Oracle Product Lifecycle Analytics

Configurator and Data Mapping Guide

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Oracle Product Lifecycle Analytics/Configurator and Data Mapping Guide, Release 3.5

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Contents

Preface

Agile PLM is a comprehensive enterprise PLM solution for managing your product value chain.

Audience

This document is intended for administrators and users of the Agile PLM products.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

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 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.

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.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction

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 users 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 data mappings need to be carried out to resolve any differences in the field names.

About this Guide

This document is intended for data warehouse administrators who are familiar with *Agile Product Lifecycle Management* (Agile PLM) and *Agile PLM for Process*.

Acronyms Used in This Document

The table below lists the acronyms used in this document.

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
OPLA	Oracle Product Lifecycle Analytics

Acronym	Expansion
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
SS	Stop Ship

Related Documentation

The documents that you may need to reference during the data mapping process, mainly the Oracle Product Lifecycle Analytics (OPLA) product installation documentation and the database schema documentation, are available on Oracle Technology Network (http://www.oracle.com/technology/documentation/agile.html).

- *Oracle Product Lifecycle Analytics Setup Guide* - Describes the installation and deployment of BI product components.

- *Oracle Product Lifecycle Analytics Data Reference Manual* - Describes the entities of the published model of the MDS schema.

- *Oracle Product Lifecycle Analytics User Guide* - OPLA helps you to analyze business data, assess business impact, make timely decisions, and conduct trend analysis.

Overview of Agile Product Lifecycle Management Data Mapping

The Oracle Product Lifecycle Analytics (OPLA) 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 Product Lifecycle Management (Agile PLM).

You define fields in Agile PLM according to your business process requirements. The Oracle Product Lifecycle Analytics application retrieves accurate field data for analysis *only* if the data in the MDS fields and the data in the Agile PLM fields are synchronized. Additionally, you should map the source custom-defined fields (Page Two and Page Three) of Agile PLM business objects.

Data type mapping is available in all three models - PC, PQM, and PPM.

Note For more information on Oracle Product Lifecycle Analytics architecture, see the *Oracle Product Lifecycle Analytics Installation and Setup Guide*.

Overview of Agile PLM for Process Extensibility

Oracle Product Lifecycle Analytics (OPLA) solution framework for Agile PLM for Process source allows you to customize and extend the out-of-the-box solution by providing configuration and customization capabilities.

Data flows from Agile PLM for Process to the presentation layer within OPLA happens in the following order:

1. Source to Staging

2. Staging to Multi-Dimensional Schema (MDS)

3. MDS to the presentation layer of the OBIEE repository

The Agile PLM OPLA Configurator

The OPLA Configurator tool allows you to map attributes from the **Agile PLM** application to fields in the data layer of the Oracle Product Lifecycle Analytics application. With an easy-to-use graphical interface, the OPLA Configurator 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:** When you open an object in the Agile PLM Web Client or Java Client, you see a tabbed window with fields. In Agile PLM these fields are called **attributes**. For complete information on Agile PLM attributes, refer to the Agile Administrator Guide.

> **Important:** The OPLA Configurator tool is used *only* for Agile PLM application data mapping.

2

Mapping the Agile Product Lifecycle Management Data

This chapter relates to Agile PLM for information on configuration (attribute mapping) related to Agile PLM for Process see Extending the Agile PLM for Process Data on page 43.

Data Mapping Process

The OPLA Configurator's configuration capabilities includes the mapping of Cover Page, Page Two, Page Three, and Flex attributes of supported Agile PLM classes, as follows:

- MDS fact fields to Agile PLM source fields.
- MDS dimension fields to Agile PLM source lists that are assigned to the Agile 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 the OPLA staging schema or MDS impacts the tool. Refer to the latest published model as documented in the OPLA Data Reference Manual.

The Oracle Product Lifecycle Analytics reports derive data from fixed target columns within the database tables. Using the OPLA Configurator, the data elements (in the fixed target columns) are mapped to the source columns. Data is derived from these source columns.

For these changes to take effect, you must perform the following actions in the order given:

1. Before you start mapping, at least one successful completion of a Stage ETL run.

2. After you finish mapping, at least one successful ETL run on MDS.

> **Note:** The OPLA Configurator is 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.

> **Note:** After enabling any module for staging, the ETL has to run in Full Load. To do this manually:
>
> 1. Connect to the ODM/Stage Schema.
>
> 2. Back up the ETL_RUN_INFO table.
>
> 3. Tuncate the ETL_RUN_INFO table.

What's Configurable in Agile PLM

The MDS has three field types:

1. **Main fields (Not configurable) -** These fields correspond to an object's Cover Page attributes in the Agile PLM application. Some Cover Page attributes, such as multi-text fields, are not relevant for analysis and are excluded from the MDS. Since these fields have a 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.

2. **Defined extensions (Configurable) -** Defined extension fields in each fact or subject area capture important information about the subject area. They have predefined semantics and in Agile PLM are configurable to the Cover Page, Page Two, Page Three, and flex attributes. 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.

3. **User-defined extensions (Configurable) -** User-Defined extension fields in each fact or subject area are used to capture important information about the subject area. They have predefined semantics, and in Agile PLM are configurable to the Cover Page, Page Two, Page Three, and flex attributes. 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 Oracle PLA administrator for further information.

Figure 2–1   Agile PLM Mappings
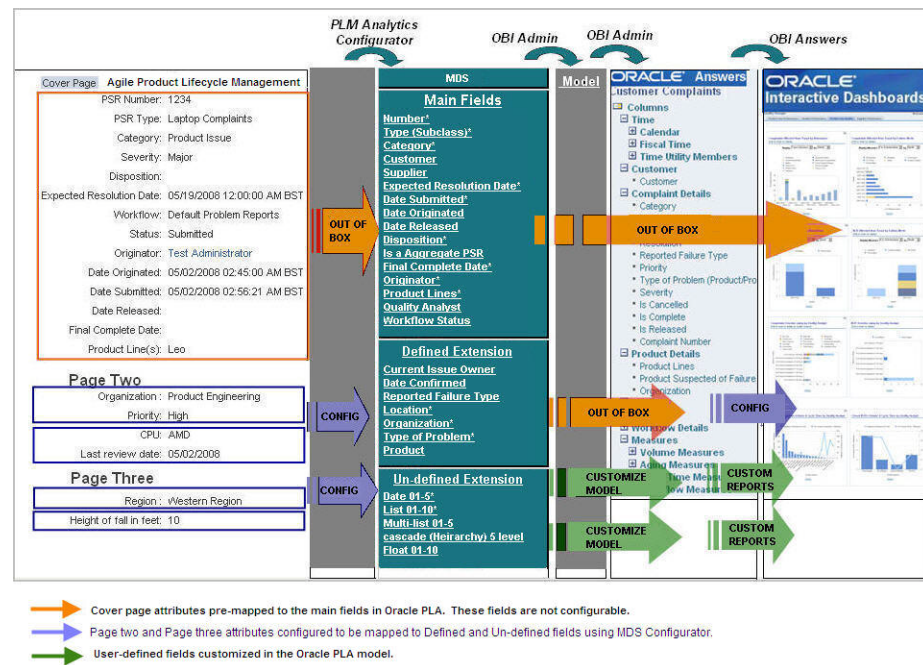
The figure above illustrates the following:

1. How each type of MDS field is mapped from one layer to the next.

2. Shows the field that you can configure or customize.

Note: Use the OBIEE Admin features for additional configuration and customization.

Mappings Supported in this Release

The table below shows the data sources for the target MDS tables. The *Target Fact Table* column lists the target MDS table name. The *Classes* column lists the attribute groups (from where the data is sourced).

