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PRIMAVERA

P6 EPPM Performance and Sizing Guide
Release 15.1

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Contents

Overview of the Performance and Sizing Guide

Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM) is a robust and easy-to-use integrated solution for globally prioritizing, planning, managing, and executing projects, programs, and portfolios.

This document outlines an estimate of hardware and software requirements for deploying P6 EPPM. Three deployment scenarios are considered – small, medium, and large – and recommendations for each type are provided. These recommendations should only be considered as guidance for planning product deployment.

The following assumptions are made in this document:

▶ A highly available environment is desired.
▶ Database specific best practices for high availability, backup, and recovery are being followed.
▶ Load balancing specifics, software and hardware, is beyond the scope of this document.

Architecture Overview

P6 EPPM is a Java 2 Platform, Enterprise Edition (J2EE platform) web application. The J2EE platform consists of a set of industry-standard services, APIs, and protocols that provide functionality for developing multi-tiered, web-based, enterprise applications. The division of tiers enables the application to scale according to customers' performance demands. P6 EPPM uses the J2EE specification to build a flexible and scalable cross-platform solution.

The main layers of P6 EPPM are:

▶ **The application layer** – A web server layer rendering JSPs, JavaScript, Applets, etc. to present a feature-rich user interface accessible through various supported browsers.
▶ **The functional layer** – A J2EE application server forms the middle tier where all business logic for P6 EPPM is implemented. This layer runs the business logic for both P6 and P6 Services.
▶ **The database layer** –The database layer consists of a standalone or clustered RDBMS environment utilizing Java Database Connectivity (JDBC) to integrate with the functional layer.

The following image gives an overview of the P6 EPPM architecture.

Figure 1: Architecture of Oracle Primavera P6 Suite
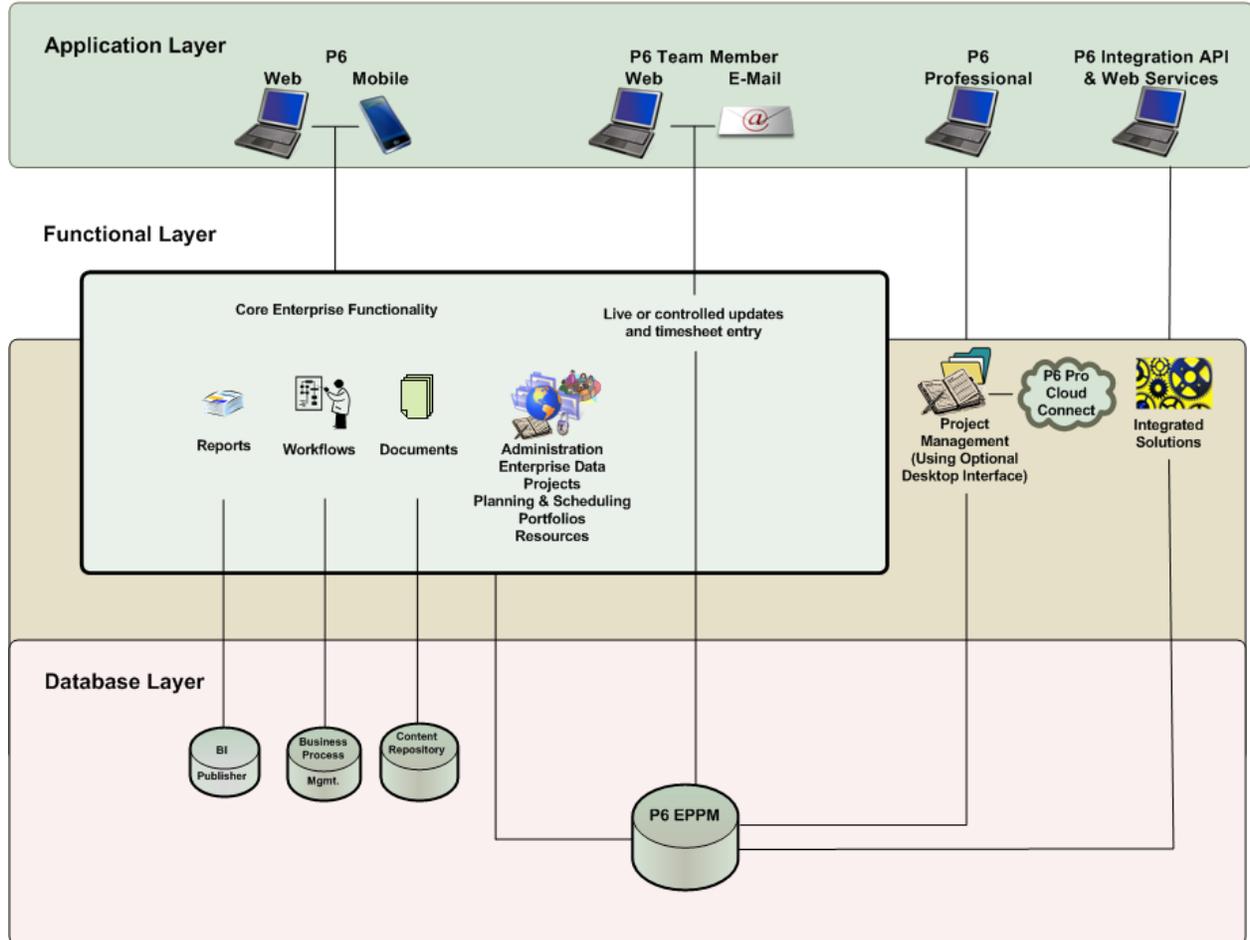
P6 EPPM resides on an application server, and the application data repository resides on the database server.

