shows the attribute groups from which data is sourced.

Target Fact Table	Supported Source Attribute Groups
Core Fact table (PR, NCR, CAPA, Audit, Change Orders, Change Requests, Manufacturing Change Orders, Stop Ship)	The following attributes corresponding to the respective Agile PLM Class (PR, NCR, CAPA, Audit, Change Orders, Change Requests, Manufacturing Change Orders, Stop Ship): <ul style="list-style-type: none"> □ Cover Page, Page Two attributes, Page Three attributes of sub-classes □ Flex attributes
Affected Item Fact Table (PR, NCR, CAPA, Audit, ECO, ECR, MCO, and SS)	All Attributes configured on the Affected Item tab. Excludes Item read-through attributes.
Core Fact Table (Mfr Part, Mfr)	<ul style="list-style-type: none"> □ Cover Page attributes, Page Two attributes, Page Three attributes of sub-classes □ Flex attributes
Core Fact Table (Item Mfr Part, Item Product Performance)	<ul style="list-style-type: none"> □ Item AML flex attributes □ Read through of dimensions configured on Item facts, Mfr Part fact
Single Materialized view consisting of sub-class (Audit, CAPA, NCR, PR, Change Order, Engineering Change Request, Manufacturing Change, Stop Ship)	Read through of dimensions configured on Item facts, sub-class facts
Core Fact Table (Gate)	<ul style="list-style-type: none"> □ Cover Page attributes, Page Two attributes, Page Three attributes of Gate sub-classes configured as Gate domain. □ Gate sub-class Flex attributes
Core Fact Table (Activity sub class - Program, Project, Phase, and Portfolio)	<ul style="list-style-type: none"> □ Cover Page attributes, Page Two attributes, Page Three attributes of Activity sub-classes configured as different domain values. □ Activity sub-class Flex attributes <p>Note For every supported domain (Program, Portfolio, and Phase), you can map only the sub-classes that are configured as domain attributes.</p>

Supported PPM-specific Mappings

PLM BI Configurator provides mapping ability to the following Agile Product Portfolio Management source data:

PLM BI Configurator		MDS Target table	
Configurator Subject Area	Mapping Description	Fact Table	Dimension Table
Portfolio	PLM BI Configurator provides the ability to map Cover Page/P2/P3/Flex	Portfolio fact PPM_PORTFOLIO_F	Portfolio Dimensional attribute

	attribute of any Activity sub-class. Choose the attributes relevant to the Portfolio domain sub-classes as configured in domain look up.		PPM_PORTFOLIO_D
Program	PLM BI Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity sub-class. Choose the attributes relevant to the Program domain sub-classes as configured in domain look up.	Program fact PPM_PROGRAM_F	Program Dimensional attribute PPM_PROGRAM_D
Project	PLM BI Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity sub-class. Choose the attributes relevant to Activities sub-classes that are considered as Projects according to the Phase domain configured in domain value lookup.	Project Summary fact PPM_PRJ_SUM_F	The Project dimensional attribute PPM_PROJECT_D
Phase	PLM BI Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity sub-class. Choose the attributes relevant to the Phase domain sub-classes as configured in domain look up.	Phase Gate fact PPM_PHASE_GATE_F	Phase dimensional attribute PPM_PHASE_D
Activity	PLM BI Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity sub-class.	Activity base fact PPM_ACTIVITY_F	Activity dimensional attribute PPM_ACTIVITY_D
Gate	PLM BI Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Gate sub-class. Choose the attributes relevant to the Decision Gate domain sub-classes as configured in domain look up or any Gate sub-class if you are planning to bring it across to Detailed	Phase Gate fact PPM_PHASE_GATE_F	Gate dimensional attribute PPM_GATE_D

	areas		
--	-------	--	--

Supported Data Types

The following table lists the data type mappings that are supported.

Target: MDS Table / Column Type	Source: Agile PLM Attribute Type
Dimension	List, multi-list, cascade, single-select dynamic list Note Cascade lists are not supported for PPM module in Agile PLM BI 3.2
Bridge	Multilist, multi-list cascade, multi-list dynamic
Date	Date
Number	Number
Float	Money

Using the MDS Configurator

This chapter includes the following:

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This chapter includes the following:

- Key Features
- [Running the MDS Configurator](#) on page 20
- Mapping PLM Attributes
- FAQs
- [Troubleshooting Guidelines](#) on page 28

Key Features

The MDS Configurator interface has two basic panes, the Subject Area pane on the left, and the Mapping Table pane on the right.

- **Subject Area** - Displays the Agile PLM module and its subject areas.

- **Mapping Table** - Displays the target and source destinations for all the PLM attributes that can be configured.

The screenshot shows the 'PLM BI MDS Configurator' window. On the left is a tree view of 'Subject Areas' including Common, Product Collaboration, Product Quality Management, and Product Portfolio Management. The 'Portfolio' sub-area is selected. The main pane displays a table titled 'Portfolio Fact' with the following columns: Target Column, Mappable PLM Attribute Type, PLM Attribute Name, Target Dimension Table, and Target Map Table. The table lists various attributes like PF_USRDEF_COST0 through PF_USRDEF_COST9, PF_USRDEF_DATE0 through PF_USRDEF_DATE4, PF_USRDEF_LIST0 through PF_USRDEF_LIST9, PF_USRDEF_NUMBER0 through PF_USRDEF_NUMBER9, and PPM_PF_USRDEF_ML00 through PPM_PF_USRDEF_ML04. The 'Target Map Table' column shows mappings for the last four rows to tables like PPM_PF_USRDEF_ML00_B, PPM_PF_USRDEF_ML01_B, PPM_PF_USRDEF_ML02_B, PPM_PF_USRDEF_ML03_B, and PPM_PF_USRDEF_ML04_B. At the bottom right are 'Validate', 'Save', and 'Cancel' buttons.

