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PRIMAVERA

**Connecting Oracle Enterprise Manager to P6 EPPM Metrics
Release 15.1**

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Contents

P6 EPPM and Enterprise Manager

P6 enables Enterprise Manager to display certain P6 EPPM metrics. To allow Enterprise Manager to display these metrics, you must deploy the following P6 EPPM-plugin in Enterprise Manager:

```
12.1.0.1.0_oracle.prima.p6_2000_0.opar
```

See the *Tested Configurations* document for supported versions of Enterprise Manager.

P6 EPPM Metrics Collected for Enterprise Manager

Metrics are collected in P6 8.3 for display in Enterprise Manager Cloud Control. This information is useful for helping an administrator to track module usage.

Metrics Collected for Enterprise Manager

The following P6 EPPM metric data can be displayed in columns of the Enterprise Manager Cloud Control:

P6 Services

About P6 Services

These services correspond to the services you set in the Primavera P6 Administrator.

- All Service Summary
- Apply Actuals
- Leveler
- PX
- Recalc Cost
- Schedule Check
- Scheduler
- Send to Fusion
- Store Period Performance
- Summarizer

For each service, you may see any of the following:

- **Average Execution Time (secs)** The average time (in seconds) the service took to run.
- **Number Currently Running on Target** The number jobs currently running on the node.

- **Number of Jobs Currently Running System Wide** The number of jobs currently running on all nodes (based on data in the database).
- **Number of Jobs Executed In Last Hour** The number of jobs that finished in the last hour.
- **Number of Job Executions** The number of times the job has run.
- **Number of Jobs Failed In Last Hour** The number of times the job failed in the last hour.
- **Number of Jobs Pending System Wide** The number of jobs waiting to run on all nodes (based on data in the database).

The following are seen in the All Service Summary section, which shows the average of all the jobs running:

- **Longest Running Job Type** The job that takes the most time to run.
- **Max Memory (KBytes)** The maximum memory given to the Java process (in kilobytes).
- **Shortest Running Job Type** The job that takes the least time to run.
- **Used Memory** The amount of memory (in kilobytes) that is being used.

How to Analyze P6 Services

These P6 Services help you to determine if your targets are above capacity or close to it. They also give you the information you need to rework the services to get targets below capacity.

When the ratio of the **Number of Jobs Pending System Wide** and the **Number of Jobs Currently Running System Wide** continues to increase, your system might not be able to keep up with demand. You will need to determine which targets are at capacity and which are under-utilized.

- A target is at capacity if the memory it is using equals or is close to the amount of memory available. The **Average Execution Time** will also increase because the machine does not have enough resources to handle all the running jobs.
- A target is under-utilized if the memory it is using is significantly below the amount of memory available. The **Number of Currently Running On Target** will be low.

When you have identified the targets at capacity and those that are under-utilized, you will need to balance the work among targets. To determine how to balance the system, use the values of your P6 Services, especially those indicating which jobs take the longest and which run most frequently.

If all of your machines are at capacity, you must add new targets.

Connection Pool

Each connection pool type has two sections: information and performance.

- Long-Running SQL Connection Pool Information
- Long-Running SQL Connection Pool Performance
- Regular SQL Connection Pool Information
- Regular SQL Connection Pool Performance
- Transactional SQL Connection Pool Information
- Transactional SQL Connection Pool Performance

The SQL Connection Pool types represent pools of database connections which are used for 3 different types of database access:

▸ **Long-Running SQL Connection Pool** Used for long running transactions, which includes all job services (scheduling, summarizing, apply actuals).

▸ **Regular SQL Connection Pool** Used for normal, short-lived transactions, typical of loading data in a web page.

▸ **Transactional SQL Connection Pool** Used for transactional operations that usually involve inserting or updating more than 2 tables, and includes all P6 Integration API operations that involved updating data. Used for long delete operations within P6, including deleting projects and EPS objects.

The information section will display your settings as you have set them in the Primavera P6 Administrator. The performance section will tell you how long it takes each service to run.

The performance sections will display the following information:

▸ **Average Lease Time (secs)** The average time a user keeps a lease to a connection. If the average lease time over a period of a few days is close to the Maximum Lease Duration setting (for the particular connection pool type), then it may be necessary to increase the Maximum Lease Duration setting to avoid getting database connection lease timeout errors. The user will see these errors as a failure to load a web page or complete an API transaction. These errors will also be seen in the P6WebAccess logs.

