



PRIMAVERA

**P6 Reporting Database Administrator's Guide
Release 2.1**

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Preface

P6 Reporting Database enables you to extract, transform, and load (ETL) data from your P6 EPPM database into an Operational Data Store (ODS) database and a Star Schema.

With the ODS, users have the ability to create “pixel perfect” operational reports using tools such as Oracle Business Intelligence Publisher.

The Star Schema, in conjunction with P6 Analytics (sold separately), provides dimensional stars and facts, which can be used to gain greater insights into your portfolio performance, project history and trends.

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Using the Administrator’s Guide

This guide is a step-by-step guide to installing and configuring the ODS and Stage databases. This guide:

- Provides an overview of P6 Reporting Database. Lists and describes the prerequisites for installing and using P6 Reporting Database.

- Provides instructions for installing and configuring P6 Reporting Database in an Oracle environment. Describes installing and configuring the Oracle Gateway for environments that use P6 EPPM in Microsoft SQL Server. Installation of P6 Reporting Database on a Microsoft SQL Server system is not supported.

Provides information about P6 Reporting Database administrative tasks. Also describes the tasks for installing and configuring Oracle Business Intelligence Publisher, running the Configuration Utility, and provides troubleshooting information. For information about installing Oracle Business Intelligence Publisher, refer to the Oracle Business Intelligence Publisher documentation. There are two types of hyperlinks in this document:

- ▶ Links that will take you to various parts of this document. For these types of links, click on the actual page number. For example, in the following you would click on the actual number, **45**:

- See ODS Security Configuration (on page 45)

- ▶ Links that appear as actual URLs. For these types of links, click inside the URL. For example:

<http://www.oracle.com/technetwork/documentation/primavera-093289.html>



P6 Reporting Database and P6 Analytics Documentation

You can access the P6 Reporting Database and the P6 Analytics documentation from the physical media or download location (the most up to date documentation is available on the Oracle Technology Network (OTN)).

Go to the following website, and then select the link for the appropriate version of Primavera P6 Enterprise Project Portfolio Management:

<http://www.oracle.com/technetwork/documentation/primavera-093289.html>

Double-click the applicable PDF file to view the information in Adobe Acrobat Reader. The following table describes the available documentation.

Title	Description
<i>Oracle P6 Reporting Database Administrator's Guide</i>	Explains how to: <ul style="list-style-type: none"> ▶ Install and configure P6 Reporting Database. ▶ Generate the ODS database. ▶ Install and configure the Oracle Gateway if the P6 EPPM is installed on a Microsoft SQL Server. ▶ Run the Configuration Utility
<i>Oracle P6 Reporting Database User's Guide</i>	Provides information about using ODS and Star with the P6 EPPM database to extract data that you can use to create reports.
<i>P6 Analytics Administrator's Guide</i>	Explains how to: <ul style="list-style-type: none"> ▶ Install and configure the Star database. ▶ Install and configure the Oracle Business Intelligence software. ▶ Configure Oracle Business Intelligence to work with P6 Reporting Database. ▶ Run the Configuration Utility.
<i>Oracle P6 Analytics User's Guide</i>	Provides information about: <ul style="list-style-type: none"> ▶ Using Oracle Business Intelligence to create reports. ▶ Oracle Business Intelligence Dashboards and Answers.
	The Security Guidance icon,  , helps you to quickly identify security-related content to consider during the P6 Reporting Database and P6 Analytics installation and configuration process.

Where to Get Support

If you have a question about using Oracle Primavera products that you or your network administrator cannot resolve with information in the documentation or help, go to:

<http://www.oracle.com/us/support/index.html>

This page provides the latest information on contacting Oracle Global Customer Support and the support renewals process.

Go to **http://download.oracle.com/docs/cd/E17266_01/index.htm** for the latest updates to the P6 EPPM 8.0 Documentation library.

Before You Begin

This section provides a general overview of P6 Reporting Database, including the Extract, Transform, and Load (ETL) process, and scheduling updates from the P6 EPPM Database.

It provides an overview of the P6 Analytics, a separately sold product that provides customers with an in-depth and comprehensive method for analyzing and evaluating their project performance, project history, and resource assignments and utilization.

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About P6 Reporting Database

P6 Reporting Database works with the P6 EPPM database to provide a robust and powerful reporting solution. With P6 Reporting Database, you can create day-to-day operational reports based on all aspects of your P6 EPPM data, through use of the Operational Data Store (ODS).

With the addition of P6 Analytics (sold separately), you can perform business intelligence analysis using the Star Schema (Star).

The Extract, Transform, and Load (ETL) process provides data movement between the P6 EPPM database and the ODS and Star reporting databases.

About the Operational Data Store (ODS)

The Operational Data Store portion of P6 Reporting Database is a relational database that supplies day-to-day, easy to understand operational views of the P6 EPPM database data.

By persisting and transforming data, customers can create unique reports based on all aspects of their P6 EPPM data. The ODS provides the most granular view of the P6 EPPM database data. It applies P6 Integration API formulas for many types of calculated data that otherwise would not be visible in the P6 EPPM database by using a direct query (for example, percent complete, variances, earned value, and WBS spreads).

P6 Reporting Database users can view the same OBS, project, cost, and resource data in the ODS as they can in P6 EPPM.

About the Extract, Transform, and Load (ETL) Process

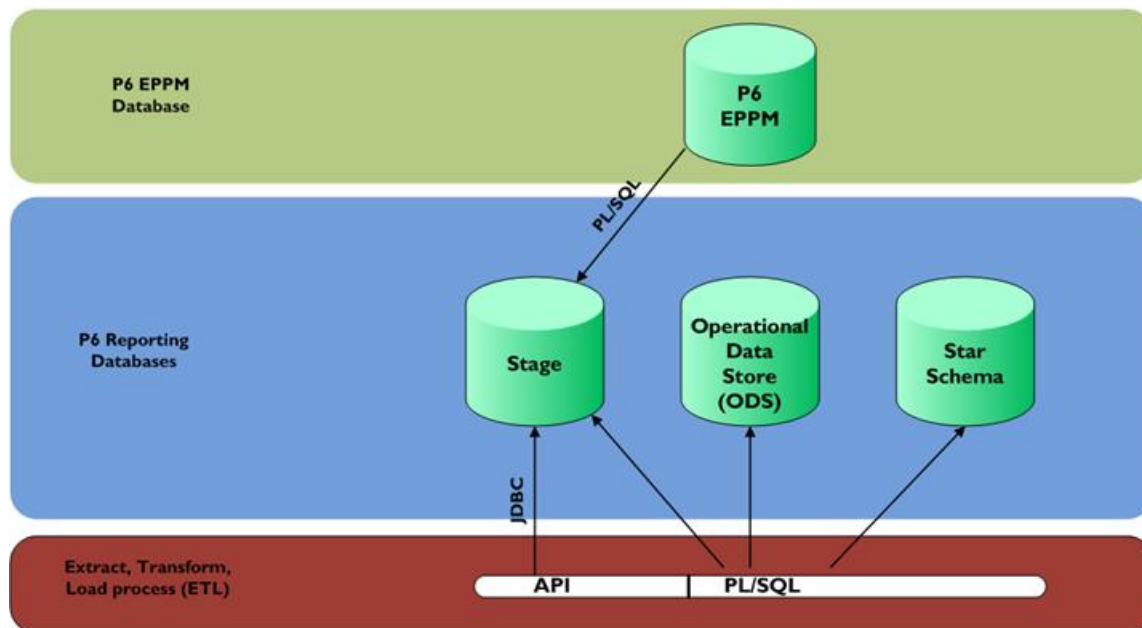
The ETL process provides data movement between the P6 EPPM database and the ODS and Star reporting databases. Part of the ETL process is to de-normalize the P6 EPPM database.

P6 EPPM data is extracted, calculations applied in a staging area, and the data is loaded into the ODS and Star databases. The ETL process can be scheduled to run at regular intervals, using operating system-specific scheduling tools, to ensure up-to-date data freshness. The ETL process requires an intermediate staging database to perform calculations before delivering the data to the ODS and Star databases.

The ETL process:

- ▶ Ensures that data is optimized for analytical reporting.
- ▶ Fulfills the schedule refresh window.
- ▶ Accommodates on-demand refreshes.
- ▶ Implements the P6 EPPM security model at the database level.

The following figure illustrates the ETL process:



In the preceding figure:

- ▶ The Stage schema is created with a complete copy of the P6 EPPM data (**ONLY** during the Full ETL process).
- ▶ The Stage schema contains not only an exact copy of the P6 EPPM data, but also de-normalized and persisted calculated P6 EPPM fields.
- ▶ During the Full or Incremental ETL process, a combination of PL/SQL statements and Integration API calls is used to de-normalize and persist calculated P6 EPPM fields into the Stage database.
- ▶ After the API process completes, PL/SQL is used to distribute physical, calculated, and de-normalized data from the Stage database to the ODS and Star schemas.

About Security in P6 Reporting Database

This section provides an overview of security in P6 Reporting Database.

About ODS Security

The ODS security model emulates the P6 EPPM security model. The Resource and Project Access control policies are maintained in ODS. See "**ODS Security Configuration** (on page 49)" in the *P6 Reporting Database Administrator's Guide* or in the *P6 Analytics Administrator's Guide*, and also "ODS Security" in the *P6 Reporting Database User's Guide* or in the *P6 Analytics User's Guide* for more information.

About the ETL Data Process

Integration API

At the scheduled time, the ETL process launches the P6 Reporting Database Integration API, which calculates changes to the underlying data in the P6 EPPM database since the last time that the ETL process was run.

When the API calculation has completed, stored procedures are called that perform the transformation processing (for example, calendar calculation and hierarchical referencing).