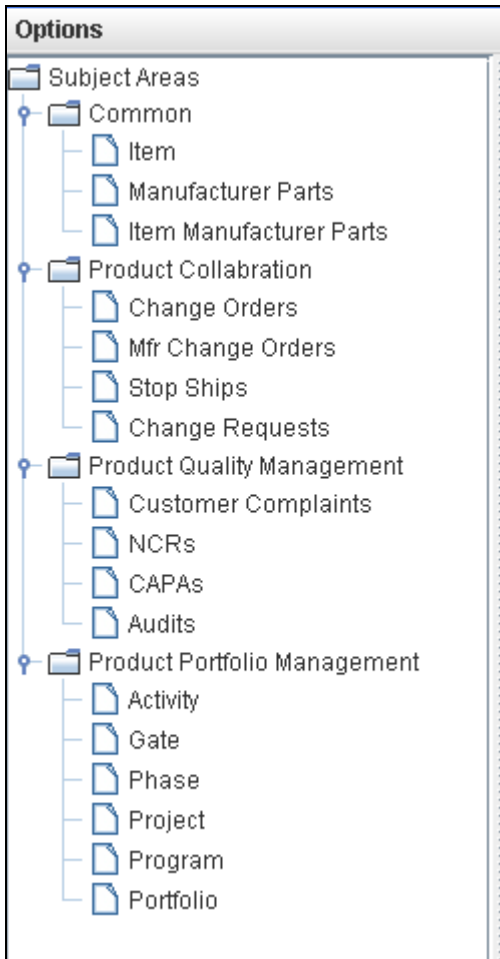
Target Column	Mappable PLM Attribute Type	PLM Attribute Name	Target Dimension Table	Target Map Table
PF_USRDEF_COST0	MONEY			
PF_USRDEF_COST1	MONEY			
PF_USRDEF_COST2	MONEY			
PF_USRDEF_COST3	MONEY			
PF_USRDEF_COST4	MONEY			
PF_USRDEF_COST5	MONEY			
PF_USRDEF_COST6	MONEY			
PF_USRDEF_COST7	MONEY			
PF_USRDEF_COST8	MONEY			
PF_USRDEF_COST9	MONEY			
PF_USRDEF_DATE0	DATE			
PF_USRDEF_DATE1	DATE			
PF_USRDEF_DATE2	DATE			
PF_USRDEF_DATE3	DATE			
PF_USRDEF_DATE4	DATE			
PF_USRDEF_LIST0	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST1	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST2	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST3	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST4	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST5	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST6	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST7	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST8	LIST		PPM_ACTIVITY_D	
PF_USRDEF_LIST9	LIST		PPM_ACTIVITY_D	
PF_USRDEF_NUMBER0	NUMERIC			
PF_USRDEF_NUMBER1	NUMERIC			
PF_USRDEF_NUMBER2	NUMERIC			
PF_USRDEF_NUMBER3	NUMERIC			
PF_USRDEF_NUMBER4	NUMERIC			
PF_USRDEF_NUMBER5	NUMERIC			
PF_USRDEF_NUMBER6	NUMERIC			
PF_USRDEF_NUMBER7	NUMERIC			
PF_USRDEF_NUMBER8	NUMERIC			
PF_USRDEF_NUMBER9	NUMERIC			
PPM_PF_USRDEF_ML00	MULTILIST			PPM_PF_USRDEF_ML00_B
PPM_PF_USRDEF_ML01	MULTILIST			PPM_PF_USRDEF_ML01_B
PPM_PF_USRDEF_ML02	MULTILIST			PPM_PF_USRDEF_ML02_B
PPM_PF_USRDEF_ML03	MULTILIST			PPM_PF_USRDEF_ML03_B
PPM_PF_USRDEF_ML04	MULTILIST			PPM_PF_USRDEF_ML04_B

The default values that appear in these panes can be customized as per customer requirements, as described in [Customizing the Interface](#) on page 12.

Understanding the Subject Area Pane

A Subject Area in this context is a group of configurable fact tables in the MDS schema. These tables correspond to subject areas of PLM Analytics modules within Agile PLM Business Intelligence.

The Subject Area pane consists of a hierarchical tree structure. The first level shows the Agile PLM module name, and the second level shows the supported subject areas for that module.



Each subject area can be associated with one or more Fact types. Each fact type appears as a tab on the right pane, where corresponding attributes are displayed.

Note In Product Portfolio Management, for the Program, Phase and Portfolio subject areas, the Cover page, Page Two, and Page Three attributes specific to the corresponding domains appear on the right pane. For example, the Phase subject area displays only the Phase-specific P3 attributes. For Gate, Activity and Project subject areas, the P3 attributes of all the sub-classes are displayed.

Understanding the Mapping Table

The right pane consists of a fact table in MDS where target and source information is displayed. Some target values are auto-populated. Source data for each column row needs to be selected manually from the options provided.

Target columns show the target field name and dimension table when applicable. User-defined

fields are prefixed with 'USR_DEF'.

Column	Description
Target Column	Column name within the Fact table in MDS schema to which the PLM Attribute is mapped.
Mappable PLM Attribute Type	Type of PLM Attribute (or Field) that can be mapped to the corresponding column in the Fact table. Possible Values: Number, Date, List, Multi-list, and Money.
PLM Attribute Name	Name of the PLM Attribute (or Field) that is mapped to the corresponding column in the Fact table.
Target Dimension Table	<p>Name of the dimension table in the target MDS schema. It is used only if the PLM Attribute Type is "List" or "Multi-List".</p> <p>Note The user cannot change the Target Dimension Tables for the user-defined "List" attributes of PPM, as all the user-defined columns for PPM are maintained in a single dimension table. Refer Agile PLM Data Reference Manual for the database tables.</p>
Target Map Table	Name of the bridge table in the target MDS schema. It is used only if the PLM Attribute Type is "Multi-List".

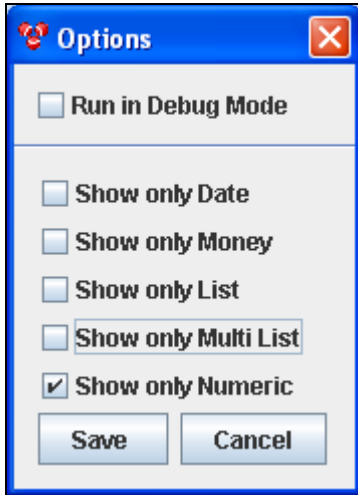
Customizing the Interface

The data elements of the user interface can be customized for your requirement. The settings that can be customized are described in the following table. All configuration files are located at the following path: <install directory>\config

To configure this setting	Edit this file
User Interface button names Table column headers	Messages_en_US.properties
Logging levels	log4j.properties

Setting Display Preferences

The **Options > Preferences** menu enables you to view target columns selectively. The right pane displays the columns from the Base Fact or Affected Items Table pertaining to a chosen subject area. You can choose to view columns with Date, Money, List, Multi-List or Numeric attribute types.



To set the display preferences:

1. Click **Options > Preferences**
2. Select the attribute types to show in the right pane.
3. Click **Save**.

Note Select **Run in Debug mode** to view the Source columns corresponding to the displayed Target columns in the right pane.

Extending User-defined (Configurable) Fields

The **Options > Add user-defined Fields** allows you to increase the number of the available user-defined (configurable) fields in the schema.

If the available user-defined configurable fields in the tables are not sufficient to accommodate the business requirements, you can add columns to enhance the MDS Schema. The supported attribute types are Date, List, Number, Money or Multi-List columns.