▸ **Average Lease Wait Time (secs)** The average time a user has to wait for a lease to a connection to become available. If the average lease wait time over a period of a few days is close to the Lease Request Wait Timeout setting (30 seconds is the default for all connection pool types), then it may be necessary to increase the Maximum Connections setting to allow more connections to be available for leasing on a busy system. Another possibility is database connections are being held due to database locks; your database administrator should investigate these locks.

▸ **Average SQL Times (secs)** The average time to execute SQL queries.

▸ **Connections Allocated** The number of connections available to users.

▸ **Connections In Use** The number of leased connections that are actively involved in database transactions. If the 'Connections in Use' value is close to the 'Maximum Connections' setting for more than 1 minute, you are exceeding the capacity of your database connection pool, and you are most likely overloading your server with requests. Another possibility is database locking; your database administrator should investigate.

▸ **Connections Leased** The number of database connections that have been "reserved" by active user transactions.

▸ **Connections Recycled** The number of previously leased connections that have been forcibly returned to the connection pool due to lease timeout while connection was not in use.

▸ **Connections Revoked** The number of previously leased connections that have been forcibly returned to the connection pool due to lease timeout during a database transaction.

▸ **Denied Lease Request** The number of database connection lease requests that were denied due to the connection pool not having any free connections (all connections were leased by other threads). If 'Denied Lease Request' count increases by more than 1 per day, your database administrator should investigate the database load as it indicates that user transactions are failing due to insufficient number of free database connections for an extended period of time (see 'Average Lease Wait Time' above).

▸ **SQL Queries** the number of SQL queries executed.

▸ **Succeeded Lease Requests** The number of users who received a lease request.

▶ **Waiting for a Lease** The number of users waiting for a lease.

User Session Information

Historical Unique Total Logins: Total number of unique logins

This is the total historic count of unique P6 EPPM users that have logged into the system. This count will never exceed the total number of users in the user dictionary. For each unique user who has logged into the system, you will have only one entry to show they logged in. The purpose is to show how many users in your user dictionary have logged into the system.

Session Counts

These values refer to the number of P6 EPPM sessions currently logged in, based on module access permissions. For example, if a user logs in and has been assigned module access to both Resources and Projects, both the Projects session count and the Resources session count will increment by one. OEM collects counts for the number of:

▶ Logged in Users
▶ API Sessions
▶ Enterprise Reports Sessions
▶ P6 Analytics Sessions
▶ Portfolios Sessions
▶ P6 Professional Sessions
▶ Projects Sessions
▶ Resources Sessions
▶ Team Member Sessions (shows sessions for P6 Team Member Web and E-mail Statusing Service)
▶ Progress Reporter Sessions
▶ Web Services Sessions
▶ Timesheet Sessions
▶ Team Member Interfaces Sessions
▶ Total User Sessions

Setting Up JVM For Metric Collection

Follow the instructions below to prepare the JVM so Enterprise Manager can retrieve the metrics from P6 EPPM.

Setting the JVM for P6 in WebLogic

To enable P6 EPPM to publish target metrics, you must first set the JVM for P6 to allow remote JMX connections. To set the JVM:

1) Launch the WebLogic **Administration Console**.

> **Note**: You can open the Administration Console via a web browser using this address: http://*serverIP*:*listenport*/console. The default *listenport* is 7001.

2) In the **Welcome** window, log in using the user name and password you created when you created your WebLogic domain.

3) In the **Change Center** pane of the Administration Console, click **Lock & Edit**.

4) In the **Domain Structure** pane:

   a. Expand **Environment**.

   b. Click **Servers**.

5) In the **Summary of Servers** pane, in the **Control** tab, click the link for the P6 managed server name.

6) In the **Settings for <managed server name>** pane, select the **Server Start** tab.

7) Locate the **Arguments** field and add the following to the end of the arguments already in that field (as all one line with a space before the dash):

   ‣ For Sun Java JDK:

   ```
   - Dcom.sun.management.jmxremote -
   Dcom.sun.management.jmxremote.port=portnumber -
   Dcom.sun.management.jmxremote.ssl=false -
   Dcom.sun.management.jmxremote.authenticate=false
   ```

   where *portnumber* is the JMX/RMI port through which P6 will publish the metrics (for example, port 9999).