Target Fact Table	Classes	Subclasses	Supported Source Attribute Groups
Core Fact Table	■ PR ■ NCR ■ CAPA ■ Change Orders ■ Change Requests ■ Manufacturing Change Orders ■ Stop Ship ■ Deviations	■ Cover Page, Page Two attributes, Page Three attributes of subclasses ■ Flex attributes	
	■ Mfr Part ■ Mfr	■ Cover Page attributes, Page Two attributes, Page Three attributes of subclasses ■ Flex attributes	
	■ Item Mfr part ■ Item Product Performance	■ Item AML flex attributes ■ Read through of dimensions configured on Item facts and Mfr Part facts	
	Gate	■ Cover Page attributes, Page Two attributes, Page Three attributes of Gate subclasses configured as Gate domain ■ Gate subclass Flex attributes ■ Team tab P3 and Flex attributes	
	Activity	■ Program ■ Project ■ Phase ■ Portfolio	■ Cover Page attributes, Page Two attributes, Page Three attributes of Activity subclasses configured as different domain values ■ Activity subclass Hex attributes ■ Team tab P3 and Flex attributes *For every supported domain (Program, Portfolio and Phase), you can map only the subclasses that are configured as domain attributes.*

Target Fact Table	Classes	Subclasses	Supported Source Attribute Groups
Affected Item Fact Table	- PR - NCR - CAPA - Audit, ECO - ECR - MCO - SS - Deviations	All Attributes configured on the Affected Item tab. **Note** Excludes Item read-through attributes.	
Single Materialized view consisting of subclass	- Audit - CAPA - NCR - PR - Change Order - Engineering Change Request - Manufacturing Change - Stop Ship - Deviations	Read through of dimensions configured on Item facts, subclass facts	

PPM-Specific Mappings

The table below describes how the OPLA Configurator provides mapping ability to Agile PLM Product Portfolio Management (PPM) source data.

OPLA Configurator		MDS Target table	
Configurator Subject Area	**Mapping Description**	**Fact Table**	**Dimension Table**
Portfolio	Oracle PLA Configurator provides the ability to map Cover Page/P2/P3/Flex attribute of any Activity subclass. Choose the attributes relevant to the Portfolio domain subclasses as configured in domain look up.	Portfolio fact: PPM_PORTFOLIO_F	Portfolio Dimensional attribute: PPM_PORTFOLIO_D

OPLA Configurator		MDS Target table	
Configurator Subject Area	**Mapping Description**	**Fact Table**	**Dimension Table**
Program	OPLA Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity subclass. Choose the attributes relevant to the Program domain subclasses as configured in domain look up.	Program fact: PPM_PROGRAM_F	Program Dimensional attribute: PPM_PROGRAM_D
Project	OPLA Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity subclass. Choose the attributes relevant to Activities subclasses 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	OPLA Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity subclass. Choose the attributes relevant to the Phase domain subclasses as configured in domain look up.	Phase Gate fact: PPM_PHASE_ GATE_F	Phase dimensional attribute: PPM_PHASE_D
Activity	OPLA Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Activity subclass. Also, the P3 and Flex attributes of Team tab.	Activity base fact: PPM_ACTIVITY_F	Activity dimensional attribute: PPM_ACTIVITY_D

OPLA Configurator		MDS Target table	
Configurator Subject Area	**Mapping Description**	**Fact Table**	**Dimension Table**
Gate	OPLA Configurator provides the ability to map Cover Page /P2/P3/Flex attribute of any Gate subclass. Also, the P3 and Flex attributes of Team tab. Choose the attributes relevant to the Decision Gate domain subclasses as configured in domain look up or any Gate subclass if you are planning to bring it across to Detailed areas	Phase Gate fact: PPM_PHASE_GATE_F	Gate dimensional attribute: PPM_GATE_D

Supported Data Types

The table below lists the supported data type mappings.

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 the PPM module in Oracle Product Lifecycle Analytics Release 3.3 and higher.
Bridge	- Multi-list - Multi-list cascade - Multi-list dynamic
Date	Date
Number	Number
Float	Money
Text	Alphanumeric text
Money	Also known as Cost

3

Using the MDS Configurator

This chapter relates to Agile PLM for information on configuration (attribute mapping) related to Agile PLM for Process see Extending the Agile PLM for Process Data on page 43.

Key Features

The Oracle Product Lifecycle Analytics (OPLA) Configurator interface consists of the following two basic panes:

1. **Subject Area pane** - Displays the Agile PLM module and its subject areas. It is located on the left-hand-side of the OPLA Configurator.

2. **Mapping Table pane** - Displays the target and source destinations for all the PLM attributes that can be configured. It is located on the right-hand-side of the OPLA Configurator.

Figure 3–1   OPLA Configurator window
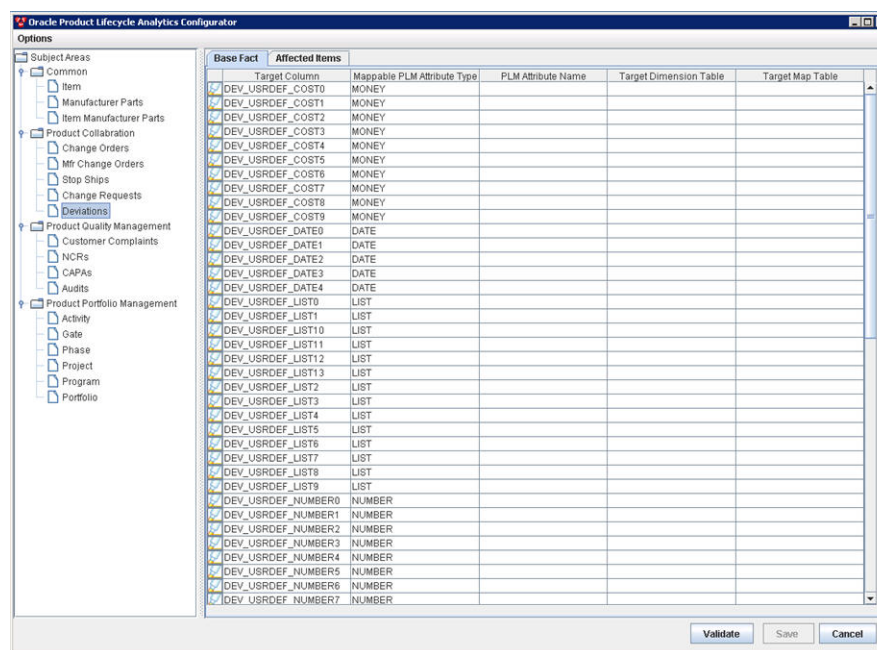
You can customize the default values for the Subject Area pane and the Mapping Table pane as per your requirements.

For more information on how to customize the default values, see Customizing the Interface on page 19.

Understanding the Subject Area Pane

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

The Subject Area pane has 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.

Figure 3–2   Subject Area Pane
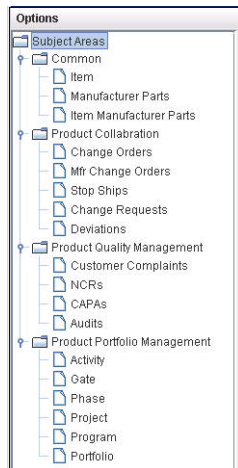
Each subject area can be associated with one or more Fact types. Each fact type appears as a tab on the right pane, where its corresponding attributes are displayed.

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 subclasses are displayed.

Understanding the Mapping Table Pane

In the OPLA Configurator the right side shows the Mapping Table pane. It is a fact table where the target and source information is displayed. Some tips on the Mapping Table pane:

1.   Some target values are auto-populated.

2.   Source data for each row needs to be selected manually from the options provided.

3.   Target columns show the target field name and dimension table where applicable.

4.   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.

Column	Description
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	Name of the dimension table in the target MDS schema. It is used only if the PLM Attribute Type is "List" or "Multi-List". **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 Oracle Product Lifecycle Analytics Data Reference Manual for the database tables.
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

You can customize the data elements (in the user interface) to suit your requirements. The customizable settings are described in the table below.

All configuration files are located at **<install directory>\config.**

To configure the following settings	Edit the following file
User Interface button names	Messages_en_US.properties
Table column headers	Messages_en_US.properties
Logging levels	log4j.properties

Display Preferences

To display the Preferences dialog box, select **Tools > Preferences**. The Preferences dialog box controls how table and column categories appear based on their status (valid, invalid, undefined, or nonresistant).

