

Planning and architecture for Office Project Server 2007

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Abstract

The content in this planning guide is designed to lead a team through the steps of planning and deploying a new solution based on Office Project Server 2007. The audiences for this guide are business application specialists, line-of-business specialists, IT generalists, program managers, and infrastructure specialists who are planning a solution based on Microsoft Project 2007.

This planning guide has been organized in two stages. The first stage guides you in determining the types of projects and sites that your organization needs, the features, and the interactions between the projects and sites that meet your enterprise goals. After you have determined how your solution will work, the second planning stage guides you in making a series of deployment planning decisions. In this stage, you complete a set of worksheets to determine the implementation of your deployment.

The content in this book is a copy of selected content in the <u>Project Server technical library</u> (http://go.microsoft.com/fwlink/?LinkID=84740) as of the date above. For the most current content, see the technical library on the Web.



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Getting Help

Every effort has been made to ensure the accuracy of this book. This content is also available online in the Office System TechNet Library, so if you run into problems you can check for updates at:

http://technet.microsoft.com/office

If you do not find your answer in our online content, you can send an e-mail message to the Microsoft Office System and Servers content team at:

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Introduction to the Microsoft Office Project Server 2007 Planning Guide

In this section:

- How to use this planning guide
- What is Office Project Server 2007?

How to use this planning guide

The content in this planning guide is designed to lead a team through the steps of planning and deploying a new solution based on Office Project Server 2007. The audiences for this guide are business application specialists, line-of-business specialists, IT generalists, program managers, and infrastructure specialists who are planning a solution based on Microsoft Office Project Server 2007. Before using this guide, you should:

- Review the Product Evaluation for Office Project Server 2007 to learn about the features of Office Project Server 2007. This will help ensure that Office Project Server 2007 meets your functional and IT needs and will help you envision and plan your solution.
- Define the organizational goals that you want to achieve with a solution based on Office Project Server 2007.
- Define the vision and scope of the solution.

This planning guide has been organized in two stages. The first stage guides you in determining the types of projects and sites that your organization needs, the features, and the interactions between the projects and sites that meet your enterprise goals. Out of this stage of planning, you develop a set of worksheets to determine the details of your site and feature needs. These worksheets help you record information such as:

- Projects and project characteristics
- Project scenario identification
- Project scenario checklists
- Sites and site hierarchies
- Relationships between sites
- · Features of sites
- Site customizations

Along with filling in the worksheets that accompany this guide, you should incorporate your planning decisions about your project, sites, and features into a conceptual design document that:

- Defines the purpose of the solution you are planning.
- Describes the implementation of the solution.

Provides data, flowcharts, illustrations, and other information needed to plan the solution deployment.

After you have determined how your solution will work, the second planning stage guides you in making a series of deployment planning decisions. In this stage, you complete a set of worksheets to determine the implementation of your deployment. These worksheets help you record information such as:

- Deployment design
- Physical topologies
- Database design
- Security design
- Service-level agreements

Along with filling in the worksheets that accompany this guide, you should incorporate your deployment planning into a design specification document that:

- Defines hardware requirements
- Describes the physical system design
- Provides data, diagrams, and other information useful to the team implementing the deployment

After you plan your sites and features and plan the deployment, the [LINK to deployment guide] guides you in implementing your Office Project Server 2007 deployment.

This guide includes a companion set of worksheets for recording information related to your planning or deployment activities. To best achieve your solution planning and deployment goals, use the supplied worksheets to record the results of your planning decisions as you use this guide. For a complete list of worksheets, see Planning worksheets for Office Project Server 2007.



Note:

For a description of the steps needed to plan the migration and deployment of an existing solution to Office Project Server 2007, see Deployment for Office Project Server 2007.

What is Office Project Server 2007?

The Microsoft Office Project 2007 family of products provides a range of software tools that support a variety of approaches to work management, levels of process maturity, and business goals. On one end of the spectrum, Microsoft Office Project Standard 2007 provides enhanced desktop tools for small teams or individual contributors tasked with managing projects, but who are not necessarily project managers. These users or companies are not positioned to build a competency in Microsoft Office Enterprise Project Management (EPM), or simply lack business justification for it, yet they still need tools for managing work. The projects they manage are not complex, and the most efficient approach is to use ad hoc scheduling and tracking processes. In this case, Office Project Standard 2007 provides simple, intuitive tools that enable operational control with minimal overhead.