Typical P6 EPPM deployments consist of the following components:

▶ A clustered web server load balanced using a load balancing router or software solution. End-users, including administrators, interact with P6 through these web servers.

▶ A clustered J2EE application server on which P6 EPPM is deployed.

▶ RDBMS as a data repository for P6 EPPM. Depending on the dataset size, the database server can be a standalone or clustered server. In the following sample architecture, the database is clustered. For optimized performance, Oracle Primavera recommends that the application servers and RDBMS are co-located, for example, within the same subnet, to avoid network latency.

The following illustrates a sample P6 EPPM deployment.

Figure 2: Sample P6 EPPM Deployment
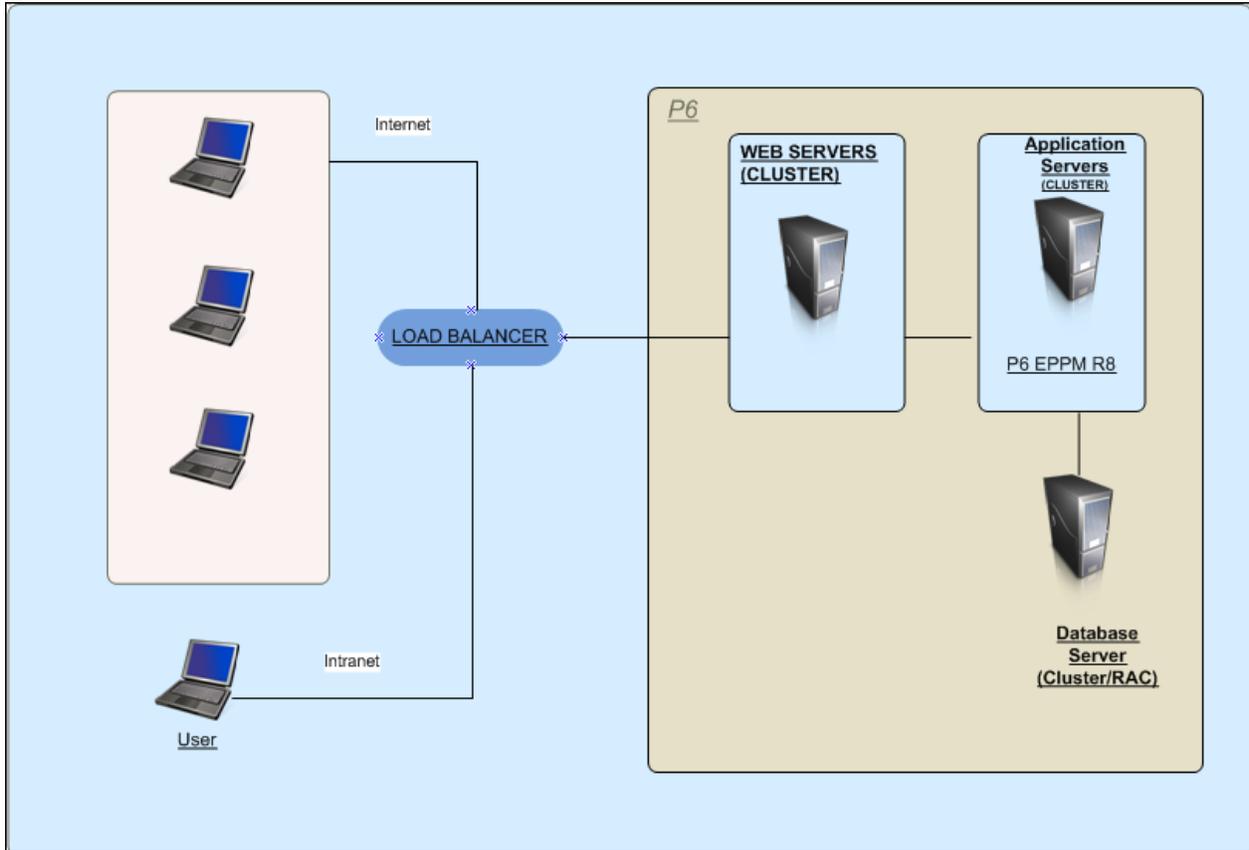
Performance and Scalability Considerations

While there are multiple ways to achieve the desired performance and scalability levels in P6 EPPM, the performance considerations can be grouped into two categories: vertical and horizontal. There are several advantages (and disadvantages) for each category. Organizations can decide which to use, based on:

▶ The desired level of performance
▶ Availability requirements
▶ Short-term versus long-term outlook of system usage
▶ Seasonality and frequently used application areas

Vertical Scaling (Scaling up)

Vertical scaling involves adding additional resources, or upgrading resources on an existing system. Vertical scaling is usually a good approach if the application bottlenecks are processor and memory-related.

