



# **Agile Product Lifecycle Management**

Agile PLM Data Mart - Setup Guide

v3.0

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Oracle Data Integrator can be used for initial Oracle Agile PLM source to Oracle Agile PLM Data Mart target synchronizations. Oracle Data Integrator can be used for subsequent bulk loads and batch data transfers from Oracle Agile PLM source to Oracle Agile PLM Data Mart target.

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# Preface

The Oracle|Agile documentation set includes Adobe® Acrobat™ PDF files. The [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) (<http://www.oracle.com/technology/documentation/agile.html>) contains the latest versions of the Oracle|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 Oracle|Agile Documentation folder available on your network from which you can access the Oracle|Agile documentation (PDF) files.

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**Note** To read the PDF files, you must use the free Adobe Acrobat Reader™ version 7.0 or later. This program can be downloaded from the [Adobe Web site](http://www.adobe.com) (<http://www.adobe.com>).

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

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**Note** Before calling Agile Support about a problem with an Oracle|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 Oracle|Agile PLM can be found in the Readme file on the [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) (<http://www.oracle.com/technology/documentation/agile.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](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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# Overview of Agile PLM Data Mart

### This chapter includes the following:

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- Data Mart Features..... 1
- Data Mart Architecture..... 2

Agile PLM Data Mart is an operational data store for Agile PLM data integrated with ETL technology that provides data foundation for your Enterprise Data Warehouse & Analytics solutions. The Agile PLM Data Mart stores all relevant data available in the PPM, PC, and PQM Modules of Agile PLM. The data model for the Agile PLM Data Mart is structured to facilitate querying and analysis.

The Agile PLM Data Mart operational data store facilitates the following use cases:

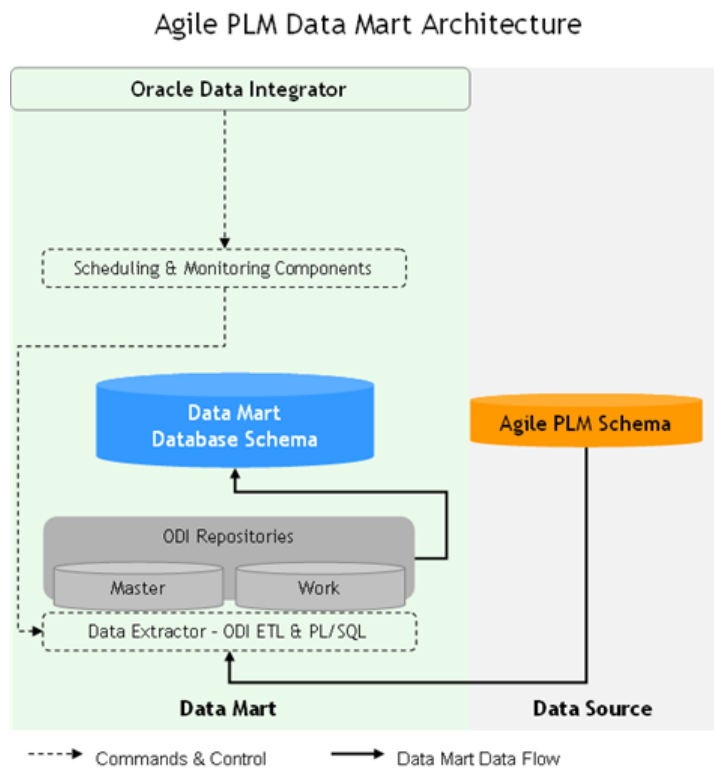
1. Integrate Agile Data with your Corporate Data Warehouse using corporate ETL's
2. Build and deploy your corporate Business Reporting & Intelligence applications
3. Deploy pre-packaged Agile PLM Business Intelligence (BI) Solutions

For #2 above, we recommend that you design a Multi-dimensional schema (MDS) layer with the Agile PLM Data Mart as the staging schema. MDS consists of Facts & Dimension tables and it's design is driven by Reporting & Intelligence business requirements.

## Data Mart Features

- Agile PLM Data Mart delivers a normalized schema database that captures the business object data of Common, PC, PPM & PQM objects & their related data. In addition it captures selected Administrator data and last modification timestamps which help to further extract data into any down-stream database system.
- Agile PLM Data Mart packages pre-built ETL that leverages Oracle Data Integrator (ODI) Technology. Using the ODI operator, you can schedule & run scenarios that extract, load & transform the Agile PLM transactional data into the Agile PLM Data Mart.
- Agile PLM Data Mart can be set to extract data from one or more supported Agile PLM modules.
- Agile PLM Data Mart supports incremental extraction for Cover Page, Page 2 & Page 3 data of the business objects.
- Agile PLM Data Mart can be set to run full or Incremental load.

## Data Mart Architecture



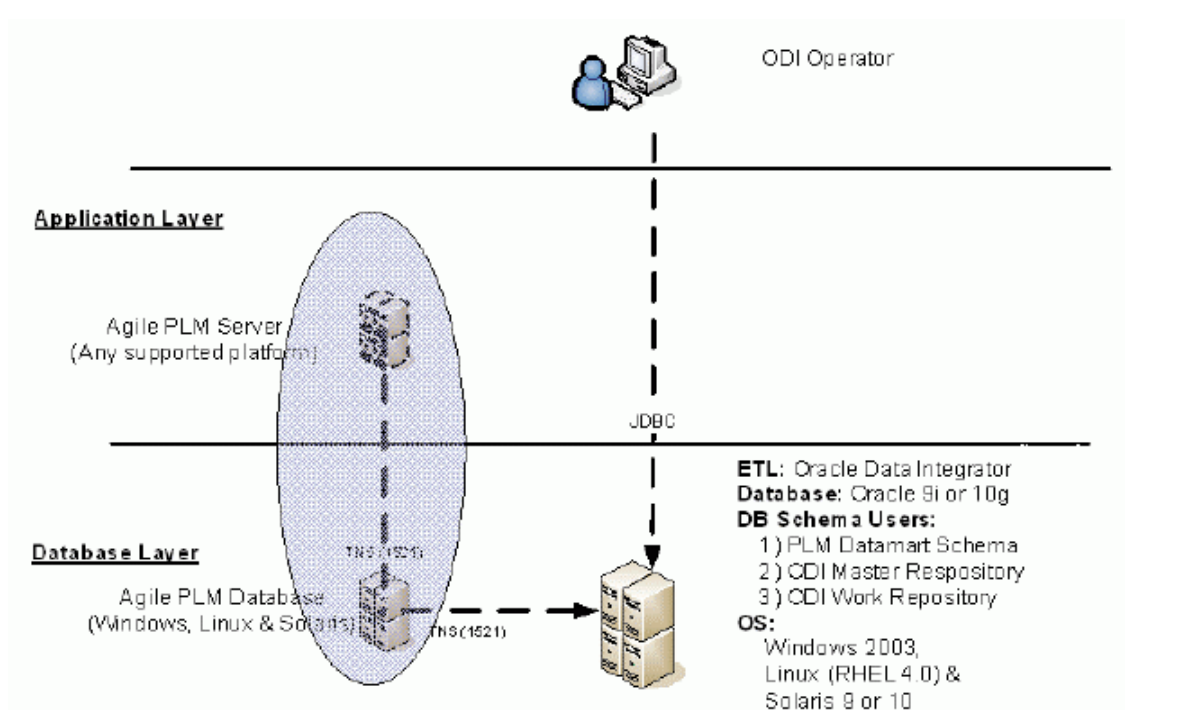


# Resource and Capacity Planning

This chapter includes the following:

▪ Deployment Architecture .....	3
▪ Agile PLM Data Mart Database .....	5
▪ Data Mart Database Sizing .....	6
▪ ODI Repository Database .....	7
▪ Software Requirements .....	7
▪ Hardware Requirements .....	7

## Deployment Architecture



## Deployment Scenarios

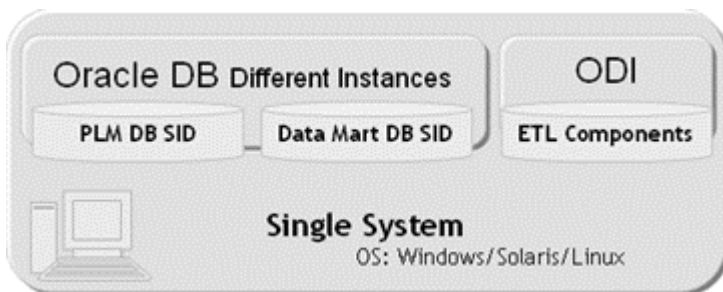
Agile PLM Data Mart can be deployed on a single system or multiple systems. The systems should have the requisite hardware and software configurations.

## Single System

### *Same Instance*

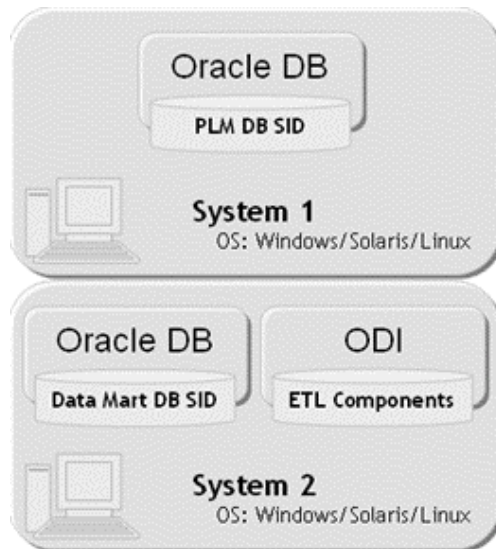


### *Different Instances*



## Multiple Systems

### Two Systems



### Three Systems



## Agile PLM Data Mart Database

The Agile PLM Data Mart Database comprises of the following:

- Staging tables
  - Metadata tables
  - Incremental extraction tables
- Target Data Mart tables
  - Data dictionary tables
  - Normalized schema tables for Agile PLM classes
  - Dimension tables
  - Map tables for many to many relationships with dimension tables

The size of Agile PLM Data Mart Database would be approximately twice (2x) that of Agile PLM Database.

