

ORACLE®

PRIMAVERA

**Planning Your P6 EPPM Implementation
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About the Planning Your Implementation Guide

This book provides information on planning your implementation. It provides an installation process overview, frequently asked questions, client and server requirements, and security information.

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Who Should Help with the Installation?

Your organization needs several types of employees to install and configure P6 EPPM applications. The following section describes the basic roles, and the responsibilities given to those roles when installing your products. Roles might vary or overlap depending on the structure of your organization.

Network administrators

Network administrators configure an organization's network environment (local- and wide-area networks) for optimal performance with P6 EPPM applications. They install and maintain the server and client modules in the P6 EPPM solution. 🛡️ They manage user access to project data and develop and maintain a comprehensive security policy to protect project data from unauthorized access, theft, or damage. Network administrators ensure that the hardware and software supporting P6 EPPM function reliably by:

- ▶ Setting up and maintaining the network to ensure reliable connections and the fastest possible data transfer.
- ▶ Creating and maintaining accurate lists of network resources and users so that each has a unique network identity.
- ▶ 🛡️ Providing secure connections among applications using SSL/TLS to protect data in transit.

Database administrators

Database administrators (DBAs) are responsible for setting up, managing, and assigning access rights for P6 EPPM. They set and oversee rules on how to use corporate databases, maintain data integrity, and set interoperability standards. Database administrators ensure reliable access to the P6 EPPM database by:

- ▶ Installing, configuring, and upgrading database server software and related products.
- ▶ Creating and implementing the databases.

- ▶  Implementing and maintaining database security, including creating and maintaining users, roles, and privileges for the databases.
- ▶ Monitoring database performance and tuning.
- ▶ Planning for growth and changes.
- ▶ Establishing and maintaining backup and recovery policies and procedures.

P6 EPPM administrators

P6 EPPM administrators ensure that P6 EPPM applications are implemented properly and operate smoothly. They play a key role during implementation by:

- ▶ Working with senior management to establish the enterprise project structure, resource hierarchy, and organizational breakdown structure (OBS); set up basic calendars; and define organization-wide codes in P6.
- ▶  Working with the network administrator to create user accounts and user groups for P6 EPPM.
- ▶  Assigning security rights to P6 EPPM users in P6.
- ▶ Working with the Human Resources (HR) department to keep the resource hierarchy in P6 up-to-date and complete, possibly through integration of an HR component from an enterprise resource planning (ERP) system.
- ▶ Configuring user interface views in P6 to provide efficient, role-based navigation to features.

Web Application administrators

Web Application administrators are responsible for installing, configuring, and deploying P6 EPPM on one of the supported Java application servers. Along with network administrators, they help to maintain server components in the P6 EPPM solution and configure access to P6 EPPM web applications.

Web application administrators ensure reliable access to P6 EPPM applications by:

- ▶ Installing, configuring, and upgrading application server software and related products.
- ▶ Configuring secure access to all web applications, including proxy servers.
- ▶ Monitoring server performance and tuning.
- ▶ Planning for growth and changes.
- ▶ Establishing and maintaining scalability.

LDAP administrators

LDAP administrators are responsible for configuring unified access to P6 EPPM via existing LDAP connection details. They are also responsible for assisting web application administrators and network administrators when configuring single sign-on access to P6 EPPM.

Program and project managers

Program and project managers might also become involved in the initial configuration of the P6 EPPM solution, though they are not normally involved in the installation. They are responsible for managing one or more projects and use P6 or P6 Professional for:

- ▶ Adding projects to the P6 EPPM database.

- ▶ Prioritizing resources across projects.
- ▶ Planning and managing projects.

Installation and Configuration Process Phases

The network administrator, database administrator, and P6 Administrator should work together to successfully install the P6 EPPM solution for your organization.

Oracle recommends installing and configuring the P6 EPPM solution in phases. Each phase is explained below.

Phase 1: Plan your P6 EPPM configuration

Before you begin the installation:

- ▶ Decide how your organization will implement the P6 EPPM solution. See *Planning Your Implementation* (on page 11).
- ▶ Identify the servers and network hardware you will need to support the implementation. See *Client and Server Requirements* (on page 18).
- ▶  Identify the security requirements for your installation. See *Security Guidance Overview* (on page 18).
- ▶ Install and configure the third-party database server software (Oracle or Microsoft SQL Server).
- ▶ Perform any upgrade procedures to roll projects from previous versions into the new version.

Phase 2: Configure your P6 EPPM servers

Once you have set up your network and prepared your servers, you can begin to configure the servers. Start by setting up the P6 EPPM database on the database server. You can choose an automated or a manual method to complete this process. Oracle recommends the automated method.

Phase 3: Install and configure your P6 EPPM applications

You can use the P6 EPPM Installation Wizard to install all of your P6 EPPM applications. You no longer need to install each application one at a time.

Note: Oracle recommends that you install P6 and P6 Team Member separately so that you can create an Admin configuration for both of them. If you install them together, you will only be able to create an Admin configuration for P6.

The wizard installs the following:

- ▶ P6 Team Member (includes P6 Team Member Web and E-mail Statusing Service)

Note: You will need to configure E-mail Statusing Service separately. The installation wizard will provide the E-mail Statusing Service files and you will use the config.properties file to set up this service.