Figure 3–3   Display Preferences
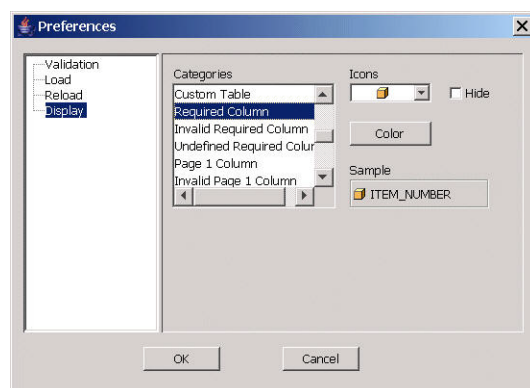
For each category and its status, you can select the icon that is associated with the category, the color of the font, and determine if the category should be hidden. The preferences are saved to the **Settings.xml** file and will appear the next time you start

DataLoad. You can copy the **Settings.xml** file to other computers so that DataLoad uses the same preferences.

Setting the Display Preferences

To set the display preferences:

1. Click **Options > Preferences.**

2. Select the attribute types you want displayed in the right pane.

3. Click **Save**.

To view the Source columns corresponding to the displayed Target columns in the right pane, select **Run in Debug mode**.

Extend User-Defined (Configurable) Fields

You can increase the number of the available user-defined (configurable) fields in the schema.

You can add columns to enhance the MDS Schema if the available user-defined configurable fields in the tables are not sufficient to accommodate your business requirements.

The supported attribute types are:

- Date

- List

- Multi List

- Number

- Money or Cost

- Text

Adding New User-Defined Columns in the MDS Schema

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

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

Figure 3–4   Schema Enhancer

The **Schema Enhancer** dialog box lists the tables that have Date, List, Number, Money, Multi-List, and Text 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 OPLA 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.

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 *Oracle Product Lifecycle Analytics 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

You can manually add new user-defined dimension tables to the MDS schema if the available dimension tables are not sufficient to accommodate your business requirements.

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

1. Using the structure given below, you can create new dimension tables in the MDS Schema:

   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)

)

The table is named in the following format: USRDEF_ XXX Where XXX represents the dimension table name.

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, Oracle Product Lifecycle Analytics (OPLA) 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 the *Oracle Product Lifecycle Analytics (Oracle PLA) User Guide*. The comprehensive out-of-the-box reports in Oracle Product Lifecycle Analytics (OPLA) are based on these best-practice templates.

In Agile PLM-PPM, Activity and Gate are the two Classes in PPM. You can configure the subdivisions 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

Oracle Product Lifecycle Analytics (OPLA) 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 OPLA 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

Configuring the Domain Values

To configure the Domain values:

1. Click **Options > ETL Configurations**. The ETL Run Time Configuration Window appears - as shown below.

Figure 3–5   ETL Run Time Configuration window
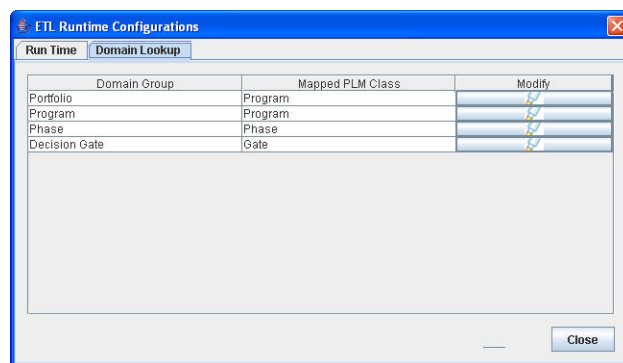
In the **Domain Lookup** tab, the **Domain Group** column lists all the available domain groups. The **Mapped PLM Class** column displays the PLM sub classes mapped to the domain groups.

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. For example, *Program*. The **Select Domain values for Program** popup window is displayed.

Figure 3–6   Select Domain values for Program window
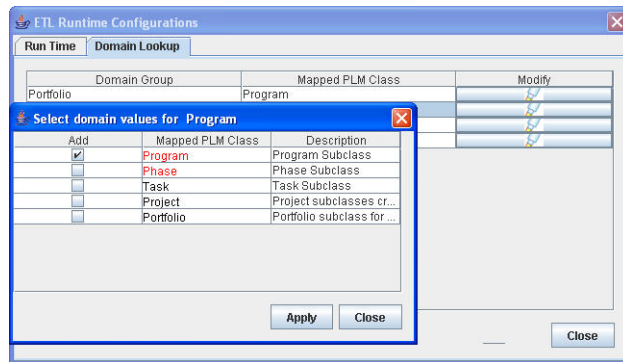
The sub classes displayed in the **Select Program Domain Values** popup window are specific to the Activity class. This applies to Project, Portfolio, and Phase Domain Groups.

If you \ 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. 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.

Setting the ETL Run Time Properties

To set the ETL run time properties:

1.   Click **Options > ETL Configurations**. The *ETL Runtime Configuration* Window appears.

Click the **Run Time** tab. The ETL Runtime properties appears as follows:

Figure 3–7   ETL Runtime properties
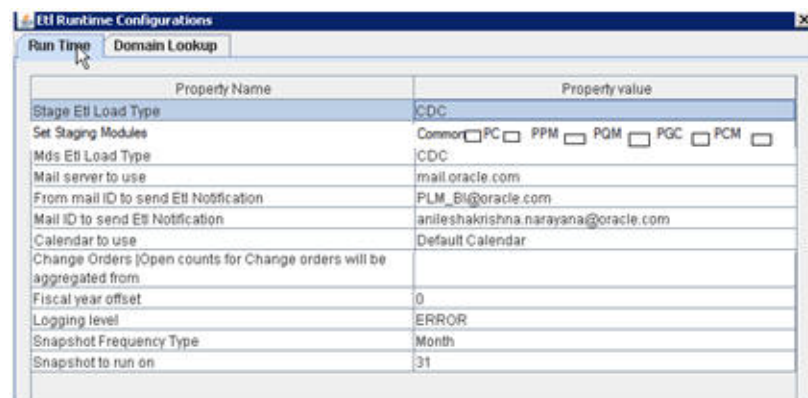
Calendar to use parameter: Out-of-the-box the default variable is **Default Calendar**. Choose the **Gregorian Calendar** option to see the traditional January to December calendar.

2. Double-click on the Property value column against a Property Name.

3. Enter or modify the ETL Run time property.

4. Click **Apply**.

These properties come into effect only after the ETL has been run.

ETL Run Time Property Names

Property Name	Description
STAGE ETL Load Type and **MDS ETL Load Type**	You can set this property to run ETL as any of the following: 1. Full Load (**Full**) 2. Incremental Load (**CDC**) 3. Disable (**Disable**) The very first time you use the Oracle PLA Configurator for new mappings, the ETL run type is always **Full Load** irrespective of the value of this property.
Set Staging Module	Uncheck the check box to disable specific staging modules. For example, if you only need the PC and PQM staging modules, you can disable PPM, PCM, and PGC.
Change Orders	Enter a date from when you want to start analyzing week-level aggregations.
Mail server to use	Enter a valid mail server name. Use the server that sends email notifications for the ETL execution status.
From mail ID to send ETL Notification	Enter the e-mail ID from which the ETL execution status emails are to be sent.
Change Orders	Enter a date from when you want to begin runtime configuration analysis.
Mail ID to send ETL Notification	Enter the e-mail IDs of the users who need to receive emails of the ETL execution status.
Calendar to use	If you are a Time Utility Member choose **Fiscal Calendar** as your default calendar. You can change this parameter manually if you want to use **Default Calendar**.
Fiscal Calendar Start Date	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. The date must start with the 1st day of the month.