## Data Mart Database Sizing

The Agile PLM Data Mart is categorized into four sizes

1. Small
2. Medium
3. Large
4. Extra Large

The basis of this categorization is detailed in the table below.

Criterion	Small	Medium	Large	Extra Large
PLM Database Size	< 1 GB	1 - 5 GB	5 - 10 GB	> 10 GB
Number of Query Connections on PLM Data Mart	5 - 10	10 - 25	25 - 40	> 40
<b>COMMON</b>				
Users	<100	>100	>500	>1000
User Groups	<10	>10	>50	>100
Suppliers	< 600	> 1,000	> 2,500	> 5,000
Customers	< 100	> 100	> 5000	> 35,000
Discussions	< 1,000	> 10,000	> 50,000	> 75,000
Average Workflow steps for all Change objects (ECO, PSR and etc.)	<6	>6	>8	>12
Average Approvers for all changes	<5	>5	>10	>20
Transfer Orders / week	< 13,000	> 13,000	> 26,000	> 780,000
Files	< 250,000	> 250,000	> 500,000	> 1,000,000
Items	< 100,000	> 100,000	> 150,000	> 200,000
Manufacturers	< 1,500	> 1,500	> 4,000	> 6,500
<b>PC</b>				
Manufacturer Parts	< 15,000	> 15,000	> 80,000	> 150,000
BoM Rows	< 200,000	> 200,000	> 1,000,000	>10,000,000
AML Rows	< 100,000	> 100,000	280,000	>450,000
Initial Changes	< 10,000	> 10,000	> 40,000	> 70,000
Changes / day (derived)	< 15	> 15	> 30	> 75
Avg Assembly BoM size	<20	>20	>100	>500
Avg AML / Item	<2	>2	>5	>10
Avg Affected Items / Change	<2	>2	>5	>10
<b>PQM</b>				
Initial Problem Service Requests	<10,000	>10,000	>50,000	>100,000
Problem Service Requests / week	< 2	> 2	> 80	> 400
Initial Problem Service Requests	<1,000	>1,000	>10,000	>20,000
Quality Change Request / week	< 2	> 2	> 25	> 100
Avg Items / PSR	<2	>2	>5	>10
Avg PSRs / PSR	<2	>2	>5	>10
Avg QCR / PSR	<2	>2	>5	>10
Avg PSRs / QCR	<2	>2	>5	>10
Avg Changes / QCR	<2	>2	>5	>10
Activities / Year	< 75,000	> 75,000	> 500,000	> 1,000,000
Decisions / Year	< 1500	> 1500	> 10,000	> 20,000
Root Programs / Year	< 500	> 500	> 5,000	> 10,000

Avg Team size per Program	<10	>10	>50	>75
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## ODI Repository Database

Following are the recommended ODI Repository DB settings

Memory & Disk Spaces	Customer Size			
	Small	Medium	Large	Extra Large
Disk Space	4 GB	8 GB	16 GB	32 GB
Default Extent Size	512K	1024K	2048K	4096K
Default Next Size	256K	512K	1024K	2048K
Datafile Size	512M	512M	1024M	1024M
Number of Datafiles	1	2	2	4
Datafile Autoextensible	All	All	All	All
Redo Log File Size	50M	100M	200M	400M
Log_buffer	1000000	1500000	2000000	2500000
Processes	100	150	200	250
Shared_pool_size	200000000	2500000000	3000000000	3500000000
Sort_area_size	10000000	150000000	200000000	250000000

## Software Requirements

The following are the operating systems and softwares supported in the Agile PLM Data Mart

Components	Type	Platform
Operating Systems	Microsoft Windows	Server 2003
	Unix	Solaris 9 & 10
	Linux	RedHat 4
Databases	Oracle	9i R2 Enterprise Edition *
		10g R2 Enterprise Edition *
<b>Note</b> * It is required to have Oracle Enterprise Edition for the PLM Source DB to use PLM Data Mart		
Tools	Oracle Data Integrator (ODI)	10.1.3.4.2
	Java Development Kit	1.5.x

## Hardware Requirements

Before you begin installation of Agile PLM Data Mart, please ensure that at least 2 GB of disk space is available on the server where Data Mart will be installed.

**Important** Agile PLM Datamart computers and databases should be dedicated to Agile and should not have any other software installed, unless otherwise specified. Do not include other database schemas or use the Agile host server as the primary domain controller (PDC) or

dynamic host configuration protocol (DHCP) server.

---

**Note**      Disk compression must be disabled on Agile computers.

---

When choosing a hardware configuration, consider the number of total users, the number of concurrent users, the size of your database, the number of ECOs processed per day, and overall activity level. For specific technical guidance, please contact Oracle Technical Support or your Agile PLM Solutions Consultant.

It is required that the computer system on which you are installing Agile PLM Data Mart components, and the Oracle Database, has at least two physical drives, or two partitions. This allows you to place the operating system on one drive/partition and use the other for Agile and/or Oracle components, thus ensuring better performance.

The following are the minimum hardware requirements based on database server size.

Environment	CPU	RAM	Minimum Disk Space
Development (DEV)	1	4 GB	2x Agile PLM DB Size
Testing or Staging (STAGE)	2	4 GB	
Production (PROD)	2 or 4	8 GB	

System Resources	Customer Size			
	Small	Medium	Large	Extra Large
CPU	2	2 - 4	4 - 8	8 ++
Disk Space	12 GB	24 GB	32 GB	64 GB
Memory (Windows)	2 GB	4 GB	6 GB	8 GB
Memory (Linux)	2 GB	4 GB	6 GB	8 GB
Memory (Windows)	2 GB	4 GB	6 GB	8 GB

# Installing Agile PLM Data Mart

**This chapter includes the following:**

---

▪ Prerequisites .....	9
▪ Pre-installation Checks .....	11
▪ Data Mart Installer .....	14
▪ Adding DB Services in Listener .....	29
▪ Executing Installation Scripts .....	29
▪ Validating the Data Mart Installation .....	29

**Important** It is preferable that the Data Mart Database installation is carried out under the guidance of a DBA.

**Important** The ETL installation can be carried out by anyone who has administrative privileges for the machine.

Agile PLM Data Mart can be installed using the Installer program shipped in Installation Pack. It works on the following operating systems:

- Windows 2003 Server
- Solaris
- Linux

---

**Note** Refer [Software Requirements](#) on page 7 for the supported OS versions.

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## Prerequisites

The following should be installed and configured before you begin installing the Agile PLM Data Mart -

- Oracle Database Server
- Agile PLM Database
- Oracle Data Integrator
- Java Development Kit

If any of these is missing or improperly configured, the Data Mart installation process will fail.

Besides these, ensure that ODI\_JAVA\_HOME is pointing to JDK 1.5.x.

Agile PLM Data Mart Installer is based on Apache ANT, which is packaged within the Installation Pack and is deployed automatically.

## Oracle Database Server

The Oracle Installer seeks the paths of Database Datafile Directory (Destination Base) and Oracle Home Directory (Destination Home). Hence, the system where you wish to install Data Mart Database, the Target Database, should already have Oracle Database Server installed.

You are not required to create any DB Schema Users - the installer creates them.

Agile PLM Data Mart supports only 10g R2 and 9i R2 versions of Oracle Database, Enterprise Edition.

For complete information about Oracle Database and its installation procedures, please refer Oracle DB Installation Guide. This is available for free download at [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) (<http://www.oracle.com/technology/documentation/agile.html>).

## Agile PLM Database

Agile PLM Data Mart extracts, loads and transforms data from Agile PLM Database, the Source Database. The Agile PLM Database can be located anywhere in your enterprise, connected through Local Area Network or Wide Area Network over TCP/IP.

The source PLM DB should already be existing. The target DB, i.e., the Data Mart DB, however, can be created in an existing instance, or in a new instance, which can be created using our installer.

The Agile PLM Data Mart Installer will seek the following information, which should be available with your Agile PLM Administrator:

- Database Host Name
- Database Port Number
- Database Name
- Database SID
- Sys User Password
- System User Password
- PLM DB Username
- PLM DB Password

Agile PLM Data Mart is designed to extract data from the following Releases of Agile PLM

Agile PLM Release	Schema Version
9.2.2	538
9.2.2 HF7	542
9.2.2.1	563
9.2.2.1 HF12	564
9.2.2.2	581
9.2.2.3	588
9.2.2.4	614



## Oracle Data Integrator

Agile PLM Data Mart operation is based on Oracle Data Integrator (ODI) tool. The Data Mart Schema requires atleast one Master Repository and one Work Repository. These repositories are used by ODI to operate on data during transformation.

The installer creates the Data Mart Schema on Target Database Server. The ODI should be installed on the same system where you wish to install Agile PLM Data Mart ETL Components.

For complete information on ODI, refer its documentation, which is available for free download at [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) (<http://www.oracle.com/technology/documentation/agile.html>)

ODI, and its patch, can be downloaded from [Oracle web site](http://www.Oracle.com) <http://www.Oracle.com>.

## Pre-installation Checks

Several preliminary steps are required before you begin the installation process.

- Verify that your computer meets the minimum hardware and software requirements. Refer chapter on Resource and Capacity Planning in this guide.
- Ensure that you have administrative privileges on your computer.
- Ensure that the PLM Source DB is available.
- Ensure correct Java and ODI versions are installed (as per our recommendations).
- Ensure ODI\_JAVA\_HOME is pointing to JDK 1.5.x If not, please set it.
- Ensure JAVA\_HOME is pointing to JDK 1.5.x
- Add JAVA\_HOME to path
- If your computer has a dynamic IP address, install a loopback adapter
- If you are installing from a network drive, use Windows File Manager to map that drive to your computer.
- For Data Mart Database creation, make sure that SQLNET.AUTHENTICATION\_SERVICES in the Network Configuration File, sqlnet.ora, is set to (NTS).
- Virus Protection is disabled.

If virus protection is enabled, components used in the installer can be falsely identified as being infected and lockup the installation. You can turn the virus protection on after the installation is complete.