To add new user-defined columns in the MDS Schema:

1. Click **Options > Add user-defined Fields**. The **Schema Enhancer** dialog box appears:

Subject Area Name	Available Date Columns	New Date Columns	Available List columns	New List columns	Available Number columns	New Number columns	Available Money columns	New Money columns	Available Multi List columns	New Multi List columns
Product Quality Management-->Complaints -->Affected Items	5		18		10		10		9	
Common --> Manufacturer Parts --> Base Fact	6		28		19		13		10	
Product Collaboration --> Stop Ships -->Affected Items	5		16		10		16		0	
Product Collaboration --> Change Orders -->Base Fact	9		19		11		14		13	
Product Portfolio	6		11		1		12		7	

☐ Generate Revoke File

The dialog box lists the tables which have Date, List, Number, Money, and Multi-List columns and the count of each of these columns for every table.

2. In the **New** columns cell, enter the number of additional columns of the attribute type you need in the table.
3. Click **Generate SQL File** to generate the SQL script that enables you to alter the tables to include the additional columns.
4. Save the generated file with a .sql extension.
5. Run the generated SQL file manually on the MDS database schema user, to include the additional user-defined columns in the specific table. The configurator displays the new columns as rows.

Note Select **Generate Revoke File** checkbox to generate a script that retains the existing table structure. If you want to reverse the addition of new fields, execute the revoke file.

Starting PLM BI 3.2, you can associate PPM sub classes with domains such as Portfolio, Program, Project, and Phase. Agile PPM allows you to create multiple sub classes within the Activity class. You can associate more than one of these sub classes to a specific domain. The differentiation of the attributes specific to each of these similar sub classes requires the addition of Fact Staging (FS) tables in the schema design. Refer to the *Agile PLM BI Data Reference Manual* for information.

The ETL propagates data from the Source to the FS tables and then to the target Fact tables. The Schema Enhancer generates scripts to create additional columns for Fact tables, FS tables, and Dimension tables. It also generates appropriate meta data information for the Dictionary table.

Adding User-defined Dimension Tables to the Schema

If the available dimension tables in the MDS schema are not sufficient to accommodate the business requirements, you can manually add new user-defined dimension tables.

To add new user-defined dimension tables to the schema:

1. Create new dimension tables in MDS Schema with the following structure:

```
CREATE TABLE USRDEF_L<xxx>_D
(
    USRDEF_L<XXX>_ID      NUMBER(22)          NOT NULL,
    NAME                  VARCHAR2(4000 CHAR)  NOT NULL,
    LEVEL0                NUMBER(22) ,
    LEVEL1                NUMBER(22) ,
    LEVEL2                NUMBER(22) ,
    LEVEL3                NUMBER(22) ,
    LEVEL4                NUMBER(22) ,
    LEVEL0_NAME           VARCHAR2(256 CHAR) ,
    LEVEL1_NAME           VARCHAR2(256 CHAR) ,
    LEVEL2_NAME           VARCHAR2(256 CHAR) ,
    LEVEL3_NAME           VARCHAR2(256 CHAR) ,
    LEVEL4_NAME           VARCHAR2(256 CHAR) ,
    USRDEF_TEXT0           VARCHAR2(256 CHAR) ,
    USRDEF_TEXT1           VARCHAR2(256 CHAR) ,
    USRDEF_TEXT2           VARCHAR2(256 CHAR) ,
    USRDEF_DATE0           DATE,
    USRDEF_DATE1           DATE,
    USRDEF_DATE2           DATE,
    USRDEF_NUMBER0         NUMBER,
    USRDEF_NUMBER1         NUMBER,
    USRDEF_NUMBER2         NUMBER,
    LAST_MODIFIED_DATE     DATE,
    LIST_ID                NUMBER(22) ,
    ENABLE                 NUMBER(1)           DEFAULT 1,
    INTEGRATION_ID         VARCHAR2(80 CHAR) ,
    ROW_ID                 NUMBER(22) ,
    DATASOURCE_NUM_ID      NUMBER(22)
)
```

Note The name of the table should start with USRDEF. XXX is the number

2. Add the newly created table name as an XML element into <installdir>\config\Configurator.xml

```
<usrdimensionTables>
<!--Existing entries
<list name="USRDEF_L01_D" dimcol="USRDEF_L01_ID"/>
<list name="USRDEF_L02_D" dimcol="USRDEF_L02_ID"/>
<list name="USRDEF_L03_D" dimcol="USRDEF_L03_ID"/>
<!--New Entry-->
<list name=" USRDEF_L<xxx>_D " dimcol=" USRDEF_L<XXX>_ID"/>
</usrdimensionTables>
```

3. Save the Configurator.xml file.

Setting up the ETL Run Time Configuration

PPM provides a flexible project management platform to organize your projects in a way that suits your business and operations. However, to obtain meaningful analytical reports on your projects, Agile PLM BI recommends that you organize your projects according to structured templates. These templates are an outcome of proven best practices in project management. For information on these best practices, see *Agile PLM BI User Guide*. The comprehensive out-of-the-box reports in Agile PLM BI Analytics are based on these best-practice templates.

In Agile PLM-PPM, Activity and Gate are the two Classes in PPM. You can configure the sub divisions in your project as sub classes of the Activity or Gate Classes. These user-configured sub classes need to be mapped into one of the following domains, so they adhere to the best practice templates:

- Portfolio
- Program
- Phase
- Decision Gate

Agile PLM BI uses domain values to determine Portfolio, Program, Project, Phase, Tasks, and Decision Gates to report and analyze against the Subject Areas.

Projects and Tasks are identified using the Phase domain value. An activity that is one level above a Phase is considered a Project, and activities that are one or more levels below a Phase are considered Tasks. Decision gates for a project are identified using the Decision Gate domain values.