Property Name	Description
Fiscal year offset	This parameter specifies the offset for the fiscal calendar year with reference to the **Default Calendar** year.
	Values are:
	0 - The dates and year for the **Fiscal Calendar** match the dates and year of the **Default Calendar**.
	1 - The dates and year for the **Fiscal Calendar** is one year ahead of the current calendar year.
	-1 - The dates and year for the **Fiscal Calendar** is one year behind the current calendar year.
	For example, if your fiscal calendar year for 2011 starts on April 1, 2010, then for the **Fiscal year offset value** choose **1**.
Logging level	This parameter indicates the debugging level required to log the run time ETL messages into the VLOG table.
	Options are:
	ERROR
	WARNING
	INFO
	DEBUG
	ALL
Snapshot Frequency Type	Based on the project summary snapshot, this setting is used to perform analysis of BI data.
	Options are:
	Month - Snapshot fact table populated monthly.
	Week - Snapshot fact table populated weekly
	No Snapshot - Snapshot fact table never populated.
Snapshot to run on	Based on the project summary snapshot, this setting is used to perform analysis of BI data. You select which day of the week you want to run the ETL to take a snapshot of the project summary table.
	Options are:
	SUNDAY
	MONDAY
	TUESDAY
	WEDNESDAY
	THURSDAY
	FRIDAY
	SATURDAY
	If you have choose **Month** as your **Snapshot Frequency Type**, and the day of the week you choose for the **Snapshot to run** on field does not occur in that month, then the snapshot will run on the last day of the month.

Accessing the Software

The OPLA Configurator is a standalone executable provided with the OPLA installation software. When you install Oracle Product Lifecycle Analytics, the executable is automatically downloaded to the *bin* folder (within the OPLA installation

directory) on your computer. All dependent files are downloaded to the *lib* folder. Configuration files are downloaded into the *config* folder, while the configuration logs are stored in the *log* folder.

Connection Information

The OPLA Configurator uses database authentication to connect to the Staging Schema and MDS databases. No additional database privileges are required.

Connection information is maintained in the property file -<*install dir>/config/DataMartConfig.properties.*

The password used for the connection is encrypted as per the prescribed Oracle Agile algorithm.

Changing the Password

To change the password:

1. Run the *DMEncoder.bat* file available at the path **<install directory>\bin** and enter the password string for ODM / OPLA MDS database users.

2. Copy the generated strings for ODM_USER_PASSWORD and MDS_USER_ PASSWORD respectively.

3. Open the *<install directory>\config\DataMartConfig.properties* file where the password is initialized for the MDS database schema user.

4. Replace the copied strings as values for ODM_USER_PASSWORD and MDS_ USER_PASSWORD respectively.

5. Save changes and close the file.

Running the Oracle Product Lifecycle Analytics Configurator

To run the Oracle Product Lifecycle Analytics Configurator, follow these steps:

1. In the OPLA installation folder, navigate to the **bin** folder.

2. Double-click the **Configurator.bat** file. (On Solaris/Linux, run *Configurator.sh*). The **Oracle Product Lifecycle Analytics Configurator** interface is displayed.

3. From the **Options** menu in the **Oracle Product Lifecycle Analytics Configurator**, select **ETL Configurations**. This opens the **ETL Runtime Configurations** window.

4. In the **ETL Runtime Configurations** window, select the **Run Time** tab.

5. From the **Property Name** column, select the **MDS ETL Load Type** row. From the adjacent **Property value** column (and the **MDS ETL Load Type** row) select the **Disable** option.

6. From the **Property Name** column, select the **STAGE ETL Load Type** row. From the adjacent **Property value** column (and the **STAGE ETL Load Type** row) select the **Full** or **CDC** option.

7. In the **ETL Runtime Configurations** window, first select **Apply**, and then **Close**.

8. Click **OK**, in the **ETL Parameters Updated** message box.

The next step is to execute the ETL from the Oracle Data Integrator (ODI).

Execute the Staging ETL from the ODI

To load data into the MDS from the Agile PLM source database, you must carry out a data integration using the Operator feature in Oracle Data Integrator.For more information on how to install and use the Oracle Data Integrator (ODI), see the ODI documentation in the Oracle Technology Network (http://www.oracle.com/technology/documentation/agile.html).

Executing ETL Using ODI

To execute the ETL using the Operator feature in ODI, and run the staging schema, follow these steps:

1. Go to **Start > Programs > Oracle > Oracle Data Integrator > ODI Studio**.

2. Click the **Connect to Repository...** icon

   The *Oracle Data Integrator Login* window appears.

3. Select your **Login Name**, and enter your **User name** and **Password**.

4. Click **OK**.

5. Select the **Operator** tab, and navigate to **Load Plans and Scenarios** section.

6. Right-click the **ANALYTICS_ETL Version 00**1 component for Agile PLM or the **AGILEP4P_ETL_LOAD** component for Agile PLM for Process and select **Execute**. The **Execution** window appears.

7. In the **Execution** dialog box, select the following:

   a. **MDS** for the **Context** attribute.

   b. **Local (No Agent)** for the **Agent** attribute.

   c. **5** for the **Log Level** attribute.

   d. Click **OK**. The **Information** window stating the message *Sessionstarted* appears.

8. Click **OK**. The ETL process begins.

After ETL is executed, ODI sends a success or failure notification to the email users configured during installation. Email user configurations can be changed in the ETL_PARAMETER table in the MDS schema. The ETL_PARAMETER table is in the ODM schema if ODM and MDS were installed in separate schemas. These parameters can also be changed using the Configurator for Agile PLM deployments only.

Viewing ETL Process Status for ODI

To view the status of the ETL process:

1. Log in to the **ODI**.

2. Select the **Operator** tab, and navigate to the **Session List** section.

3. To view all running tasks, select **All Executions** or **Status** from the left frame.

Alternatively:

To check overall progress, go to the Hierarchical Sessions section and select Status or All Executions.

Increasing the Operator Display Limit in ODI

You can increase the **Operator Display Limit** to 1000 (default value is 100) to view the status of all the tasks that are under execution in ODI.

To increase the Operator Display Limit, in ODI Operator, follow these steps:

1. Go to **ODI > User Parameters > Operator Display Limit.**

2. Set the value for Operator display limit to 1000.

Mapping PLM Attributes

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

Before you begin:

- Make sure you have a complete working environment that includes the following layers:
  - Agile PLM Java Client
  - Agile PLM MDS schema and ETL components
- To verify the mapping, keep any database SQL editor open.
- Understand the color coding used in the OPLA Configurator:

Blue text: Indicates attributes that have already been mapped.

Red text: Indicates attributes that are disabled in PLM.

- Keep a copy of the *Oracle Product Lifecycle Analytics Operational Schema Data Reference Manual* handy to verify target tables used by the BI Reports.
- You must have completed a staging FULL load ETL.

How to Map Attributes

Attributes are located and then mapped. It is done using the Agile Java Client Admin module and the OPLA Configurator.

How to Locate Attributes in Agile Java Client Admin Module

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 note them down.

Mapping Attributes in OPLA Configurator

In the OPLA Configurator:

1. 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**.

2. In the right pane, select either the **Base Fact** or the **Affected Items** tab.

3. Select the Target Column row for the attribute type you wish to map, and click .
The **Edit the selected Row** dialog box opens. Alternatively, you can right-click on
a target cell.

Figure 3–8   Edit the selected Row dialog box
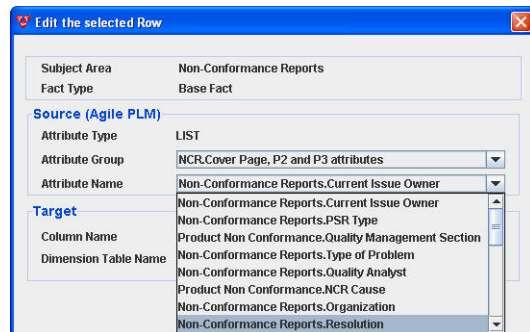
4. 4. In the **Edit the selected Row** dialog box, select options from the drop-down lists
to map the field or column to PLM attributes as per the details you noted down
earlier.

   a. 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.

   b. In the **Attribute Name** list, select the attribute name that you want to map.
The list shows the options that you have enabled in Java Client. 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.

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

   c. 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.

   d. Click **OK**.

   e. Click **Save**.

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 the Mappings

Click **Validate,** to validate your attribute mappings.

You will see an **Errors and Warnings** dialog box if you have any errors or warnings, or
if any of the following conditions occur:

- **Column already used for mapping** - In MDS an Agile PLM attribute is mapped to more than one target column.

- **Attribute disabled in PLM after configuration** - In Agile PLM, a previously mapped Agile PLM attribute is now disabled.

- **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, you must change the mapping for the attribute identified in the error message.