## Recommendations

- Do not install the Agile PLM Data Mart on the same drive as that of the operating system.
- Install the Agile PLM Data Mart directly under the root directory. For example, D:\PLMDatamart.
- There must be at least 20 GB of free disk space and 2 GB memory available for PLM Data Mart.

**Important** The complete path and folder names should NOT contain any spaces, because ODI fails to recognize any spaces in folder names or paths. For example, the path d:\Program Files\Data Mart will lead to failure of ODI operation.

## Installing in Windows

### Settings

Before you invoke Installer program, you are required to set the Environment Variables -

1. On your desktop, right click on My Computer icon and select Properties. The *System Properties* panel appears.
2. Click Environment Variables in Advanced tab
3. Define User variable for Java Home.  
Example : JAVA\_HOME=C:\Java\jdk1.5
4. Set system variable for Path of Java Home  
Example : PATH=%JAVA\_HOME%\bin
5. Click OK to complete

### To start the Agile PLM Data Mart installer on Windows:

1. Log in as a user with administrative privileges to install.
2. From Installer base directory in the Installer Disk, <double-click> PLMDMSetup.exe file.
3. In a few moments, the *Welcome* screen appears.
4. Click Next for subsequent screens, which will appear in a sequence, from [Getting Started](#) (on page 17) stage of installation process (see [Data Mart Installation Process](#) (on page 15)) through to other stages in accordance with your selection at S-1.

## Installing in Solaris

### Settings

For the Oracle databases to work properly, the default semaphore settings in Solaris do not work. These settings should be reconfigured as follows

### To modify the system kernel parameters:

1. Change to the root user, and back up the /etc/system file:  
`$ su - [Enter]`

```
# cp /etc/system /etc/system_save [Enter]
```

1. Verify the following /etc/system kernel parameters. If the parameters do not exist, go to the next step.

```
set shmsys:shminfo_shmmax = 4294967295
set shmsys:shminfo_shmmin = 1
set shmsys:shminfo_shmmni = 100
set shmsys:shminfo_shmseg = 10
set semsys:seminfo_semmns = 1024
set semsys:seminfo_semmni = 100
set semsys:seminfo_semmsl = 500
set semsys:seminfo_semopm = 100
set semsys:seminfo_semvmx = 32767
set noexec_user_stack = 1 (Note:On Oracle 10g only)
```

**Important** If you have been running the host computer as an Oracle database server, you have to check with your Solaris system administrator before changing these parameters. For these parameter settings, you can also refer to the Oracle documentation.

---

**Note** Restart the computer if you modify the /etc/system file.

---

Before you invoke Installer program, you are required to set the profile as follows -

```
(Oracle 9i) ORACLE_HOME=/u01/app/oracle/product/9.2.0SE; export
ORACLE_HOME
(Oracle 10g) ORACLE_HOME=/u01/app/oracle/product/10.2.0/db_1;
export ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin; export PATH
JAVA_HOME=/u01/oracle/software/jdk1.5.0_15; export JAVA_HOME
ODI_JAVA_HOME=$JAVA_HOME; export ODI_JAVA_HOME
ODI_HOME=/u01/oracle/software/odi/oracledi; export ODI_HOME
```

### To start the Agile PLM Data Mart installer on Solaris:

2. Log on with Administrator rights
3. At the prompt, execute PLMDMSSetup\_Sol.bin file.
4. In a few moments, the *Welcome* screen appears.
5. Click Next for subsequent screens, which will appear in a sequence in [Getting Started](#) (on page 17) stage of installation process (see Data Mart Installer) and branching off to other stages in accordance with your selection at S-1.

**Important** The user should have full permissions for all the folders of Oracle DB and ODI. Else, the Installation will fail.

## Installing in Linux

### Settings

#### Modify the system kernel parameters:

1. Change to the root user, and back up the /etc/sysctl.conf file:
 

```
$ su - [Enter]
# cp /etc/sysctl.conf /etc/sysctl.conf_save [Enter]
```
1. Verify the following /etc/sysctl.conf kernel parameters. If the parameters do not exist, go to the

next step.

```
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
fs.file-max = 65536
net.ipv4.ip_local_port_range = 1024 65000
net.core.rmem_default = 1048576
net.core.rmem_max = 1048576
net.core.wmem_default = 262144
net.core.wmem_max = 262144
```

**Important** If you have been running the host computer as an Oracle database server, you have to check with your Linux system administrator before changing these parameters. For these parameter settings, you can also refer to the Oracle documentation.

---

**Note** Restart the computer if you modify the /etc/sysctl.conf file. Alternatively, you can use the sysctl command to modify the semaphore parameters immediately. However, using sysctl command does not make the changes permanent. Permanent changes are required in /etc/sysctl.conf file.

---

Before you invoke Installer program, you are required to set the profile as follows -

```
(Oracle 9i) ORACLE_HOME=/u01/app/oracle/product/9.2.0SE; export
ORACLE_HOME
(Oracle 10g) ORACLE_HOME=/u01/app/oracle/product/10.2.0/db_1;
export ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin; export PATH
JAVA_HOME=/u01/oracle/software/jdk1.5.0_15; export JAVA_HOME
ODI_JAVA_HOME=$JAVA_HOME; export ODI_JAVA_HOME
ODI_HOME=/u01/oracle/software/odi/oracledi; export ODI_HOME
```

### To start the Agile PLM Data Mart installer on Linux:

2. Log on with Administrator rights.
3. At the prompt, execute PLMDMSetup\_Lin.bin file.
4. In a few moments, the *Welcome* screen appears.
5. Click Next for subsequent screens, which will appear in a sequence in [Getting Started](#) (on page 17) stage of installation process (see Data Mart Installer) and branching off to other stages in accordance with your selection at S-1.

**Important** The user should have full permissions for all the folders of Oracle DB and ODI. Else, the Installation will fail.

## Data Mart Installer

The Agile PLM Data Mart Installer is a program that helps in installation of PLM Data Mart DB and its components. Based on Apache ANT installation framework, it seeks requisite inputs about Source Database, Destination Database and ODI from the user, configures the corresponding properties, and installs all the components required for the Data Mart to perform its functions.

The Installer deploys the following:-

- Apache Ant
- Data Mart components
- Data Mart Database

The Data Mart Installer follows an installation process, shown and described in Data Mart Installation Process. It is recommended to keep the Data Mart Installation Process diagram handy while carrying out the installation.

## Data Mart Installation Process

The Data Mart installation process has four prime stages:

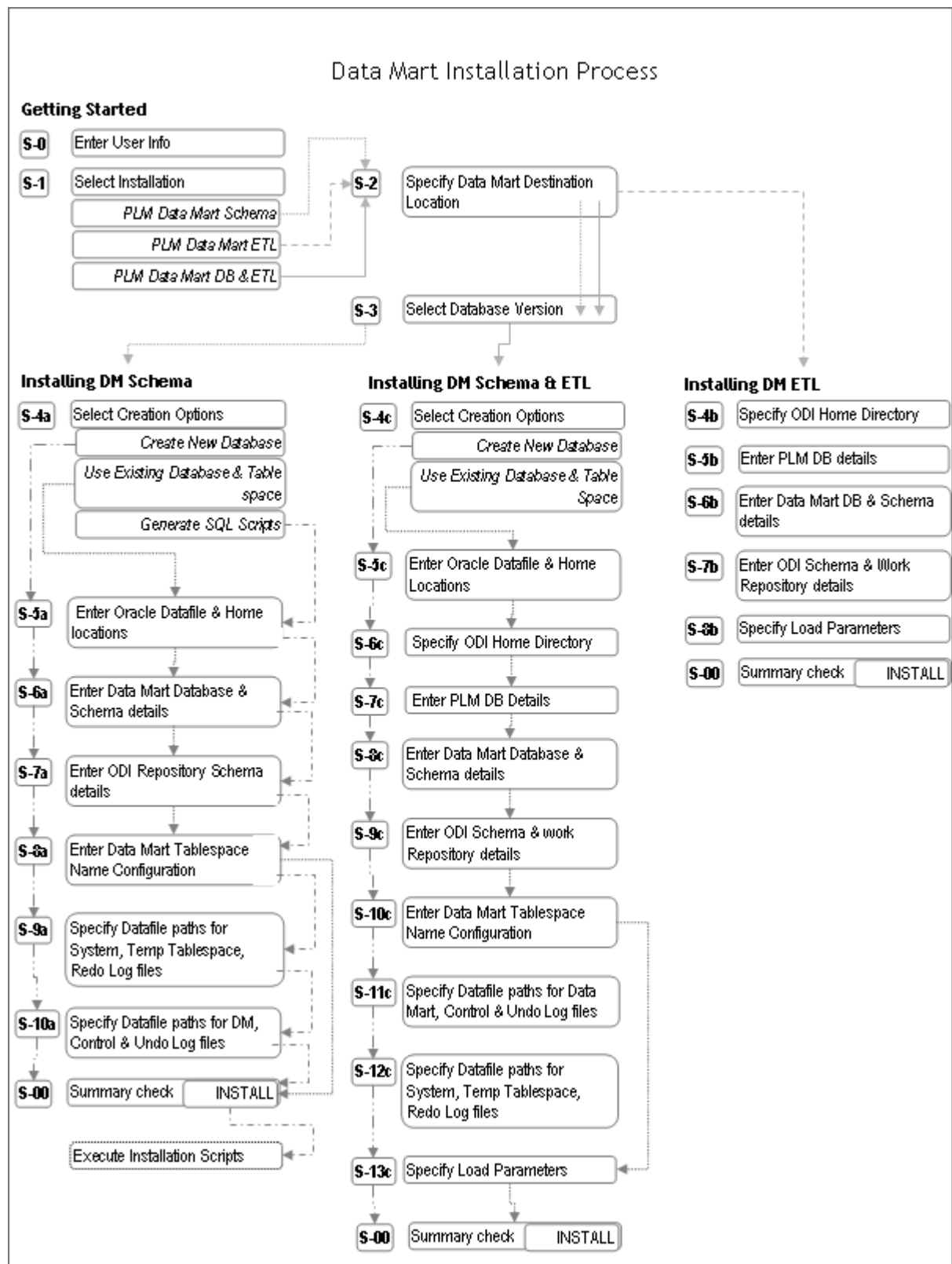
1. Getting Started
2. Installing PLM Data Mart Database
3. Installing PLM Data Mart ETL components
4. Installing both, PLM Data Mart Database and ETL components

Each step of the installation process has been numbered, with a prefix "S-" for ease of understanding. These numbers, for example S-2c, correspond to each of Installer screens appearing in a sequence of installation steps for an installation stage. The characteristics of user inputs (fields or selections) required in each step of installer screen are detailed in the tables under each stage heading. The numbering of these tables corresponds to each screen that appears in a particular sequence in accordance with your selections.