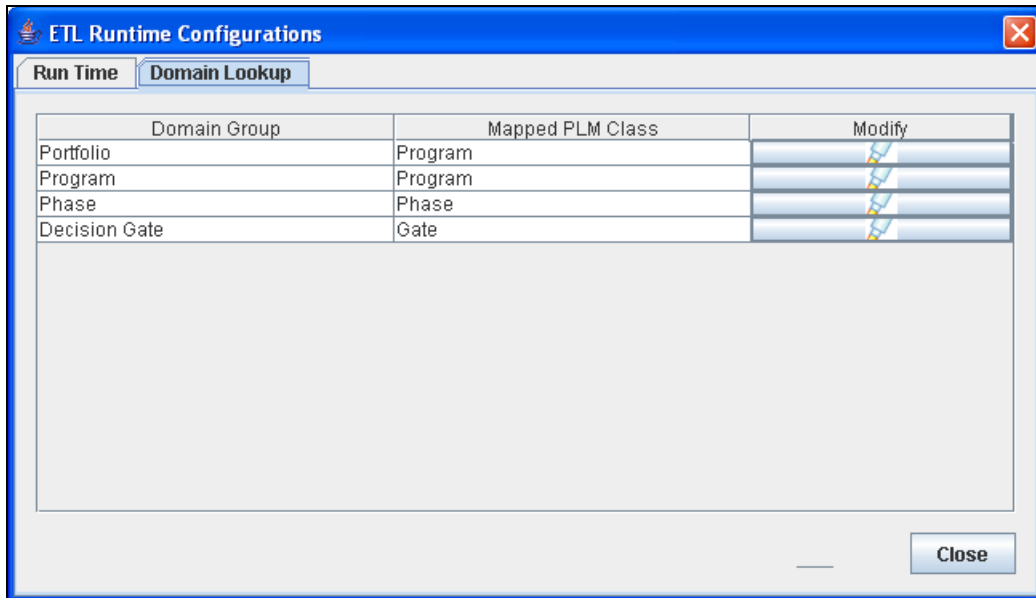
A root Project in PLM can be identified as a Project in PLM BI only if you configure domain values. If you do not configure domain values, the ETL run does not populate the Phase-Gate Fact table and you receive a warning notification on email.

The ETL Runtime Configuration window enables you to:

- Configure the Domain values for all the sub classes using **Domain Lookup** tab
- Set the ETL properties at run time using the **Run Time** tab

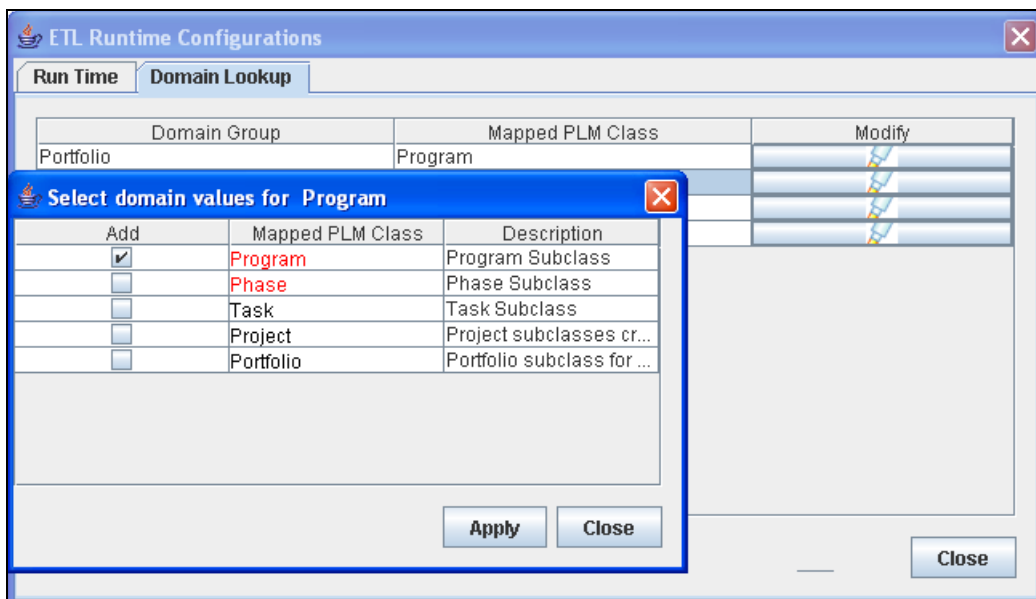
To configure the Domain values:

1. Click **Options > ETL Configurations**. The ETL Run Time Configuration Window appears as follows:



In the **Domain Lookup** tab, the **Domain Group** column lists all the available domain groups. The **Mapped PLM Class** column displays the PLM sub classes mapped to the domain groups.

2. Click the **Add** icon on a domain group row. This is the domain group for which you want to configure a corresponding PLM subclass. Example: Program. The Select Domain values for Program popup window appears:



The sub classes displayed in the **Select Program Domain Values** popup window are specific to the

Activity class. This applies to Project, Portfolio, and Phase Domain Groups.

Note If you had clicked the Add icon on the Gate Domain Group row in the **Domain Lookup** tab, only sub classes specific to the Gate class appear in this window.

3. Select the checkbox in the Add column to choose the PLM subclass.

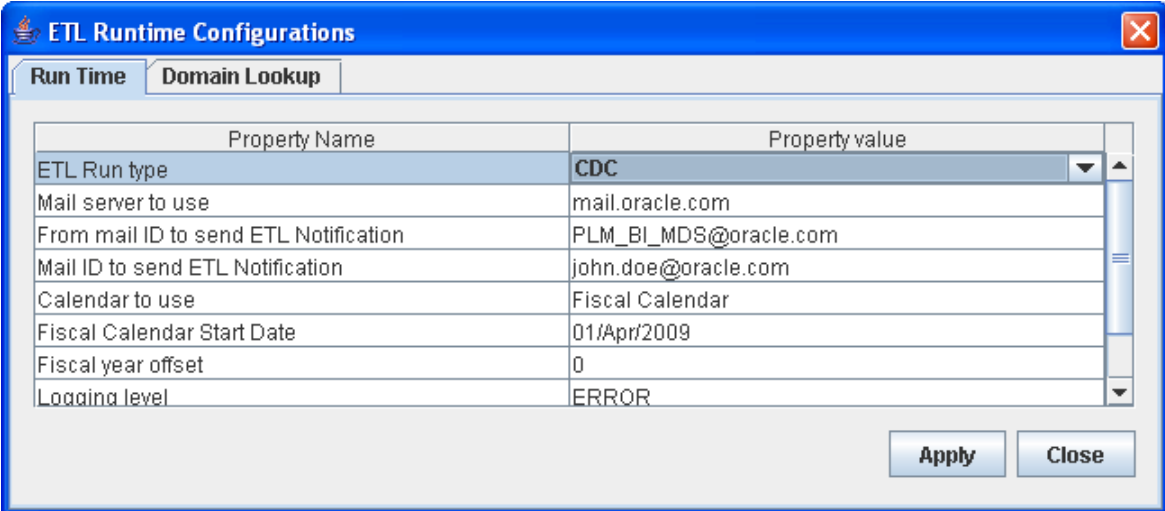
Note You can select any sub class that belongs to Activity class.

4. Click **Apply**.

The selected PLM subclasses are appended into the target domain group and saved into the database. If a subclass is already mapped to another domain, a warning message appears. If you are a 9.2.2.x user, it is recommended that you create separate sub classes for your 'Program' and 'Portfolio', and configure both these subclasses to 'Program' domain. This ensures meaningful analytical reports.