- ▶ P6 EPPM Web Services

▶ P6 Integration API (remote mode only)

Note: Oracle provides a separate installer for P6 Integration API local mode.

If you use BI Publisher, BPM, or a content repository, you will need to install and configure them to work with P6 EPPM before you connect them with the wizard.

Once you install your applications, you can use the P6 EPPM Configuration Wizard to configure your database; deploy your P6 EPPM applications in WebLogic and create managed servers; connect BI Publisher or BPM 11g to P6 EPPM.

Phase 4: Configure P6 Professional

Once your servers are configured and the databases are installed, you can begin to install P6 Professional on your client workstations according to your implementation plan. You can then perform application configuration tasks for your implementation.

Phase 5: Finalize Your Applications

Use the *P6 EPPM Post Installation Administrator's Guide* to finalize the applications so your users can use these applications successfully.

Technical Environments

When deploying P6 components, Oracle recommends maintaining non-production environments in addition to your production environment. Non-production environments are typically known as: Development Environment, Testing Environment, and Staging Environment. Non-production environments allow you to safely test and integrate changes into the system. These changes could include software upgrades, version upgrades, platform and operating system upgrades, configuration changes, and adding new modules. A general description of each environment is shown below. You may choose to maintain only some of them based on the size of your deployment; however, you should consider all of them when setting up your system.

Development Environment

In-house developers or administrators should use development environments to deploy components to develop integrations or proof-of-concept projects.

Testing Environment

Use the testing environment to validate new features of upgraded components, configuration setting changes, or regression testing of existing features.

Staging Environment

This environment is very similar to the Production Environment because it contains all (or mostly all) deployed components of the system. Use it for further testing so you can resolve any integration issues before going live to the Production Environment.

Production Environment (required)

This is the environment where users actually do their work and contains all deployed components of the system.

Planning Your Implementation

Read this chapter when you are ready to plan your implementation. For more detailed information and assistance, please consult with Oracle Global Customer Support (if you have questions about installation) or Oracle Primavera GBU Consulting (if you want Oracle Primavera to assist you with your implementation.)

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Day One Checklists

The day one checklists are intended for you to better navigate the P6 EPPM installation library and to assist you in finding the topics that you must complete in order to successfully install, configure, and upgrade an instance of P6 EPPM.

Please note that these checklists might not correspond to your exact installation, configuration, or upgrade scenario. You should make sure that you read and understand each document that is associated with the tasks that you plan to complete in order to determine if this applies to you or not.

The checklists that you find in these sections contain the following information:

The technology specifications for the particular scenario that the checklist covers, such as:

- ▶ **Application Server:** WebLogic, WebSphere, or both
- ▶ **Database:** Oracle, SQL Server, or both

A table that includes many rows and the following four columns:

- ▶ **Done (Y/N):** The implementation checklists are intended for you to print out for your own record. As you complete a sequence in the checklist, you should check the cell with the appropriate status. For example, you should mark a cell with Y if you have completed a task or you should mark it with an N if you were not able to complete a task.

- ▶ **Sequence:** Establishes the order in which you should complete the steps associated with each topic.
- ▶ **Topic:** The name of the topic that you will use to complete the steps for each sequence in the checklist.
- ▶ **Document:** The name of the document in which you will find the Topic for the relevant sequence in the checklist.

Pre-Installation Checklist

The following checklist represents the steps that you need to complete in order to prepare your environment for a P6 EPPM implementation.

Application Server: WebLogic

Database: Oracle or SQL Server

| Done (Y/N) | Sequence | Topic | Document |
|------------|----------|--|------------------------------------|
| | 1 | JDK Installation | Installing and Configuring P6 EPPM |
| | 2 | Setting an Environment Variable for Java | Installing and Configuring P6 EPPM |
| | 3 | Installing WebLogic | Installing and Configuring P6 EPPM |
| | 4 | Installing a Database | Installing and Configuring P6 EPPM |

P6 EPPM Installation and Configuration Checklist

The following checklist represents the steps that you need to complete in order to install an instance of P6 EPPM that does not include a content repository, BI Publisher, or BPM.

Application Server: WebLogic

Database: Oracle or SQL Server

| Done (Y/N) | Sequence | Topic | Document |
|------------|----------|-------------------------------|------------------------------------|
| | 1 | Download the wsdl4j-1.6.2.jar | Installing and Configuring P6 EPPM |

| | | | |
|--|----|---|------------------------------------|
| | 2 | Grant Privileges to the SYSTEM User | Installing and Configuring P6 EPPM |
| | 3 | Installing Your P6 EPPM Suite | Installing and Configuring P6 EPPM |
| | 4 | Using the Database Configuration Screen | Installing and Configuring P6 EPPM |
| | 5 | Using the Database Type & Connection Screen | Installing and Configuring P6 EPPM |
| | 6 | Using the Create Users Screen | Installing and Configuring P6 EPPM |
| | 7 | Using the P6 Configuration Settings Screen | Installing and Configuring P6 EPPM |
| | 8 | Using the Application Server Configuration Screen | Installing and Configuring P6 EPPM |
| | 9 | Using the Configure WebLogic Screen | Installing and Configuring P6 EPPM |
| | 10 | Using the Configuration Review Screen | Installing and Configuring P6 EPPM |
| | 11 | Using the Configuration Progress Screen | Installing and Configuring P6 EPPM |

| | | | |
|--|----|---|------------------------------------|
| | 12 | Using the Configuration Complete Screen | Installing and Configuring P6 EPPM |
|--|----|---|------------------------------------|

P6 EPPM Upgrade Checklist

The following checklist represents the steps that you need to complete in order to upgrade your instance of P6 EPPM that: is either version 7.0 or later and uses both WebLogic and an Oracle Database.