---

Note	The step numbering does not appear on installer screens. It is only for ease of referencing.
------	----------------------------------------------------------------------------------------------

---



## Getting Started

The following tables list out the input fields and/or selection options that appears on each screen of installer program, and the requisite input characteristics/attributes.

---

Note	The Installer should be launched in system where the database is installed. Remote DB connection is not supported.
------	--------------------------------------------------------------------------------------------------------------------

---

### ***S-0: Enter User Information***

---

Input Fields / Options	Characteristics
User Name	Enter your name and your company name.
Company Name	Should be 5 to 20 characters long. Can be Alpha-Numeric, with special characters. Is not case sensitive. You cannot proceed to next steps without entering this information.

---

### ***S-1: Select Installation***

---

Input Fields / Options	Characteristics
PLM Data Mart DB Creation	Select this option to either create new PLM Datamart Database or to create PLM Data Mart DB schemas using an existing instance.
PLM Data Mart ETL	Select this option to install the ETL components that are used by ODI for Extraction, Transformation & Loading of data from Source Database into the destination Database. Before you chose this option, you should have already installed PLM Data Mart Schema. Else, the installer will abort.
PLM Data Mart Schema & ETL	Select this option to install both, the Data Mart Database and ETL components in the same system.

---

### ***S-2: Specify PLM Data Mart Database Destination Location***

---

Input Fields / Options	Characteristics
Destination Location	PLM Datamart should not be installed in any directory that has any space in it (for example - d:\Program Files). Folder name should be a single word. Any space between a multi-word folder name is not recognized by ODI. Is not case sensitive. Can be located in any system anywhere in the Local Area Network or Wide Area Network (remote location). The folder need not be already existing.

---



---

Note	If you selected the Installation Option PLM Data Mart ETL on S-1, proceed to S-4b in <a href="#">Installing Data Mart ETL Components</a> (on page 21)
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**S-3: Select Database Version**

Input Fields / Options	Characteristics
Oracle 10g Database Server	This is the destination Database Server for Data Mart.
Oracle 9i R2 Database Server	Should be already installed in the system where the Data Mart is being installed.

---

**Note** If you selected the Installation PLM Data Mart Schema Creation on S-1, proceed to S-4a in [Installing Data Mart Schema](#) (on page 18).

**Note** If you selected the Installation Option PLM Data Mart Schema & ETL on S-1, proceed to S-4c in [Installing Data Mart Schema and ETL Components](#) (on page 24).

---

## Installing Data Mart Schema

**S-4a: Select Data Mart Schema**

Input Fields / Options	Characteristics
Create New Database	Select this option to create a fresh Database, in which a new Instance will be created. Follow the steps <b>S-5a</b> through to <b>S-00</b> .
Use Existing Database and Tablespace	Select this option to create a new Instance on an existing Database and Schema. Follow the steps <b>S-5a</b> through to <b>S-8a</b> , and then skip to <b>S-00</b> .
Generate SQL Scripts	Select this option if you do not wish to install the Data Mart DB using the Installer. However, you are required to enter the requisite inputs and/or make selections in the Installer only. At the end of your inputs, the Installer generates SQL files, which can be executed to carry out the installation. Follow steps <b>S-5a</b> through to <b>S-00</b> , and proceed to <a href="#">Executing Installation Scripts</a> (on page 29).

**S-5a: Enter Oracle Home and Default Tablespace Locations**

Input Fields / Options	Characteristics
Oracle Home Directory	Choose or enter the directory locations.
Database Datafile Directory	Folder name should be a single word. Any space between a multi-word folder name is not recognized by ODI.



**S-6a: Enter Data Mart DB and Schema Details**

Input Fields / Options	Characteristics
<i>Data Mart Database Details</i>	
Host Name	System name of target Database Server where the Data Mart Database will be installed. Is not case sensitive. <b>Example:</b> Agile-DM9 Consult your Network and/or DB administrator for requisite information.
Database Name (SID)	Define a name for the Database that will be created in Data Mart. If you selected "Use existing Database and tablespaces", then you will need to select existing Instance name. <b>Default Value:</b> PLMDM
System User Password	Enter a valid System User password. Is not case sensitive. Consult your DB administrator for requisite information. <b>Default Value:</b> MANAGER
Sys User Password	Enter a valid System User password. Is not case sensitive. Consult your DB administrator for requisite information. <b>Default Value:</b> ORACLE
Database Port Number	Change this value, if different (consult you DB administrator for correct value) To change the value, first change the Port Number in Database server <b>listener.ora</b> file, then stop and start Database server listener service. Database server listener Port no: and user entered PLM DataMart Port no: should be in sync. Only Numeric value is permitted. <b>Default Value:</b> 1521
<i>Data Mart Schema Details</i>	
Data Mart User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Data Mart. Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_". Is not case sensitive. <b>Default Value:</b> ODM
Data Mart User Password	Define a password for this User. Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_" and "@" Is not case sensitive. <b>Default Value:</b> ODM

**S-7a: Enter ODI Repository Schema Details**

Input Fields / Options	Characteristics
Master Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Master Repository of ODI Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> ODIMASTER
Master Repository Database Password	Define a password for this User Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_" and "@". Is not case sensitive. <b>Default Value:</b> ODIMASTER
Work Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Work Repository of ODI Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> ODIWORK
Work Repository Database Password	Define a password for this User Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_" and "@". Is not case sensitive. <b>Default Value:</b> ODIWORK

**S-8a: Enter Data Mart Tablespace Name Configuration**

Input Fields / Options	Characteristics
PLM Data Mart Repository Tablespace	Define a name for the Repository Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_". Is not case sensitive. <b>Default Value:</b> AGILEODI
PLM Data Mart Data Tablespace	Define a name for the Data Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> AGILEODM

Input Fields / Options	Characteristics
PLM Data Mart Indexes Tablespace	Define a name for the Index Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> AGILEODM_INDX

**Note** If you selected the option of Use Existing Database & Tablespace in S-4a: Select Data Mart Schema, skip to S-00.

### **S-9a: Enter Datafile Configuration for System, Temp Tablespaces & Redo Log Files**

Input Fields / Options	Characteristics
System Tablespace Datafile	Choose or enter the paths
Temp Tablespace Datafile	The folder names should not contain any spaces, as ODI does not resolve spaces and hence, fails to operate
Redo Log file	

### **S-10a: Enter Datafile Configuration for Data Mart, Control & Undo Log Files**

Input Fields / Options	Characteristics
Data Mart and ODI Tablespace	Choose or enter the paths
Control Files	The folder names should not contain any spaces, as ODI does not resolve spaces and hence, fails to operate
Undo Log files	

### **S-00: Summary of inputs**

1. Check the summary of all the inputs you provided. If you wish to make any changes, click on Previous button or click Install button for the Installer to carry out the installation.
2. The installation will take several minutes. It depends on the number of activities
3. Upon completion of installation, the confirmation screen appears. Click OK to close.
4. If you selected Generate SQL Scripts in S-4a: Select Data Mart Schema, proceed to [Executing Installation Scripts](#) (on page 29) followed by [Adding DB Services in Listener](#) on page 29. Else proceed directly to [Adding DB Services in Listener](#) on page 29..

## Installing Data Mart ETL Components

### ***S-4b: Select ODI Home Directory***

Input Fields / Options	Characteristics
	Select (or enter) the complete valid path of ODI Home directory. There should be no spaces in the folder name(s).

### ***S-5b: Enter Source DB Details***

Input Fields / Options	Characteristics
Database Host Name	This is the System Name of Agile PLM Database Server If the PLM DB server is not installed in your local system, delete it, and enter the system name of PLM DB Server that may be located anywhere on your Local Area Network (LAN) or Wide Area Network (remote location) connected over TCP/IP. Is not case sensitive. <b>Default Value:</b> <your local system name> --- it automatically picks up the name of system.
Database Port Number	Change this value, if different. Consult you Agile PLM DB administrator for correct value. Only Numeric value is permitted <b>Default Value:</b> 1521
Database Name (SID)	The name PLM Database, from where the Data Mart tool will extract the data Should be already configured Not case sensitive
PLM DB User Name	A valid user name in source DB Should be already created by Agile PLM DB administrator
PLM DB Password	A valid password of PLM DB user

### ***S-6b: Enter Data Mart DB and Schema Details***

Input Fields / Options	Characteristics
<i>Target Database Details</i>	
Host Name	System name of target Database Server where the Data Mart will be installed Is not case sensitive Can be located in any system anywhere in your Local Area Network or Wide Area Network (remote location) connected over TCP/IP <b>Example:</b> Agile-DM9 Consult your Network and/or DB administrator for requisite information
Database Port Number	Change this value, if different. Consult you DB administrator for correct value. Only Numeric value is permitted <b>Default Value:</b> 1521
Database Name (SID)	Define a name for the Database that will be created in Data Mart

Input Fields / Options	Characteristics
<i>Data Mart Schema Details</i>	
Data Mart User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Data Mart Should be 1 to 10 characters long Can be Alpha-Numeric Can contain special characters; spaces not permitted
Data Mart Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Can contain special characters; spaces not permitted

### ***S-7b: Enter ODI Schema and Work Repository Details***

Input Fields / Options	Characteristics
<i>Oracle Data Integrator Schema Details</i>	
Master Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Master Repository of ODI Should be 1 to 10 characters long Can be a Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> ODIMASTER
Master Repository Database Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" <b>Default:</b> ODIMASTER
Work Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Work Repository of ODI Should be 1 to 10 characters long Can be a Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> ODIWORK
Work Repository Database Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" <b>Default:</b> ODIWORK
<i>Oracle Data Integrator Wrok Repository Details</i>	
ODI Work Repository Name	Define a name for the Work Repository that will be created in ODI Should be 1 to 10 characters long Cannot be Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> WORKREP

Input Fields / Options	Characteristics
ODI Work Repository Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" Default: WORKREP

**S-8b: Enter Load Parameters**

Input Fields / Options	Characteristics
Enable PLM Modules for Extraction	Select the checkboxes against the PLM modules - PC, PPM, PQM, from which you wish to extract the data. You must select atleast one module. By default, all the modules are selected.
Email ID for ETL Notifications	If you wish to receive automatic notifications on ETL runs, specify email IDs of all receipients. Seperate multiple IDs with commas.
Mail Server Name	Specify the name of Email Server that is installed on the same system where ODI is installed.