At the other end of the spectrum, Office Project Server 2007 provides a user or company the tools to build an EPM competency that integrates software and technologies with their people, processes, and organizational policies and governance. When these elements are developed and aligned with business objectives, they enable capabilities for managing work, time, resources, and budget. This form of project management is critical for executives who want operational efficiency and standardization for scorecard rollups. Microsoft Office Project Professional 2007 provides the visibility, insight, and control to help bridge the strategic and operational worlds, while leveraging existing software systems.

Office Project Server 2007 addresses the needs of sophisticated project management organizations that require centralized and strategic financial control in addition to rigorous project management methodologies. Office Project Server 2007 delivers key performance enhancements for large organizations that manage complex programs and portfolios with a globally distributed workforce.

For a full Office Project Server 2007 product and feature overview, see <u>Product Evaluation for Office Project Server 2007</u> (http://technet.microsoft.com/en-us/library/cc197697.aspx).

I. Determine organization and user needs

In this chapter:

- Chapter overview: Determine organization and user needs
- Establish the planning team
- Determine project management requirements
- Determine the number and types of users

Chapter overview: Determine organization and user needs

Each organization is looking for a solution that achieves its unique objectives. This chapter helps you identify your organization's project management requirements and determine which capabilities within Microsoft Office Project Server 2007 can help you meet those requirements.

Whether you work in a small business or department-level organization that wants to quickly set up a server to track projects, or in a full-scale enterprise that wants to implement an Enterprise Project Management solution, this chapter is for you. It helps you determine the specific purposes for your project management solution and which capabilities to enable, and it discusses how to plan for your specific sets of users.

Establish the planning team

In this section:

- Executive Review Committee
- Governance Board
- EPM Solution Initiative Team
- Worksheet

This section describes who typically does the work of planning a Microsoft Office Enterprise Project Management (EPM) Solution and offers a suggested configuration for the planning team. This material will be useful for executives, managers, and system administrators who are responsible for planning the deployment of an EPM Solution.

The Office EPM Solution is a complex system that includes integrated server applications and components. Depending on the size of your organization and the complexity of your project management environment, you might need many different IT professional-level skill sets when planning your configuration. A successful deployment might require the expertise of some or all of the individuals described below.

Executive Review Committee

The purpose of the Executive Review Committee is to sponsor the EPM Solution initiative and audit progress toward achieving the documented business requirements. Typical job titles and roles on the Executive Review Committee can include:

- CEO: overall business sponsor
- Vice President of Engineering: responsible for business process changes
- Vice President of Information Technology (IT) Systems: responsible for technology deployment

Governance Board

The purpose of the Governance Board is to provide regular management oversight of the EPM team. Typical job titles and roles on the Governance Board can include:

- Director of the Project Management Office (PMO): oversight for the EPM Solution initiative
- Portfolio Manager: EPM Solution initiative budget manager
- Director of Product Engineering: oversight of business process changes
- Vice President of IT Systems: oversight of technology changes

EPM Solution Initiative Team

The purpose of the EPM Solution Initiative Team is to ensure that initiative tasks are completed as planned. Typical job titles and roles on the EPM Solution Initiative Team can include:

- PMO Project Manager: primary business analyst
- IT Infrastructure Lead: system administrator and primary technology architect, responsible for system architecture specification
- Test Lead, Engineering Department IT
- Release Manager, IT Systems: responsible for smooth transition to operations and release approval
- Trainer: responsible for customizing and delivering training to project managers and other users
- Project Manager: responsible for delivery of solution within constraints of scope, schedule, and budget
- Network Engineer: responsible for network topology, load balancing, and firewalls.
- Database Administrator: responsible for installing and maintaining databases
- Project Server Deployment Specialist
- Application Developer

The EPM Solution Initiative Team can include participants from any part of the organization. Some key positions that you should consider filling are listed below:

System administrator

The system administrator is typically responsible for installing, maintaining, administering, and troubleshooting software in the organization. This includes Microsoft Windows Server™ 2003-based security and components, such as the Active Directory® directory service and Internet Information Services (IIS), in addition to client software such as Microsoft Office Project Professional 2007, Microsoft Office Outlook 2007, and other applications that can be integrated with Microsoft Office Project Server 2007. The system administrator must also understand Office Project Server 2007 and its relationship with Microsoft Windows Server 2003, Windows SharePoint Services 3.0, and Microsoft SQL Server™ 2000 or Microsoft SQL Server 2005.