When transformation processing completes, distribution occurs from the Stage database to the ODS database and Star database .

About Scheduling

Once the ODS and Star databases are fully installed, you will decide when and how often to update the databases from the P6 EPPM database. These updates will be performed in an incremental fashion. This means that only the data that has changed in the P6 EPPM database since the last time the ETL process was run will be transferred.

The process for updating the ODS and Star databases can be launched in the following ways:

- ▶ Manually when required.
- ▶ Scheduled to occur exactly once sometime in the future.
- ▶ Scheduled to recur during regular intervals.

The file that launches the ETL process is:


- ▶ incremental.bat on a Windows platform.
- ▶ incremental.sh on a non-Windows platform. For information on supported non-Windows platforms, see the Tested Configurations document on the release media or download.

The incremental.bat or incremental.sh file resides in the following folder of your P6 Reporting Database installation folder:

`<installation folder>\p6rdb`

To ensure that your P6 Reporting Database system has the latest data from the P6 EPPM database, it is recommended that you run the incremental data refresh process daily during non-peak hours.

Note: Allow sufficient time to complete the scheduled run of the ETL process. The start of a process should not over-run the completion of another. This can cause unexpected results, and is **not** recommended.

Any mechanism can be used to launch, or schedule the launch, of the incremental.bat (or incremental.sh) file. The Windows AT command, Task Scheduler, or Unix CRON are all viable options.  The user who initiates the Incremental process needs read/write access to the P6 Reporting Database installation folder.

About Calculated Fields

Calculated fields apply to both the ODS and Star databases, and are not stored as physical fields in the P6 EPPM database. Instead, values stored in the P6 EPPM database are loaded by the application, and calculations are applied in memory. During the ETL process, these values are calculated by the API and stored as physical fields in the ODS and Star.

For example, the actual hours measure shows how many hours each resource has charged to a given project or WBS during specific time periods. During the ETL process, the actual hours are “spread” across the specific time periods, and the data is placed in periodic buckets in the ODS and Star databases.

About P6 Analytics

P6 Analytics, sold separately, provides an in-depth and comprehensive method for analyzing and evaluating project performance, project history, resource assignments and utilization. It includes all P6 Reporting Database functionality, and also includes the Star database. See About the Star Database.

Built upon the Oracle Business Intelligence suite (Dashboards and Answers), it delivers a catalog of Dashboards and Answers requests that provide an interactive way of viewing, analyzing, and evaluating P6 EPPM data. In addition, it provides a Repository (RPD) file that contains the data mappings between the physical data and the presentation layer of OBI.

The dashboards provide detailed insight into your P6 EPPM data through the use of analytical charts, tables, and graphics. Dashboards have the ability to navigate to other requests to provide precise root cause analysis. In Addition, you can configure individual requests with the P6 EPPM Action Link, enabling you to navigate directly to your P6 site for true "Insight to Action" capabilities. Reports created with Oracle BI Answers can be saved in the Oracle BI Presentation Catalog, and can be integrated into any Oracle BI home page or dashboard. Results can be enhanced through options such as charting, result layout, calculation, and drill-down features.

P6 Analytics provides an RPD file to be used with the Oracle Business Intelligence suite. The RPD file contains:

- ▶ A physical representation of the Star schema.
- ▶ A business layer where customized calculations are performed.
- ▶ A presentation layer that groups all of the Star database fields into logical subject areas.

The RPD delivers an extensive amount of Earned Value, Costs, Units, Percent Completes, and other key performance indicators. It enables data to be sliced by items such as time, project, eps, portfolios, activities, and resources.

P6 Analytics delivers a sample dataset, consisting of Star data, from which the Dashboards and Answers requests in the catalog were built. This sample data can be used to view the power of dashboard and Answers requests delivered in the catalog, which will give the user an idea of how the catalog can be integrated with their data. For information on configuring the sample dataset, see the P6 Analytics SampleData.pdf document that is included in the P6Analytics\Sample folder on your release media or download.

Prerequisites

This section describes the prerequisites for installing and using P6 Reporting Database. It includes required database instances, supported databases, and disk storage space requirements.

The P6 EPPM must already be installed, and a P6 EPPM database already created.

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P6 EPPM and JRE Requirements

P6 EPPM must be installed, and a P6 EPPM database must already be created.

The current versions of the P6 Reporting Database R2.1 and P6 Analytics R1.1 software are compatible with Oracle Primavera P6 EPPM schema version 8.0.

The appropriate version of JRE must be installed on the machine where the ETL process will be run. For information on the specific JRE versions and supported operating system configurations, refer to the `testedcfg.html` document on the release media or download.

If the P6 EPPM database is a Microsoft SQL Server database, the Oracle Gateway application must be used to connect the P6 EPPM database to the Stage Database on the Oracle server.

The Stage, ODS, and Star databases must be in an Oracle instance. Using Microsoft SQL Server for Stage, ODS, and Star is no longer supported. For more information, see **Oracle Gateway Installation Requirements** (on page 19).

Oracle Gateway Installation Requirements

If your P6 EPPM database is a Microsoft SQL Server database, you must install the Oracle Gateway. Go to one of the following web sites for information about installing the Oracle Gateway:

- ▶ For Oracle Gateway 10g, go to the following web site:
<http://www.oracle.com/technology/documentation/gateways10g.html>

- ▶ For Oracle Gateway 11g, go to the following web site:

http://download.oracle.com/docs/cd/B28359_01/gateways.111/b31043/toc.htm

Note: The URLs for the preceding web sites should each be on one line. Format restrictions of this document might prevent them from appearing on one line.

After you install the Oracle Gateway, you must configure it to use the P6 EPPM database. See **Configuring the Oracle Gateway for a Specific Microsoft SQL Server Database** (on page 33).

Oracle Password Requirements



For information on Oracle password requirements, see the following web site:

http://download.oracle.com/docs/cd/B28359_01/server.111/b28337/tdpsg_user_accounts.htm#BEICECGF

Note: The preceding URL should all appear on one line. Format restrictions of this document might prevent it from doing so.

Oracle tnsnames.ora File Requirements

Ensure that the **tnsnames.ora** file contains references to the P6 EPPM database, the Stage database, the ODS database, and the Star database, before configuring these databases.

Required Database Instances, Collation Requirements, Character Sets, and Database Locations

This section provides information regarding the required database instances, the collation requirements, the recommended character sets, and recommended locations for the Stage, ODS, and Star database instances.

Required Database Instances

The following database instances must already exist:

- ▶ A database instance for the Staging database (Stage) used during the ETL process.
- ▶ A database instance for the ODS database.
- ▶ A database instance for the Star database.

Database Collation Requirements

The database collation that you set when you create the Stage, ODS, and Star database instances must be the same for each. The collation must match the database collation set for the P6 EPPM database when it was created.

Note: If you choose not to install Star, these database collation requirements apply only to Stage and ODS.

Character Set Requirements

Oracle recommends using either UTF-8 or the WE8MSWINI252 character set for P6 Reporting Database. The Oracle AL32UTF8 character set is not supported in Oracle P6 Reporting Database.

Recommended Database Instance Locations

It is recommended that the Stage, ODS and Star database instances reside on different physical machines from the P6 EPPM database. This minimizes the impact that the P6 Reporting Database has on the performance of the P6 EPPM database server.

Note: If you choose not to install Star, these database instance locations apply only to Stage and ODS.

Operating System User Permissions



To install P6 Reporting Database and run the files, the user for Windows must have full read/write access to the P6 Reporting Database installation directory. The user for non-Windows platforms should also have full read/write access to the P6 Reporting Database installation directory.

Disk Storage Space Requirements

This section describes the disk storage space requirements for the Stage and ODS databases. For more detailed information on P6 Reporting Planning and Size, refer to the following whitepaper:

<http://www.oracle.com/us/p6-analytics-and-reporting-db-wp-080572.pdf>

Note: The preceding URL should all appear on one line. Format restrictions of this document might prevent it from doing so.

Stage Disk Storage Space Requirement

The amount of disk storage space required for the Stage database is at least two times the size of the P6 EPPM database.

ODS Disk Storage Space Requirement

The amount of disk storage space required for the ODS database is at most two times the size of the P6 EPPM database.

Bulk File Load Requirements

When selecting a location for the bulk file load, ensure that several gigabytes of free space are available, since these files can become very large, depending on the size of your database.

Creating the Oracle Tablespaces

Before installing P6 Reporting Database, log onto SQL Plus as System\<system password> to create the Oracle tablespaces.

Before creating the tablespace definitions, make sure that the Stage, ODS, and Star databases are in their proper locations. For more information, see **Recommended Database Instance Locations** (on page 21).

When entering the tablespace definitions:

- ▶ The single quotation marks must be entered.
- ▶ You can change the path, depending on where Oracle tablespaces will be located.
- ▶ All other information in the tablespace definition must be entered exactly as shown.
- ▶ You must enter the semicolon at the end of the tablespace definition.

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Creating the Stage Tablespace

Before creating the Stage tablespace, see **Creating the Oracle Tablespaces** (on page 22) for important information about the code shown in the following procedure. Do the following to create the Stage tablespace:

- 1) Connect to the P6 Reporting Database Stage instance with a user that has create tablespace privileges.
- 2) Enter the following to create the Stage tablespaces (where <path> is the location of the Stage instance):


```
Create tablespace stage_dat1
  Datafile '<path>:\ stage_dat1.dbf'
  Size 32m
  Autoextend on
  Extent management local uniform 1M;
```
- 3) Set the db_block size to the following:


```
db_block size = 32k
```

Creating the ODS Tablespace

Before creating the ODS tablespace, see **Creating the Oracle Tablespaces** (on page 22) for important information about the code shown in the following procedure. After logging onto SQL Plus as System\<system password>, do the following to create the ODS tablespace:

- 1) Connect to the P6 Reporting Database ODS instance with a user that has create tablespace privileges.