JVM Heap Size

The objects (such as Projects, Activities, Assignments, etc.) are stored in the Java Virtual Machine (JVM) heap allocation. Most of these objects are short-lived and are periodically cleaned up by the JVM's garbage collection mechanism. As the number of objects increases, performance and scalability is affected by the available heap space in the JVM. Increasing the heap size is an easy way to achieve desired performance and scalability.

Hardware Upgrade

Desired performance and scalability can also be achieved by upgrading the CPU, adding extra cores, and upgrading to faster I/O devices. Oracle Primavera requires 64-bit hardware.

Operating System Upgrade

The desired performance level can also be achieved by upgrading to latest versions of the operating system and installing the latest patch updates. Oracle Primavera requires the 64-bit version.

While vertical scaling is easier to achieve, it does not address availability completely. If the desired level of availability is high, then vertical scaling alone will not be sufficient.

Horizontal Scaling (Scaling out)

As the demand for applications grows, additional nodes can be added to an existing application server cluster to handle the increased system load. For high availability requirements,   horizontal scaling is the better option.

The following figure explains a scaling out deployment.
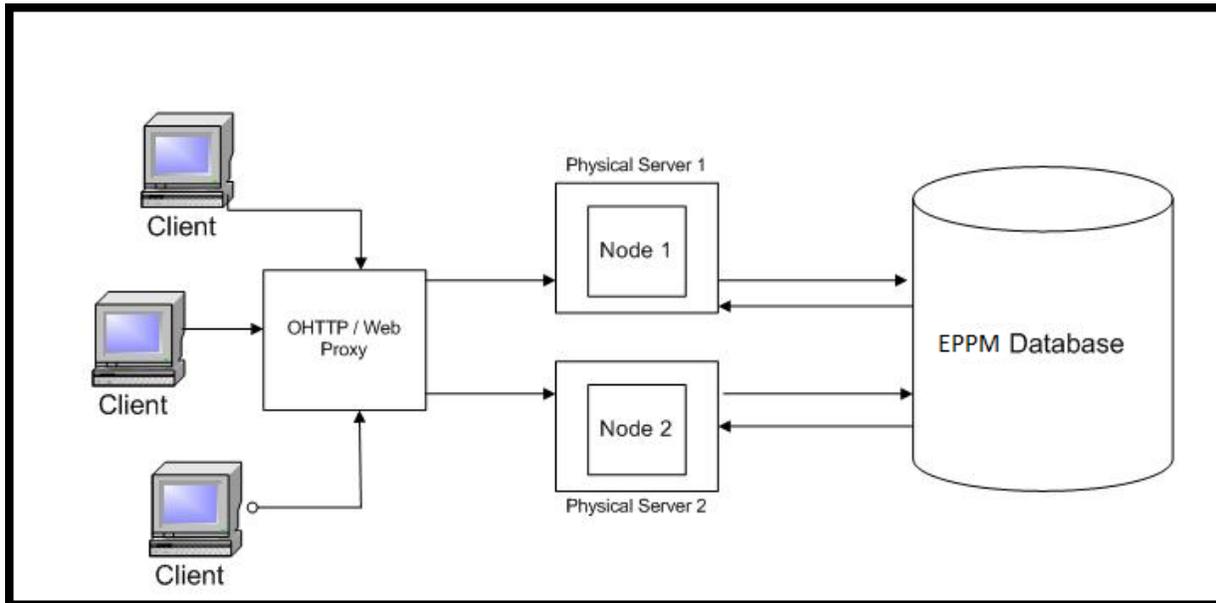
Adding Application Server Nodes

As the usage of applications grows within the organization, adding additional server nodes is the best way to achieve required performance and scalability. If the organization's model exhibits seasonality or periodic variations, the system load will fluctuate accordingly. For example, the average load on the system may quadruple during month end closing, or the plant may be closed for a week every quarter for maintenance. Adding or removing application server nodes should be considered to manage seasonality. To mitigate risk of degraded performance and undesired downtime, it is crucial to understand the business cycles of the organization and to plan for the required level of performance, availability, and scalability.

Application server nodes can be added in two ways in a deployment.