Network engineer

The network engineer is typically responsible for deploying hardware and troubleshooting hardware-related network issues. These issues can be related to network topology, routers, switches, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), hardware-based load balancing, or firewalls.

Database administrator

The database administrator is typically responsible for installing and administering the database server or servers. This can include installing and tuning SQL Server, backup and recovery, disk configuration, Storage Area Networks (SANs), and failover clustering.

Office Project Server 2007 deployment specialist

Because an EPM Solution is complex and relies on other Microsoft server-based technologies in addition to project management methodologies, a Project Server deployment specialist is a particularly valuable member of the planning team. Microsoft provides training and certification for deploying Office Project Server 2007. Individuals who have taken this training are aware of the software and hardware implications of deploying Office Project Server 2007 as an EPM Solution.

Application developer

Many organizations use developers to create custom applications that can be integrated with Office Project Server 2007. The application developer must understand the integration points that are available in Office Project Server 2007. For more information about the Project Server Interface, see the Office Project Server 2007 SDK.

Worksheet

Planning team roles and responsibilities (http://go.microsoft.com/fwlink/?LinkId=73260)

Determine project management requirements

In this section:

- Characterize your projects
- Determine your Office Project Server 2007 scenario
- Worksheets

After the Enterprise Project Management (EPM) initiative team is established, you can begin to plan the Microsoft Office Project Server 2007 configuration. It is important to identify the project management needs and requirements for your organization. Your configuration will vary according to the type of work that your organization performs and whether you use Office Project Server 2007 for time tracking, collaboration, or portfolio management. After you characterize the typical projects for your organization, determine which Project Server scenarios you need to support.

Characterize your projects

Understanding the characteristics of the projects in your organization enables you to plan your Office Project Server 2007 configuration. The following characteristics have a significant effect on your configuration:

- The number of projects that your organization is working on at any given time.
- The size of your projects, which varies with the number of tasks and assignments that your projects include.
- The length of time that it takes to complete a project.
- The number of team members that are assigned tasks in projects.

Most organizations manage projects that vary in size and duration, but the degree to which they vary is a function of the size of the organization and the type of work that it performs. For example, a large consulting company might manage several thousand projects that range from small, 10-task projects that last two weeks to large projects that include 1,500 tasks and last for over a year.

Although other organizations might work primarily on one type of project of one particular size, such as small and simple projects or large and complex projects, organizations typically have a number of projects that range in size from small to medium to large. For planning purposes, be sure that you can adequately support the type of project that your organization works on most frequently. Plan for capacity (Project Server 2007)

Worksheet action

Use the <u>Projects and project characteristics</u> worksheet

(http://go.microsoft.com/fwlink/?LinkId=73261) to list how many total, proposed, active, and archived projects, and also project characteristics you expect for your Enterprise Project Management (EPM) Solution as a whole.

Determine your Office Project Server 2007 scenario

Your project management needs and requirements vary according to the type of work that your organization performs. As part of your configuration planning process, identify which scenario you need to support. For example, you can use Office Project Server 2007 to support the following types of scenarios:

- Program deployment
- Time tracking
- Hosted deployment
- Portfolio management

Worksheet action

Use the <u>Project management requirements</u> worksheet

(http://go.microsoft.com/fwlink/?LinkId=73262) to list the features you plan to use and what you anticipate the usage level will be in your Enterprise Project Management (EPM) Solution.

Using Office Project Server 2007 for program deployment

The Office Project Server 2007 scenario for program deployment applies to a large organization whose area of focus is top-down planning driven through the Project Management Office (PMO). This scenario is more commonly seen in the product development and manufacturing markets. It is characterized by:

- A small number of large projects that are often related
- Focus on the PMO
- Extensive use of Microsoft Office Project Professional 2007
- Work Tracker usage

Client application	Rate of usage
Office Project Professional 2007	High
Office Project Web Access	High
Outlook Add-in	Medium

Office Project Web Access feature	Rate of usage
Work Tracker	High
Programs	High
Timesheets	Medium
Portfolio management	Medium
Master projects	High
Project workspaces	Low
Risk Management	Medium
Issues Management	High
Document Management	Medium
Resource Management	Medium
Task management	Medium

Using Office Project Server 2007 for time tracking

The Office Project Server 2007 scenario for professional services/timesheet deployment can apply to a large organization that wants to use Office Project Server 2007 mainly to capture and report time. In this scenario, employees and contractors use Office Project Server 2007 timesheet

functionality to submit hours worked on tasks during specific time periods. This scenario is characterized by:

- Minimal use of Office Project Professional 2007
- Time and material billing
- A large number of projects that have relatively few tasks
- A predictable peak period of usage that corresponds to scheduled timesheet entry in Microsoft Office Project Web Access
- A single Web application (also called a virtual server)

Organizations that support this scenario typically use a limited set of Office Project Professional 2007 features to track time and costs by using timesheets to capture information. This scenario presents scalability issues, because when a large number of timesheets are submitted within a short period of time, system resources can become severely strained.