- 2) Enter the following to create the ODS tablespaces (where <path> is the location of the ODS instance):
Create tablespace ods_dat1
Datafile '<path>:\ods_dat1.dbf'
Size 32m
Autoextend on
Extent management local uniform 1M;
- 3) Set the db_block size to the following:
db_block size = 32k

Installing the P6 Reporting Database Application

This section describes the process for installing P6 Reporting Database software.

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Before Installing P6 Reporting Database

Before installing the P6 Reporting Database software:

- ▶ Be sure you have met the installation prerequisites. See **Prerequisites** (on page 19).
- ▶ The Oracle database instance must already exist before running the installation. See **Required Database Instances** (on page 20).
- ▶ For either a Windows or a non-Windows system, the Oracle utility **TNSPING** must be in the path of the user who is running the installation in order for P6 Reporting Database to install successfully.

Note: Due to the global nature of the Oracle Universal Installer (OUI), the OUI online help is not applicable for installing or uninstalling P6 Reporting Database, nor for references to the documentation. Instead, refer to **Installation Procedure** (on page 25) for installation instructions.

Installation Procedure

Caution: P6 Reporting Database 2.1 **must** be installed in a **new** directory. Do **not** install P6 Reporting Database 2.1 in the same directory where a previous version of P6 Reporting Database is installed.

Use the following procedure to install P6 Reporting Database:

- 1) From the P6 Reporting Database physical media or download location, run one of the following depending on your system type:
 - ▶ If you are installing on a Microsoft Windows system:
windows\Disk1\install\setup.exe
 - ▶ If you are installing on a non-Microsoft Windows system:
<Operating System>\Disk1\install\runInstallerWhere: <Operating System> is a supported non-Windows platform. For information on supported non-Windows platforms, see the Tested Configurations document (testedcfg.htm) on the release media or download.

- 2) On the **Welcome** window, click **Next**.
- 3) On the **Specify Home Details** window:
 - a. Enter an appropriate name for P6 Reporting Database in the **Name** field.
 - b. Click the **Browse** button next to the Path field to specify the installation location for P6 Reporting Database.
 - c. Click **Next**.
- 4) On the **Java Runtime** window, click the **Browse** button to specify the location of the JRE version (for example, c:\Program Files\Java\jre6).
 - a. This must be a JRE location, not a JDK location.

Note: The appropriate version of JRE must be installed on the machine where the ETL process will be run. For information on the specific JRE versions and supported operating system configurations, refer to the `testedcfg.html` document on the release media or download.

- b. If the location is a JDK location, select the JRE subfolder.
 - c. Click **Next** to continue.
- 5) Read the summary information that explains where P6 Reporting Database will be installed, what features will be installed, and the total size, and click **Install**.
- 6) Prior to installation completion, the P6 Reporting Database configuration utility will launch in a separate window.
 - ▶ If P6 EPPM is on an Oracle instance, see **Configuring the Software for Oracle Systems** (on page 27).
 - ▶ If P6 EPPM is on a Microsoft SQL Server system, see **Configuring the Oracle Gateway for a Specific Microsoft SQL Server Database** (on page 33) and **Configuring the Microsoft SQL Server Connection** (on page 35).
- 7) After completing the P6 Reporting Database configuration utility, the **End of Installation** window displays. Click **Exit** to finish the installation.

Configuring the Software for Oracle Systems

This section describes how to configure the P6 Reporting Database for Oracle systems. If your P6 EPPM database is on a Microsoft SQL Server, follow the instructions in **Configuring the Oracle Gateway for a Specific Microsoft SQL Server Database** (on page 33).

Note: During the configuration phase, some of the dialog boxes might already contain data. Check the data, and change it as necessary.

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Configuring the Oracle Connection

In the P6 Reporting Database Configuration Utility, you will start with the PMDB tab, which will enable you to enter your Oracle connection information for your P6 EPPM database instance. Before configuring the Oracle connection information, see **Before Installing P6 Reporting Database** (on page 25). To see a description of the type of data a field requires, use your mouse to hover over the field.

- 1) In the Connection Settings section, enter the P6 EPPM database instance connection information:
 - a. Enter the **Host Name**. This is the machine name, or IP Address, of the Oracle server where the P6 EPPM database instance resides.
 - b. Enter the **Port Number**. This is the port number of the Oracle server where the P6 EPPM database instance resides. The default is 1521.
 - c. In the **Service Name** field, enter the Oracle TNS Service Name of the P6 EPPM database instance.
 - d. The **JDBC URL** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
 - e. The **TNS Name** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
- 2) In the Privileged section, enter the privileged username and password:
 - a. Enter the Oracle privileged username. This is the Oracle user who can access and read from the P6 EPPM database instance tables.

- b. Enter the password for the Oracle privileged user. This is the password for the Oracle user who can access and read from the P6 EPPM database instance tables.
- c. Click **Next** to go to the **Stage** tab. Use the fields on that tab to configure the Stage database connection settings, and Oracle connection settings for the Stage database. See **Configuring the Oracle Stage Database Connection** (on page 28).

Configuring the Oracle Stage Database Connection

You should now see the **Stage** tab, which will enable you to configure the Oracle connection settings for the Stage database instance. If your database instance is setup for case sensitive passwords, you **must** follow that convention for all passwords in the P6 Reporting Database configuration utility.

- 1) In the **Connection Settings** section, enter the connection information for the Stage database:
 - a. Enter the **Host Name**. This is the name or IP address of the Oracle server where the Stage database resides.
 - b. Enter the **Port Number**. This is the port number of the Oracle server where the Stage database resides. The default is **1521**.
 - c. In the **Service Name** field, enter the Oracle TNS Service Name of the Stage database. The Service Name is used to connect to the database via JDBC.
 - d. The **JDBC URL** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
 - e. The **TNS Name** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
- 2) In the **System** section, enter the Oracle system username and password:
 - a. Enter the **DBA Username**. This is the username of the user who has DBA privileges for the Stage database. The default name is **SYSTEM**.
 - b. Enter the **DBA Password**. This is the password of the user who has DBA privileges for the Stage database.
- 3) In the **Owner** section, enter the Oracle table owner username and password:
 - a. Enter the **Stage Username**. This is the username of the user who will own the Stage tables. This username does not currently exist. You must enter it to create it. The default is **STAGEUSER**.
 - b. Enter the **Stage Password**. This is the password of the user who will own the Stage tables.
 - c. In the **Confirm Password** field, enter the same password that you entered in step 3b to confirm the password.
 - d. Click **Next** to go to the **ODS** tab. Use the fields on this tab to configure the ODS database connection settings. See **Configuring the Oracle ODS Database Connection** (on page 28).

Configuring the Oracle ODS Database Connection

You should now see the **ODS** tab, which will enable you to configure the Oracle connection settings for the ODS database instance.

- 1) In the **Connection Settings** section, enter the connection information for the ODS database:
 - a. Enter the **Host Name**. This is the name or IP Address of the Oracle server where the ODS database resides.

- b. Enter the **Port Number**. This is the port number of the Oracle server where the ODS database resides. The default is **1521**.
 - c. In the **Service Name** field, enter the Oracle TNS Service Name of the ODS database. The Service Name is used to connect to the database via JDBC.
 - d. The **JDBC URL** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
 - e. The **TNS Name** field is automatically filled in based on the information you entered in the previous steps of this section. You cannot edit this field.
- 2) In the System section, enter the Oracle system username and password:
- a. Enter the DBA **Username**. This is the username of the user who has DBA privileges for the ODS database. The default name is **SYSTEM**.
 - b. Enter the DBA **Password**. This is the password of the user who has DBA privileges for the ODS database.
- 3) In the Owner section, enter the connection information for the table owner:
- a. Enter the ODS **Username**. This is the username of the user who will own the ODS tables.
This username does not currently exist. You must enter it to create it.
The default is **ODSUSER**.
 - b. Enter the ODS **Password**. This is the password of the user who will own the ODS tables.
 - c. In the **Confirm Password** field, enter the same password that you entered in step 3b to confirm the password.
 - d. Click **Next** to go to the **Star** tab. On that tab:
 - If you purchased P6 Analytics, select the **Install Star** check box, and use the fields on that tab to configure the Star database connection. See "Configuring the Oracle Star Database Connection" in the *P6 Analytics Administrator's Guide*.
 - If you did not purchase P6 Analytics, clear the **Install Star** check box on the Star tab, and click **Next** to go to the **Links** tab. See **Configuring Database Links** (on page 29).

Configuring Database Links

Use the LINKS tab to enter the names of the database links to be created and used by the ETL process. A database link is a pointer that defines a one-way communication path from an Oracle Database server to another database server. The ETL process leverages the use of private database links to facilitate data transfer and to share information from one database to another.

The fields are pre-filled with the default values, which you can change if necessary.

On the LINKS tab:

- 1) To change a default database link, enter the new value. Default values are:
 - ▶ STAGE to PMDB – Default value is: stage2pmdb
 - ▶ STAGE to ODS – Default value is: stage2ods
 - ▶ STAGE to STAR – Default value is: stage2star. This field is not available unless you choose to install Star.
 - ▶ STAR to STAGE – Default value is: star2stage. This field is not available unless you choose to install Star.

- ▶ ODS to STAGE – Default value is: ods2stage
- 2) When all fields contain the correct values, click **Next** to go to the **Settings** tab. Use the fields on that tab to configure general settings for the P6 Reporting Database. See **Configuring Java Virtual Machine, Bulk File Load, and Logging Settings** (on page 30).

Configuring Java Virtual Machine, Bulk File Load, and Logging Settings

Use the **Settings** tab to choose the locations for the Java Virtual Machine (JRE path), the Bulk File Load files, and to select the level of logging.