**S-00: Summary of inputs**

1. Check the summary of all the inputs you provided. If you wish to make any changes, click on Previous button or click Install button for the Installer to carry out the installation.
2. The installation will take several minutes. It depends on the number of activities
3. Upon completion of installation, the confirmation screen appears. Click OK to close.
4. Proceed to [Validating the Data Mart Installation](#) (on page 29).

## Installing Data Mart Schema and ETL Components

**S-4c: Select Data Mart Schema**

Input Fields / Options	Characteristics
Create New Database	Select this option to create a fresh Database, in which a new Instance will be created. Follow the steps S-5c through to S-00.
Use Existing Database and Tablespace	Select this option to create a new Instance on an existing Database and Schema. Follow the steps S-5c through to S-10c, and then skip to S-00.

**S-5c: Enter Oracle Home and Default Tablespace Locations**

Input Fields / Options	Characteristics
Oracle Home Directory	

Input Fields / Options	Characteristics
Database Datafile Directory	Choose or enter the directory locations. Folder name should be a single word. Any space between a multi-word folder name is not recognized by ODI.

### **S-6c: Select ODI Home Directory**

Input Fields / Options	Characteristics
	Select (or enter) the complete valid path of ODI Home directory. There should be no spaces in the folder name(s).

### **S-7c: Enter Source DB Details**

Input Fields / Options	Characteristics
Database Host Name	This is the System Name of Agile PLM Database Server If the PLM DB server is not installed in your local system, delete it, and enter the system name of PLM DB Server that may be located anywhere on your Local Area Network (LAN) or Wide Area Network (remote location) connected over TCP/IP. Is not case sensitive. <b>Default Value:</b> <your local system name> --- it automatically picks up the name of system.
Database Port Number	Change this value, if different. Consult you Agile PLM DB administrator for correct value. Only Numeric value is permitted <b>Default Value:</b> 1521
Database Name (SID)	The name PLM Database, from where the Data Mart tool will extract the data Should be already configured Not case sensitive
PLM DB User Name	A valid user name in source DB Should be already created by Agile PLM DB administrator
PLM DB Password	A valid password of PLM DB user

### **S-8c: Enter Data Mart Database and Schema Details**

Input Fields / Options	Characteristics
<i>Data Mart Database Details</i>	
Host Name	System name of target Database Server where the Data Mart Database will be installed. Is not case sensitive. <b>Example:</b> Agile-DM9 Consult your Network and/or DB administrator for requisite information.
Database Name (SID)	Define a name for the Database that will be created in Data Mart. If you selected "Use existing Database and tablespaces", then you will need to select existing Instance name. <b>Default Value:</b> PLMDM

Input Fields / Options	Characteristics
System User Password	Enter a valid System User password. Is not case sensitive. Consult your DB administrator for requisite information. <b>Default Value:</b> MANAGER
Sys User Password	Enter a valid System User password. Is not case sensitive. Consult your DB administrator for requisite information. <b>Default Value:</b> ORACLE
Database Port Number	Change this value, if different (consult you DB administrator for correct value) To change the value, first change the Port Number in Database server <b>listener.ora</b> file, then stop and start Database server listener service. Database server listener Port no: and user entered PLM DataMart Port no: should be in sync. Only Numeric value is permitted. <b>Default Value:</b> 1521
<i>Data Mart Schema Details</i>	
Data Mart User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Data Mart. Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_". Is not case sensitive. <b>Default Value:</b> ODM
Data Mart User Password	Define a password for this User. Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_" and "@" Is not case sensitive. <b>Default Value:</b> ODM

### **S-9c: Enter ODI Schema and Work Repository Details**

Input Fields / Options	Characteristics
<i>Oracle Data Integrator Schema Details</i>	
Master Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Master Repository of ODI Should be 1 to 10 characters long Can be a Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> ODIMASTER
Master Repository Database Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" <b>Default:</b> ODIMASTER



Input Fields / Options	Characteristics
Work Repository Database User Name	Define a name for the default User to be created who will be granted the admin rights to access and control the Databases in the Work Repository of ODI Should be 1 to 10 characters long Can be a Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> ODIWORK
Work Repository Database Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" <b>Default:</b> ODIWORK
<i>Oracle Data Integrator Wrok Repository Details</i>	
ODI Work Repository Name	Define a name for the Work Repository that will be created in ODI Should be 1 to 10 characters long Cannot be Alpha-Numeric Cannot contain space and special characters, other than "_". <b>Default:</b> WORKREP
ODI Work Repository Password	Define a password for this User Should be 1 to 10 characters long Can be Alpha-Numeric Cannot contain space and special characters, other than "_" and "@" <b>Default:</b> WORKREP

### **S-10c: Enter Data Mart Tablespace Name Configuration**

Input Fields / Options	Characteristics
PLM Data Mart Repository Tablespace	Define a name for the Repository Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters, other than "_". Is not case sensitive. <b>Default Value:</b> AGILEODI
PLM Data Mart Data Tablespace	Define a name for the Data Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> AGILEODM
PLM Data Mart Indexes Tablespace	Define a name for the Index Tablespaces to be created Should be 1 to 10 characters long. Can be Alpha-Numeric. Cannot contain space and special characters. Is not case sensitive. <b>Default Value:</b> AGILEODM_IND

**Note** If you selected the option of Use Existing Database & Tablespace in S-4c: Select Data Mart Schema, skip to S-13c.

**S-11c: Enter Datafile Configuration for Data Mart & ODI , Control & Undo Log Files**

Input Fields / Options	Characteristics
Data Mart and ODI Tablespace	Choose or enter the paths
Control Files	The folder names should not contain any spaces, as ODI does not resolve spaces and hence, fails to operate
Undo Log files	

**S-12c: Enter Datafile Configuration for System, Temp Tablespaces & Redo Log Files**

Input Fields / Options	Characteristics
System Tablespace Datafile	Choose or enter the paths
Temp Tablespace Datafile	The folder names should not contain any spaces, as ODI does not resolve spaces and hence, fails to operate
Redo Log file	

**S-13c: Enter Load Parameters**

Input Fields / Options	Characteristics
Enable PLM Modules for Extraction	Select the checkboxes against the PLM modules - PC, PPM, PQM, from which you wish to extract the data. You must select atleast one module. By default, all the modules are selected.
Email ID for ETL Notifications	If you wish to receive automatic notifications on failed ETL tasks, specify the email IDs of all receipients. Seperate multiple IDs with commas.
Mail Server Name	Specify the name of Email Server that is installed on the same system where ODI is installed.

**S-00: Summary of inputs**

1. Check the summary of all the inputs you provided. If you wish to make any changes, click on Previous button or click Install button for the Installer to carry out the installation.
2. The installation will take several minutes. It depends on the number of activities
3. Upon completion of installation, the confirmation screen appears. Click OK to close.
4. Proceed to [Adding DB Services in Listener](#) on page 29.

Important The DB Listener should be running.

## Adding DB Services in Listener

---

**Note** This is only applicable only if you are creating a new Data Mart DB Instance.

---

Upon completion of the Installation process, you are required to add DB services in Listener. Use the Oracle Net Manager to specify

- Global Database Name [eg, PLMDM]
- Oracle Home Directory [eg, D:\ORACLE\product\10.2.0\db\_1]
- SID [eg, PLMDM]

Once finished, Stop and restart the Listener.

## Executing Installation Scripts

---

**Note** The database needs to be already created before executing these steps.

---

If you selected the option *Generate SQL Scripts* in S-4: Select Data Mart Schema stage of Installation, the Installer generates a set of SQL files and stores them in Schema folder under *Data Mart Home* directory. You need to execute the them in SQLplus in the order given below. The purpose of this is to manually create PLM Data Mart DB schemas by executing the given scripts.

---

**Note** In SQLplus, connect to the Data Mart DB using the Data Mart User Name and Password.

---

Before doing so, set the following:

```
In Windows      set oracle_sid = <sid_name>
In Solaris/Linux export ORACLE_SID = <sid_name>
```

1. TableSpaceCreation.sql - to create Tablespace. If the tablespace is already existing, skip this step.
2. UserCreation.sql - to create Users.
3. Run PLSQLlogger.bat for debug logs.
4. ODM.sql to install Operational Data Mart (ODM).
5. (Optionally) You can run ODM\_DDL\_COMMENTS.sql script to add comments for the tables.

The given sequence of execution is very important, else it will lead to failed installation.

## Validating the Data Mart Installation

Upon completion of installation, you may verify if it was successful or not. Check for the following:

- Execute the SQL @ Work Repository schema
 

```
select count(scen_no) from SNP_SCEN;
```
- Check the following log files, located in the logs folder under *Data Mart Home* directory, for any errors:
  - DatamartETLInstall.log file for information pertaining to installation of ETL components

- DatamartDBInstall.log file for information on DB creation
- DatamartInstall.log file

The next topics provide additional checks for validating and verifying the installation.