Errors are also logged in the *Configurator.log* file. The *Configurator.log* file is located in **<install directory>/logs/**.

You can also save the errors to a *.csv* file, click **Save to File**.

Validating the Data

After you finish mapping, run the MDS ETL (full load). This ensures that the data loads from the source tables in Agile PLM Data Mart to MDS as per your mapping.

Data loads into the newly configured tables after the MDS ETL runs.

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

Executing the MDS ETL for ODI

To execute the MDS ETL, you must first open the OPLA Configurator, select the pertinent property names and their respective values. After this is done, you need to run the required attribute in Oracle Data Integrator Operator feature.

To run the MDS ETL, follow these steps:

1. In the OPLA installation folder, navigate to the **bin** folder.

2. Double-click the **Configurator.bat** file. (On Solaris/Linux, run *Configurator.sh*). The **Oracle Product Lifecycle Analytics Configurator** interface is displayed.

3. From the **Options** menu in the **Oracle Product Lifecycle Analytics Configurator**, select **ETL Configurations**. This opens the **ETL Runtime Configurations** window.

4. In the **ETL Runtime Configurations** window, select the **Run Time** tab.

   a. a. From the **Property Name** column, select the **STAGE ETL Load Type** row. Click the adjacent **Property value** column, select **Disable**.

   b. b. From the **Property Name** column, select the **MDS ETL Load Type** row. Click the adjacent **Property value** column, select **CDC**.

   c. c. In the **ETL Runtime Configurations** window, first select **Apply**, and then **Close**.

5. Click **OK**, in the **ETL Parameters Updated** message box.

6. Go to **Start > Programs > Oracle > Oracle Data Integrator > ODI Studio**.

7. Launch the **ODI Studio**, and log in using authentication details for the ODI session created during installation.

8. Select the **Operator** tab, and navigate to **Load Plans and Scenarios** section.

9. Right-click the **ANALYTICS_ETL Version 001** component for Agile PLM or the **AGILEP4P_ETL_LOAD** component for Agile PLM for Process and select **Execute**. The **Execution** window appears.

10. In the **Execution** dialog box, select the following:

    a. **MDS** for the **Context** attribute.

    b. **Local (No Agent)** for the **Agent** attribute.

    c. **5** for the **Log Level** attribute.

    d. Click **OK**. The **Information** window stating that the message *Session started* appears.

11. Click **OK**. The ETL process begins.

After you complete the above steps the data populates into the MDS, and you can now start analysis in OBIEE. If you are a user of custom user defined dimension and measures you must first complete RPD customizations.

After ETL is executed, ODI sends a success or failure notification to the email users configured during installation. Email user configurations can be changed in the ETL_ PARAMETER table in the MDS schema. The ETL_PARAMETER table is in the ODM schema if ODM and MDS were installed in separate schemas. These parameters can also be changed using the Configurator for Agile PLM deployments only.

4

Extending the Agile PLM for Process Data

General Solution

For all areas of extension the general solution is characterized by an initial setup. This setup is then used by the overall ETL process every time data is transferred. The initial setup comprises of the following:

- In the staging schema tables, custom-data mappings are created to specific predefined user-data columns.

- Use the OBIEE Administrator to:

  - Customize and add the MDS user-defined columns to the already existing Physical Layer tables, Logical/Business Layer objects, and Presentation Layer objects within a given Subject Area.

  - Customize the names of these columns and fields.

If there are any errors in the data in the mapping tables (for example, non-existent NPD Project Metrics, non-existent Extended Attributes, and/or misnamed target DB tables or columns, and so on.) they will cause the overall ETL run to fail. Error messages are logged in the TLOG table.

> **Important:** You must conduct a FULL extract run if you make any content changes to the P4P_CONFIG_EA table or to the P4P_METRIC_CONFIG_MAP table. A CDC (incremental) run does not pick up any changes made to the tables.

What's Extensible in Agile PLM for Process

There are three key data elements from Agile PLM for Process to the Presentation layer:

1. **Core Attributes (Not Configurable):** Are attributes available from the Agile PLM for Process out-of-the-box solution. In Oracle Product Lifecycle Analytics (Oracle PLA) only the relevant attributes are brought out as measures and dimensions.

2. **Extended Attributes (Configurable):** In order to capture additional information - beyond core attributes, Agile PLM for Process allows you to add extra (extended) attributes. Oracle PLA provides configuration and customization steps that bring out dimension and measure fields.

Figure 4–1   Extended Attributes
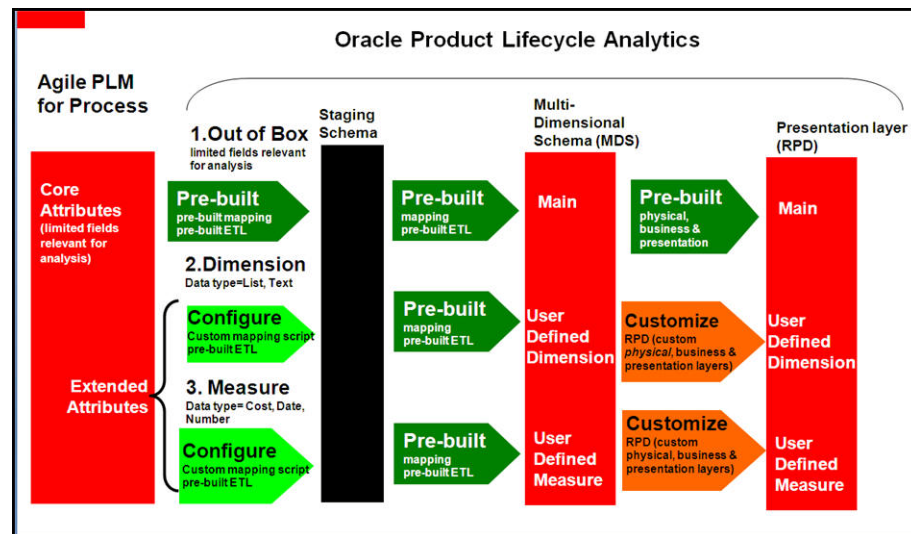
3. **Project Metrics (Configurable):** Project metrics are definable in Agile PLM for Process. Project metrics allow you to capture information related to a project (for example, cost, revenue forecasts, and so on). Based on whether the metrics have basis, financial year, or category information, the measures are simple or complex. OPLA provides configuration and customization steps to bring out the fields as measures (but not as dimensions).

Figure 4–2   Project Metrics
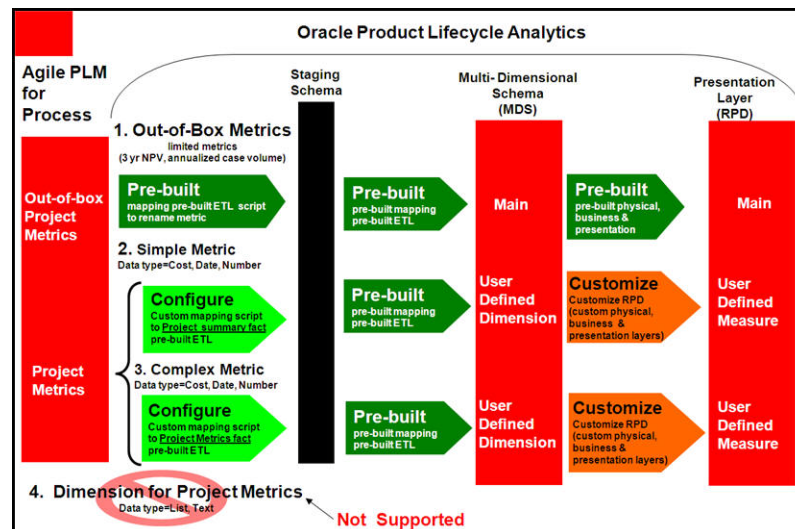
Important: OPLA does not support Custom Sections.

NPD Project Metrics

> **Important:** Any changes to the content of the P4P_CONFIG_EA table or the P4P_METRIC_CONFIG_MAP table must be followed by a FULL extract run. A CDC run will not pick up these changes.