- 1) In the Java Virtual Machine section, choose the Java Virtual Machine location and Maximum Java Heap Size:
 - a. In the **Location** field, enter the path to the Java Virtual Machine (JRE path).
 - The appropriate version of JRE must be installed on the machine where the ETL process will be run. For information on the specific JRE versions and supported operating system configurations, refer to the testedcfg.html document on the release media or download.
 - The path must refer to a location on the local machine, where the P6 Reporting Database configuration utility is installed.
 - b. Enter the **Maximum Java Heap Size (MB)** parameter. This value maps to the JVM –Xmx setting in the Java Runtime Environment settings. The default value is 1,024 MB.
 - The minimum value is 512 MB.
 - When changing the Maximum Java Heap Size setting, the values must be in 512 MB increments.
- 2) Choose the Bulk File Load location:
 - a. In the Bulk File Load section, manually enter the path to the location for P6 Reporting Database bulk load files, or use the Browse button to select its location.
 - The bulk load file location is the location where P6 Reporting Database stores files needed during processing.
 - These files contain hierarchy and spread bulk load data.
 - Oracle recommends that read and write privileges to this directory only be granted to users who will run the ETL or Incremental process.
 - b. When selecting the location, ensure that several gigabytes of free space are available, since these files can become very large, depending on the size of your database.
- 3) In the Logging section, choose the level of logging detail that you want to use. The following are the logging detail levels from which you can choose:
 - ▶ **Errors Only** – Only logs errors and no other information.
 - ▶ **Errors and Warnings** – Only logs errors and warnings and no other information.
 - ▶ **General Information** – This is the default value. This logs errors, warning, and informational messages on the progress of each step.
 - ▶ **Extra Debug Information** – Provides all general information, errors and warnings. It provides more fine grained information on each step and scripts being executed.
 - ▶ **Debug and Trace Information** – Provides all general information, errors and warnings, and detailed output of each script, query, and connection being executed.
- 4) Click **Next** when finished to go to the **Options** tab.

- a. Use the **Options** tab to configure the Date Range option.
- b. See **Configuring the Date Range Option** (on page 31).

Configuring the Date Range Option

Use the **Options** tab to configure the Date Range, Time-Distributed Data, Project Trend Interval, and Fiscal Year Start for your P6 Reporting Database.

The date range sections allows users to specify the start and end date for the detailed spread data within your P6 Reporting Database. The start date corresponds to the date your spread data will begin.

Any data that occurs outside of the start date will be lump summed on your start date. (For example, if the start date is set for January 1, 2010 any data in the P6 EPPM database that occurs prior to January 1, 2010, will be lump summed on January 1, 2010.)

The end date is a "rolling" window that corresponds to a future date based on the date the ETL or Incremental process is run. (For example, if the end date is set to 1 year and Incremental update is executed on April 9, 2010, any data in the P6 EPPM database that occurs after April 9, 2011 will be lump summed and placed on April 9, 2011.)

To configure the Date Range option, do the following:

- 1) In the **Date Range** section of the **Options** tab, choose the **Start** and **End Date** options:
 - a. Use the calendar icon next to the **Start Date** field to select the date on which you want your spread data to start.
 - b. For **End Date**, select a rolling interval based upon the date the ETL or Incremental process is run.
- 2) Do one of the following:
 - ▶ If you purchased P6 Analytics, click **Next** and then configure the Project Trend Interval and the Fiscal Year Start. See *Configuring the Time-Distributed Data, Project Trend Interval, and Fiscal Year Start in the P6 Analytics Administrator's Guide*.
 - ▶ If you did not purchase P6 Analytics, click **Next** and then finish the configuration. See **Finishing the Configuration** (on page 31).

Finishing the Configuration

After choosing the Activity, Project, and Resource codes, click **Finish** on the **Complete** tab to complete the configuration. This generates all the scripts that go into the scripts directory.

All the settings configured with the P6 Reporting Database configuration utility will be stored in the following location:

```
<installation path>\p6rdb\res\erdb.properties
```

This file is a Java properties file, which is a simple key = value storage file. For example:

```
db.stage.application.username=STAGEUSER
```

Executing the RUNETL file to Complete the Installation

After you complete the installation and all configuration tasks, execute the RUNETL.bat (or RUNETL.sh) file to begin the ETL process.

To do this:

- 1) Go to the <installation directory name> directory.
- 2) Click **RUNETL.bat** (or RUNETL.sh) to execute the file.

Configuring the Oracle Gateway to Link to a P6 EPPM Database on a Microsoft SQL Server System

This section describes how to configure the Oracle Gateway to link the P6 EPPM database located on the Microsoft SQL Server.

It describes the process for configuring the P6 EPPM database connection information when the P6 EPPM database is on a Microsoft SQL Server.

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Configuring the Oracle Gateway for a Specific Microsoft SQL Server Database

If your P6 EPPM database is a Microsoft SQL Server database, do the following to configure the Oracle Gateway to use that database:

For information on installing the Oracle Gateway, see **Oracle Gateway Installation Requirements** (on page 19).

- 1) Go to the <Oracle Gateway install directory>\dg4msql\admin folder.
 - ▶ <Oracle Gateway install directory> is the directory where you installed the Oracle Gateway.
 - ▶ The dg4msql\admin folder was created when you installed the Oracle Gateway.
- 2) Open the initdg4msql.ora file and edit the **HS_FDS_CONNECT_INFO=** parameter to be in the format:

`HS_FDS_CONNECT_INFO=<servername>/<instancename>/<pmddbdatabase>`

Where: the < > brackets indicate the variables that you enter. Do not enter the brackets as part of the variable name.

For example:

`HS_FDS_CONNECT_INFO=win2k2/sqlserver/pmdb`

The following example shows the parameter when an instancename is not specified:

`HS_FDS_CONNECT_INFO=serverSQL//proj_pmdb`

- 3) In the <Oracle Gateway install directory>, go to the ADMIN folder, and add a new TNSnames entry for each new SQLServer Gateway. For example:

```
dg4msql =
(DESCRIPTION=
  (ADDRESS=(PROTOCOL=tcp)(HOST=<server name>)(PORT=1521))
  (CONNECT_DATA=(SID=dg4msql))
```

```
(HS=OK)
)
dg4msql1 =
(DESCRIPTION=
(ADDRESS=(PROTOCOL=tcp)(HOST=ServerName)(PORT=1521))
(CONNECT_DATA=(SID=dg4msql1))
(HS=OK)
)
```

- 4) In the same directory, edit Listener.Ora, and add information for each necessary gateway. For example:

```
(SID_LIST=
(SID_DESC=
(SID_NAME=dg4msql)
(ORACLE_HOME=C:\product\11.1.0\tg_1)
(PROGRAM=dg4msql)
)
(SID_DESC=
(SID_NAME=dg4msql1)
(ORACLE_HOME=C:\product\11.1.0\tg_1)
(PROGRAM=dg4msql)
)
(SID_DESC=
(SID_NAME=dg4msql2)
(ORACLE_HOME=C:\product\11.1.0\tg_1)
(PROGRAM=dg4msql)
)
)
```

- 5) Stop any existing Listeners on the Oracle Gateway server.
- 6) If you need to connect to other Oracle instances, you must configure the TNS Names in the directory where you installed the Oracle Gateway.
- 7) Start the Gateway Listener. The necessary Stage tablespace size is 30 GB, while allowing an extent size of uniform 2MB. The following Initialization parameters were set for the Gateway:
- ▶ HS_RPC_FETCH_SIZE=1000000
 - ▶ HS_ROWID_CACHE_SIZE=10000
 - ▶ HS_FDS_ROW_SIZE=50000

For a dataset with similar statistics:

- TASK - 6 million rows
- TASKACTV - 15 million rows
- TASKRSRC - 9 million rows
- UDFVALUE - 3 million rows
- RSRCHOUR - 50 million rows

- PROJWBS - 2 million rows
- 8) When configuring your Oracle Gateway, set HS_LANGUAGE for the Oracle character set of your instance:
- a. On the gateway machine, go to the gateway install directory (for example, C:\product\11.1.0\lg_2\dg4msql\admin)
 - b. Edit the initdg4msql ini file, and add the following parameter specific to your Oracle dataset. Depending on your character set, either add the following or adjust for UTF8:
HS_LANGUAGE=american_america.WE8ISO8859P15
Or, add all of the following:
HS_NLS_LENGTH_SEMANTICS=CHAR
HS_FDS_CHARACTER_SEMANTICS = TRUE
HS_KEEP_REMOTE_COLUMN_SIZE=ALL
 - c. Save the initdg4msql ini file, and restart the Gateway listener.

Configuring the Microsoft SQL Server Connection

Use the following instructions if your P6 EPPM database is on a Microsoft SQL server. You must have already installed the Oracle Gateway software before installing the Primavera P6 Reporting Database software. For information about installation, see *Oracle Gateway Installation Requirements* (on page 19).

- 1) In the Connection Settings - (Oracle Gateway) section, enter the P6 EPPM database connection settings:
- a. Select the **PMDB is on SQL Server** option.
 - b. Enter the **Host Name** (in the field at the top of the dialog box). This is the machine name or IP address of the Oracle server on which you want to create the Oracle Gateway.
 - c. Enter the **Port Number** (in the field at the top of the dialog box). enter the Service name of the Oracle server on which you want to create the Oracle Gateway.

Note: The JDBC URL and TNS fields at the top of this dialog box are read-only fields.

- d. Enter the **Database Name**. This is the name of the P6 EPPM database on the Microsoft SQL Server. This database must already exist.
- e. Enter the **Host Name**. This is the full SQL Server instance name of the Microsoft SQL Server where the P6 EPPM database resides. For example:

SQLServerName\databaseInstanceName

Note: If there is a named database instance, both the server name and the instance name must be included.