8) Click **Save**.

9) In the **Change Center** pane, click **Activate Changes**.

10) Restart your managed server:

   a. In the **Domain Structure** pane:

      1. Expand **Environment**.

      2. Click **Servers**.

   b. In the **Summary of Servers** pane:

      1. Select the **Control** tab.

      2. Select the option for your managed server.

   c. Click **Shutdown**.

      1. Click the down arrow to the right of the **Shutdown** button.

      2. Click **When work completes** or **Force Shutdown Now**.

      3. In the **Server Life Cycle Assistant** pane, click **Yes**.

      4. Select the option for your managed server.

      5. Click **Start**.

   d. In the **Server Life Cycle Assistant** pane, click **Yes**.

   e. In the **Summary of Servers** pane, click the 'Start Refresh' icon in the middle of the pane to see when the **State** column says 'RUNNING.'

11) Repeat these steps for each managed server.

Setting the JVM for P6 in WebSphere

To enable P6 EPPM to publish target metrics, you must first set the JVM for P6 to allow remote JMX connections. To set the JVM:

1) Start the WebSphere Application Server.
2) Launch the WebSphere Application Server **Administrative Console**.
3) In the left-hand navigation pane:
   a. Expand **Servers** then **Server Types**.
   b. Click **WebSphere application servers**.
4) On the **Application servers** screen, click the server name link.
5) On the **Configuration** tab, under **Server Infrastructure**, expand **Java and Process Management**.
6) Click **Process Definition**.
7) Under **Additional Properties** on the right side, click **Java Virtual Machine**.
8) On the **Configuration** tab, under **Generic JVM arguments,** add this line to the end of the arguments already there (as all one line with a space before the dash):

   ```
   -Dcom.sun.management.jmxremote
   -Dcom.sun.management.jmxremote.port=portnumber
   -Dcom.sun.management.jmxremote.ssl=false
   -Dcom.sun.management.jmxremote.authenticate=false
   ```

   where *portnumber* is the JMX/RMI port through which P6 will publish the metrics (for example, port 9999).
9) Click **OK**.
10) Click the **Save** link that appears within the message reporting changes.
11) Restart the application server instance.

Configuring P6 EPPM plugin into Enterprise Manager 12c

The following instructions assume that you have already installed Enterprise Manager 12c (12.1.0.1.0).

To configure the plugin with 12c:

1) Verify preferred credentials for the Enterprise Manager Agent:
   a. Login to Enterprise Manager as the system administration user.
   b. Go to **Preferences**, **Preferred Credentials**.
   c. Find the **Agent** target and click **Set Credentials**.
   d. In **Target Credentials**, enter the **Host Username** and **Password** of the Enterprise Manager box so the agent knows how to login.

> **Note:** If you are running Enterprise Manager on Microsoft Windows, the **Target Credentials** must be for a Windows user that has log on as a batch job policy enabled.

2) Import and deploy the P6 EPPM plugin:

3) Run these commands from OMS_HOME/bin (for example:/home/user/Oracle/oms/bin)

- `emcli login username=`*admin user*

where admin user is the admin user for Enterprise Manager (for example,sysman}

Enter your password when prompted.

- `emcli sync`

- emcli import_update -omslocal -file={OPAR filepath}

where OPAR file path is the location where you stored the opar file (for example,/home/user/P6/lib/12.1.0.1.0_oracle.prima.p6_2000_0.opar)

4) Launch the **OEM 12c Console** and login as an administrative user.

5) In the **Setup** menu, choose **Extensibility**, **Plug-ins**.

6) Verify the management plugin (**PrimaveraP6Metrics**) you imported is in the **Middleware** category.

7) Select the plug-in and right-click on the entry to display the popup menu.

8) Choose **Deploy On**, **Management Servers**.

9) Enter the repository SYS password.

10) Click **Next** and wait for the **Pre-requisite Checks** to complete then click **Next**.

11) In the **Review** window, click **Deploy**.

12) Click **Show Status** to check the deployment status and check the status until it completes.