To set the ETL run time properties:

1. Click **Options > ETL Configurations**. The **ETL Runtime Configuration** Window appears.
2. Click the **Run Time** tab. The ETL Runtime properties are displayed as follows:



Property Name	Property value
ETL Run type	CDC
Mail server to use	mail.oracle.com
From mail ID to send ETL Notification	PLM_BI_MDS@oracle.com
Mail ID to send ETL Notification	john.doe@oracle.com
Calendar to use	Fiscal Calendar
Fiscal Calendar Start Date	01/Apr/2009
Fiscal year offset	0
Logging level	ERROR

Note **Calendar to use** parameter:

Note Time utility members which are available out of the box, use **Fiscal** calendar by default. You need to set this parameter to 'Gregorian' if you want to change the calendar type to Gregorian Calendar.

3. Double-click on the Property value column against a Property Name.
4. Enter or modify the ETL Run time property.
5. Click **Apply**.

These properties are applied when you run the ETL.

ETL Run Time Properties

Property	Description
ETL Run type	You can set this property to run ETL as Full Load or Incremental Load. When you use configurator for new mappings, the ETL run type is always "Full Load" irrespective of the value of this property.
Mail Server to Use	Enter a valid Mail Server Name. This is the server used to send email notifications on the ETL execution status.
From Mail Id to send ETL Notification	Enter the Email id from which the ETL execution status emails are to be sent.
Mail Id to send ETL Notification	Enter the email ids of the users who need to receive emails of the ETL execution status.
Calendar to Use	Time Utility Members use Fiscal as the default calendar. You can change this parameter manually if you want to use Gregorian calendar.
Start Fiscal Year	Enter the start date of the Fiscal year. This setting allows you to perform analysis of Business Intelligence data based on your organization's fiscal or calendar year.
Fiscal year offset	<p>This parameter specifies the offset for the fiscal calendar year with reference to the Gregorian calendar year. Possible values are:</p> <p>0-Fiscal year of the Fiscal calendar is same as the Gregorian Calendar year</p> <p>1-Fiscal year of Fiscal calendar is a year ahead of the Gregorian Calendar year</p> <p>-1-Fiscal year of Fiscal calendar is one year behind Gregorian Calendar year</p> <p>For example, if your fiscal calendar year 2009 starts on 4/1/2008, set the value of the fiscal year calendar to '1'.</p>
Logging Level	This parameter indicates the debugging level required to log the run time ETL messages into the VLOG table.
Snapshot Type	<p>Select the Snapshot Frequency Type. Agile PLM BI uses this setting to perform analysis of BI data based on the Snapshot of Project Summary.</p> <p>Weekly: Snapshot Fact table is populated every week.</p> <p>Monthly: Snapshot Fact table is populated every</p>

	month. No Snapshot: Snapshot Fact table is not populated.
Snapshot to run on	Select the Snapshot Frequency day. This setting is used to perform analysis of BI data based on the Snapshot of Project Summary. Select any day using drop down box (1-31), which is used to run ETL for the snapshot of Project Summary table. If the selected Snapshot Frequency day is not in that month, then the snapshot frequency day would be taken as the last day of that month.

Running the MDS Configurator

To run the MDS Configurator:

1. Navigate to the *bin* folder within the PLM BI installation folder.
2. Double-click the *Configurator.bat* file. (On Solaris/Linux, run *Configurator.sh*). The MDS Configurator interface is displayed.
3. Once you finish making your changes, click Save to save your changes.
4. To exit the MDS Configurator, click **Cancel**.

Mapping PLM Attributes

In order to perform an accurate mapping of PLM attributes, you need a thorough understanding of the Agile PLM classes and attribute definitions in the source environment. You must be a power user of the Agile JavaClient.

Before you begin:

- Make sure you have a complete working environment that includes the following layers:
 - Agile PLM JavaClient
 - Agile PLM Data Mart
 - Agile PLM MDS schema and ETL components
- To verify the mapping, keep any database SQL editor open.
- Understand the color coding used in the Configurator:
 - Blue text : Indicates attributes that have already been mapped.
 - Red text: Indicates attributes that are disabled in PLM.
- Keep a copy of the *Agile PLM BI MDS Data Reference Manual* handy to verify target tables used by the BI Reports. You can download this manual from **Oracle Technology Network**


<http://www.oracle.com/technology/documentation/agile.html>.

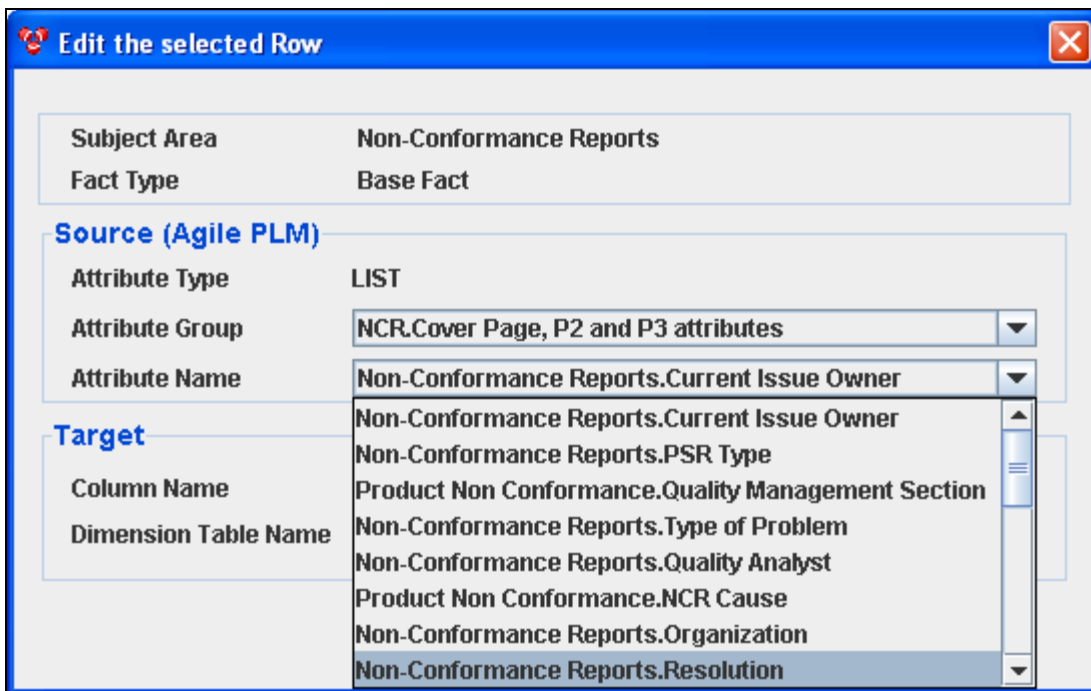
To map attributes:

In the Agile Java Client Admin module:

1. Open the **Setting > Data Setting > Classes** node.
2. Open the class or subclass tab from which you wish to source attributes for the MDS target tables.
3. Under **User Interface Tabs**, select an attribute group, for example, Page Two.
4. View the attributes and enter details in the Mapping Reference Sheet provided at the end of this manual.