- f. Enter the **Port Number**. This is the port number of the Microsoft SQL Server where the P6 EPPM database resides. The default is **1433**.
 - g. The **JDBC URL** field is read-only. You cannot edit this field.
- 2) In the Privileged section:

- a. In the **Username** field, enter the Privileged user logon name for the P6 EPPM database on the Microsoft SQL Server.
- b. In the **Password** field, enter the Privileged user logon password for the P6 EPPM database on the Microsoft SQL Server. See ***Configuring the Oracle Stage Database Connection*** (on page 28).
- c. Click **Next** to go to the **Stage** tab. Use the fields on that tab to configure the Stage database connection settings, and Oracle connection settings for the Stage database.
- d. From this point on, follow the steps described in ***Configuring the Software for Oracle Systems*** (on page 27), starting with ***Configuring the Oracle Stage Database Connection*** (on page 28).

Upgrade P6 Reporting Database to the Latest Version

This section describes the process for upgrading to P6 Reporting Database R2.1 from P6 Reporting Database R2 and R1 for Oracle 10g and 11g.

There is no upgrade path if P6 Reporting Database is installed on a Microsoft SQL Server system.

Note: P6 Reporting Database 2.1 **must** be installed in a **new** directory. Do **not** install P6 Reporting Database 2.1 in the same directory where a previous version of P6 Reporting Database is installed.

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Upgrade Installation If the Previous Version Did Not Include Star

If you are upgrading from P6 Reporting Database R2 or R1, and did not install the Star database in that version, use the following procedure to upgrade to the latest version.

Note: There is no upgrade path if P6 Reporting Database is installed on a Microsoft SQL Server system.

- 1) If you purchased P6 Analytics, create the Star Tablespaces. For more information, see "Creating the Star Tablespaces" in the *P6 Analytics Administrator's Guide*. Otherwise, go to step 2.
- 2) Upgrade the P6 EPPM database to the 8.0 version.
- 3) Follow the **installation procedure** (on page 25), and install P6 Reporting Database. You can either install the software to the same location where your previous version is installed.
- 4) Use the information in the topics in the Configuring the Software for Oracle Systems section to configure the P6 Reporting Database for Oracle.
- 5) Drop the following user:
Drop user prmsdc cascade;
- 6) Go to the **\scripts** folder, and run **upgrade.bat** (or **upgrade.sh** when upgrading from a non-windows system) to upgrade the Stage and ODS databases.
- 7) If you purchased P6 Analytics, do the following:
 - a. Go to the **\scripts** folder, and run **create_star.bat** (or **create_star.sh** when upgrading from a non-windows system) to create the Star database.
 - b. Go to the **\scripts** folder, and run **loadstar.bat** (or **loadstar.sh** when upgrading from a non-windows system).

- 8) In the **\scripts** folder, run **incremental.bat** (or **incremental.sh** when upgrading from a non-windows system).

Upgrade Installation If the Previous Version Included Star

Use the following procedure to upgrade to the latest version if the previous version of P6 Reporting Database was installed to include Star.

Note: There is no upgrade path if P6 Reporting Database is installed on a Microsoft SQL Server system.

- 1) Upgrade your P6 EPPM database to P6 EPPM 8.0.
- 2) Follow the **installation procedure** (on page 25), and install P6 Reporting Database either to the same location where your previous version is installed.
- 3) Use the information in the topics in the Configuring the Software for Oracle Systems section to configure the P6 Reporting Database for Oracle.
- 4) If you are upgrading from versions R2, or R1, do the following:
 - a. Drop the following user:
Drop user prmcdd cascade;
 - b. Go to the **\scripts** folder, and run **upgrade.bat** (or **upgrade.sh** when upgrading from a non-windows system) to upgrade the Stage and ODS databases.
 - c. Go to the **\scripts** folder, and run **upgrade_star.bat** (or **upgrade_star.sh** when upgrading from a non-windows system) to upgrade the Star database.
 - d. Go to step 6.
- 5) If you are upgrading from P6 Reporting Database R2 and P6 Analytics R1, run **upgrade_70.bat** (or **upgrade_70.sh** when upgrading from a non-windows system) to upgrade the Stage, ODS, and Star databases.
- 6) In the **\scripts** folder, run **incremental.bat** (or **incremental.sh** when upgrading from a non-windows system).


Administrative Tasks

Describes the general administrative tasks, including how to secure the ERDB.properties file, how to clear and refresh data, and how to schedule or manually launch an incremental database update.

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Securing the ERDB.properties File

 This section contains information you need when securing the ERDB.properties file.

Ensure that only the user running the P6 Reporting Database scripts or processes has access to the ERDB.properties file, which is located in the following folder:

```
<installation path>\p6rdb\res
```

Only trusted users should have access to these files or folder.

File system protection can be set on all of the supported operating systems. Based on the settings applied, the **res** folder can be password protected or hidden. A new user can be created with the least amount of permissions to this file and folder. Do not give any other user access to this location.

For options for operating system-specific security, either contact your local administrator or search for file system security for your specific operating system.

Clearing and Refreshing the Data

There are times when you might need to clear and refresh all the data in the Stage, ODS, and Star databases. It is not necessary to uninstall and reinstall P6 Reporting Database to accomplish this task.

The following procedure assumes that you chose the default usernames (STAGEUSER, STARUSER, and ODSUSER) during the installation. If you choose different names, substitute those names for the defaults.

- 1) Login to the P6 Reporting Database instance with a user account that has the **Drop User** system privilege (such as System).
- 2) Run the following commands:
 - a. drop user stageuser cascade;
 - b. drop user odsuser cascade;

- c. drop user staruser cascade;

Caution: Deleting the Star database will also delete the project History Fact data that was accumulated.

- 3) Run the following to drop the public synonyms for P6 EPPM data:

```
begin
for syndrop in (select synonym_name from all_synonyms where synonym_name like 'P6%')
loop
execute immediate 'drop public synonym '||syndrop.synonym_name;
end LOOP ;
end;
```

Dropping the users listed in step 2 of the preceding procedure will remove all data from the P6 Reporting Database instance. You can rerun one of the following files to populate the Stage, ODS, and Star databases with the P6 EPPM database information:

- ▶ runetl.bat (on a Windows system)
- ▶ runetl.sh (on a supported non-windows system)

Scheduling the Incremental Database Update

Using a System Task Scheduler to Schedule Recurring ETL Jobs

To keep the ODS and Star databases current, the Incremental ETL process must be run periodically. Typically, this is done nightly during off hours.

Schedulers exist for both Windows and non-Windows operating systems. For Windows operating systems, the Windows Task Scheduler can be used. For non-Windows operating systems, this is done through a cron job using the Crontab command. Please refer to your operating system documentation for specifics on how to configure Incremental to run as a recurring job.

Caution: When configuring the scheduler, Oracle recommends that you select the option to not start the next job until the previous job has completed.

Manually Launching the Incremental Database Update

To launch the Incremental database update for ODS and Star, execute one of the following files on the machine where Stage is installed:


- ▶ incremental.bat (on a Windows platform)
- ▶ incremental.sh (on a non-Windows platform)

The account used to launch the file must have administrative privileges on the machine.

Using Reports from a Previous Version

If you have reports that were created in a previous version, you can use them in P6 Reporting Database by doing the following to create backward-compatible views for them:

- 1) Go to the `\p6rdb\scripts` folder.
- 2) Connect as **ODSUSER** to SQL Plus, and execute the script **ods_security_views_70.tsq** to create views.
- 3) Connect as **system** to SQL Plus, and execute the following:
`grant create any synonym to odsuser;`

Where: **odsuser** is the name of the ODS schema owner.  This is necessary in order to create synonyms in other users' schemas. It is **only** granted for backward-compatible views.

- 4) To create backward-compatible views for all users, execute the stored procedure **CREATEERUVIEWS** through SQL Plus.
 - You can pass in a list of users, separated by commas.
 - If you run the procedure without specifying usernames, it will generate synonyms for each reporting user.
- a. To Run through SQL DEVELOPER, run the stored procedure and then edit the following:

```
BEGIN
    USERLIST := NULL;
    CREATEERUVIEWS(USERLIST
);
```

Change the preceding code to be:

```
BEGIN
    USERLIST := NULL;
    CREATEERUVIEWS(
);
```

New users are created based on whether Enterprise Reports module access is set in the P6 EPPM database for the username.

- b. To create backward-compatible views only for certain users, run the stored procedure and edit the following:

```
BEGIN
    USERLIST := NULL;
```

Remove the word **NULL**, and set values for the usernames you want created. For example:

```
BEGIN
    USERLIST := 'eruser,eruser2';
```

- 5) Connect to P6 as the appropriate database user. Under Views, you should see the names of the views from the P6 Reporting Database R2 and P6 Analytics R1 release.

BI Publisher Administration Tasks

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Overview of BI Publisher Administration Tasks

BI Publisher is an Oracle enterprise reporting solution that can be used with the ODS. For complete overview information about BI Publisher, go to the following web site:

<http://www.oracle.com/technology/products/xml-publisher/index.html>

Installing Oracle Business Intelligence Publisher

For information on installing the Oracle Business Intelligence Publisher, go to the following web site:

<http://www.oracle.com/us/solutions/ent-performance-bi/bi-publisher-066551.html>

Configuring the JDBC Connection

Logon to the BI Publisher, and do the following:

- 1) Click the **Admin** tab.
- 2) Under Data Sources, click the **JDBC Connection** link.
- 3) Click the **Add Data Source** button.
- 4) Add the database connection information, and save the settings.