Application Server: WebLogic

Database: Oracle

| Done (Y/N) | Sequence | Topic | Document |
|------------|----------|--|-----------------------------------|
| | 1 | Stopping WebLogic for P6 EPPM Applications | Upgrading and Configuring P6 EPPM |
| | 2 | Uninstalling the P6 EPPM | Upgrading and Configuring P6 EPPM |
| | 3 | Grant Privileges to the System User | Upgrading and Configuring P6 EPPM |
| | 4 | Running the Validate Tool for a 7.0 or Later Oracle Database | Upgrading and Configuring P6 EPPM |
| | 5 | Upgrading an Oracle P6 EPPM Database | Upgrading and Configuring P6 EPPM |

| | | | |
|--|----|---|-----------------------------------|
| | 6 | Installing Your P6 EPPM Suite | Upgrading and Configuring P6 EPPM |
| | 7 | Using the Database Configuration Screen | Upgrading and Configuring P6 EPPM |
| | 8 | Using the Database Type & Connection Screen | Upgrading and Configuring P6 EPPM |
| | 9 | Using the Create Users Screen | Upgrading and Configuring P6 EPPM |
| | 10 | Using the P6 Configuration Settings Screen | Upgrading and Configuring P6 EPPM |
| | 11 | Using the Application Server Configuration Screen | Upgrading and Configuring P6 EPPM |
| | 12 | Using the Configure WebLogic Screen | Upgrading and Configuring P6 EPPM |
| | 13 | Using the Configuration Review Screen | Upgrading and Configuring P6 EPPM |
| | 14 | Using the Configuration Progress Screen | Upgrading and Configuring P6 EPPM |

| | | | |
|--|----|---|-----------------------------------|
| | 15 | Using the Configuration Complete Screen | Upgrading and Configuring P6 EPPM |
| | 16 | Updating an Existing Primavera P6 Administrator Configuration | Upgrading and Configuring P6 EPPM |
| | 17 | Starting WebLogic for P6 EPPM Applications | Upgrading and Configuring P6 EPPM |
| | 18 | Clearing the Cache | Upgrading and Configuring P6 EPPM |

Which Components Do I Need?

When planning your implementation, you will first need to know which client modules and server components you will need to install and configure, and where those modules and components need to be installed. The following is a set of questions that you will want to answer before you begin.

Which relational database management system (RDBMS) will you use on your database server?

You can use either Oracle or Microsoft SQL Server on your database server. If your P6 EPPM database is a Microsoft SQL Server database, you must first install and configure the Oracle Gateway to use Primavera Data Warehouse with P6 EPPM. Installation and configuration of the Oracle Gateway is explained in the *Primavera Data Warehouse Installation and Configuration Guide*.

Which workstations will require P6 Professional?

All P6 Professional users will need access to the database server. If using Oracle as the RDBMS, you will need to install the Oracle client software on each computer that runs this client module. If using Microsoft SQL Server as the RDBMS, the required Microsoft SQL Server files have already been included with Windows.

Do you want your administrators to install P6 Professional using standardized preconfigured settings?

If you want your client module to be configured identically, your administrators can run an unattended setup based on a standard configuration. You can create one or more sets of unattended setup files and share them on a network server. Alternatively, you can use configure and deploy P6 Professional using ClickOnce.

Do you need to integrate your project data with other global systems?

If you need to integrate your project data with other global systems, such as Accounting or Human Resources applications, you will need to install P6 Integration API or P6 EPPM Web Services on computers that require access to the data. The P6 Integration API requires knowledge of Java programming. P6 EPPM Web Services seamlessly integrates P6 EPPM functionality into other applications via open standards, including XML, SOAP, and WSDL.

Do some users require the ability to manage their projects in Microsoft Project while utilizing P6 EPPM to manage global data?

Your organization might currently use Microsoft Project to manage projects. Use P6 and P6 Professional import/export functionality to share projects, resources, and roles data with Microsoft Project. For more information, see the *P6 Help* or the *P6 Professional Help*.



Do you want to utilize password security features?

When the authentication mode is set to "Native," most of P6 EPPM, with the exception of the P6 Professional SDK, offers a strong password policy feature. When enabled, this feature requires that all new and modified passwords be between 8 and 20 characters and contain at least one number and one letter. P6 offers additional password security enhancements when using Native mode, such as a login lockout count and login lockout duration. If using Single Sign-On or LDAP authentication, the security set on the host authentication server overrides the password security features in P6 EPPM.

What technologies do I need to support my integrations?

You will need these technologies to support your integrations:

- ▶ For reporting, you'll need Oracle BI Publisher (or Oracle Business Intelligence).
- ▶ To support project initiations for Workflows, you'll need Oracle BPM.
- ▶ For visualization support in documents, you'll need Oracle AutoVue.
- ▶ To remotely capture configuration information, you'll need Oracle Configuration Management.