In the MDS Configurator:

5. In the left pane, expand the subject area category node and click the subject area corresponding to the Agile PLM class. For example, under **PQM**, click **NCR**.
6. Choose the **Base Fact** or **Affected Items** tab in the right pane as applicable.
7. Select the Target Column row for the attribute type you wish to map, and click . This opens an **Edit the selected Row** dialog. You can also simply right-click on a target cell to open this dialog.



Edit the selected Row	
Subject Area	Non-Conformance Reports
Fact Type	Base Fact
Source (Agile PLM)	
Attribute Type	LIST
Attribute Group	NCR.Cover Page, P2 and P3 attributes
Attribute Name	Non-Conformance Reports.Current Issue Owner
Target	
Column Name	Non-Conformance Reports.Current Issue Owner Non-Conformance Reports.PSR Type Product Non Conformance.Quality Management Section Non-Conformance Reports.Type of Problem Non-Conformance Reports.Quality Analyst Product Non Conformance.NCR Cause Non-Conformance Reports.Organization Non-Conformance Reports.Resolution
Dimension Table Name	

8. In the **Edit the selected Row** dialog, select options from the drop-down lists to map the field or column to PLM attributes as per the details you entered in the mapping reference sheet:
 1. In the **Attribute Group** list, select the PLM attribute group from which you wish to source attributes. The list of attribute groups is different for Base Fact and Affected Items. For

details, see Supported Mappings.

2. In the **Attribute Name** list, select the attribute name that you want to map. The list shows the options that you have enabled in JavaClient. If a list ID has already been mapped to a target dimension table, only those attributes associated with the same list ID are displayed for selection.

If you choose a user-defined list, you are now provided the option to map it to a target dimension table. This is not applicable to user-defined list attributes of PPM.

Note The Attribute Name list displays only the attribute names that correspond to the Attribute Group you select.

3. From the **Dimension Table Name** list, select a target dimension table for the mapping. You can map the same list /multi-list attribute to any number of target dimension table names, but a list ID can be associated with only one target dimension table. You cannot map a cascade list to any user-defined list.
 4. Click **OK**.
9. Click **Save** to save your changes.

Note If you are a 9.2.2.7 user, you need to configure the multi-list attribute in PPM_ACTIVITY_PLM_REFERENCE table, for Program or Portfolio analysis. This multi-list attribute is available in **PPM > Activity > Activity Fact** Tab.

Validating Mappings

To validate the attribute mappings that you have done, click **Validate**. Errors, if any, are displayed in the **Errors and Warnings** dialog that appears, and also logged in the Configurator.log file located in <install directory>/logs/. To save the errors to a .csv file, click **Save to File**.

When you click **Validate**, the MDS Configurator returns an error or a warning if any of the following conditions are met:

- **Column already used for mapping** - An Agile PLM attribute is mapped to more than one target column in MDS.
- **Attribute disabled in PLM after configuration** - A previously mapped Agile PLM attribute is now disabled in Agile PLM.
- **List modified in PLM after configuration** - An Agile PLM attribute previously configured to a conforming dimension has been modified in Agile PLM to use a non-conforming source list.

If you get any of these errors, change the mapping for the attribute identified in the error message.

Validating Data

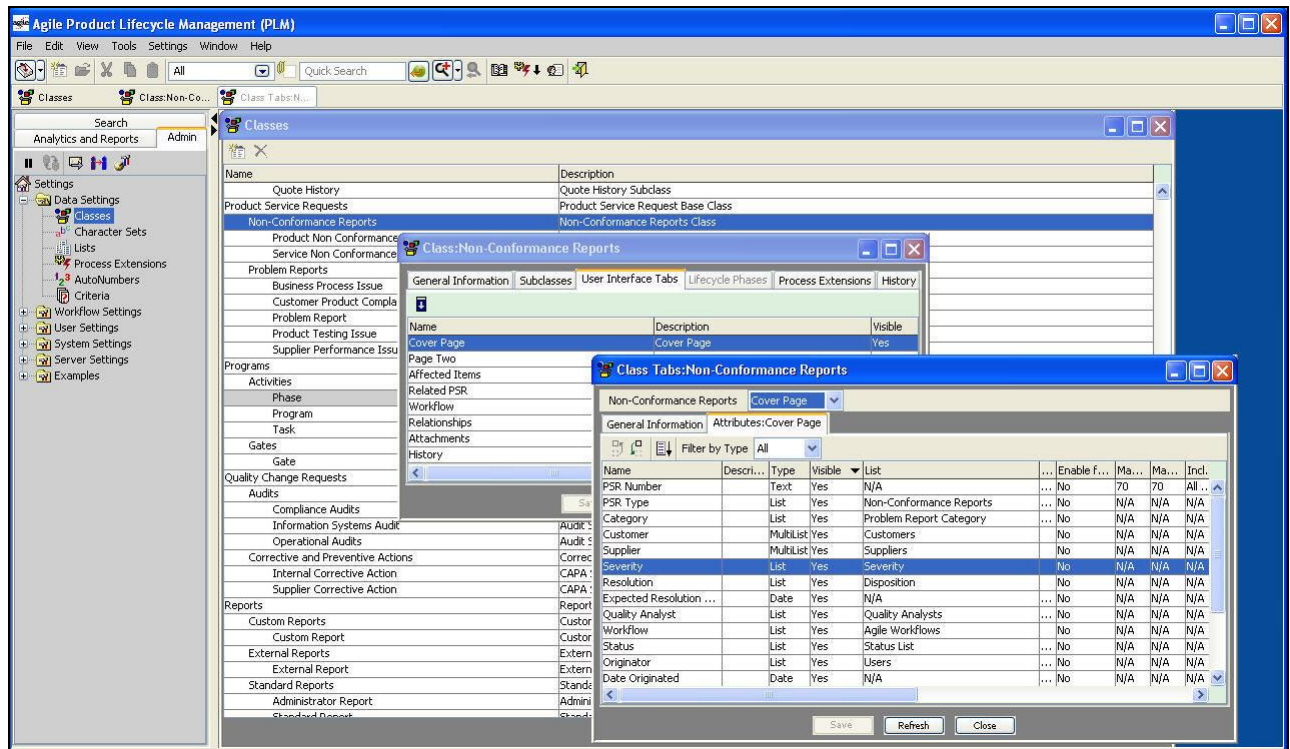
Once you finish mapping, run the MDS ETL (full load) to make sure data loads from the source tables in Agile PLM Data Mart to MDS as per your mapping. To learn how to run the ETL, see **Executing ETL** on page. Once the MDS ETL is run, data is loaded into the newly configured tables.