Oracle Product Lifecycle Analytics (OPLA) delivers two out-of-the-box metrics that correspond to Project Metrics in Agile PLM for Process:

- Three year NPV
- Annualized case volume

These metrics flow through the prebuilt ETL and mappings all the way to the presentation layer, provided certain naming conventions are adhered to. Even if the naming convention followed is different, you can replace names of these metrics via a custom script.

Simple Metrics are Project Metrics that have no phase, no basis, no category, and no fiscal year. These measures have to be mapped to the Project Summary fact. This mapping can be created using the custom script between Source to Staging. From Staging to MDS, prebuilt mapping & ETL exist. You need to customize the OBIEE RPD to expose the metric as a measure in the presentation layer.

Complex metrics are Project Metrics that are dimensionalized and have a phase, basis, category, or fiscal year. These measures have to be mapped to the Project Metrics fact (unlike Simple metrics). Other than that the process of customization/ configuration is similar to that of simple metrics.

> **Important:** The Project Metrics cannot be exposed as a dimension in the Presentation layer. The only dimensions that are supported for Complex metrics are Phase, Basis, Category and Fiscal Year.

Mapping the NPD Project Metrics

There are three basic types of NPD Project Metrics mappings:

1. System-Defined replacements
2. Simple (dimensionless) User-Defined additions
3. Dimensionalized User-Defined additions

All types are mapped via inserting the name of the metric and the table and column to map it to into the meta-data table named: P4P_METRIC_CONFIG_MAP. Data is then transferred to the targeted table at ETL time for each NPD Project that contains that given named metric. Projects that do not have a value for that metric will have that column left "null".

The table below defines the P4P_METRIC_CONFIG_MAP metrics mapping database table.

COLUMN	DATA TYPE	DESCRIPTION
METRIC_NAME	varchar2(200)	The NPD project metric ID.

COLUMN	DATA TYPE	DESCRIPTION
TABLE_NAME	varchar2(40)	The destination table name. One of the following: P4P_PRJ_SUM_FS P4P_PRJ_DET_FS P4P_PRJ_METRICS_FS P4P_PROJECT_DS
COLUMN_NAME	varchar2(100)	The destination column name (for example, PRJ_ USRDEF_DATE2, PRJ_ USRDEF_LIST8, etc.)

The TABLE_NAME is dependent upon the preferred BI Subject Area and the metric's data type. Use the table below to select the TABLE_NAME.

TABLE NAME	BI SUBJECT AREA	DATA TYPE	EXPLANATION
P4P_PRJ_SUM_FS	Project Summary	Numeric	The available Project Summary FACT table column for numeric metrics.
P4P_PRJ_DET_FS	Project Detail	Numeric	The available Project Detail FACT table column for numeric metrics.
P4P_PRJ_METRICS_ FS	Project Metrics	Numeric	The available Project Metrics FACT table column for numeric metrics.
P4P_PROJECT_DS	ALL of the above	Text	The available Project DIMENSION table column for text metrics.

The COLUMN_NAME is dependent upon the TABLE_NAME you choose.

If you chose P4P_PRJ_SUM_FS as your TABLE_NAME, then use the table below to select the COLUMN_NAME.

COLUMN_NAME	DATA TYPE	DESCRIPTION
THREE_YR_NPV, ANNUAL_CASE_ VOL	NUMBER(22, 7)	Only available in the P4P_PRJ_ SUM_FS table. Initially mapped to the simple (fully-qualified metric names) of THREE_YR_NPV_NOB_NOPH_ NOFY and ANNUALIZED_ VOLUME_CASES_NOB_NOPH_ NOFY. However you can also override them as well. See examples. These metrics are available already in the OBIEE Answers list under Project Summary subject area, Agile PLM for Process Metrics Measures as "3 Year NPV (No Basis, No Phase, No Year)" and "Annualized Case Volume (No Basis, No Phase, No Year)", so they will not have to be enabled via the Administrator like the USRDEF columns.
PRJ_USRDEF_COST0 - PRJ_USRDEF_ COST	NUMBER(22, 7)	10 user-defined decimal fields
PRJ_USRDEF_ DATE0 - PRJ_ USRDEF_DATE4	NUMBER(10)	5 user-defined date columns, formatted as: YYYYMMDD
PRJ_USRDEF_ NUMBER0 - PRJ_ USRDEF_NUMBER9	NUMBER(10)	10 user-defined integer fields

If you chose P4P_PRJ_DET_FS as your TABLE_NAME, then use the table below to select the COLUMN_NAME.

COLUMN_NAME	DATA TYPE	DESCRIPTION
PRJ_USRDEF_COST0 - PRJ_ USRDEF_COST	NUMBER(22, 7)	10 user-defined decimal fields
PRJ_USRDEF_DATE0 - PRJ_ USRDEF_DATE4	NUMBER(10)	5 user-defined date columns, formatted as: YYYYMMDD
PRJ_USRDEF_NUMBER0 - PRJ_USRDEF_NUMBER9	NUMBER(10)	10 user-defined integer fields

If you chose P4P_PRJ_METRICS_FS as your TABLE_NAME, then use the table below to select the COLUMN_NAME.

COLUMN_NAME	DATA TYPE	DESCRIPTION
THREE_YR_NPV OR ANNUAL_CASE_VOLUME	NUMBER(22, 7)	These are not initially pre-mapped to any metrics. However they are available already in the OBIEE Answers list under the Project Summary subject area, P4P Metrics Measures as "3 Year NPV" and "Annualized Case Volume", so they will not have to be enabled via the OBIEE Administrator like the USRDEF columns.
USRDEF_COST0 - USRDEF_COST9	NUMBER(22, 7)	10 user-defined decimal fields
USRDEF_DATE0 - USRDEF_DATE4	NUMBER(10)	5 user-defined date columns, formatted as: YYYYMMDD
USRDEF_NUMBER0 - USRDEF_NUMBER9	NUMBER(10)	10 user-defined integer fields

Note: The P4P_PRJ_METRICS_FS table is only for the mapping of Base-Metric-Name metrics.

If you chose P4P_PROJECT_DS as your TABLE_NAME, then use the table below to select the COLUMN_NAME.

COLUMN_NAME	DATA TYPE	DESCRIPTION
PRJ_USRDEF_LIST0 - PRJ_USRDEF_LIST14	VARCHAR2(1000 CHAR)	15 user-defined text fields (for example. for multi-value comma-delimited text lists)
PRJ_USRDEF_TEXT0 - PRJ_USRDEF_TEXT9	VARCHAR2(450 CHAR)	10 user-defined text fields

System-Defined NPD Project Metric Replacements

A System-Defined NPD Project Metric does NOT require any use of the OBIEE Administrator tool. System-Defined NPD Project Metrics are metrics where the predefined BI analytics mapping (from physical to logical to presentation) have been rationalized in the Project Summary Subject Area of the OBIEE Answers section.

There are two System-Defined NPD Project Metrics:

1. 3 Year NPV (pre-mapped metric ID: THREE_YR_NPV_NOB_NOPH_NOFY)

2. Annualized Case Volume (pre-mapped metric ID: ANNUALIZED_VOLUME_CASES_NOB_NOPH_NOFY)

The concepts for the above System-Defined NPD Project Metrics are common, but their names are not standard across customers.

For this reason, Oracle allows you to remap (replace) these metrics. For example, replace THREE_YR_NPV_NOB_NOPH_NOFY with THREE_YR_NPV_ABS_PREL_FY10.

Example: SQL script for replacing the 3 Year NPV metric

```
insert into P4P_METRIC_CONFIG_MAP (metric_name, table_name, column_name) values
('THREE_YR_NPV_ABS_PREL_FY10', 'P4P_PRJ_SUM_FS', 'THREE_YR_NPV');
```

```
(Ea_Denorm_Table_Name, Ea_Denorm_Column_Name, Ea_Select_Value, Attribute_Id,
Owning_Object_Type, Dest_Table_Name, Dest_Column_Name)
insert into P4P_METRIC_CONFIG_MAP (metric_name, table_name, column_name) values
('BIGCORP_METRIC_AN_CS_VOL', 'P4P_PRJ_SUM_FS', 'ANNUAL_CASE_VOL');
```

Example: SQL script for replacing the Annualized Case Volume metric

Simple (dimension-less) User-Defined NPD Project Metric Additions

Simple (dimension-less) user-defined NPD project metric additions are simple metrics for which no previous BI Analytics exists.