Configuring BI Publisher Security

Logon to BI Publisher, and do the following:

- 1) Click the **Admin** tab.
- 2) Under Security Center, click the **Security Configuration** link.
- 3) In the Local Superuser section, do the following to configure the name and password of the Local Superuser.
 - a. Select the **Enable Local Superuser** option.
 - b. In the **Superuser name** field, enter the Superuser's name.
 - c. In the **Password** field, enter the Superuser's password.



Note: Oracle BI Publisher enables an administrator to setup a security model based on roles and permissions. These roles and permissions can be enforced on folders containing reports created from ODS data. For more information, see "Defining a Security Model" in the Oracle Business Intelligence Publisher online help.

- 4) In the Security Model section, do the following to configure the type of security to use.
 - a. From the **Security Model** list, choose the model to use. This can be:
 - BI Publisher Security
 - Oracle BI Server
 - Oracle Database
 - b. Enter the **Connection String**. This is the connection string used to connect to the JDBC Data Source you previously configured. See **Launching the Configuration Utility** (see "**Configuring the JDBC Connection**" on page 43).

Setting Up LDAP with BI Publisher

Use the information in this section to setup BI Publisher with LDAP. It is assumed that you are already familiar with BI Publisher. For more information about BI Publisher, see the documentation that came with the product.

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Prerequisites for Setting Up LDAP with BI Publisher

Before you begin, ensure that:

- ▶ P6 EPPM is set up with LDAP.
- ▶ Each user who needs access to reports must have Enterprise Reports module access set in the P6 EPPM database for the username.
- ▶ The RunETL process has been run.

BI Publisher LDAP Setup

To set up BI Publisher for LDAP, ensure that all prerequisites have been met (see **Prerequisites for Setting Up LDAP with BI Publisher** (on page 45)), and then do the following:

- 1) Create following groups in the LDAP store, and assign the P6 users to that group.
 - P6REPORTS – * Contols access to the P6Reports folder
 - XMLP_ADMIN
 - XMLP_ANALYZER_EXCEL
 - XMLP_ANALYZER_ONLINE
 - XMLP_DEVELOPER
 - XMLP_SCHEDULER
 - XMLP_TEMPLATE_DESIGNER

*All the XMLP groups are specific to BI Publisher security. For more information, see the BI Publisher documentation.
- 2) Login to BI Publisher as admin user (<http://<ip address>:<port>/xmlpserver>), and do the following:
 - a. Access the admin options, and choose Security Configuration.
 - b. Specify LDAP security model connection information.
- 3) Access BI Publisher Admin, Data Sources, and do the following:
 - a. Create a new data source called **P6ODS**.
 - b. Specify connection information, odsuser name/password, and choose the option for **Use Proxy Authentication**.

- 4) Copy the **P6REPORTS** folder from the P6REPORTS.zip file to the BI Publisher application deployment location (for example, %BI_HOME%\xmlp\XMLP\Reports).

Note: The zip P6REPORTS.zip file also includes a folder named "Samples." This folder contains PDF files that show what each of the sample reports would look like when run.

- 5) Restart the application server.
- 6) Login to BI Publisher as same admin user, and access Admin, Roles and Permissions. The Role **P6REPORTS** should be read in from the LDAP server. For that role, select **Add Folder**, and add the **P6REPORTS** folder.

BI Publisher Database Authentication Setup

To set up BI Publisher database authentication, ensure that all *prerequisites* (see "*Prerequisites for Setting Up LDAP with BI Publisher*" on page 45) have been met, and then do the following:

- 1) After the RunETL process completes, users who had **Enterprise Reporting module access** were granted the role **P6REPORTS**. The following additional roles were also created, but not granted:

- XMLP_ADMIN
- XMLP_ANALYZER_EXCEL
- XMLP_ANALYZER_ONLINE
- XMLP_DEVELOPER
- XMLP_SCHEDULER
- XMLP_TEMPLATE_DESIGNER

These are publisher-specific roles that control privileges in BI Publisher. They must be granted to users in keeping with the organization's security model. For more information, see the BI Publisher documentation about roles.

- 2) Alter the users passwords in the ODS instance. For security reasons, each database user password created is a random string. For each user set a password. For example:

```
alter user scott identified by tiger;
```
- 3) Login to BI Publisher as admin user (<http://<ip address>:<port>/xmlpserver>), and do the following:
 - a. Access the admin options, and choose Security Configuration.
 - b. Specify oracle database security model connection information.
- 4) Access BI Publisher Admin, Data Sources, and do the following:
 - a. Create a new data source called **P6ODS**.
 - b. Specify the connection information, the odsuser name/password, and then choose the **Use Proxy Authentication** option.
- 5) Copy the **P6REPORTS** folder to the BI Publisher application deployment location (for example, %BI_HOME%\xmlp\XMLP\Reports).
- 6) Restart the application server.
- 7) Login to BI Publisher as same admin user.
 - a. Access Admin, Roles and Permissions. The Role **P6REPORTS** should be read in from database roles.

- b. For that role, select **Add Folder**, and add the **P6REPORTS** folder.

ODS Security Configuration

This section describes the ODS security configuration tasks. These include adding a new user, modifying user access, and deleting an existing user.

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User-Level Security and Username Restrictions

In order for the ODS to properly implement P6 EPPM user-level security, a database-level user will be created in ODS if marked as a reporting user in P6 EPPM. The P6 EPPM username must conform to the following restrictions:

- ▶ It must be 30 or less characters in length.
- ▶ If it contains any special characters (such as @ # \$ % , ^ & * . () - + \ / : _ ; | < > , etc.), these automatically will be removed. For example, if the P6 EPPM user name is **johnd@company.org**, the ODS database user that is created for it will be:
johndcompanyorg.
- ▶ It must not contain any embedded spaces.
- ▶ It must start with a letter, not a number.
 - ▶ It cannot start with a numeric character if created in P6 EPPM for users who will also use P6 Reporting Database.
 - ▶ It must start with an alphabetic character. User names that start with numbers cannot be used as database-level login names.
- ▶ It must have at least one character.

These restrictions are required because of the way security must be implemented in the ODS and applied to the Oracle database.

Database views are created for the ODS tables. Public synonyms are created and then the ODS database users are given access to these synonyms. When the ODS database user accesses the tables, row, and fields through these synonyms a filter is applied to allow data to be that meets this users' access based on their P6 EPPM security attributes.

If the user is an application user in the P6 EPPM database, and has Enterprise Reports module access set, a database login for the user will be created in the Oracle instance of the ODS database. This user will have the same password as the application user in the P6 EPPM application.

In order for a user to log into the ODS database directly (for example, using SQL Plus) with the P6 EPPM user name, a system database administrator must first reset the ODS database user's password.

Adding a New ODS User

When adding a new user, the username **must** conform to the format restrictions listed in **User-Level Security and Username Restrictions** (on page 49).

For detailed information on adding a new P6 EPPM user, see the *P6 EPPM Administrator's Guide*, or the P6 EPPMOnline Help.

For detailed information on ODS security, see the *P6 Reporting Database User's Guide* or the *P6 Analytics User's Guide*.

Use the following procedure to add a new user for the ODS:

- 1) Login to the P6 EPPM database via P6, and add a new ODS user.
 - ▶ This ODS username must start with an alphabetic character.
 - ▶ It must also conform to the username format restrictions described in **User-level security and username restrictions**.
- 2) Configure the user's P6 EPPM security attributes.
- 3) In P6, assign Enterprise Reports module access.
- 4) On the machine where the Stage database resides, run one of the following files:

- ▶ incremental.bat (on a Windows platform)
- ▶ incremental.sh (on a non-Windows platform)

This file is in the <P6 Reporting home>\p6rdb for incremental directory. This adds the user to the ODS database, creates Views for the user, and adds the user to Server Logins.

When the ETL process or incremental.bat (or incremental.sh for non-Windows systems) is run, a new database user will be created in the ODS instance.

- ▶ The user will be given role privileges to the **P6Reports** role. The password for that database user must be manually altered in order for the user to be able to connect directly as that user.
- ▶ The P6Reports role enables the user to connect and query the public synonyms for 'P6%'.

Modifying User Access in ODS

Users given access to the ODS will only be able to access the data for which they have rights in the P6 EPPM database.

For example, if a user has the "View Project Costs/Financials" privilege in the P6 EPPM database, then that user will be able to view project cost information in the ODS. Conversely, if a user does not have the "View Project Costs/Financials" privilege in the P6 EPPM database, they would see the word **null** in place of the value in fields that contain cost information.

Use the following procedure to give a user the ability to view cost information.

- 1) In the P6 EPPM application, access the Admin, Security Profiles dialog box.
- 2) To provide access to cost information, ensure that the "View Project Costs/Financials" privilege option is selected in the users project profile.


- 3) There is a global profile privilege that will enable users to view resources costs if the user has resource access. To enable this feature, ensure that the **View Resource and Role Costs** option is selected.
- 4) On the machine where the Stage database resides, run one of the following files:
 - ▶ incremental.bat (on a Windows platform)
 - ▶ incremental.sh (on a non-Windows platform)

This file is in the <P6 Reporting Database home>\p6rdb for incremental directory.

Deleting an ODS User

Use the following procedure to delete a user from ODS.

- 1) In the P6 application, remove Enterprise Reports from the user's module access.
- 2) On the machine where the Stage database resides, run one of the following files:
 - ▶ incremental.bat (on a Windows platform)
 - ▶ incremental.sh (on a non-Windows platform)

This removes the **create a session** privilege, and removes access to the public synonyms for the database user.
- 3) The Oracle ODS user that was created will still exist in the ODS instance.
 - ▶ This user will be disconnected from any views pertaining to ODS tables.
 - ▶  This user can be dropped from the ODS instance by executing the following query as the Oracle Instance system account or a user with permissions to drop other database users:

```
Drop user deleteUserName cascade;
```

For information on deleting a P6 EPPM user, see the *P6 EPPM Administrator's Guide*, or the P6 EPPM online help.