Vertical Clustering

In case the application starts behaving slowly, given the fact that memory and CPU resources on the hardware are not exhausted, it is a good idea to implement vertical clustering wherein two or more than two nodes of application resides on same physical server. Following figure depicts vertical clustering.
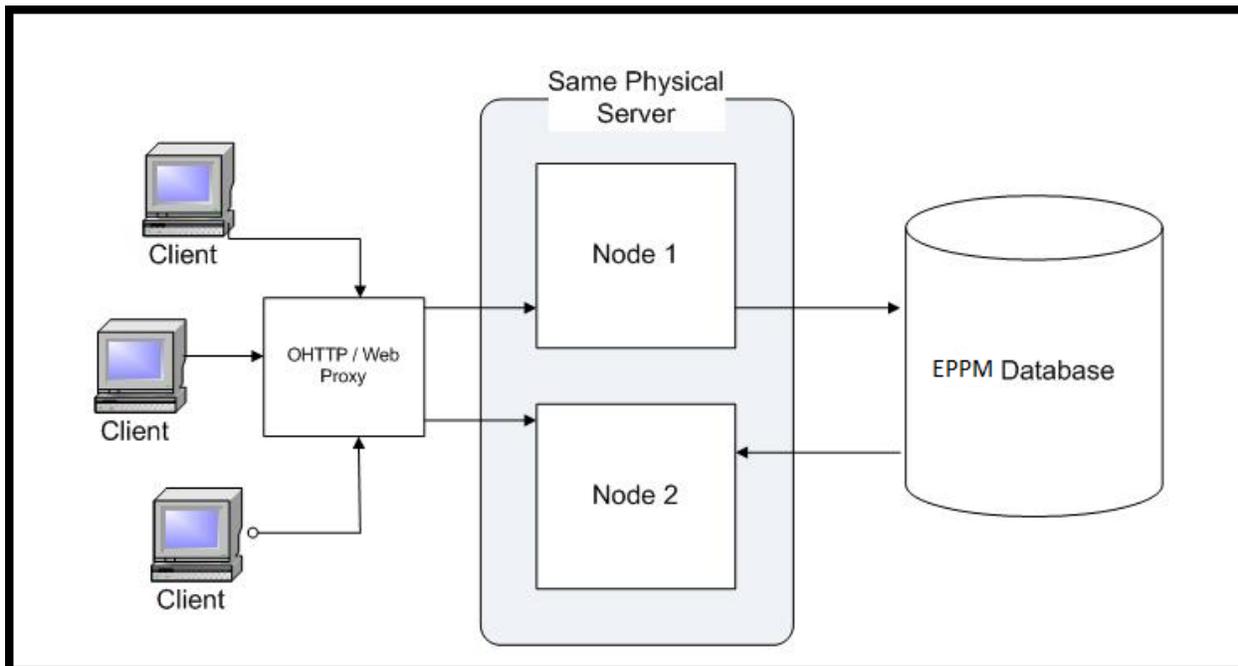
Horizontal Clustering

When the application shows signs of slowness and the hardware resources of the server (Memory and CPU) are also exhausted, it is a good idea to add another server and install a P6 instance on that server. Horizontal Clustering is depicted in Horizantal Scaling (Scaling out) section of this document. For high availability scenarios Oracle Primavera recommends horizontal clustering in production systems. A mix of horizontal and vertical clustering is recommended for large deployments.

> **Note:** While creating application clusters, the Administrators should monitor the Database server performance. If performance worsens, they should tune the database or upgrade the hardware.

Database Scaling and Clustering

Database server scaling options are available and have been widely adopted and implemented. Database clustering enables multiple nodes in a clustered system to mount and open a single database that resides on shared disk storage. This configuration provides high availability in the database environment. One example of database clustering is Oracle Real Application Clusters (RAC).

Network Bandwidth Considerations

The Oracle Primavera Enterprise Project Portfolio Management is a web based application where users will be making requests to the server using various browsers. The browsers will store the static content in the cache and only dynamic requests will be sent to the server. The following table gives a good estimate of the required bandwidth at the client side to run P6 application.

Users	1	10	25	50	75	100
Required Bandwidth (Mbps)	0.22	2.19	5.47	10.94	16.41	21.88

Bandwidth is calculated on the basis of amount of data transferred over the network (sent + received bytes) for different requests. An HTTP request may consist of different components and all dynamic components (components not cached by the browser) are taken into consideration. An average of all pages (under consideration) is taken into account.

Assuming a page takes 2 seconds to load and a user waits for 3 seconds before firing a new request, the amount of data traveled over the network is calculated and bandwidth for that request is calculated in kbps (kilo bits per second). The same is extrapolated for different user loads.

Caching of static application components helps in reducing bandwidth used by P6. Caching will certainly reduce network roundtrips thereby boosting the performance of P6 application. The proposed bandwidth estimates do take caching into consideration. (First page hits to the server are not taken into consideration for bandwidth estimation)

The first hit to the server will be costly as all static web components will be fetched from the server and thereafter subsequent requests will contact server only for dynamic content.