## Database Schemas

Check to ensure that the following Database schemas are creating successfully:

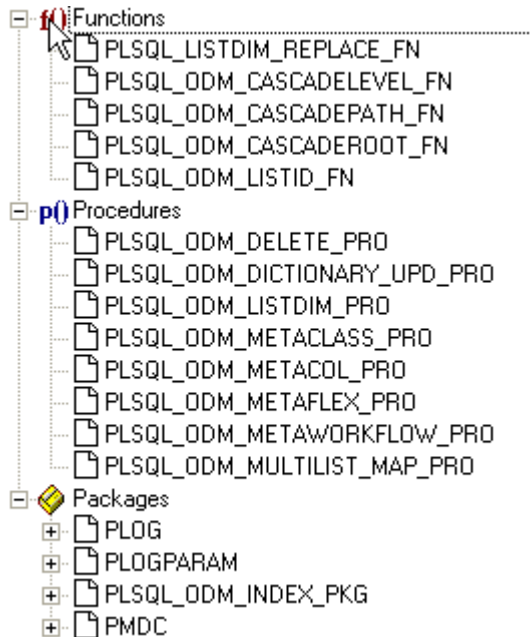
- Data Mart DB
- ODI Master Repository
- ODI Work Repository

Besides making sure the Directory structure and schemas are properly created, following validation checks should be done to make sure Data Mart is installed properly:

### **Verifying Datamart Schema**

On the Data Mart DB schema, make sure

1. ODM\_LISTDIM\_CTL table is populated with seed data.
2. Parameter table ic created and one row is populated in the table
3. Following PL/SQL packages (4), procedures (8) and functions (5) are created:



4. Make sure TLOG table, VLOG view and TLOG synonym are created.

If any of the above verifications fail, look for any Oracle Database errors in the DatamartInstall.log file. DatamartInstall.log file is located in the <PLM Datamart Home> \LOGS folder. It includes information log details for the following installation steps:

- Creation of Users (Datamart Schema User, ODI Master Repository user, ODI Work Repository

User)

- PL/SQL logger (Analytics Log user, creation of tables TLOG)
- Datamart DB creation
- ODI Repository creation
- ODI Physical connection configuration, Logical connection configuration, importing Model folder, Project folder

## Install Directory Structure

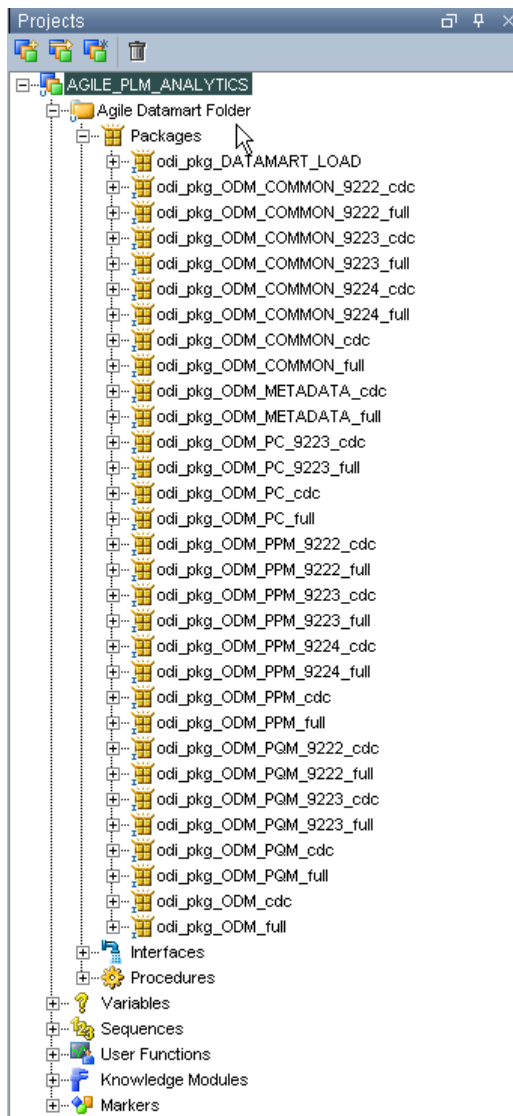
After installation, the PLM Data Mart install directory structure, with the outlined content, should look like:

Ant	Ant installation required for Data Mart installation
Bin	Contains configuration tools and miscellaneous utilities
Common	Contains PL/SQL log files for ETL
Config	Contains all PLM Data Mart configurations including ANT install configuration file
Install	Installation components
JDK	Java run-time used by the ODI
Lib	Contains all dependent libraries specially used by Data Mart
Logs	Install logs
Schema	Contains SQL scripts for creating instance
Uninstaller	Contains executable file to un-install the software

## Verifying ODI Repositories

Log into ODI Designer to verify the following:

1. Model tab has the following models:



2. Projects tab has AGILE PLM ANALYTICS project and the project has following packages under Agile Datamart Folder:
  1. Open ODI Topology Manager and make sure the Source PLM Database SID and schema user details are populated:
    - a. Double click on Physical Architecture tab > Technologies > Oracle > SRC\_CONN\_PHYSICAL and verify Instance and Schema name details in the Definition tab.
    - b. Click on JDBC tab and verify that JDBC URL is pointing proper SID on Source PLM Database machine.

# Executing ETL

**This chapter includes the following:**

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- Setting up ODI Users..... 33
- Executing ETL from ODI..... 35
- Executing ETL from Command Prompt..... 35

You can perform Extraction, Transformation and Loading (ETL) of PLM Data from source Database to the Data Mart Database by executing the ETL tasks. These tasks are installed in the Data Mart Home directory and can be executed inside ODI or from command prompt.

Before you opt for either of the two ways, you are required to setup ODI users for the first time.

## Setting up ODI Users

Agile PLM Data Mart is based on ODI, the Oracle Data Integrator. To execute the ETL tasks and to operate on data, you are required to use ODI.

---

Note	ODI User setup requires the information entered during the Data Mart installation, such as, user names, passwords. Keep this access information handy.
------	--------------------------------------------------------------------------------------------------------------------------------------------------------

---

**To establish connection to Agile PLM Data Mart, you must first configure a User, as follows**

1. In Windows, execute the program Operator from Start > Programs > OracleODI  
The *Oracle Data Integrator Login* screen appears
2. Click the New Icon to create a new Work Repository Connection

The *Work Repository Connection* screen appears

**Work Repository Connection**

Oracle Data Integrator Connection

Login Name: Repository

User: SUPERVISOR

Password: \*\*\*\*\*

Database Connection (Master Repository)

User: ODIMASTER

Password: \*\*\*\*\*

Driver List: Oracle JDBC Driver

Driver Name: oracle.jdbc.driver.OracleDriver

Url: jdbc:oracle:thin:@<host>:<port>:<sid>

Work Repository

Repository Name: WORKREP

☒ Default Connection

OK Cancel Test Help

3. Enter Login Name, User name and password for ODI connection.

These can be of your choice. The default User Name is SUPERVISOR and the password is SUNOPSIS (case sensitive).

---

**Note** To configure additional user or change password for SUPERVISOR, please refer to ODI documentation.

---

4. Enter the User name and password for Master Repository DB connection that you specified during installation.
5. Select Oracle JDBC Driver from Driver List

The Driver Name field gets automatically filled with *oracle.jdbc.driver.OracleDriver*.

6. Enter the following URL

`jdbc:oracle:thin:@<host>:<port>:<sid>`

*where*

<host>	Host name of Data Mart DB Server
<port>	Port Number of Data Mart DB Server
<sid>	SID or the Instance name of Data Mart DB

7. Enter the Repository Name for Work Repository
8. Click Test button to verify if the connection works. Click OK . You will be prompted to enter the Work Repository Password.
9. Enter the work repository password that was assigned during the Data Mart installation and Click OK.



10. Click OK to finish.

---

**Note** For complete information on installation and usage of ODI, please refer its documentation available for free download at <http://www.oracle.com/technology/documentation/index.html>  
<http://www.oracle.com/technology/documentation/index.html>

---

## Executing ETL from ODI

---

**Note** If you want to see the status of all the tasks that are under execution, you are required to increase the Operator Display Limit to 1000 (the default value is 100). To do so, in ODI Operator, go to File Menu > User parameter > Set operator Display limit and change the value.

---

### To execute ETL from ODI, follow these steps:

1. Launch ODI Operator and select login, which is Repository Name
2. The username and password will populate automatically. Click OK.
3. Go to Scenarios tab  
You will see all the components listed in the Left Frame.
4. Right-click on DATAMART\_LOAD Version 001 component and select Execute. A *Variables* window will pop up.
5. Click OK. A *Sessions Started* window appears.
6. Click OK. The ETL process begins.

## Executing ETL from Command Prompt

### To execute ETL from command prompt, follow these steps:

1. In Windows, open a command window
2. Change directory to go to the bin folder in your Data Mart Home Directory, eg, d:\PLMdatamart\bin
3. Enter the following command line  

```
startdm DATAMART_LOAD 001 PLMDM  
where  
startdm is the batchfile that executes ETL tasks  
DATAMART_LOAD is the ETL task  
001 is the version number of ETL task  
PLMDM is the ETL context
```

The ETL process starts.

**To view the status of ETL process:**

1. Launch ODI Operator and select login, which is Repository Name
2. The username and password will populate automatically. Click OK.
3. You can also go to Sessions List tab and select All Executions in the left frame, which will show all the running tasks.
4. Also, you can go to Hierarchical Sessions tab and select Status or All Executions in the left frame to check overall top level progress.

# Configuring the Agile PLM Data Mart

**This chapter includes the following:**

---

▪ List Dimension Configurator .....	37
▪ Changing List Names in Dimension Table.....	39
▪ Validating Dimension Tables .....	39
▪ Enabling and disabling the Modules.....	39
▪ Scheduling ETL Instances .....	40
▪ Changing the Data Mart Passwords.....	41

## List Dimension Configurator

The PLM Data Mart Configurator allows customer to specify their own dimension table names in the PLM Data Mart schema for any OOTB list or customer configured lists within Agile PLM. The Dimension Table Names for Lists are stored in a ODM\_LISTDIM\_CTL table in PLM Data Mart schema. This tool facilitates the users to create their own dimension table name by adding corresponding entity to this table.