Adding P6 EPPM Metrics to the Enterprise Manager 12c Display

The instructions below assume that you have already imported and deployed the P6 EPPM plugin for Enterprise Manager.

To add P6 EPPM metrics to the Enterprise Manager display:

1) Log into Enterprise Manager.

2) From the **Setup** menu, choose **Add Target** then **Add Targets Manually**.

3) Select **Add Targets Declaratively by Specifying Target Monitoring Properties**.

4) In the **Target Type** menu, select **Oracle Primavera P6 EPPM**.

5) In the **Monitoring Agent** menu, select your agent where your P6 EPPM instance is running..

6) Click **Add Manually**.

7) Enter the property values of the target OEM will monitor:

    a.   Enter a name (for example, Primavera P6 Web Metrics).

    b.   Enter a P6 application server machine name.

    c.   Enter an RMI admin port number (this is the port number you entered when you set the JVM for P6).

    d.   Enter a user name and password (the is the operating system user with Java RMI privileges).

    e.   Enter the Check Basic Health URL, most commonly, the login URL plus "/checkbasichealth". This will call a servlet within P6 to monitor basic health of the application.

    f.   Enter the Check Basic Health database. This will be passed to check basic health as a parameter, to determine which P6 database to query.

8) Click **OK** to complete the process.

The confirmation window displays information on the newly added target. Close the dialog.

9) To view the metrics, go to the **Targets** tab then click the **All Targets** link at the top.

10) Find your target (for example, Primavera P6 Web Metrics) and select it.

11) Choose **Target**, **Monitoring**, **All Metrics**.

12) Select your metric name for the data.

> **Note:** Follow the Oracle Enterprise Manager Cloud Control Administrator's Guide (12c Release 1 (12.1.0.1) for more instructions on Import/Deploy and Add Target procedures from below URL.

For More Information

Where to Get Documentation

Complete documentation libraries for P6 EPPM releases are available on the Oracle Technology Network (OTN) at:

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

From this location you can either view libraries online or download them to have local copies. We recommend viewing them from OTN to ensure you always access the latest versions, including critical corrections and enhancements.

P6 EPPM is configured to access its help systems on OTN. However, you can also install local versions when you install the software.

The documentation assumes a standard setup of the product, with full access rights to all features and functions.

The following table describes the core documents available for P6 EPPM and lists the recommended readers by role. P6 EPPM roles are described in the *Planning Your P6 EPPM Implementation* guide*.*

Title	Description
What's New in P6 EPPM	Highlights the new and enhanced features included in this release. You can also use the *P6 EPPM Cumulative Feature Overview Tool* to identify the features that have been added since a specific release level. All users should read this guide.
Planning Your P6 EPPM Implementation	Explains planning your implementation and provides an installation process overview, frequently asked questions, client and server requirements, and security information. The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.
P6 EPPM Installation and Configuration Guide	Explains how to install and configure P6 EPPM using the P6 EPPM Installation and Configuration wizards. The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.
P6 EPPM Installation and Manual Configuration Guide	Explains how to install and configure the P6 EPPM using the P6 EPPM Installation wizards, and how to manually configure individual components. The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.
P6 EPPM Post Installation Administrator's Guide	Describes how to get started using P6 EPPM applications after you have installed and configured them. Complete the tasks in this guide before letting your users work with these applications. These tasks include information about configuring your users and security settings and privileges, configuring your Primavera P6 Administrator settings, and finalizing your P6 Integration API and P6 EPPM Web Services settings. The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.
Tested Configurations	Lists the configurations that have been tested and verified to work with P6 EPPM. The network administrator/database administrator and P6 EPPM administrator should read this document.