After the ETL run, use any database SQL editor to connect to the MDS database and verify the records in the target table.

Example Workflow

In this example, you can see how a Non-Conformance Report - Cover Page attribute is mapped to a user-defined field in the Non-Conformance Reports Base Fact table.

The configuration in PLM is as follows:




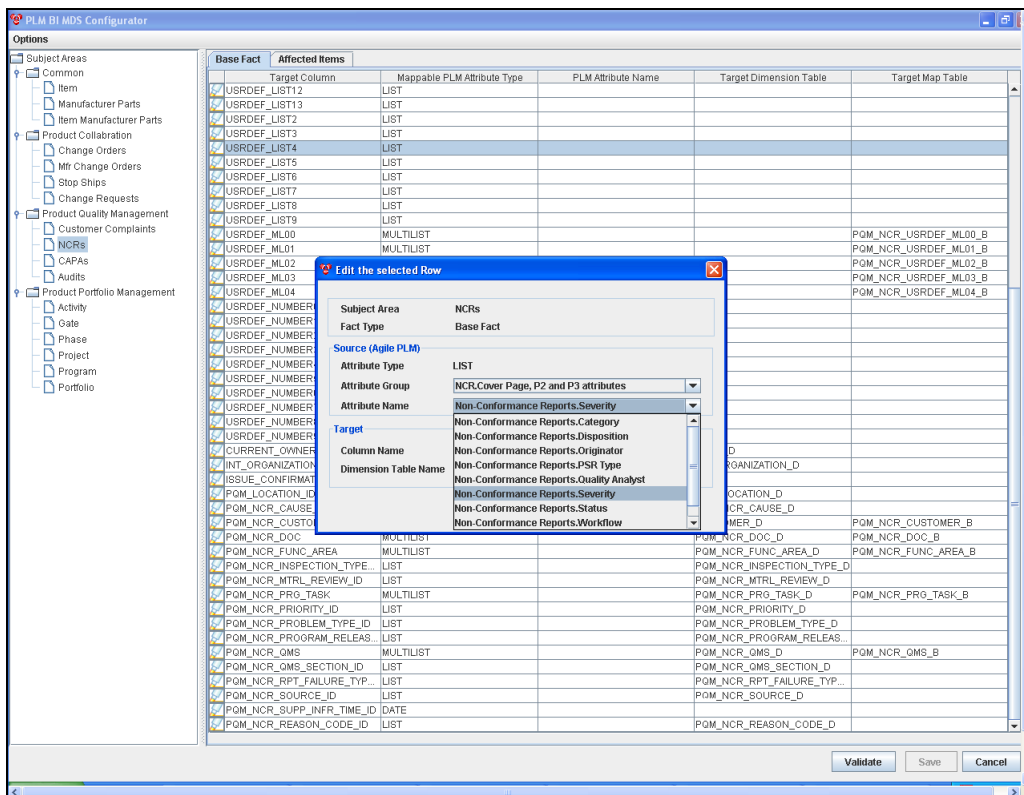
The mapping that you need to perform is defined as follows in the mapping reference sheet.

Target Field / Column	Target Attribute Type	Target Dimension Table	Agile PLM Source Attribute	Source Attribute Type	Agile PLM Source Class	Agile PLM Source Subclass
USRDEF_LIST04	LIST	USRDEF_LO4_D	Severity	List (Cover Page)	Product Service Requests - Non-Conformance Reports	Non-Conformance Reports

To map attributes:

1. Open the MDS Configurator.
2. In the **Subject Area** pane, expand the **PQM** module node and click the **Non-Conformance Reports** subject area.
3. Choose the **Base Fact** tab.

4. Select the target column row **USRDEF_LIST04**, and click .
5. In the dialog that opens, select the following options from the drop-down list:
 1. In the **Attribute Group** list, select **NCR.Cover Page, P2 and P3 attributes**.
 2. In the **Attribute Name** list, select **Non-Conformance Reports. Severity**. The list shows the attributes that are enabled in JavaClient.
 3. In the **Dimension Table Name** list, select **USRDEF_LO4_D**.
 4. Click **OK**.



6. Click **Save**.
7. Click **Validate**.
8. Once you finish mapping, run the MDS ETL as described in **Executing ETL** on page .
9. Use any database SQL editor to connect to the MDS database and verify the records in the target table column.

Executing ETL

To load data into MDS from the Agile PLM source database, you must execute a data integration task using Oracle Data Integrator Operator. For complete information on installation and usage of ODI, refer to the ODI documentation available for free download at

<http://www.oracle.com/technology/documentation/index.html>

Within ODI, to view the status of all the tasks that are under execution, increase the Operator Display Limit to 1000 (the default value is 100). To do this, in ODI Operator, go to **File > User Parameters > Set Operator Display Limit**, and set the value for Operator display limit as 1000.

To execute ETL from ODI:

1. Launch ODI Operator and login using authentication details for the ODI session created during the Data Mart installation.
2. In the **Scenarios** tab, view the components listed in the left frame. Right-click on **MDS_ETL_LOAD Version 001** and click **Execute**. A **Variables** window appears.
3. Under Context, select **MDS**.

Note To execute ETL for MDS and DM from ODI, execute the component **ANALYTICS_ETL Version 001** and select MDS under Context.

4. Click **OK**. A Sessions Started window appears.
5. Click **OK**. The ETL process begins.

To execute ETL from the Windows Command Prompt:

1. Change directory to navigate to the *bin* folder in your Data Mart Home Directory, for example, *d:\PLMdatamart\bin*
2. Enter the following command:

```
startdm MDS_ETL_LOAD 001PLMDM
```

where

startdm is the batch file that executes ETL tasks

MDS_ETL_LOAD is the ETL task

001 is the version number of ETL task

MDS is the ETL context

The ETL process starts.

Note After the Configurator Changes, the MDS ETL runs in FULL ETL mode.

To view the status of the ETL process:

1. Log on to ODI Operator.
2. In the **Sessions List** tab, select **All Executions** in the left frame to view all running tasks.
Alternatively, in the **Hierarchical Sessions** tab, select **Status** or **All Executions** in the left frame to check overall progress.

FAQs

Answers to some frequently asked questions are provided here for your reference.