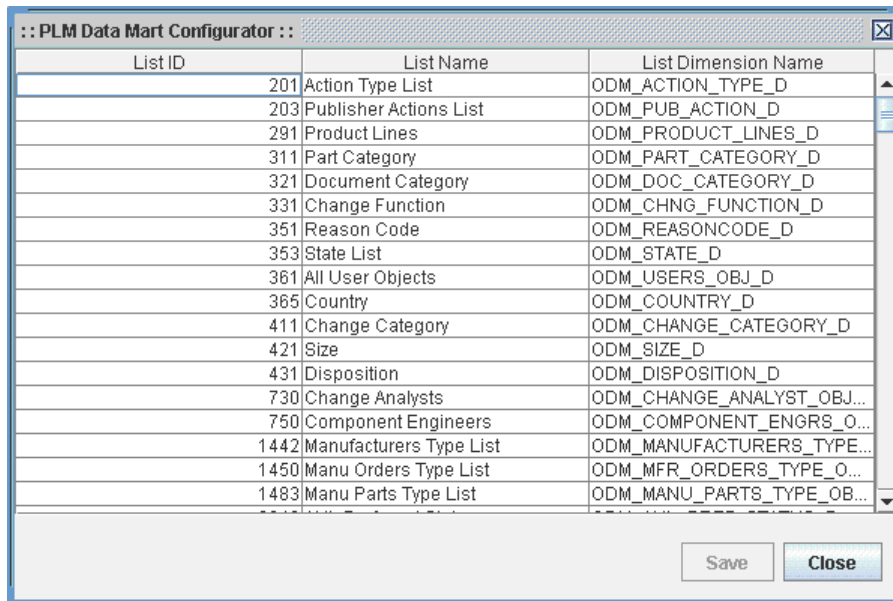
When you execute ETL, the Data Mart application creates Tables for each List Dimension. These tables serve as master data source of list items.

These List Dimension Tables are named according to their List Names. Should you want, you may rename them in accordance with your own naming conventions. For this objective, Agile PLM Data Mart Installer is bundled with a configuration tool - List Dimension Configurator.

**To use the List Dimension Configurator, follow these steps:**

1. Execute the Configurator.bat file, located in bin folder of Data Mart Home directory, e.g., d:\PLMDatamart\bin.

The configurator console appears.



It displays all the List IDs, List Names and List Dimension Names, sorted on List ID. You can sort the displayed data on List Name or List Dimension Name too.

- Identify the the desired List Name whose List Dimension Name you wish to modify/rename.
- Click in corresponding cell under List Dimension Name column. The cell attains Edit mode.
- If the cell is empty, enter the desired name. Else, select the existing name, delete and then enter a new name.

**Note** The List IDs and the corresponding List Names are fixed, i.e., you cannot modify them.

- Click Save button. The new values are stored in the List Dimension Control table - ODM\_LISTDIM\_CTL in the Data Mart.

**Note** The Save button remains inactive, that is, not-clickable, until you edit any List Dimension Name.

**Note** Undo, or Ctrl-Z, does not work.

- Continue editing the List Dimension Names or click Cancel button to exit.

**Note** Any updates made to List Dimension Names using Configurator shall only be processed during next ETL run.

The ODM\_LISTDIM\_CTL table stores the latest List Dimension Names. Before committing them, it copies the existing data into its backup table, ODM\_LISTDIM\_CTL\_BK, along with the timestamps of each modification. Thus, it maintains the entire history of each and every earlier List Dimension Name, facilitating you to switch back, should you want to.

## Changing List Names in Dimension Table

When a new List is added in Agile PLM, the Data Mart ETL will dynamically add appropriate dimension table name to ODM\_LISTDIM\_CTL table and create it during next ETL run. You can change the name of this dimension table once an ETL run is completed, as outlined in [List Dimension Configurator](#) on page 37.

**To create a new List in Agile PLM and also change it's dimension table in Target Data Mart:**

1. Create a new List in Agile PLM Administrator
2. Execute Data Mart ETL using appropriate steps outlined in [Executing ETL](#) on page 33.
3. Run Configurator and identify the row for newly created List in Configurator.
4. *(Optional)* Delete dimension table that was already created during previous ETL run. This step allows schema from having orphan dimension tables.
5. Change Dimension Table name for the newly created List using steps in [List Dimension Configurator](#) on page 37.
6. Once changes are completed and saved, run Data Mart ETL using appropriate steps outlined in [Executing ETL](#) on page 33.

## Validating Dimension Tables

When you make any changes to Dimension table names using Configurator and you have not deleted previously created dimension tables from Data Mart schema, any one with Oracle Database Administration skills can take the following steps to identify and remove unused dimension tables from the Data Mart schema.

1. Execute the following SQL query to identify all Dimension tables

```
SELECT LIST_DIM from ODM_LISTDIM_CTL_BKP
WHERE
LIST_DIM not in
(SELECT LIST_DIM from ODM_LISTDIM_CTL)
```
1. Make sure the table names returned by this query are not used by any downstream ETL application
2. Drop every table identified as not used by Data Mart or the downstream ETL application from the Data Mart schema

## Enabling and disabling the Modules

You can enable or disable the Agile PLM modules, viz, PC, PPM, PQM to selectively extract their data from PLM DB server. The properties of Enabled/Disabled modules is stored in DataMartConfig.Properties file in Config folder under Data Mart Home Directory, e.g., c:\PLMDataMart\Config.

**To Enable/Disable the modules:**

1. Open the DataMartConfig.Properties file in a Text Editor.
2. Go to the section ####PLM Module####. The three PLM modules are listed here.

PQM=Y

PPM=Y

PC=Y

3. Change the property values to Y or N.  
The properties value Y enables the module, and N disables.
4. In Windows, execute LoadParameters.bat located in bin folder under Data Mart Home Directory, e.g., c:\PLMDataMart\bin.
5. In Solaris and Linux, execute LoadParameters.sh located in bin folder under Data Mart Home Directory, e.g., \$PLMDataMart\bin.

#### **Alternately**

1. Change and commit the values (Y or N) in the Parameter Table.

---

**Note** The module property cannot be empty. It should be either Y or N.

---

## **Scheduling ETL Instances**

The ETL Instances are executed in ODI. ODI nomenclature for an Instance is Scenario. You can schedule them for automatic execution at any time of your choice.

For complete information on scheduling and related actions, refer the following sections in the Oracle Data Integrator User's Guide 10g Release 3 (10.1.3). This guide is available for free download at <http://www.oracle.com/technology/documentation/index.html>  
<http://www.oracle.com/technology/documentation/index.html>.

### ***Scheduling PLM Data Mart ETL with ODI scheduler***

- Creating a physical agent: Page 123
- Creating a logical agent: Page 123
- Launching a Scheduler Agent: Page 131
- Displaying Scheduling Information - Page 133

The following top-level tasks needs to be performed to configure the Scheduler:

1. Insert a new AGENT in Physical Architecture tab in ODI Topology Manager
2. Associate the AGENT to PLM Data Mart Context in Logical Architecture tab ODI Topology Manager
3. Update the Work Repository Details in odiparams.bat file (located in <odi installation folder>/bin folder)
4. Run agentscheduler.bat file (located in <odi installation folder>/bin folder)
5. Setup schedule for the scenario in scheduler tab in ODI Operator

---

**Note** In ODI Operator, setup the DATAMART\_LOAD Version 001 Scenario in the scheduler tab based on your scheduling preference.

---

If you want use an external scheduler, refer Scheduling a Scenario with an external scheduler in the Oracle Data Integrator User's Guide 10g Release 3 (10.1.3) on page 99.

## Changing the Data Mart Passwords

Password changes are carried out directly in the DB. However, the changed passwords should also be stored, in encrypted form, in the DataMartConfig.properties file. This is necessary as

- the LoadParameters.bat use the access information (username, password) from properties file to enable or disable the modules.
- the Configurator.bat file uses the access information (username, password) from properties to configure the new List Dimension Names.

Hence, any changes in any passwords in the DB should also be reflected in this properties file. The encryption of password is required for security reasons.

Changing a password entails two staged action:

1. Generating an encrypted string for a character password using DMEncoder.bat in *Windows*, or DMEncoder.sh in *Solaris/Linux*.
2. Replacing the existing encrypted password string in DataMartConfig.properties file with the new encrypted string

---

Note      The LoadParameters.bat file will use this properties file to change the PLM modules.

Note      The configurator.bat will also use this prop file. hence pwds

---

### To change a password :

1. Go to bin folder in Data Mart Home directory
2. Execute the batch file along with a desired password, as follows  
    `dmencoder <pwd>`  
    where <pwd> is an alpha-numeric character string password.  
    An encrypted string appears.
1. Select and copy the encrypted string
2. Open the DataMartConfig.properties file, located in config folder under Data Mart Home directory, in a text editor.
3. Delete the password that you wish to change.
4. Paste the new encrypted string and save & close the file.

---

Note      To reflect the changed password(s) in ODI, refer ODI Administration Guide.

---





# Troubleshooting

**This chapter includes the following:**

---

▪ Installation Issues .....	43
▪ ETL Runtime Issues .....	44
▪ PL/SQL Loggings.....	44
▪ General Issues.....	45
▪ Detecting Errors in ODI coming from Oracle .....	45

## Installation Issues

- Installer failed to create Data Mart schema, ODI Work repository and/or ODI Master repository schemas

Look for errors in DatamartInstall.log, located in the logs folder of the PLM Data Mart install home directory, to root cause the issue

Possible root causes could be:

- Database version specified is different from the one installed in the system. For example, Oracle 10g option is selected during installer while the machine has Oracle 9i.
- Path specified for Oracle Target DB Tablespaces could be invalid.
- Oracle Database path specified is incorrect.
- Database Instance exists, but the System user does not have proper privileges required to create and grant appropriate roles to schema users.

- Installer failed to create ODI Work repository and ODI Master repository

Look for errors under ODIRepCreation: tag in DatamartInstall.log to root cause following

- Work Repository and Master Repository schemas are not created for possible root causes outlined in #1.
- Tablespace specified for Work & Master repository are invalid.
- JAVA\_HOME and JAVA\_ODI\_HOME environment variables are incorrect.
- Specified ODI directory is incorrect or ODI is not installed at specified path.