Also, you can use Oracle Identity Manager to:

- ▶ Centrally administer user accounts and access privileges
- ▶ Deploy a P6 EPPM plugin in Oracle Enterprise Manager to display P6 EPPM metrics.

For more information about P6 EPPM's integration with Oracle Identity Manager see *Connecting Oracle Identity Manager 11G to P6*.

Required Server Components for Web-based Access in P6 EPPM

P6 provides access to project data via a Web browser. It supports creating and managing projects within the company, provides resource availability and allocation details, and provides project portfolio reporting features to support strategic decision-making.

The following table lists each client component and the corresponding server-based components that it requires.

| | RDBMS server | P6 server | Content and Workflows Repositories server |
|------------------------|----------------|-----------|---|
| P6 Professional module | x ¹ | x | |
| P6 module | x | x | x ³ |

¹ If using Oracle as the RDBMS, these modules require the Oracle client software to be on the client computer.

² The Content and Workflows Repositories are optional components of P6. They can serve as aids in document management and project initiation processes.

Client and Server Requirements

After determining your P6 EPPM implementation plan, ensure that your hardware and software can support it.

For the full list of system requirements, versions, and tested configurations, see the *Tested Configurations* document. For guidance on hardware and software requirements, see the *P6 Enterprise Project Portfolio Management Performance and Sizing Guide*.

Minimum Hard Disk Space

Installing the entire P6 EPPM suite requires 1GB of hard disk space. If you configure the WebLogic domain, that will require 1.75GB of hard disk space; it also requires 4GB of available system memory.

Note: These numbers do not include the space the database requires because that is dependent on how you configure it.

Security Guidance Overview

During the installation and configuration process for P6 EPPM, several options are available that impact security. Depending on your organization's needs, you might need to create a highly secure environment for all P6 EPPM environments. Use the following guidelines to plan your security strategy for P6 EPPM:

- ▶ Review all security documentation for applications and hardware components that interact or integrate with P6 EPPM. Oracle recommends you harden your environment. See **Additional Sources for Security Guidance** (on page 26) for links to information that can help you get started.
- ▶ Read through the summary of considerations for P6 EPPM included in this document. Areas covered include: safe deployment, authentication options, authorization, confidentiality, sensitive data, reliability, and cookies usage.
- ▶ Throughout this documentation, the Security Guidance icon  helps you to quickly identify security-related content to consider during the installation and configuration process. Once you begin the installation and configuration of your P6 EPPM environment, use the Security Guidance icon as a reminder to carefully consider all security options.

Tips

As with any software product, be aware that security changes made for third party applications might affect P6 EPPM applications. For example, if you configure WebLogic to use only SSL v3.0, you must disable TLS v1.0 for the client JRE for P6 to launch properly. If using an Internet Explorer browser, you must also disable TLS v1.0 in Internet Options.

Safe Deployment of P6 EPPM

To ensure overall safe deployment of P6 EPPM, you should carefully plan security for all components, such as database servers and client computers that are required for and interact with P6 EPPM. In addition to the documentation included with other applications and hardware components, follow the P6 EPPM-specific guidance below.

Administrative Privileges Needed for Installation and Operation

As the P6 EPPM Administrator, you should determine the minimum administrative privileges or permissions needed to install, configure, and operate P6 EPPM. For example, to successfully install the required JRE for P6 EPPM Web applications (for example, P6), you must be an administrator on the client machine during this installation or update.

Minimum Client Permissions Needed for P6 and P6 Team Member Web

Because P6 and P6 Team Member Web are Web applications, users do not have to be administrators on their machines to run them. Instead, you can successfully run these applications with security at the highest level to create a more secure environment.

Minimum Client Permissions Needed for P6 Professional

Users do not have to be administrators on their machines to run P6 Professional. Instead, you can grant minimum permissions to create a more secure environment.

The following is a summary of the minimum system requirements needed to access and run components of P6 Professional R15.1:

Files within Folders:

- ▶ *local drive*\Program Files\Oracle\Primavera P6\P6 Professional
dbexpsda40.dll
dbexpsda30.dll
dbexpint.dll
dbexpoda40.dll
dbexpoda30.dll
DbExpPrC.dll (only needed when using Compression Server)
dbexpsda.dll
dbxadapter30.dll (only needed when using Compression Server)
Read&Execute/Read permission to access files needed to run P6 Professional applications and to create and modify database alias connections.
- ▶ *local drive*\Program Files\Oracle\Primavera P6\P6 Professional\pm.ini
Read&Execute/Read/Write permission to access the ini file, which is required to log into P6 Professional applications.
- ▶ *local drive*\Program Files\Oracle\Primavera P6\P6 Professional\Java\
dbconfig.cmd
admin.cmd
Read&Execute/Read permissions to run the Database Configuration setup, the Primavera P6 Administrator, and API tools (Update Baseline and Schedule Comparison/Claim Digger).
Write permission may be required for the Database Configuration Setup utility (dbconfig.cmd) for the API tools if you need to create a new configuration and update the BREBootStrap.xml file with the new database configuration information.
For your reference, the following are the default installation locations for the PrmBootStrap.xml and BREbootstrap.xml files:
 - \%LOCALAPPDATA%\Oracle\Primavera P6\P6 Optional Client
 - \%LOCALAPPDATA%\Oracle\Primavera P6\P6 ProfessionalDuring installation, the PrmBootStrapV2.xml and BREbootstrap.xml files are also copied to the location below. The files will never be modified while using P6 Professional, so they can be copied to the current user location (USERPROFILE or LOCALAPPDATA) if you need to revert P6 Professional back to its original state (for example, if files become corrupted).
 - \%PROGRAMDATA%\Oracle\Primavera P6\P6 Professional
- ▶ Output directory for File > Export , Log output files
Read&Execute/Read/Write to create and write output files.