Client application	Rate of usage
Office Project Professional 2007	Medium
Office Project Web Access	High
Outlook Add-in	High

Office Project Web Access feature	Rate of usage
Work Tracker	High
Programs	Low
Timesheets	High
Portfolio Management	Low
Master projects	Low
Project workspaces	Low
Risk Management	Low
Issues Management	Low
Document Management	Low
Resource Management	High
Task management	Medium

Using Office Project Server 2007 for hosted deployment

In the Office Project Server 2007 scenario for hosted deployment, Project Server is hosted for an entire large organization. Multiple departments within the organization access their own Web application, all hosted on a single Office Project Server 2007 configuration. Individual Web application load is relatively low; however, aggregated load across the hosted Web applications can be quite high, especially with respect to Office Project Professional 2007 usage. This scenario is typically characterized by:

- Few projects per Web application
- Relatively high percentage of project managers (30 percent or more)
- Frequent use of Office Project Professional 2007
- Numerous Web applications

Organizations that support this scenario typically use a limited set of Project Server features; the main focus is to facilitate collaboration within teams or departments.

Client application	Rate of usage
Office Project Professional 2007	High
Office Project Web Access	High
Outlook Add-in	Medium

Office Project Web Access feature	Rate of usage
Work Tracker	Low
Programs	Low
Timesheets	Low
Portfolio Management	Low
Master projects	Low
Project workspaces	High
Risk Management	Medium
Issues Management	Medium
Document Management	High
Resource Management	Medium
Task management	Medium

Using Office Project Server 2007 portfolio management

The Office Project Server 2007 scenario for portfolio management deployment can apply to any medium-to-large organization that wants to use Office Project Server 2007 to manage project portfolios. These organizations are typically characterized by:

- A large number of projects that have many assignments
- A high percentage of project managers
- Frequent use of Office Project Professional 2007
- A single Web application

Organizations that support this scenario typically use the breadth of Office Project Server 2007 features, including timesheets, document libraries, issues, risks, Enterprise Global Template, and the Enterprise Resource Pool.

The organization to which this scenario can apply can be as small as a medium-size organization (or a department in a larger organization) whose users all share the same physical location on the same LAN, or it can be a large organization whose users work in a number of different physical locations.

These organizations use Office Project Professional 2007 and Office Project Web Access on a daily basis to publish or update projects to the Office Project Server 2007 database, and they use Office Project Web Access to view assignments; report actuals; and access documents, issues, and risks. Additionally, these organizations generate online analytical processing (OLAP) cubes weekly.

Client application	Rate of usage
Office Project Professional 2007	Medium
Office Project Web Access	High
Outlook Add-in	Low

Office Project Web Access feature	Rate of usage
Work Tracker	Low
Timesheets	Medium
Portfolio management	High
Programs	Low
Administrative projects	Low
Collaboration	Medium
Document management	Medium

Office Project Web Access feature	Rate of usage
Risk management	Medium
Issues management	Medium
Resource management	Medium
Project workspace sites	Medium

Worksheets

<u>Projects and project characteristics worksheet</u> (http://go.microsoft.com/fwlink/?LinkId=73261) <u>Project management requirements worksheet</u> (http://go.microsoft.com/fwlink/?LinkId=73262)

Determine the number and types of users

In this section:

- Number of users
- Types of users

The number and types of users in your organization who use Project Server features have a direct effect on the scalability and performance needs of your organization.

Number of users

When you determine the number of Project Server users that your organization needs to support, also consider the maximum number of concurrent users. This is especially critical if your organization plans to support the time tracking scenario.

It is helpful to categorize users to determine the different types of them that you need to support, as well as how many of each type. For example, project managers who use Project Professional create the greatest load on the system; viewers create the smallest amount of load.