Deployment Considerations

P6 EPPM performance depends on the load and the response characteristics of each tier. Performance-affecting factors are identified and discussed in the following sections. These factors should be considered during deployment planning.

Oracle Primavera P6 Web Client

The number of concurrent users accessing the system directly affects web client performance. Performance is also affected by the web browser being used and the activities performed within each user session (for example, Activity Gantt, Resource Planning, Scheduling, Leveling, Summarizing, Reporting, etc.). Concurrent users and their system activities largely affect the CPU and memory requirements of the application server.

Oracle Primavera P6 Server

P6 EPPM server is a J2EE application that uses J2EE technologies to interact with end-users, target systems, the database repository, etc. Following are some components of server operation that need to be considered during P6 EPPM sizing.

P6 Services

This service process can run as a standalone application for better performance and scalability and it is platform independent. Services are responsible for executing real-time and scheduled application jobs. The following application areas are processed as jobs:

- Summarizer
- Scheduler
- Leveler
- Publications
- Update Baseline
- Import / Export

Services are capable of processing large number of projects, activities, and resource assignments. The number of concurrent jobs greatly affects the CPU, memory requirements of the application server, and load on the database servers.

- For medium to large deployments, Oracle Primavera recommends setting up a dedicated application server node for Services. This application server should not be part of the cluster that processes HTTP requests from the web client. In addition, Oracle Primavera recommends turning off Services on the application servers in the cluster, which are serving web client requests. Adding more dedicated application server nodes for Services, or horizontally scaling, can address increased performance requirements.

- ▶ For long-running jobs, Oracle Primavera recommends job scheduling off-peak hours. For example, scheduling a job to run when the load on the system is low.
- ▶ For the initial run of Publication Services, after installing or upgrading P6, Oracle Primavera recommends off-peak hours. For example, run Publication Services over the weekend.
- ▶ For heavily data-intensive jobs (such as summarizing an entire EPS), Oracle Primavera recommends sequential, rather than concurrent scheduling. For example, do not schedule two large EPS summarization jobs to run at the same time.

Following considerations should be taken into consideration while planning for infrastructure for job services.

- ▶ The heap usage increases with increase in number of activities.
- ▶ Garbage collection overhead at application server may increase with increased number of threads on account of high throughput.
- ▶ Oracle recommends a minimum of 4 GB Java heap (Xmx) for optimum performance of job services.
- ▶ Database server utilization increases with increased number of threads.
- ▶ High number of threads does not guarantee high throughput, number of threads should be configured to a break-even value between throughput and server utilizations.

You can find more information here:

```
http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineL
earning/WhitePapers/P6JobServicesPerformanceTuning.pdf
http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineL
earning/WhitePapers/P6JobServicesPerformanceTuning.pdf
```

Publication

The following factors could impact the response time and resources for Publication:

- ▶ Number of activities/assignments
- ▶ Length of project
- ▶ Length of publication date range
- ▶ Length of activities/assignments
- ▶ Number of financial periods

Activity Gantt

The Activity Gantt feature can load up to 100,000 activities.

The following factors could impact the response of the Activity Gantt feature:

- Number of activities/assignments
- Number of activity relationships
- Number of open projects
- Project length
- Depth of WBS hierarchy
- Activities/assignments length
- Amount of client-side memory allocated to the JRE and applets
- Other load on the application server

Resource Management

The following factors could impact the response time of the Resource Management feature:

- Number of resources
- Number of resource assignments to activities
- Number of open projects
- Filter usage
- Project length
- Depth of WBS hierarchy
- Amount of client-side memory allocated to the JRE and applets
- Other load on the application server

Risks

The following factors could impact the response of the Risk feature:

- Number of risks
- Number of activity assignments to risk
- Number of open projects
- Number of risk scoring matrix assignments
- Number of response plan assignments
- Amount of client side memory allocated to the JRE and applets
- Other load on the application server

P6 EPPM Web Services

The P6 EPPM Web Services platform employs web-based technology to handle requests from external programs. External client programs use P6 EPPM Web Services by creating a request and sending it to the application server using SOAP (Simple Object Access Protocol). Having received the request, P6 EPPM uses the appropriate business logic required to service the request. The client application does not need to understand the semantics of this processing. Responses or requests from P6 EPPM simply follow the same path in reverse.

P6 EPPM Web Services can be divided into four categories:

- Business Object Based Services (CRUD operations)
- Job Services
- Spread Services
- Import and Export Services

Many data set characteristics can impact the performance of P6 EPPM Web Services. All requests should make use of meaningful filters to reduce the amount of data returned by the service. Other factors that can affect the performance of P6 EPPM Web Services are:

- System usage – P6 features in use
- Environment
- Level of hardwareP6 EPPM Web Services

Deployment Categories

P6 EPPM deployments can be classified into three i.e., categories: **small**, **medium**, and **large**. Some of the considered for defining these categories are outlined in the following table. These factors influence the hardware and software specifications during P6 EPPM deployment.