Registry Keys:

- ▶ HKEY_LOCAL_MACHINE\Software\Primavera
READ

Note: For the Update Baseline and Schedule Comparison/Claim Digger tools, the key opens in Read/Write/Delete mode.

Physical Security Requirements for P6 EPPM

You should physically secure all hardware hosting P6 EPPM to maintain a safe implementation environment. Consider the following when planning your physical security strategy:

- ▶ You should install, configure, manage, and maintain your environment according to guidance in all applicable installation and configuration documentation for P6 EPPM.
- ▶ You should install P6 EPPM components in controlled access facilities to prevent unauthorized access. Only authorized administrators for the systems hosting P6 EPPM should have physical access to those systems. Such administrators include the Operating System Administrators, Application Server Administrators, and Database Administrators.
- ▶ You should use Administrator access to client machines only when you install and configure P6 EPPM modules.

Application Security Settings in P6 EPPM

P6 EPPM contains a number of security settings at the application level. The *P6 EPPM Post Installation Administrator's Guide* details these settings. Use the Security Guidance icon  to quickly identify them.

To help you organize your planning, the following are options Oracle recommends:

- ▶ In your production environment, opt for empty data instead of sample data during the P6 EPPM database setup.
- ▶ Turn on Password Policy in Application Settings. An enabled Password Policy will increase the required length and quality of the password.
- ▶ Enable firewall in the application server and database server. Based on your installation, add exceptions for appropriate ports.

For instance, P6 EPPM SQL Server Database runs on 1433 port and Oracle Database runs on 1521 port by default. P6 EPPM and P6 Team Member Web run on 8203 and 8207 ports respectively in the default installation.

- ▶ In the Primavera P6 Administrator:
 - ▶ evaluate the Login Lockout Count; the default is 5.
 - ▶ keep Multiple User for the Content Repository authentication mode.
 - ▶ use Security Accounts if using Oracle Universal Content Management for the Content Repository.
 - ▶ use STRONG for the Directory Services security level.
 - ▶ keep the Enable Cross Site Scripting Filter setting set to true.
 - ▶ enable LDAP or WebSSO for authentication.
 - ▶ if using WebSSO, set "Application\Logout URL" in the Primavera P6 Administrator to your SSO logout URL to ensure that the SSO sessions end.
 - ▶ enable the HTTPS authentication setting.

Note: The HTTPS authentication setting requires that web server and application server settings support SSL.

Files to Protect after Implementation

While P6 EPPM requires specific files for installation and configuration, you do not need some for daily operations. The following is not a comprehensive list, but you should protect these files or move them to a secure location after installation and configuration:

- ▶ **DatabaseSetup.log**
 - Captures processes performed during P6 EPPM database installation.
 - Default Location = user home directory (for example, C:\Documents and Settings\Administrator)
- ▶ **adminpv.cmd** (or **adminpv.sh** for Linux)
 - Launches the Primavera P6 Administrator.
 - Default location = P6 EPPM home directory, as specified during installation
- ▶ **dbconfigpv.cmd** (or **dbconfig.sh** for Linux)
 - Used to create the connection between the P6 EPPM database and P6.
 - Default location = P6 EPPM home directory, as specified during installation
- ▶ **p6-emplugin.jar**
 - A P6 EPPM-specific plug-in used to enable displaying P6 metrics in Oracle Enterprise Manager.
 - Default location = P6 EPPM home directory, as specified during installation

Authentication Options for P6 EPPM

Authentication determines the identity of users before granting access to P6 EPPM modules. P6 EPPM offers the following authentication modes:

- ▶ **Native** is the default mode for P6 EPPM. In Native mode, the P6 EPPM database acts as the authority and the application handles the authentication of the user who is logging into that application.
- ▶ **Single Sign-On (SSO)** controls access to Web applications. In SSO mode, the applications are protected resources. When a user tries to login to one, a Web agent intercepts the login and prompts the user for login credentials. The Web agent passes the user's credentials to a policy server, which authenticates them against a user data store. With SSO, once the users login, they are logged into all Web applications during their browser session (as long as all Web applications authenticate against the same policy server).
- ▶ **Lightweight Directory Access Protocol (LDAP)** authenticates users through a directory and is available for all applications. You can use LDAP referrals with Oracle Internet Directory and Microsoft Windows Active Directory. LDAP referrals allow authentication to extend to another domain. You can also configure multiple LDAP servers, which supports failover and enables you to search for users in multiple LDAP stores. An LDAP directory server database confirms the user's identity when they attempt to login to the application.

Single Sign-On or LDAP will help you to create the most secure authentication environment available in P6 EPPM.