Title	Description
P6 User's Guide	Explains how to plan, set up, and manage projects in a multiuser environment. If you are new to P6, start with this guide to learn how to use the software effectively to plan and manage projects. When you need more detail, refer to the P6 Help. The program manager, project manager, resource/cost manager, team leader, and all P6 users should read this guide.
P6 Help	Explains how to use P6 to administer, plan, set up, and manage projects, portfolios, workflows, timesheets, documents, and reports in a multiuser environment. Describes how to analyze performance and ROI, and analyze budgets. If you are new to P6, use this Help to learn how to use the software effectively. The operations executive, P6 EPPM and P6 administrator, program manager, project manager, resource/cost manager, team leader, and all users should read this Help.
P6 Data Dictionary	Defines fields used in P6. All P6 users should refer to this guide if they need a field definition.
P6 Team Member Web Help	Describes how to use P6 Team Member Web to provide status on activities. P6 Team Member Web users should read this Help.
P6 EPPM Web Services Programmer's Guide	Describes how to invoke, use, and troubleshoot the available services and operations within supported environments. When you need specific information about the services and operations available, refer to the P6 EPPM Web Services Reference Manual. Anyone who wants to develop applications that interact with P6 should read this guide.
P6 EPPM Web Services Reference Manual	Describes all services and operations available in P6 EPPM Web Services. Anyone who wants to develop applications that interact with P6 should read this guide.

Title	Description
P3 to P6 EPPM Migration Guide	Provides best practices for migrating your P3 data to P6 EPPM and details how P3 functionality maps to P6 EPPM functionality. All administrators should read this guide if your organization is moving from P3 to P6.

Distributing Information to the Team

You can copy the online documentation to a network drive for access by project participants. Team members can then view or print those portions that specifically relate to their roles in the organization.

Throughout this documentation, the Security Guidance icon 🛡 helps you to quickly identify security-related content to consider during the installation and configuration process.

Where to Get Training

To access comprehensive training for all Primavera products, go to:

http://education.oracle.com

Oracle Learning Library

The Oracle Learning Library (OLL) provides online learning content covering Primavera products. Content includes whitepapers, videos, tutorials, articles, demos, step-by-step instructions to accomplish specific tasks, and self-paced interactive learning modules.

To access the learning library's Primavera content, go to:

http://www.oracle.com/oll/primavera

Where to Get Support

If you have a question about using Oracle products that you or your network administrator cannot resolve with information in the documentation or help, visit http://support.oracle.com/. This page provides the latest information on contacting Oracle Global Customer Support, knowledge articles, and the support renewals process. For more information about working with Support, visit https://support.oracle.com/epmos/faces/DocumentDisplay?id=888813.2 to view **Support Tools & Tips**.

The following knowledge articles are a good place to start your research because they link to the most frequently referenced articles about P6 EPPM

▶ Primavera Product Master Notes [ID 1489367.1]
▶ Master Note For Primavera P6 Common Application Questions Or Issues [ID 1292929.1]

P6 EPPM integrates with different Oracle applications; when you create a Service Request, be sure to open the request with the proper Support team. To ensure you reach the proper Support team, enter the correct product information when you create the Service Request. Each product has its own support line.

▸ Use the **Primavera P6 EPPM** support line when you are having installation, configuration, or connection issues related to P6 EPPM.
▸ Use one of the following support lines when you are having installation or configuration issues that do not relate to P6 EPPM.
  ▸ Oracle WebLogic Server
  ▸ Oracle Database Server
  ▸ BI Publisher
  ▸ BPM
  ▸ Oracle Webcenter Content Core Capabilities (formerly Universal Content Management)
  ▸ Oracle Enterprise Manager
  ▸ Oracle Access Manager
  ▸ Oracle AutoVue

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/us/support/contact-068555.html or visit http://www.oracle.com/us/corporate/accessibility/support/index.html if you are hearing impaired.

Using Primavera's Support Resource Centers

Primavera's Support Resource Center provides links to important support and product information. Primavera's Product Information Centers (PICs) organize documents found on My Oracle Support (MOS), providing quick access to product and version specific information such as important knowledge documents, Release Value Propositions, and Oracle University training. PICs also offer documentation on Lifetime Management, from planning to installs, upgrades, and maintenance.

Visit https://support.oracle.com/epmos/faces/DocumentDisplay?id=1486951.1 to access links to all of the current PICs.

PICs also provide access to:

▸ **Communities** which are moderated by Oracle providing a place for collaboration among industry peers to share best practices.
▸ **News** from our development and strategy groups.
▸ **Education** via a list of available Primavera product trainings through Oracle University. The Oracle Advisor Webcast program brings interactive expertise straight to the desktop using Oracle Web Conferencing technology. This capability brings you and Oracle experts together to access information about support services, products, technologies, best practices, and more.

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