For additional information on ODS security see the *P6 Reporting Database User's Guide* or the *P6 Analytics User's Guide*.

Running the Configuration Utility

This section describes how to run the Configuration Utility to reconfigure Settings, Options, and Codes after P6 Reporting Database is already installed and configured.

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Overview of the Configuration Utility

This section describes where to find the information you need in order to change the following settings and options:

- ▶ Java Runtime Environment location
- ▶ Bulk file Load location
- ▶ Logging detail level
- ▶ Start and End dates
- ▶ Project Trend Interval
- ▶ Fiscal Year Start

After you install and configure P6 Reporting Database, you might need to do the following:

- ▶ Change Java Runtime Environment, Bulk File Load, or Logging settings. See **Resetting Options** (on page 55).
- ▶ Change the Date Range, Project Trend, or Fiscal Year Start options. If you purchased P6 Analytics, see **Changing Settings** (on page 54).
- ▶ If you purchased P6 Analytics, you might need to change the Project Trend Interval or Fiscal Year Start date. See "Configuring the Project Trend Interval and Fiscal Year Start" in the *P6 Analytics Administrator's Guide*.
- ▶ Delete, or choose additional, Activity, Project or Resource codes. If you purchased P6 Analytics, see Choosing Activity, Project, or Resource Codes.

These can be changed by running **config.cmd** (or config.sh in a non-Windows environment). When you run the utility, you will only be able to make changes to fields on the following tabs:

- ▶ Settings
- ▶ Options
- ▶ Codes

Fields on the PMDB, Stage, ODS, Star, and Links tabs will not be available for change.

Launching the Configuration Utility



The configuration utility should be access-control protected, and should be under administrative control.

To launch the configuration utility, do the following:

- 1) Locate the folder where P6 Reporting Database is installed.
- 2) Run the **config.cmd** command (or `config.sh` in a non-Windows environment). You will be prompted to enter the proper security authorization in order to access any data from the utility. After authorization completes, you should see the Settings tab on the configuration utility.
 - ▶ If it is necessary to do a complete refresh of all data, run the configuration utility from the command line in the following format: **config.cmd FULL**.
 - ▶ If you make changes to connections settings when running the configuration utility in FULL mode, it might require a Full ETL run.
- 3) If the Settings tab is not the one you want, click the appropriate tab (**Options** or **Codes**).

Changing Passwords

If you need to change the passwords for stageuser, odsuser, or staruser you must run the configuration utility in FULL mode (see **Launching the Configuration Utility** (on page 54) for information on launching this utility).

You cannot change passwords by running `config.cmd` because all connection information fields cannot be edited in `config.cmd`. See **Installation Procedure** (on page 25) for information on running `setup.exe`.

Changing Settings

After launching the configuration utility, you should see the Settings tab. Use the fields on this tab to reset the following:

- ▶ Java Runtime Environment location
- ▶ Bulk File Load location
- ▶ Logging detail level

For information on using the Settings tab, see **Configuring Java Virtual Machine, Bulk File Load, and Logging Settings** (on page 30).

After you finish changing options, you can do the following:

- ▶ Click the **Options** tab if you want to make changes for the Date Range. If you purchased P6 Analytics, use this tab to make changes to the Project Trend Interval or Fiscal Year Start fields.
- ▶ If you purchased P6 Analytics, click the **Codes** tab if you want to change, or choose additional, global Activity codes, or Project or Resource codes.
- ▶ Click **Finish** if you are finished making changes.

Resetting Options

You can use the fields on the Options tab to reset the following:

- ▶ Start and End Dates
- ▶ Project Trend Interval
- ▶ Fiscal Year Start

For information on using the Options tab, see ***Configuring the Date Range Option*** (on page 31).

After you finish changing options, do the following:

- ▶ Click the **Settings** tab if you want to changes the Java Virtual Machine or the Bulk File Load location, or change the Logging detail level.
- ▶ If you purchased P6 Analytics, click the **Codes** tab if you want to make changes for the global Activity codes, or for the Resource or Project codes.
- ▶ Click **Finish** if you are finished making changes.

Configuring the Secure Sockets Layer



This section describes how to configure the Secure Sockets Layer (SSL). SSL ensures a secure connection between servers over the network.

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Configuring the SSL Connection

This topic directs you to an Oracle web site that will provide an example of creating a self-signed Oracle wallet for the server and client, configuring the database to use TCPS with the server key, configuring an sql client to connect through the TCPS protocol, and creating simple java clients that show how to connect through TCPS in several different examples. Use these examples to guide you in creating your SSL connection.

Oracle assumes that you already understand the concept of wallets, and that you understand Secure Socket Layer (SSL) functionality.

- 1) Go to the following web site:
<https://support.oracle.com/CSP/ui/flash.html>
- 2) On the My Oracle Support window, do one of the following:
 - ▶ If you already have a Username and Password for Oracle Support, click **Sign In**.
 - ▶ If you are a new user, click the **New user? Register here** link, and follow the instructions to obtain a Username and Password.
- 3) Enter your **Username** and **Password**, and click **Go**.
- 4) On the My Oracle Support Dashboard, in the **Search Knowledge Base** field, enter **762286.1**, and press the Enter key (or, click the Search Knowledge Base icon to the right of the field after you enter the number).
- 5) On the Knowledge Browser Dashboard, select **End to End Examples of using SSL with oracle's JDBC THIN Driver** to see detailed examples. Use these examples as guides to help you configure your system.
- 6) Next, configure P6 Reporting Database to run the ETL process using SSL.

Configuring P6 Reporting Database to Use SSL to Run the ETL Process



Currently, the P6 Reporting Database Configuration Utility does not allow the erdb.properties file to be directly configured for TCPS. After it is initially configured for TCP, and after the SSL connection is configured, you must manually configure the P6 Reporting Database so that SSL is used to run the ETL process.

- 1) Using the wallet manager or OraclePKI, export the trusted certificate that is on the server, and copy it to client where P6 Reporting Database is installed.
- 2) On the client machine, import the certificate using the keytool. For example:
`C:\Program Files\Java\jre1.6.0_20\bin>keytool -importcert -file C:\wallets\server_wallet\cert -keystore "C:\Program Files\Java\jre1.6.0_20\lib\security\cacerts"`

Note: The default password for the Java default keystore file
JAVA_HOME/lib/security/cacerts is 'changeit'.

- 3) Edit the erdb.properties file as follows:
 - a. Replace all occurrences of the default port number with the number of the SSL port.
 - b. Replace all occurrences of **PROTOCOL = TCP** with **PROTOCOL = TCPS**.
- 4) Run the **runSubstitution.cmd** file to update all files with the new port number and TCPS setting. The file is located in the **ERDB_HOME\etl\common** directory.

Utility Tables, Log Files, and Troubleshooting

This section describes how to use Stage database utility tables to track the ETL process. It describes the log files that can provide information about the installation and daily operation of P6 Reporting Database.

In case a problem occurs, it tells where to get help if the log files do not provide sufficient information.

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Stage Database Utility Tables

During the ETL process, there are several tables that are generated in the Stage database that can be useful in tracking the progress of the current ETL. Because these tables always accumulate rows, they can also be useful in providing historical information about previous ETL runs. These tables reside in the Stage database only.

ETL_ProcessMaster Table

This table (shown in the following example) provides the history of ETL process runs. The start date and end date are shown, as well as the type of process.

- ▶ ProcessType=FULL indicates the Full ETL process
- ▶ ProcessType=INCR indicates the Incremental ETL process.

Process ID	ProcessStartDate	ProcessEndDate	ProcessType
12345	2010-09-15 14:45:39.683	2010-09-15 16:11:10	FULL
12346	2010-09-17 09:46:37.183	2010-09-17 10:05:34	INCR

ETL_ProcessInfo Table

This table (shown in the following example) provides the details of a particular ETL process run. For each step in the ETL process, an entry is logged to this table with an informational message. The ProcessId field in this table can be joined to the ProcessId in the ETL_ProcessMaster table.

The Rows column shows the number of rows that were processed.

ProcessID	InfoDate	ProcessName	InfoMsg	InfoType	TableName	Rows
4539	2010-09-15 15:51	ETLCalc	Full, API) DAO Completed without errors in 0.125 seconds.	PROGRESS	RISK	21
4540	2010-09-15 15:51	ETLCalc	Full, API) DAO Completed without errors in 0.406 seconds.	PROGRESS	EPS	10
4541	2010-09-15 15:51	ETLCalc	(Full, API) DAO Completed without errors in 5.5 seconds.	PROGRESS	WBS	96
4542	2010-09-15 15:51	ETLCalc	Full, API) DAO Completed without errors in 0.109 seconds.	PROGRESS	RESOURCES	41
4543	2010-09-15 15:51	ETLCalc	Full, API) DAO Completed without errors in 0.094 seconds.	PROGRESS	RESOURCE CURVE	12

The logs capture changes that have been made between Incremental runs. For Example, when a new activity code is created, the logging system populates the InfoMsg column, within the ETL_ProcessInfo Table, with a new entry that resembles the following:

actv_code_id=>3500, Operation=>Insert,SKEY=>895

ETL_ProcessException Table

This table shows exceptions (error) conditions that occurred during the ETL process. For each ETL run, any exceptions that occur will be logged into this table. The ProcessId field can be joined with the ProcessId of the ETL_ProcessMaster. The fields available in the ETL_ProcessException are:

Field	Description
ProcessId	The ID identifying the process.
ExceptionDate	The timestamp of when the exception occurred.
ProcessName	The name of the process that failed.
ExceptionDescription	The text description of exactly what failed within the process.
ExceptionLevel	The level of the exception.
PMDBTableName	The name of the P6 EPPM table (if applicable) that was being processed.
ODSTableName	The name of the ODS table (if applicable), that was being processed
PKEY	The Primary key (if applicable) to the row being processed.
ProjectId	If the error occurred in the context of processing project rows, this will be Project Object Id of the project.

etl_projectChanges

This table holds project IDs for all projects that have changed since the last update. These projects will be updated in the P6 Reporting Database during the next ETL process run.

etl_parameter

This table stores settings used by the ETL process. The content of the erdb.properties file is also written into this table during a Full or Incremental run of the ETL process.