P6 EPPM Web Services offers its own authentication options. If you use SAML for P6 EPPM Web Services, you must use Single Sign-on or LDAP authentication for P6 EPPM. See the *P6 EPPM Post Installation Administrator's Guide* for more information on P6 EPPM Web Services authentication options.

Authorization for P6 EPPM

Grant authorization carefully to all appropriate P6 EPPM users. The *P6 EPPM Post Installation Administrator's Guide* details the most secure application security options.

To help you with security planning, consider the following authorization-related options:

- ▶ Use Module Access rights to limit access to P6 EPPM modules.
- ▶ Use Global profiles to limit privileges to global data. Assign the Admin Superuser account sparingly.
- ▶ Use Project profiles to limit privileges to project data. Assign the Project Superuser account sparingly.
- ▶ Assign OBS elements to EPS and WBS nodes to limit access to projects.
- ▶ Assign resource access limitations to each user.

Confidentiality for P6 EPPM

Confidentiality ensures only authorized users see stored and transmitted information. In addition to the documentation included with other applications and hardware components, follow the P6 EPPM-specific guidance below.

- ▶ For data in transit, use SSL/TLS to protect network connections among modules. If you use LDAP or SSO authentication, ensure you use LDAPS to connect to the directory server.
- ▶ For data at rest, refer to the documentation included with the database server for instructions on securing the database.

Sensitive Data for P6 EPPM

Protect sensitive data in P6 EPPM, such as user names, passwords, and e-mail addresses. Use the process below to help during your security planning:

- ▶ Identify which P6 EPPM modules you will use.
- ▶ Determine which modules and interacting applications display or transmit data that your organization considers sensitive. For example, P6 displays sensitive data, such as costs and secure codes.
- ▶ Implement security measures in P6 EPPM to carefully grant users access to sensitive data. For example, use a combination of Global Profiles, Project Profiles, and OBS access to limit access to data.
- ▶ Implement security measures for applications that interact with P6 EPPM, as detailed in the documentation included with those applications. For example, follow the security guidance provided with Oracle WebLogic.

Reliability for P6 EPPM

Protect against attacks that could deny a service by:

- ▶ Installing the latest security patches.
- ▶ Replacing the default Admin Superuser (admin) immediately after a manual database installation or an upgrade from P6 version 7.0 and earlier.
- ▶ Ensuring log settings meet the operational needs of the server environment. Do not use "Debug" log level in production environments.
- ▶ Documenting the configuration settings used for servers and create a process for changing them.
- ▶ Setting a maximum age for the session cookie on the application server.
- ▶ Protecting access to configuration files with physical and file system security.

Cookies Usage in P6 EPPM

View the details below for information on when cookies are created and stored when using P6 and P6 Team Member Web. As stated in **Reliability for P6 EPPM** (on page 24), set a maximum age for the session cookie on the application server.

Cookies Usage in P6

When using P6, the server generates the following cookies and sends them to the user's browser. The user's machine stores the cookies, either temporarily by the browser, or permanently until they expire or are removed manually.

| Cookie Name | Description | Scope | Retention | Encrypted ? |
|--------------------------------|--|-------|-----------|-------------|
| ORA_PWEB_CLIENTLOCAL_1111 | Browser client locale | /p6/ | One year | No |
| ORA_PWEB_SELECTED_DBID_1111 | The last database identifier selected by the user | /p6/ | One year | No |
| ORA_PWEB_IA_HD_CODE_1111 | IP and identifier of client machine | /p6/ | One year | No |
| ORA_PWEB_LANGUAGE_1111 | The translation selected by the user | /p6/ | One year | No |
| ORA_PWEB_Composite_Cookie_1111 | Login and user customizations accumulated throughout the session | /p6/ | One year | No |

| | | | | |
|--|--|---|----------------------------------|----|
| ORA_PWEB_COMPOSITE_SESSION_COOKIE_1111 | Statistics portlet customizations | /p6/ | None (expires at end of session) | No |
| JSESSIONID | Session identifier | default | None (expires at end of session) | No |
| sw | Applies only for P6 Help systems. The last search term used in the search tab located on the table of contents frame. | Current working directory only on the current host (for example, if located at <code>http://host/p6help</code> , only valid for the <code>http://host/p6help</code> directory). | None (expires at end of session) | No |
| sm | Applies only for P6 Help systems. The type of search used in the search tab located on the table of contents frame. Value corresponds as: 0: All words, 1: Any words, 2: Exact phrase. Any other value is invalid. | Current working directory only on the current host (for example, if located at <code>http://host/p6help</code> , only valid for the <code>http://host/p6help</code> directory). | None (expires at end of session) | No |
| ORA_PHELP_1111 | Applies only for P6 Help systems. The current style for the help reference manual. Only valid values are "contrast" or "default". | Any location on the current domain. | One year | No |

Cookies Usage in P6 Team Member Web

When using P6 Team Member Web, the server generates the following cookies and sends them to the user's browser. The user's machine stores the cookies, either temporarily by the browser, or permanently until they expire or are removed manually.