Frequently Asked Questions

1. **Why are some PLM attributes not appearing in its attribute options list for mapping?**
All attributes that are defined in the PLM database are not available for selection. Only those attributes that have corresponding mapping information defined in the Data Mart tables are displayed.
2. **Can I map disabled attributes using the Configurator?**
The Configurator does not support the mapping of disabled attributes. If a previously mapped attribute is subsequently disabled in PLM, the mapping is highlighted in red for your attention.
3. **Why am I prompted to select a target dimension table only for certain attributes?**
You can change the target dimension table only for list, multi-list, and user-defined attributes. For conforming dimension tables, you can only change the attribute name. In PPM module, you can change the target dimension table only for multi-list attributes.
4. **Why do some of the dimension table names in the list appear in blue?**
This indicates that the dimension table has already been mapped for the selected attribute.
5. **Only a few PLM attributes are displayed for the predefined dimension table names. Why?**
Some List IDs may already have been mapped to a predefined dimension table in another row or tab. In this case, only the attributes for the same List ID are displayed. A target dimension table can be mapped to only one List ID.
6. **Can I start the Configurator before the ODM ETL process runs?**
Yes, but Flex attributes will not be available for mapping.
7. **Can I use the Configurator while the MDS ETL is running?**
This is best avoided as it can interfere with the ETL process.
8. **Why are some of my flex attributes not displayed in the MDS Configurator?**
Newly created flex attributes should have been entered in the new columns using the Agile JavaClient or WebClient in order to be picked up by the ODM ETL process. Unless this is done, these attributes will not appear in the MDS Configurator.
9. **Will my changes to Agile PLM configuration require any changes to existing mappings?**
After you finish the initial mapping of PLM attributes, you will need to update the mappings whenever a mapped attribute is changed or disabled in Agile PLM.
10. **I have PLM BI 3.0 installed in my machine. What do I need to know specific to MDS Configurator, before I begin upgrading to PLM BI 3.1?**
You need to take a manual backup of the configuration files and BI data dictionary table in MDS schema before you upgrade to PLM BI 3.1. For more information, refer *Agile PLM BI Setup Guide*.
11. **What is the difference between MDS Configurator versions 3.0 and 3.1?**
In MDS Configurator 3.1, the Affected Items Fact table does not support Read-through attributes.
12. **When I upgrade to MDS Configurator 3.1, what happens to the configurations done using MDS Configurator 3.0?**
See Upgrade considerations section in *Agile PLM BI Setup Guide*.
13. **In MDS Configurator, if I need more mappable fields what should I do?**

Use Options > Add user-defined fields menu to add more user-defined configurable fields. See Extending user-defined (Configurable) fields.

14. Can I extend the number of User-defined dimension tables using MDS Configurator?

No. For information on adding user-defined dimension tables to MDS Schema using MDS Configurator, refer section, **Adding User-defined dimension tables to the Schema**.

The MDS Configurator supports only the extension of columns in Fact tables and creation of corresponding bridge tables (wherever applicable).

15. How do I get more elaborated logging messages in my log file?

MDS Configurator uses Apache log4j libraries for logging messages. You can change log4j.properties file with different logging level (INFO, DEBUG, WARN, ERROR) to control the type of messages logged in the log file.

For further information see Apache log4j at <http://logging.apache.org/log4j/1.2/manual.html>

16. When I upgrade from PLM BI 3.0 to PLM BI 3.2, can I retain all configurations done using the 3.0 version of the MDS Configurator?

Yes. It is possible to retain all the configurations done using the 3.0 version of the MDS Configurator when you upgrade from PLM BI 3.0 to PLM BI 3.2.

17. What is the difference between PLM BI 3.1 and PLM BI 3.2?

Agile PLM BI 3.1 Configurator	Agile PLM BI 3.2 Configurator
Maps the columns directly to the target fact table.	For PPM subject areas, Agile PLM BI 3.2 Configurator populates a Fact Staging Table (FS) and then the ETL populates the target fact table.
Domain value lookups do not exist.	The Portfolio, Phase, Program, and Gate subclasses are configured as a domain using domain value look-up.
Users can map cascade list to the target list columns.	Users cannot map cascade list to the target list columns for PPM tables.
Users can change the target dimension tables for the user-defined list of attributes.	Users cannot change the target dimension tables for the user-defined list of PPM attributes.

18. Why do we have domain value lookup in PLM BI 3.2?

You can configure your own PPM subclasses in Agile PLM. These subclasses can be used as Program, Project, and Portfolio according to the needs in your organization. You need to map these configured subclasses into respective domains to obtain meaningful reports.

19. What happens if I do not configure domains?

If you do not configure domain values, the ETL run does not populate values in the Phase-Gate Fact Table. You will receive a WARNING email notification indicating that you have not configured Phase and Gate.

20. What are the mandatory domain values that need to be configured for PPM?

You need to configure the Program, Portfolio, Phase and Decision Gate domain values for PPM.

Troubleshooting Guidelines

Some common errors that can occur while using the MDS Configurator are outlined here along with suggested resolution.

1. **The System cannot find the file specified.**

Check if any of the following files are missing under the `<install.dir>/config` directory. If any are missing, reinstall BI.

- *BIDataLayerConfig.properties*
- *Configurator.xml*
- *Configurator.xsd*
- *log4j.properties*
- *Messages_en_US.properties*

2. **TNS:listener does not currently know of SID given in connect descriptor.**

Ensure that the SID provided in the following token within the *BIDataLayerConfig.properties* file is the same as the database SID.

```
TGT_DB_URL =jdbc:oracle:thin:@<machine name>:<port number>:<SID>
```

3. **Invalid username/password; logon denied.**

Check if the following tokens reflect the right user name and password information in the *BIDataLayerConfig.properties* file:

- ODM_UN - user name for Data Mart database schema
- ODM_PASSWORD - password for Data Mart database schema user
- BI_USER_NAME - user name for MDS database schema
- BI_PASSWORD - password for MDS database schema user

Encode the Data Mart and MDS passwords and compare the values with the ODM_PASSWORD and BI_PASSWORD.

4. **TNS:listener could not hand off client connection.**

or

Error while saving records.

Test your database connection and make sure the database server is up.

5. **userid: following logging levels are used in application**

userid: fatal - The FATAL level designates very severe error events that will presumably lead the application to abort

INFO-The INFO level designates informational messages that highlight the progress of the application at coarse-grained level.

ERROR-The ERROR level designates error events that might still allow the application to continue running.

DEBUG-The DEBUG Level designates fine-grained informational events that are most useful to debug an application.

Mapping Reference Table

Use the following table to enter attribute information so that you can refer to it while performing the mapping in the MDS Configurator. The first row is filled in as an example.

#	Target Field / Column	Target Type	Target Dimension Table	Agile PLM Source Attribute	Source Attribute Type	Agile PLM Source Class	Agile PLM Source Subclass
0	USRDEF_LIST01	LIST	USRDEF_LO1_D	Partner Type	Page 3 List	Problem Reports	Partner Complaints
1							
2							
3							
4							
5							
6							
7							
8							