For optimal system performance, Oracle Primavera highly recommends deploying P6 EPPM on a 64-bit architecture.

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Deployment Categories</td></tr>
<tr><td>Small</td><td>Medium</td><td>Large</td></tr>
<tr><td rowspan="8">Number of Objects</td><td>Projects</td><td>200</td><td>1,000</td><td>50,000</td></tr>
<tr><td>Active Users</td><td>50</td><td>100</td><td>200</td></tr>
<tr><td>Activities</td><td>100,000</td><td>1,000,000</td><td>5,000,000</td></tr>
<tr><td>Activities per Project</td><td>5,000</td><td>10,000</td><td>20,000</td></tr>
<tr><td>Resources</td><td>500</td><td>1,000</td><td>4,000</td></tr>
<tr><td>Resource Assignments</td><td>100,000</td><td>1,000,000</td><td>5,000,000</td></tr>
<tr><td>Resource Assignments per Project</td><td>5,000</td><td>10,000</td><td>20,000</td></tr>
<tr><td>Risks</td><td>100</td><td>500</td><td>2,500</td></tr>
</table>

Deployment Architectures

Small Deployment – Single Node

This deployment model is suitable for a business unit or a division within an organization. It can also be used to set up a pilot with the intent of moving to a medium or large size deployment. This deployment can achieve the desired performance or scalability, but does not address the high availability requirement due to single point of failure.

Application Server Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	4 GB
Java Heap Size	2 GB per node
Storage	50 GB

P6 Team Member Web or Web Services Server Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	4 GB
Java Heap Size	2 GB per node
Storage	10 GB

P6 Services Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	8 GB
Java Heap Size	4 GB per node
Storage	50 GB, depending on log historic log storage

Database Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 7000 series (Quad Core 2.66 GHz) or equivalent
RAM	8 GB
Storage	50 GB

Note: If you use OracleDatabase for storing documents, you may need to increase storage space on the database server based on the expected number of documents stored.

Medium Deployment – Clustered

Assuming high availability is desired for a medium deployment, the application server is clustered. If high availability is not a requirement, desired scalability can be achieved vertically   by adding equivalent units of memory and CPU.

The clustered nodes can exist on the same physical machine as separate node deployments when a high-end machine is used for the application server. A load-balancing router can be used to balance the load between the nodes for optimal performance.

Application Server Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	8 GB
Java Heap Size	4 GB per node
Storage	50 GB

P6 Team Member Web or Web Services Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	8 GB
Java Heap Size	4 GB per node
Drive Space	50 GB

P6 Services Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	8 GB
Java Heap Size	4 GB per node
Drive Space	75 GB, depending on log historic log storage

Database Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 7000 series (Quad Core 2.66 GHz) or equivalent
RAM	8 GB
Storage	100 GB

Note: If you use OracleDatabase for storing documents, you may need to increase storage space on the database server based on the expected number of documents stored.

Large Deployment – Clustered

Assuming high availability is desired for a large deployment, the application server is clustered.

For optimal system performance, Oracle Primavera highly recommends deploying P6 EPPM on a 64-bit architecture.

A large deployment involves a high system load due to large data sets, processing, concurrent users, etc. To handle this load, Oracle Primavera recommends adding a dedicated clustered web server and a clustered database server, such as Oracle RAC Database. Due to the intense computations typically seen in large deployments, Oracle Primavera highly recommends a large JVM heap. Adding more nodes, or horizontally scaling, can address increased performance requirements. It is not necessary to have application servers on different machines. Multiple nodes within P6 EPPM can be deployed on the same physical machine, assuming it is a high-end machine with adequate physical memory and CPU.

Application Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	2 Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	16 GB
Java Heap Size	8 GB per node
Storage	50 GB

P6 Team Member Web or Web Services Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
Java Heap Size	4 GB per node
RAM	8 GB
Storage	50 GB

P6 Services Configuration

Operating System	Oracle Enterprise Linux (OEL) 64-bit or Windows server 64-bit or equivalent
CPU	Intel Xeon 5000 series (Quad Core 3.46 GHz) or equivalent
RAM	16 GB
Java Heap Size	8 GB per node
Storage	100 GB, depending on log historic log storage

Database Server Configuration

Operating System	OEL 64-bit or Windows server 64-bit or equivalent
CPU	2 Intel Xeon 7000 series (Quad Core 2.66 GHz) or equivalent
RAM	8 GB
Storage	200 GB

Note: If you use OracleDatabase for storing documents, you may need to increase storage space on the database server based on the expected number of documents stored.