| Cookie Name | Description | Scope | Retention | Encrypted ? |
|--------------------|--|----------|-----------|-------------|
| JSESSIONID | Session Identifier | /p6tmweb | None | No |
| ORA_OPEN_TS_CHOICE | Saves the method that loads activities into a timesheet in P6 TimeSheet based on a user's selected options | /p6tmweb | One year | No |
| ORA_ADD_COMP | Determines whether to select the Add Completed Tasks option in the Open Timesheet Settings dialog box | /p6tmweb | One year | No |
| ORA_COPY_COMP | Determines whether to select the Copy Completed Tasks option in the Open Timesheet Settings dialog box | /p6tmweb | One year | No |
| ORA_ADD_CURR | Determines whether to select the Add Current Tasks option in the Open Timesheet Settings dialog box | /p6tmweb | One Year | No |

Additional Sources for Security Guidance

You should properly secure the databases, platforms, and servers that you use for P6 EPPM. You might find the links below helpful when planning your security strategy (not a comprehensive list).

Note: The URLs below might have changed after Oracle published this guide.

Oracle Database

http://download.oracle.com/docs/cd/B19306_01/network.102/b14266/toc.htm

Oracle Linux Security Guide

<http://www.oracle.com/technetwork/articles/servers-storage-admin/secure-linux-env-1841089.html>

Microsoft SQL Server 2008 Database

<http://www.microsoft.com/sqlserver/2008/en/us/Security.aspx>

Microsoft Windows 2008 Server

[http://technet.microsoft.com/en-us/library/dd548350\(W.S.10\).aspx](http://technet.microsoft.com/en-us/library/dd548350(W.S.10).aspx)

Oracle WebLogic

<http://www.oracle.com/technetwork/middleware/weblogic/documentation/index.html>

http://download.oracle.com/docs/cd/E12840_01/wls/docs103/secmanage/ssl.html

Oracle Fusion Middleware Security Guides

http://download.oracle.com/docs/cd/E12839_01/security.htm

Choosing Your Installation and Configuration Process

Once you know your components and client and server requirements, you can begin your installation and configuration. P6 EPPM R8.4 provides a simpler way to install and configure your database, web server, and applications by allowing you to install all of your applications at once and configure them with one configuration wizard.

You can choose to install and configure your applications automatically or you can choose a manual process for configuring your database, application server, and applications.

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| Configuring Your P6 EPPM Applications with the P6 EPPM Configuration Wizard.. | 30 |
| Configuring Your P6 EPPM Applications Manually | 30 |
| Installing Additional Applications | 31 |

Installing P6 EPPM Applications

Run **setup.exe** in the Primavera P6 Enterprise Project Portfolio Management physical media or download to install the following P6 EPPM applications:

Note:

- You do not have to install all applications; you can pick and choose what you install. However, you must install P6 to run the other P6 EPPM applications.
- Oracle recommends that you install P6 and P6 Team Member separately so that you can create an Admin configuration for both of them. If you install them together, you will only be able to create an Admin configuration for P6.

-
- ▶ P6 Team Member (includes P6 Team Member Web and E-mail Statusing Service)

Notes:

- You will need to configure E-mail Statusing Service separately. The installation wizard will provide the E-mail Statusing Service files and you will use the config.properties file to set up this service. See the *P6 EPPM Post Installation Administrator's Guide*.
- P6 mobile supports SSL (https) only when it has a certificate signed by a valid authority.

-
- ▶ P6 EPPM Web Services

▶ P6 Professional Cloud Connect

Select the P6 Professional Cloud Connect install option if you plan to use P6 Professional with an EPPM Oracle database on the cloud by connecting to a remote service. The wizard sets up a remote method of access to connect to the EPPM database and the P6 APIs. For more details on establishing the P6 Professional Cloud Connect database connection in P6 Professional, see the *P6 Professional for EPPM Installation and Configuration Guide*.

Note: The wizard will also install P6 Integration API (in remote mode) by default.

▶ P6 Integration API (remote mode only)

Note: Oracle provides a separate installer for P6 Integration API local mode. See the *P6 Integration API Configuration Guide*.

▶ P6 mobile

Note:

- P6 mobile apps are downloaded through the Apple App Store or the Google Play Store. See the *P6 Team Member User's Guide*.
 - P6 mobile supports SSL (https) only when it has a certificate signed by a valid authority.
-

Based on whether you are installing or upgrading, see one of the following books:

- ▶ *Installing and Configuring P6 EPPM*
- ▶ *Upgrading and Configuring P6 EPPM*

Configuring Your P6 EPPM Applications with the P6 EPPM Configuration Wizard

Oracle recommends you use the P6 EPPM Configuration Wizard to configure P6 EPPM, its applications, and WebLogic. With this option, you can install or upgrade your database, deploy your P6 EPPM applications in WebLogic, and configure a content repository, BI Publisher, and BPM to work with P6.

See *Installing and Configuring P6 EPPM* for information on how to automatically configure P6 EPPM.

Note: If you are using WebSphere, you can still use the P6 EPPM Configuration Wizard to install or upgrade your database and connect BPM, BI Publisher, and the content repository to P6 EPPM; however, you must manually deploy your P6 EPPM applications in WebSphere. The wizard will not deploy the P6 EPPM applications into WebSphere.

Configuring Your P6 EPPM Applications Manually

Database

You can manually install or upgrade your database. If you want to install or upgrade your database manually, you can still use the wizard to deploy your P6 EPPM applications in WebLogic and configure a content repository, BI Publisher, and BPM to work with P6.