Example SQL script for adding the "Project Cost" metric to an available user-defined cost column in the Project Detail Subject Area:

```
insert into P4P_METRIC_CONFIG_MAP (metric_name, table_name, column_name) values
('PROJECT_COST_NOB_POST_FY09', 'P4P_PRJ_DET_FS', 'PRJ_USRDEF_COST1');
```

> **Note:** To view the data in the Answers section, in OBIEE Administrator, enable the PRJ_USRDEF_COST1 column from the Project Detail Subject Area.

Dimensionalized User-Defined NPD Project Metric-Set Additions

Dimensionalized User-Defined NPD Project Metric-Set Additions are metrics that allow you to analyze its different values (based on the intersection of the different dimensions that have defined it).

The different possible dimensions are:

- Fiscal Year

- Basis

- Phase

- Category

When you specify the METRIC_NAME of this type, you should only specify the base or prefix of the ID. For example, a metric with a base name of CONTRIBUTION; Fiscal Year values of FY08, FY09, and FY10; Phase values of Pre-Launch, Launch and Post-Launch; and Basis value of Absolute; it would have the following nine intersections of its dimensions:

- CONTRIBUTION_ABS_PREL_FY08

- CONTRIBUTION_ABS_PREL_FY09

- CONTRIBUTION_ABS_PREL_FY10

- CONTRIBUTION_ABS_LNCH_FY08

- CONTRIBUTION_ABS_LNCH_FY09

- CONTRIBUTION_ABS_LNCH_FY10

- CONTRIBUTION_ABS_POST_FY08

- CONTRIBUTION_ABS_POST_FY09

- CONTRIBUTION_ABS_POST_FY10

Example SQL script for adding this CONTRIBUTION metric-set to the Project Metrics Fact group:

```
insert into P4P_METRIC_CONFIG_MAP (metric_name, table_name, column_name) values
('CONTRIBUTION', 'P4P_PRJ_METRICS_FS', 'USRDEF_COST4');
```

Extended Attributes

Extended Attributes (EAs) are optional custom-data feature available in Agile PLM for Process. EAs exist on both GSM Specifications and NPD Projects.

> **Warning:** If you install the optional Extended Attributes Denormalization feature on the PLM4P database AFTER you have already installed OPLA, then you need to rerun the appropriate db-type PLM4P source views script (that is, AllinOneViews.sql for SQL-SERVER source DB, and OracleAllInOneViews.sql for Oracle source DB) for any P4P_CONFIG_EA mappings to work.

Only *distinct* EAs can be denormalized, and therefore are the only candidates for mapping into BI. Extended Attributes may require prebuilt content, mapping, and customization.

Prebuilt mappings and ETL exist between:

1. Source to Staging

2. Staging to MDS

After you have identified the Extended Attributes to bring in to OPLA for analysis, you must map them between the Source to Staging. This is done by using a custom mapping script. After you have created the mapping and run the ETL this data flows from Source to Staging. The data then moves to MDS using prebuilt mappings between Staging to MDS. You must customize OBIEE RPD in order for the extended attributes to be exposed as a measure or a dimension in the presentation layer.

EAs Process Steps

The steps for getting an EA into the BI solution are as follows:

1. **EA Denormalization:** the automated process where EAs are extracted into denormalization tables, for example, DENORM_EA_NUMERIC and DENORM_EA_TEXT.

2. **Mapping**: The manual configuration and mapping of which EAs to extract from the denormalized data into specific BI Subject Areas.

3. **ETL**: The automated process by which the data is moved from the source system to the target system. This data includes any optional EA denormalized data. This process also transfers specific EAs per the above Mapping step into the desired location(s).

4. **Enabling**: The manual configuration via OBIEE Administrator of the enabling of the targeted tables and columns in the desired Subject Area in the Answers section.

EA Mapping Table and Column Choices

1. The extended attribute mapping table (P4P_CONFIG_EA) is defined as follows:

COLUMN NAME	DB-TYPE	DESCRIPTION
EA_DENORM_ TABLE_NAME	VARCHAR2(256 CHAR)	Source EA denorm table name
EA_DENORM_ COLUMN_NAME	VARCHAR2(256 CHAR)	Source EA denorm column name
ATTRIBUTE_ID	VARCHAR2(80 CHAR)	Source EA ID
OWNING_OBJECT_ TYPE	VARCHAR2(256 CHAR)	Source Owning object type (that is, GSM or NPD)
DEST_TABLE_ NAME	VARCHAR2(256 CHAR)	Destination table name
DEST_COLUMN_ NAME	VARCHAR2(256 CHAR)	Destination column name

2. 2. The EA_DENORM_TABLE_NAME and EA_DENORM_COLUMN_NAME depend on the type of the EA data. Specifically:

EA Data-Type	DENORM_TABLE_NAME	DENORM_COLUMN_NAME
Boolean	P4P_DENORM_EA_BOOLEAN	VALUE
Quantitative Range	P4P_DENORM_EA_ QUANTITATIVERANGE	MIN TARGET MAX MINBASE TARGETBASE MAXBASE UOM UOMBASE MINPRECISION TARGETPRECISION MAXPRECISION
Quantitative Tolerance	P4P_DENORM_EA_ QUANTTOLERANCE	VALUE TOLERANCE UOM VALUEBASE UOMBASE VALUEPRECISION TOLERANCEPRECISION
Date	P4P_DENORM_EA_DATE	VALUE
Text	P4P_DENORM_EA_TEXT	VALUE
Number	P4P_DENORM_EA_NUMERIC	VALUE UOM VALUEBASE UOMBASE PRECISION

3. The destination table name (DEST_TABLE_NAME) to choose depends on the desired owning object type (OWNING_OBJECT_TYPE), Subject Area, and EA data type. Specifically:

OBJECT TYPE	SUBJECT AREA & DATA TYPE	TABLE NAME
GSM	Specification numeric	P4P_SPEC_FS
	Specification text	P4P_SPEC_DS
NPD	Project Summary numeric	P4P_PRJ_SUM_FS
	Project Detail numeric	P4P_PRJ_DET_FS
	Project text	P4P_PROJECT_DS

4. The COLUMN_NAME to choose depends on the TABLE_NAME chosen as follows:

a. P4P_SPEC_FS (the available GSM Specification FACT table columns for numeric EAs)

COLUMN_NAME	DB-TYPE	DESCRIPTION
SPEC_USRDEF_COST0 to SPEC_USRDEF_COST9	NUMBER(22, 7)	10 user-defined decimal fields
SPEC _USRDEF_DATE0 to SPEC _USRDEF_DATE4	NUMBER(10)	5 user-defined date columns, formatted as: YYYYMMDD
SPEC _USRDEF_NUMBER0 to SPEC _USRDEF_NUMBER9	NUMBER(10)	10 user-defined integer fields

b. P4P_SPEC_DS (the available GSM Specification DIMENSION table columns for text EAs)

COLUMN_NAME	DB-TYPE	DESCRIPTION
SPEC_USRDEF_TEXT0 to SPEC_USRDEF_TEXT9	VARCHAR2(450 CHAR)	10 user-defined text fields

c. P4P_PRJ_SUM_FS, P4P_PRJ_DET_FS (the available NPD Project Summary and Project Detail FACT table columns for numeric EAs)

COLUMN_NAME	DB-TYPE	DESCRIPTION
PRJ_USRDEF_COST0 to PRJ_USRDEF_COST9	NUMBER(22, 7)	10 user-defined decimal fields
PRJ_USRDEF_DATE0 to PRJ_USRDEF_DATE4	NUMBER(10)	5 user-defined date columns, formatted as: YYYYMMDD
PRJ_USRDEF_NUMBER0 to PRJ_USRDEF_NUMBER9	NUMBER(10)	10 user-defined integer fields

d. P4P_PROJECT_DS (the available NPD Project DIMENSION table columns for text EAs)

COLUMN_NAME	DB-TYPE	DESCRIPTION
PRJ_USRDEF_LIST0 to PRJ_USRDEF_LIST14	VARCHAR2(1000 CHAR)	15 user-defined text fields (for multi-value comma-delimited text lists)
PRJ_USRDEF_TEXT0 to PRJ_USRDEF_TEXT9	VARCHAR2(450 CHAR)	10 user-defined text fields

EA Example

Example SQL script for adding the distinct numeric EA named *FPCalciumOverride* to an available user-defined cost column in the Specification Subject Area:

```
insert into P4P_CONFIG_EA
Values ( 'P4P_DENORM_EA_NUMERIC', 'VALUE', 'VALUE', 'FPCalciumOverride', 'GSM
Spec', 'P4P_SPEC_FS', 'SPEC_USRDEF_NUMBER3');
```

5

Frequently Asked Questions

Answers to some frequently asked questions are listed in this chapter.