Other Factors

This document covers performance for the overall P6 EPPM configuration architecture. However, factors involved in the database setup play a very important role in performance. The following factors could impact database performance:

▶ Hardware architecture and operating system
▶ NIC (number of NICs, speed and duplex settings)
▶ Number of database instances on a server (dedicated versus shared)
▶ Disk storage system performance (I/O speed, buffer, mirroring)
▶ Table space layout and extent sizing
▶ Table data, index, and lob distributions on table spaces
▶ Table and index fill factor definition
▶ Table auditing
▶ Database block sizing
▶ Connection management (dedicated versus MTS)
▶ RAM allocations (automatic, SGA, PGA, shared pool, buffer pool)
▶ CBO optimizer parameter configuration setting
▶ Database table and index statistics gathering mechanism and frequency
▶ Anti-virus software
▶ Additional database jobs

Enabling Technologies

Oracle BPM

For creating and managing business processes and workflows, P6 EPPM utilizes Oracle Business Process Management (BPM) technology. For information on hardware and sizing requirements, please refer to the Oracle BPM documentation at:
http://www.oracle.com/us/technologies/bpm/index.html

Oracle BI Publisher

For enterprise reporting, P6 EPPM utilizes Oracle Business Intelligence Publisher (BI Publisher). For information on hardware and sizing requirements, please refer to the BI Publisher documentation at:
http://www.oracle.com/us/solutions/ent-performance-bi/bi-publisher-066551.html

OBIEE

For enhanced analytical and advanced reporting capabilities, P6 EPPM utilizes Oracle Business Intelligence Enterprise Edition (OBIEE). For information on hardware and sizing requirements, please refer to the OBIEE documentation at:
http://www.oracle.com/us/solutions/ent-performance-bi/enterprise-edition-066546.html

Content Management System

For document management and collaboration, P6 EPPM can be configured to use Oracle Universal Content Management (UCM), or Microsoft SharePoint. For information on hardware and sizing requirements for Microsoft SharePoint, please contact Microsoft. For information on hardware and sizing requirements for Oracle UCM, please refer to the Oracle UCM documentation at:
http://www.oracle.com/technetwork/middleware/content-management/overview/index.html

Sizing Spreadsheet for BI Publisher Enterprise

The sizing spreadsheet for BI Publisher Enterprise can be found on Oracle Support: 948841.1: How to Determine the Number of Servers Needed to Run BI Publisher Enterprise in a Production 10g or 11g Environment?

Using P6 Professional with P6 Professional Cloud Connect

In high latency environments, performance can be affected by the amount of data that needs to be transferred between P6 Professional and the P6 database on the cloud. To optimize the amount of data that flows between P6 Professional on your desktop and the P6 cloud server, ensure that you have a stable, wired connection to the P6 cloud server and follow the tips from the sections below.

In high latency environments, performance can be affected by the amount of data that needs to be transferred between P6 Professional and the P6 database on the cloud. To optimize the amount of data that flows between P6 Professional on your desktop and the P6 cloud server, ensure that you have a stable, wired connection to the P6 cloud server and follow the guidelines described in the sections below.

Improving Login Performance

Login performance is affected by the amount of data that gets loaded during the login process. You can control this data by following the tips described below:

- Evaluate user privilege assignments to ensure that your users have access to only relevant data.
- Remove unused global objects from the system, including unused UDFs or Code assignments.
- Set the startup filters to load Current Projects Only Data and turn off loading for Resource Summary Data.

Enabling the Welcome Dialog

Enable the **Welcome dialog** from **User Preferences** dialog box to select the project at application startup. Selecting a project at startup ensures that you do not open a project that you had not intended to open or are not required to switch to the correct project after an incorrect project loads in the application.

> **Note:** You should only enable the Welcome dialog if you work on different projects.

To configure the Welcome dialog:

1) Login to P6 Professional.
2) From the toolbar, select **Tools** and then click **User Preferences**.
3) In the **Application Startup Window** menu, under the **Application** tab, select **None**.
4) Select the **Show the Welcome dialog at startup** checkbox.
5) Exit the User Preferences dialog box.

Creating and Selecting a Portfolio with Only the Required Projects

Oracle recommends that you do not use the All Projects portfolio because doing so will load all the projects in the database that user has access to. Instead, you can either create a new portfolio with your required projects or you can open the No Projects portfolio when logging in to the application.

To create a new portfolio:

1) Login to P6 Professional.
2) From the toolbar, select **Enterprise** and then click **Project Portfolios**.
3) Click **Add** to create a new portfolio.
4) Add the required projects to the portfolio.
5) From the toolbar, select **File** and then click **Select Project Portfolio**.
6) Select the portfolio.

> **Note:** Ensure **EPS bands only for projects in current portfolio** option is selected when opening a portfolio.

Configuring Startup Options

To configure the startup options:

1) Login to P6 Professional.
2) From the toolbar, select **Tools** and then click **User Preferences**.
3) Under the **Startup Filters** tab, deselect the **Resource Summary Data** checkbox.
4) Select the current project data; this only applies to for Resources, Roles, OBS, Activity Codes, and Cost Accounts.