- ODI Project “AGILE PLM ANALYTICS” does not have any packages

Besides the root causes outlined in #2, look for errors under ODI-PHY-Creation section in DatamartInstall.log for other issues:

- OdilmporObject failed to execute for incorrect JRE specified
- JDK version specified is either less than 1.5.x or 1.6 or above. Data Mart 3.0 release works with JDK 1.5.0.x version.
- Specified Work Repository Name is already used in existing ODI
- ODI already has projects that have conflicting Work and Master Repository IDs. PLM Data

Mart uses following repository IDs.

- Work Repository ID = 102
  - Master Repository ID = 103
- ODI Operator did not list any scenarios in Scenario tab, including DATAMART\_LOAD\_scenario
- Root cause same as those outlined for #3.

## ETL Runtime Issues

- If any ETL task fails during run-time the best option is to check the Execution tab of the ETL task in ODI Operator.
1. Login to ODI Operator
  2. Select Sessions List tab
  3. Expand All Executions in the left pane
  4. Select the task which is failing by double clicking on it
  5. Select Execution tab to view error details. Optionally, you can also export entire log file as an XML file thru Operator to check for multiple errors.
  6. Refer to section on Detecting errors in ODI coming from Oracle. (see at the end)
  7. If the scenario name starts with ODI\_PRO, look for PL/SQL errors logged in VLOG table. See PL/SQL Logging section for more details on how to enable “debug mode” for detailed PL/SQL traces. Debug Mode for PL/SQL should be enabled if you need to root cause the issue further.

## PL/SQL Loggings

The log details are stored in following table/view in the Data Mart schema

TLOG (table)	This table contains information like timestamp, ID etc. This table will be appending, if the the mode is ERRORMODE. This table will be purged, if the mode is DEBUGMODE
VLOG (view)	This is a view created for TLOG table and contains only the ERROR messages. The difference between ERROR_MODE and DEBUG_MODE is explained below
ERROR MODE	This is a default mode and value for this is '0' in DEBUG_MODE column in PARAMETER Table in PLM Data Mart database schema. This captures error message.
DEBUG MODE	This mode contains the value as '1' in DEBUG_MODE column in PARAMETER table PLM Data Mart database schema. This captures step by step information inside a PL/SQL Procedure. You will need to update the DEBUG_MODE of the parameter table to "1" to run in DEBUG mode.

## General Issues

### DB Errors

1. Connectivity Errors
  - a. PLM Source DB is available and accessible from PLM Data Mart machine
  - b. Verify PLM Source DB schema details
  - c. Target (PLM Data Mart) DB is available
  - d. Verify Target DB schema details
2. Data Issues such as column width
  - a. Check the column is both Source and Target schema (refer to Schema documentation for table/column details)
3. Disk space
  - a. Check the Target DB machine to ensure enough space is available for ETL to execute and add data
4. Database Sessions to execute ETL
  - a. Check the DB for enough sessions (>500) with which the ODI will run smoothly. For checking DB session and process parameters
    - Login as sys/<PWD> as sysdba in command prompt using sqlplus.  
 SHOW PARAMETER SESSIONS  
 SHOW PARAMETER PROCESSES
    - Alter system set processes=1000 scope=spfile; OR
    - Alter system set processes=1000 scope=both;
    - After altering the Database restart the instance.
1. Linux/Unix Specific only
  - a. If customer gets a 'cannot execute' message, need to do 'chmod u+x PLMDMSetup\*.bin'.
  - b. Need to make sure the TNS Listener is running. Can check by 'ps -ef | grep tns'. If nothing shows, then it is not running.
  - c. If the TNS Listener is running, need to check the status. Can do so by 'lsnrctl status'.

## Detecting Errors in ODI coming from Oracle

Errors appear often in Oracle Data Integrator in the following way:

```
java.sql.SQLException: ORA-01017: invalid username/password; logon denied
at ...
at ...
...
```

The java.sql.SQLException code simply indicates that a query was made to the database through the JDBC driver, which has returned an error. This error is frequently a database or driver error, and must be interpreted in this direction.

Only the part of text in bold must first be taken in account. It must be searched in the Oracle

documentation. If it contains an error code specific to Oracle, like here (in red), the error can be immediately identified.

If such an error is identified in the execution log, it is necessary to analyze the SQL code sent to the database to find the source of the error. The code is displayed in the description tab of the erroneous task.

The most common errors with an Oracle server are detailed below, with their principal causes.

### **Connection Errors**

1. **UnknownDriverException**  
The JDBC driver is incorrect. Check the name of the driver.
2. **I/O Exception: Connection refused(DESCRIPTION=(TMP=)(VSNNUM=135290880)(ERR=12505)(ERROR\_STACK=(ERROR=(CODE=12505)(EMFI=4))))**  
The instance name in the JDBC URL is invalid. Check ODI Topology Manager to make sure JDBC URL is proper.
3. **I/O Exception: The Network Adapter could not establish the connection**  
The IP address, machine name of Oracle listener port is incorrect in the JDBC URL.
4. **ORA-01017: invalid username/password; logon denied**  
The user and/or password specified in the data server definition is invalid. This error may also appear for certain Oracle Data Integrator commands, such as SqlUnload.
5. **Protocol violation**  
This error indicates an incompatibility between the Oracle JDBC driver and the database you connect to. If it occurs at connection time, or at the first operation launched on the Oracle database, then install the version of the Oracle JDBC driver provided with your database installation.
6. **ORA-00600 internal error code**  
Internal error of the Oracle database. May be caused by a driver incompatibility.
7. **ORA-12154 TNS:could not resolve service name**  
TNS alias resolution. This problem may occur when using the OCI driver, or a KM using DBLinks. Check the configuration of the TNS aliases on the machines.
8. **ORA-02019 connection description for remote database not found**  
You use a KM using non existing DBLinks. Check the KM options and pre-requisites.

### **Errors in Interfaces**

1. **ORA-00900 invalid SQL statement**  
**ORA-00923 FROM Keyword not found where expected.**  
The code generated by the interface, or typed in a procedure is invalid for Oracle. This is usually related to an input error in the mapping, filter or join. The typical case is a missing quote or an unclosed bracket.  
A frequent cause is also the call made to a non SQL syntax, like the call to an Oracle stored procedure using the syntax EXECUTE SCHEMA.PACKAGE.PROC(PARAM1, PARAM2).

The valid SQL call for a stored procedure is:

```
BEGIN  
  SCHEMA.PACKAGE.PROC(PARAM1, PARAM2);  
END;
```

The syntax EXECUTE SCHEMA.PACKAGE.PROC(PARAM1, PARAM2) is specific to SQL\*PLUS, and do not work on the Oracle JDBC Thin driver.

2. ORA-00904 invalid column name

Keying error in a mapping/join/filter. A string which is not a column name is interpreted as a column name, or a column name is misspelled.

This error may also appear when accessing an error table associated to a datastore with a recently modified structure. It is necessary to impact in the error table the modification, or drop the error tables and let Oracle Data Integrator recreate it in the next execution.

3. ORA-00903 invalid table name

The table used (source or target) does not exist in the Oracle schema. Check the mapping logical/physical schema for the context, and check that the table physically exists on the schema accessed for this context.

4. ORA-00972 Identifier is too Long

There is a limit in the object identifier in Oracle (usually 30 characters). When going over this limit, this error appears. A table created during the execution of the interface went over this limit. and caused this error (see the execution log for more details).

Check in the topology for the oracle technology, that the maximum lengths for the object names (tables and columns) correspond to your Oracle configuration.

5. ORA-01790 expression must have same datatype as corresponding expression

You are trying to connect two different values that can not be implicitly converted (in a mapping, a join...). Use the explicit conversion functions on these values.



# Best Practices

### 1. Purging logs

Use “Purge Log” feature which is available in ODI Operator.

- a. Login to ODI Operator
- b. Go to File | Purge Logs option

---

Note	Users have option to Purge Logs based on Timeline (From/To Date), Context, Agent, Status, User Name and Session name.
------	-----------------------------------------------------------------------------------------------------------------------

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In regards to purging PLM Data Mart logs recommendation, it is up to individual customer in how they want to implement it. Refer ODI documentation from for more details.

### 2. Archiving

We recommend taking regular backup of the following,

- Data Mart Target DB schema
- VLOG (Parameter table)
- ODI logs (this can be done by using the “Export Logs” feature in ODI Operator).

---

Note	Perform following to use “Export Logs”
------	----------------------------------------

---

Login to ODI Operator

Select to “Export Logs” option from “File” drop down list

### 3. DB password change

In order to update the connection details for Source or Target DB

- Update “DataMartconfig.properties” file in <Data Mart Home directory>/Config folder

---

Note	Before updating encrypt the password using dmencoder utility (located in bin directory of PLM Data Mart install folder).
------	--------------------------------------------------------------------------------------------------------------------------

---

Following sections needs to be updated based on change:

- PLM Source DB Details : # PLM DATABASE DETAILS ###
- Target Data Mart DB Details: ##### DataMart Database Details#####
- Target Data Mart DB Schema Details: ###PLM Database TNSEntry Name####
- ODI Database Schema Details: ## Oracle Data Integrator Repository Details##
- ODI Work Repository Details: # ODI Work Repository Details

### 4. ETL performance (increase Java Heap\_Size)

We recommend increasing the Heap-Size to enhance ETL performance. This can be done in ODIPARAMS.BAT file located in <ODI Home> / Bin directory

The default setting in the ODIPARAMS.bat is

set ODI\_INIT\_HEAP=32m

set ODI\_MAX\_HEAP=256m --- this gets mapped into -Xmx%ODI\_MAX\_HEAP%

## 5. Deployment

### 1. Schema Configuration

The source PLM Database schema and Target DB Schemas MUST be 10 characters or less. Also, it may not contain any special characters except underscore "\_"

### 2. Install Location Restrictions

PLM Data Mart should be installed in a directory which contains operating systems files (e.g. c:\)

- a. PLM Datamart should not be installed in any directory which has space in it (e.g. d:\program files).
- b. The ODI home directory should not exist in a directory which has space it. If it does, the PLM Data Mart installation will not proceed.

### 3. Table space Data Sizing

Refer [Resource and Capacity Planning](#) "Resource and Capacity Planning" on page 3 for complete information.