W_OBI_EVENT_S table

Note: This section applies only to P6 Analytics.

In the NQSCONFIG.ini file, if [CACHE] ENABLE = YES, and an Answers request is created, the values are cached. If the values in the Answer request are changed in the P6 EPPM database, the old values can remain in the Answers request. The Answers request will not reflect the changes made in the P6 EPPM database. This is because the cache is still using the old values for the request.

The W_OBI_EVENT_S table tracks updates, and enables a cache clearing interval to be set. By default, an interval of 20 minutes is set. The W_OBI_EVENT_S table will clear the cache for data recently updated during an Incremental run. The setting can be changed in the OBI administration by doing the following:

- 1) Log into the RPD, and go to Tools, Utilities, Oracle BI Event Tables, Execute.
- 2) Under Event Tables, select **W_OBI_EVENT_S**. You can then set the frequency for clearing the cache.

The queries being executed by this event can be viewed in the NQQuery.log file in the <OBI Installation directory>\server\log. This is where you can see the frequency being enforced.



Always ensure that log files are secured by preventing unauthorized access. This can be done by using file system security.

Log Files

P6 Reporting Database creates extensive log files for each step of the ETL process (Extract, Transform, and Load). In addition, log files are created for each run of the Incremental process. The log files are stored in a 'log' folder in the root of the P6 Reporting Database installation location.

The log files contain detailed information that you should inspect after running each file in the installation process, and after running the Incremental process.

Log files

The following lists the log files, identifies when they are created, and gives a brief description of their contents:

File	Description
ETLInit.log	Created when runetl.bat (or Runetl.sh) or Incremental.bat (or incremental.sh) are run. Contains results of the DAO initialization at the beginning of the ETL Process.
ETLprocess.html	Created when runetl.bat (or Runetl.sh) is run. Contains results of the processes run to create the users, tables, and transfer of data. Derived from the ETL_Master, ETL_ProcessInfo, and ETL_Exception tables.
ETLprocess.log	Created when runetl.bat (or Runetl.sh) is run. Contains results of the processes run to create the users, tables, and transfer of data. There can be additional etlprocess.log-1 if runetl has been run multiple times without deleting original logs. New logs will be created, and old logs will be renamed.
Incremental.html	Created when Incremental.bat (or Incremental.sh) is run. Contains the details of the SQL commands run to perform the incremental updates. Derived from the ETL_Master, ETL_ProcessInfo, and ETL_Exception tables.
Incremental.log	Created when incremental.bat (or incremental.sh) is run. Contains the details of the SQL commands run to perform the incremental updates.

Troubleshooting

P6 Reporting Database writes detailed process information to the “log” directory under the P6 Reporting Database home folder. The log directory contain information about the installation, as well as about each run of the ETL (extract, transform, and load) process. If an error occurs, depending on the nature of the error, diagnostic information might be included within the files of the log directory. Analyzing these files, can help lead you to the resolution or to the file or process which caused the error.

Known issue with Oracle 10g - Row Counts in Incremental Log are Zero

If you are using Oracle 10g, there is an issue with row counts that are used in the ETL process. Because of this issue, some of the counts in the Incremental log will appear to be zero, when in fact there are actually values. The dbms output that shows rows returned will always be zero when the bug is encountered.

In the Incremental log, at the point when data is extracted, it shows how many rows were inserted or deleted. These will be zero, even if changes were made to the P6 EPPM. New rows will be added during Incremental process, but will not show any rows inserted or deleted.

This will not affect the integrity of the data in the data warehouse. This will only effect the logging. This issue has been fixed in Oracle 11g, and there is a patch available for Oracle 10g.

To see if there is a one off backport fix for your operating system, see Patch 4078618, Bug 4078618: SQL%ROWCOUNT% RETURNS ZERO WHEN THE TABLE IS IOT.

Oracle Database Gateway 11.2 Reporting Incorrect Column Size

If the Oracle Database Gateway 11.2 reports incorrect column size, and the extract fails, ensure that the following are set in the initdg4msql.ora file:

- ▶ HS_NLS_LENGTH_SEMANTICS=CHAR
- ▶ HS_FDS_CHARACTER_SEMANTICS = TRUE
- ▶ HS_KEEP_REMOTE_COLUMN_SIZE=ALL

The Extract Process Hangs, and CPU Usage is 100% on the Server Running the Database Gateway

If the Extract process hangs, and CPU usage is 100% on the server running the Oracle database gateway, change the threads setting of the extract.bat (or extract.sh on a non-Windows system) so that only one dg4msql process will run at a time:

- 1) Open the script **extract.bat** (or **extract.sh** for a non-Windows system) and look for:

Step 4.

```
%JAVA_INVOKER_PREFIX% %STAGE_CONN% /ACTION:SQLSET rootdir="C:\Documents and
Settings\<user ID>\rdb\scripts" "STAGEUSER" "PRMCD" "PRIVUSER"
priority=priority/stagetables.txt /STEP:4 /STEP_CNT:9 /PART_CNT:1 /UPDATESTATUS:Y
/NAME:"ExtractPmdbToStage" /PROCESS:"extract" /PART:1 /DESC:"Extract PMDB data into Stage"
dir="stage_load_full" threads=10
```

Notes:

The preceding command, beginning with **%JAVA**, and ending with **threads=10**, should all be on one line. Format restrictions of this document prevent it from doing so.

<user ID> in the command will not be the same on all systems.

- 2) Change the **threads=10** parameter to be **threads=1**.

- 3) Save and close the file.

The configuration utility does not launch during the P6 Reporting Database installation process

If you are installing P6 Reporting Database and the Configuration utility never launches, the most likely cause is that the location used for JRE is incorrect. To correct this issue, run the setup.exe or runInstaller process again, and ensure that you specify the correct location for your systems Java Runtime Environment (JRE).

Rebuild P6 Reporting Database procedures

It may sometimes be necessary to rebuild and recreate all of the scripts that are required to run the Full or Incremental ETL process. If you need to do this, do the following:

- 1) Go to the <installation folder>\p6rdb\scripts folder.
- 2) Run one of the following files:
 - ▶ Rebuildprocs.bat (in a Windows environment)
 - ▶ Rebuildprocs.sh (in a non-Windows environment)

Manually Increase Acceptable Error Size

When running the runetl process, errors may be produced due to bad data or other related issues which should not cause the process to fail. This error level by default is set to 512. For larger data sets this error level can be increased to allow the process to complete and the problematic data can be reviewed at a later time.

Edit the transform.bat or transform.sh file and alter the SET JAVA_INVOKER_PREFIX by adding **-Dprimavera.max.record.errors=1024** to it. For example:

```
SET JAVA_INVOKER_PREFIX="/home/pbk/local/jvm/jre1.6.0_20\bin\java" -Xmx1024m
-XX:+UseParallelGC -XX:+UseParallelOldGC -XX:GCTimeRatio=19 -Dprimavera.batch.size=10
-Dprimavera.spread.batch.size=8 -Dprimavera.progress.counter.fraction=4
-Dprimavera.max.record.errors=1024 -Djava.ext.dirs=..\lib;"\home/pbk/local/jvm/jre1.6.0_20\lib\ext
-Dprimavera.bootstrap.home="/home/pbk/rdb/indy" -Djava.awt.headless=true -classpath ..\res
com.primavera.er.util.CommandInvoker -classpath ..\res com.primavera.er.util.CommandInvoker
```

Contacting Customer Support

For detailed information about contacting Customer Support, see **Where to Get Support** (on page 10).

If you have a question about using P6 Reporting Database that you or your network administrator cannot resolve with information in the documentation, please contact Customer Support.

Uninstalling P6 Reporting Database

This section describes how to uninstall the P6 Reporting Database for Windows and non-Windows systems. For information on supported Windows and non-Windows platforms, see the Tested Configurations document on the release media or download.

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Uninstalling the Software

To uninstall P6 Reporting Database, perform the following steps.

Note: Due to the global nature of the Oracle Universal Installer (OUI), the OUI online help is not applicable for installing or uninstalling P6 Reporting Database or for references to the documentation. Instead, refer to the following for uninstalling instructions.

- 1) From the P6 Reporting Database physical media or download location, run one of the following depending on your system type:
 - If you are uninstalling on a Microsoft Windows system,
windows\Disk1\install\setup.exe
 - ▶ If you are uninstalling on a non-Microsoft Windows system,
<Operating System>\Disk1\install\runInstaller
Where: <Operating System> is a supported non-Windows platform. For information on supported platforms, see the Tested Configurations document on the release media or download.
- 2) Click **Deinstall Products**.
- 3) Select the name that represents the P6 Reporting Database installation and click **Remove**.
You determined the name that represents the P6 Reporting Database installation when you installed the product.
- 4) If the name of the item to remove is correct, click **Yes** to confirm.
- 5) Click **Close**.
- 6) Click **Cancel** and then **Yes** to confirm.
- 7) If you are uninstalling on a Microsoft Windows system, delete the *<installation folder>p6rdb* folder, where:
<installation folder> is the folder in which you installed P6 Reporting Database.