Improving Functional Performance

▶ When possible, use filters to reduce the amount of data that is loaded or displayed.
▶ P6 Professional commits data whenever a new row is added. If your network or internet connection is subject to high latency, it will take longer for the data to be committed.To reduce the time it takes for your data to be committed, create a local Excel file and then import then data using XLS import. Alternatively you can use a local SQL Lite database to enter the data and use XML export/import to move the data to main database.
▶ For more information about SQL Lite and P6 Professional, refer to P6 Professional Standalone Installation and Configuration Guide.
▶ Import layouts separately from projects when doing XML import; this will allow the import to run in background.
▶ Use P6 Web to schedule recurring tasks like summarizer, apply actuals, scheduler, and so on, during off peak hours.
▶ Avoid frequently scheduling projects.
▶ Use Refresh (F5) feature only when necessary, as doing so will force P6 Professional to reload data from the server.

Conclusion

Following a systematic approach to evaluating, planning, and testing the architecture for your P6 EPPM deployment is the only way to assure a successful deployment. With careful examination of the performance and scalability objectives, system availability requirements, short-term versus long-term outlook of system usage, seasonality, data structure, and frequently used application areas, the appropriate hardware choices can be made early in the process.

Frequently Asked Questions

Q. How much hardware does a P6 installation require?

Tables that describe the recommended hardware for each deployment size are described in the "Deployment Architectures" section of this document.

Q. How much disk space does P6 require?

The P6 application requires little space.   However, you do need enough space to run the application server software (such as Web Logic) and to keep historic log files. You must also ensure that you have the appropriate amount of disk space available on you database server. If you use OracleDatabase for storing documents, you may need to increase storage space on the database server based on the expected number of documents stored.

Disk space recommendations can be found in the "Deployment Architectures" section of this document.

Q. Do P6 Services affect performance?

Yes. P6 Services do affect performance for the P6 application. The difference in performance depends on the following factors:

- ‣ Hardware size
- ‣ Data size
- ‣ Service recurring schedules
- ‣ P6 feature usage
- ‣ Data change rate

Q. Should P6 Services be installed on the same server as Primavera P6 Web?

Oracle Primavera recommends installing P6 Services on a dedicated box.

Q. Will I need more space when upgrading to P6 8.4 with Publications from a pre 8.1 Release?

Yes. The Publication feature requires additional drive space on the database. A good estimate is to calculate your currently used disk space and double it.

Q. Do I require more java heap space if my projects have large number of activities?

Heap usage varies with the size of live objects in the heap. Large objects will be created for projects having high number of activities. Oracle Primavera recommends a minimum heap size of 2GB (-Xmx2048m) for optimal performance. However, you may want to revisit this figure and set it to larger value if the application faces memory issues while loading projects with large number of activities

Q. How can I make P6 Services run faster?

You can make P6 Services faster by:

- ‣ Ensuring P6 Services are installed on a dedicated server.

- Separating P6 Services onto multiple servers. If performance is a concern, it is a good idea to install all global services on one server and the Project Publication Service on its own dedicated server.
- Increasing default thread counts, when working with the Publication feature. This only affects the Project Service.
- Verifying that the database has settings optimal for efficiency:
- Enough memory
- Fast disks
- No other database instance running

You can find more information here:

`http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineLearning/WhitePapers/P6JobServicesPerformanceTuning.pdf`

Q. *Should the database be installed in a shared database environment?*

No. Oracle Primavera recommends a dedicated database server for P6 EPPM.

Q. *What is the best way to monitor performance for P6?*

You can use Oracle Enterprise Manager to monitor many aspects of the database (Oracle Database only) in addition to OS and Web Logic exposed metrics.

Q. *What is Considered Acceptable Network Latency for P6?*

Enterprise environments should have low latency networks, meaning ping times should return in less than 1ms for the best P6 performance. P6 has been tested within simulated latency environments and offers acceptable performance up to 100ms (round trip, browser to application server). Higher latency environments have been tested, but as with all multi-tier enterprise products, higher network latency will result in a slower response from the software suite.

Q. *How much disk space will the database schema require for table spaces?*

Tables that include the recommended disc space for different configurations can be found in the "Deployment Architectures" section of this document.

Q. *How does P6 perform on EXA hardware?*

Exalogic and Exadata are engineered systems designed to provide extreme high performance, reliability, ease-of-use and versatility. The performance figures for P6 8.4 are very encouraging on Exa servers.

The response times for P6 business scenarios are 50% more faster and P6 can scale 10 times on EXA servers. So for medium and large deployment models, Oracle always recommends P6 on Exalogic server and Oracle database on Exadata for better performance and scalability.

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.

Title	Description
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.
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.

Title	Description
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.
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.

Legal Notices

Oracle Primavera P6 EPPM Performance and Sizing Guide