If you want to install or upgrade your database manually, see the *Manually Installing the P6 EPPM Database* or *Manually Upgrading the P6 EPPM Database* guide.

P6 EPPM Applications

You can manually deploy your P6 EPPM applications in WebLogic or WebSphere. Depending on which server you are using, use any of the following:

For WebLogic:

- ▶ *P6 and WebLogic Configuration Guide*
- ▶ *P6 Team Member and WebLogic Configuration Guide*
- ▶ *P6 EPPM Web Services and WebLogic Configuration Guide*
- ▶ *P6 Integration API and WebLogic Configuration Guide*

For WebSphere:

- ▶ *P6 and WebSphere Configuration Guide*
- ▶ *P6 Team Member and WebSphere Configuration Guide*
- ▶ *P6 EPPM Web Services and WebSphere Configuration Guide*
- ▶ *P6 Integration API and WebSphere Configuration Guide*

Additional Applications

You can also use the Primavera P6 Administrator to connect additional applications to P6. Depending on your application, use the following:

- ▶ *Connecting the Content Repository to P6*
- ▶ *Connecting BI Publisher to P6*
- ▶ *Connecting BPM 11g to P6*
- ▶ *Connecting BPM 12c to P6*

Installing Additional Applications

The following applications will work with P6 EPPM, but are not installed or configured with the wizard. See the guides mentioned for more information about each product.

- ▶ P6 Professional (see the *P6 Professional Installation and Configuration Guide*)
- ▶ Oracle Identity Manager 11g (see *Connecting Oracle Identity Manager 11g to P6*)
- ▶ Oracle Enterprise Manager (see *Connecting Oracle Enterprise Manager to P6 EPPM Metrics*)
- ▶ Oracle BI Publisher (see *Connecting BI Publisher to P6*)
- ▶ Oracle Fusion PPM Bridge (see *Connecting Fusion PPM Bridge to P6*)
- ▶ Oracle BPM 11g to P6 (see *Connecting BPM 11g to P6*)
- ▶ Oracle BPM 12c to P6 (see *Connecting BPM 12c to P6*)

Where to Go From Here - Post Planning

Now that you have planned your installation and configuration process, you can begin. Follow these steps to get started:

- 1) Install your applications. See *Installing and Configuring Your P6 EPPM Database* or *Upgrading and Configuring Your P6 EPPM Database*.
- 2) If you are automatically configuring your applications, continue using one of the books mentioned above.
If you are manually configuring your applications, use any of the books mentioned in ***Configuring Your P6 EPPM Applications Manually*** (on page 30).
- 3) Install any additional applications. See ***Installing Additional Applications*** (on page 31).

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 |
|--|---|
| <i>What's New in P6 EPPM</i> | <p>Highlights the new and enhanced features included in this release.</p> <p>You can also use the <i>P6 EPPM Cumulative Feature Overview Tool</i> to identify the features that have been added since a specific release level.</p> <p>All users should read this guide.</p> |
| <i>Planning Your P6 EPPM Implementation</i> | <p>Explains planning your implementation and provides an installation process overview, frequently asked questions, client and server requirements, and security information.</p> <p>The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.</p> |
| <i>P6 EPPM Installation and Configuration Guide</i> | <p>Explains how to install and configure P6 EPPM using the P6 EPPM Installation and Configuration wizards.</p> <p>The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.</p> |
| <i>P6 EPPM Installation and Manual Configuration Guide</i> | <p>Explains how to install and configure the P6 EPPM using the P6 EPPM Installation wizards, and how to manually configure individual components.</p> <p>The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.</p> |
| <i>P6 EPPM Post Installation Administrator's Guide</i> | <p>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.</p> <p>The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.</p> |
| <i>Tested Configurations</i> | <p>Lists the configurations that have been tested and verified to work with P6 EPPM.</p> <p>The network administrator/database administrator and P6 EPPM administrator should read this document.</p> |

| Title | Description |
|--|--|
| <i>P6 User's Guide</i> | <p>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.</p> <p>The program manager, project manager, resource/cost manager, team leader, and all P6 users should read this guide.</p> |
| <i>P6 Help</i> | <p>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.</p> <p>The operations executive, P6 EPPM and P6 administrator, program manager, project manager, resource/cost manager, team leader, and all users should read this Help.</p> |
| <i>P6 Data Dictionary</i> | <p>Defines fields used in P6.</p> <p>All P6 users should refer to this guide if they need a field definition.</p> |
| <i>P6 Team Member Web Help</i> | <p>Describes how to use P6 Team Member Web to provide status on activities.</p> <p>P6 Team Member Web users should read this Help.</p> |
| <i>P6 EPPM Web Services Programmer's Guide</i> | <p>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.</p> <p>Anyone who wants to develop applications that interact with P6 should read this guide.</p> |
| <i>P6 EPPM Web Services Reference Manual</i> | <p>Describes all services and operations available in P6 EPPM Web Services.</p> <p>Anyone who wants to develop applications that interact with P6 should read this guide.</p> |

| Title | Description |
|--------------------------------------|--|
| <i>P3 to P6 EPPM Migration Guide</i> | 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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