Frequently Asked Questions Related to Agile Product Lifecycle Management

- **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.

- **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.

- **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.

- **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.

- **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.

- **Can I start the Configurator before the ODM ETL process runs?**

Yes, but Flex attributes will not be available for mapping.

- **Can I use the Configurator while the MDS ETL is running?**

This is best avoided as it can interfere with the ETL process.

- **Why are some of my flex attributes not displayed in the OPLA 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 OPLA Configurator.

- **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.

- **When I upgrade to OPLA Configurator, what happens to the configurations done using MDS Configurator version 3.3.1.1?**

See *Upgrade Considerations* section in *Oracle Product Lifecycle Analytics (OPLA) Installation and Setup Guide.*

- **In OPLA 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.

- **Can I extend the number of User-defined dimension tables using OPLA Configurator?**

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

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

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

OPLA 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 more information see Apache log4j at
http://logging.apache.org/log4j/1.2/manual.html.

- **When I upgrade from PLM BI 3.0 / 3.1 / 3.2 to OPLA 3.5, can I retain all configurations done using the 3.3.1.1 version of the MDS Configurator?**

Yes. It is possible to retain all the configurations done using the 3.3.1.1 version of the MDS Configurator when you upgrade from PLM BI 3.0 to OPLA 3.5.

- **Why do we have domain value lookup in OPLA?**

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.

- **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.

- **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.

- **Why are the source attributes not showing up in the PPM subclasses configuration in MDS Configurator?**

There are two answers to this question.

a. The staging ETL did not run successfully.

b. Before using PPM subclass configuration users should always configure the appropriate domains under Options--> ETL Configurations > Domain lookup tab.

Frequently Asked Questions Related to Agile PLM for Process

Answers to some frequently asked questions are listed below:

- **Why are there no records returned when I create an Answer by selecting in Project Summary Subject Area's P4P Metrics Measures for any projects in "3 Year NPV" nor "Annualized Case Volume"?**There are no pre-mapped results for these Measures.

- **Why are there no records returned when I create an Answer by selecting in Project Summary Subject Area's P4P Metrics Measures for any projects in "3 Year NPV (No Basis, No Phase, No Year)" nor "Annualized Case Volume (No Basis, No Phase, No Year)"?**None of your NPD Projects use the expected pre-mapped Project Metric names of: THREE_YR_NPV_NOB_NOPH_NOFY nor ANNUALIZED_VOLUME_CASES_NOB_NOPH_NOFY. You can re-map these as needed.

- **Why are there no records returned when I add the P4P Metrics Dimension of Basis Name (and/or Category Name, Metric Phase Name, Fiscal Year) to my Project Summary Subject Area's Answer with P4P Metrics Measures for any projects in "3 Year NPV (No Basis, No Phase, No Year)" nor "Annualized Case Volume (No Basis, No Phase, No Year)"?**These Dimensions are only useful with the "3 Year NPV" and "Annualized Case Volume" measures (note that there is no parenthetical qualifying of Basis or Phase or Fiscal Year in their names).

6

Troubleshooting Guidelines

The following sections highlight a few of the most common errors you can encounter and their solutions.

Troubleshooting Guidelines Related to Agile Product Lifecycle Management

In previous releases conformed dimensions (when the same dimension is used by two subject areas) did not work. In this release, OPLA is providing the ability to use conformed dimensions for multiple lists. To display a new multi-list user-defined attribute as a column in an existing dimension table in BI Reports use the Attribute ID or the Attribute Name.

To view and use the multi-list attribute in BI Reports, you must configure the multi-list attribute in the BMM layer, and then expose it in the OBIEE Repository's Presentation Layer. For the corresponding data to populate, you must map the column using OPLA Configurator.

The table below lists Agile PLM related errors and their solutions.

ISSUE	SOLUTION
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
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 =I jdbc:oracle:thin:@<machine name>:<port number>:<SID>

ISSUE	SOLUTION
Invalid user name/password; login denied.	Check if the following tokens reflect the right user name and password information in the BIDataLayerConfig.properties file: Ãº ODM_UN - user name for Data Mart database schema Ãº <ODM_PASSWORD> - password for Data Mart database schema user Ãº BI_USER_NAME - user name for MDS database schema Ãº <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.
TNS: listener could not hand off client connection. **OR** **Error while saving records.**	Test your database connection and make sure the database server and listener have successfully started.
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**	Ãº INFO - The INFO level designates informational messages that highlight the progress of the application at coarse-grained level. Ãº ERROR - The ERROR level designates error events that might still allow the application to continue running. Ãº DEBUG - The DEBUG Level designates fine-grained informational events that are most useful to debug an application.

Troubleshooting Guidelines Related to Agile PLM for Process

Use the table below if you have mapped an Extended Attribute, or a Project Metric, via an insert to the appropriate mapping table, but it does not show up in OBIEE.

Did you ...	Solution
commit the insert?	By default, Oracle DB sessions does not automatically commit any changes.
run the ODI Operator after the commit?	See main guide for information on how to run ODI.
run the ODI Operator run to successful completion?	If the ODI Operator did not successfully complete, then check the TLOG table for mapping error messages.
also modify the RPD file (via the OBIEE Administrator) to enable the viewing of those fields in the appropriate Subject Area? Only if the text for the column you mapped to begins with USRDEF_.	If not, then modify the RPD file.

Did you ...	Solution
restart the OBIEE service and/or flush its cache after completing the above changes?	You must flush the cache and restart the OBIEE service.

You may receive a TLOG table error message. The table below lists some of the most frequent TLOG table error messages and their solutions.

TLOG Table Message	Solution
There is a config error in P4P_METRIC_CONFIG_MAP. **Unsupported Table. Use one of the following tables:** P4P_PRJ_SUM_FS, **P4P_PRJ_DET_FS, P4P_PROJECT_DS and** P4P_PRJ_METRICS_FS.	Inspect the records in the P4P_METRIC_CONFIG_MAP table for an unsupported table, and fix.
There is a config error in P4P_METRIC_CONFIG_MAP. **Multiple metrics mapped into same column.**	Inspect the records in the P4P_METRIC_CONFIG_MAP table for two rows where the table_name and column_name values are the same. Remove or fix duplicates.
There is a config error in P4P_METRIC_CONFIG_MAP. **Project Metric mapped to same column as Extended Attribute.**	Inspect and compare the table_name and column_name values of the records in the P4P_METRIC_CONFIG_MAP and P4P_CONFIG_EA tables. Remove or fix duplicates.
There is a config error in P4P_METRIC_CONFIG_MAP. XXXX.YYYY **is not a valid column.**	Please refer to the legal destination table and column names list elsewhere in this document.
Could not find Metric Definition for fully qualified metric: XXXXX.	Double-check the name of the NPD Project Metric in the Agile PLM for Process source projects. Remember it will probably have some underscore characters in it separating the Basis, Phase and Fiscal Year qualifications.
Could not find Metric Definition for metric base name: XXXXX.	Double-check the name of the NPD Project Metric in the Agile PLM for Process source projects. Remember it will have NO qualification suffixes attached to it for Basis, Phase nor Fiscal Year.
Attempt to map Text Metric to non-text column. **OR** **Attempt to map numeric or date Metric to non-numeric column**	Inspect and verify the data-types of the table_name and column_name values of the records in the P4P_METRIC_CONFIG_MAP table and the NPD Project Metrics that are mapped to them. Refer to the legal destination list elsewhere in this document.