Types of users

The Microsoft Office Enterprise Project Management (EPM) Solution provides tools for different types of users that perform different job functions. The types of users that you need to support, and the percentage of each compared to the total number, affects the configuration decisions that you make during your planning process. Each user type places a load on the system. The most common user types are:

- Project managers
- Resource managers
- Team members
- Viewers
- Administrators

Project managers

Project managers are responsible for overseeing and completing projects, sometimes coordinating with other project managers and resource managers in the organization. Project managers use Microsoft Office Project Professional 2007 to:

- Create and publish projects to the Project Server database.
- · Modify projects based on feedback.
- Assign team members to project tasks.
- Track progress by incorporating task updates from team members.

- Determine target and actual project timelines and costs.
- Generate reports.

Project managers also use Microsoft Office Project Web Access to view progress online and monitor project-related risks and issues, especially when working remotely.

Resource managers

Resource managers are responsible for managing resources and defining skills based on capabilities. They work with project managers and other resource managers to ensure that qualified resources are assigned to tasks in projects. Resource managers use Project Web Access to:

- View workload and availability by project over time.
- View workload and availability by resource over time.
- Add team members to project teams.
- Post issues and upload documents.
- Use Portfolio Modeler to determine resource availability.
- Modify resource skills and other codes.

Team members

Team members are resources who are assigned to tasks in projects. A team member typically works on multiple projects at any given time and is responsible for completing tasks according to a schedule. Team members can use both Project Web Access and Microsoft Office Outlook 2007 or 2003. The Microsoft Office Project Add-in for Outlook enables team members to integrate Project Server data with Outlook. The Outlook Add-in can be downloaded from Project Web Access. Team members use Project Web Access to:

- Meet deadlines by identifying current and upcoming tasks to prioritize daily work
- Report time spent working on tasks by entering progress in timesheets.
- Delegate and add tasks.
- Record and respond to project-related issues and risks.
- Link issues to tasks.
- Submit status reports.
- Work collaboratively with other team members on project-related documents.

Team members use Outlook to:

- Receive e-mail notifications of new tasks, issues, and assignments.
- Import project tasks to their Outlook calendars.
- Report on assigned tasks.

Viewers

A viewer is a user who uses Project Web Access to view status or reporting on a project or multiple projects. For example, an executive can oversee several different projects that are managed by different project managers to gain an overall perspective on schedule and budget. Viewers use Project Web Access to:

- View project and resource reports in Portfolio Analyzer.
- Submit issues to project and resource managers.

Administrators

Administrators deploy and manage Office Project Server 2007 and related applications. These users manage access to the server and the server database. Project Web Access provides access to the Project Server administrative tools. Administrative tools are also provided with Microsoft Windows Server and SQL Server. Administrators use Project Professional to:

- Define project and resource reporting codes.
- Upload enterprise templates.

Administrators use Project Web Access to:

- Define timesheet views.
- Lock reporting periods and actuals in timesheets.
- Create standardized reports for Portfolio Analyzer views.
- Add team members to, and delete team members from, the Enterprise Resource Pool.

Worksheet action

User and user types worksheet

(http://go.microsoft.com/fwlink/?LinkId=73259)

II. Plan EPM Solution architecture

In this chapter:

- Chapter overview: Plan EPM Solution architecture
- Plan the client tier
- Plan the Web tier
- Plan the application tier
- Plan the database tier
- Plan the EPM Solution data flow

Chapter overview: Plan EPM Solution architecture

This chapter describes the components of a Microsoft Office Enterprise Project Management (EPM) Solution. This material is written for executives, managers, and system administrators who are responsible for planning the deployment of an EPM Solution.

An EPM Solution that is based on Microsoft Office Project Server 2007 is deployed across multiple tiers: a client tier, a Web tier, an application tier, and a database tier. Applications and services in each tier provide for availability and scalability, enabling organizations of any size to manage projects of a range of sizes and levels of complexity. You can configure the application and database tiers of your EPM Solution to best meet the needs and requirements of your organization.

Architecture overview

The following figure shows the architecture of the EPM Solution.

Client Tier Microsoft Internet Explorer Microsoft Office Project Professional 2007 Microsoft Office Outlook 2007 Client for Line of Business Applications 3rd Party Applications Web Tier Microsoft Office Project Web Access 2007 Microsoft Windows Server 2003 Family Windows SharePoint Services 3.0 Application Tier Application Other Microsoft Office Project Server 2007 Line of Business Project Server Interface Applications Services Microsoft Microsoft Project Server Eventing Exchange Microsoft Project Server Queuing Database Tier Microsoft SQL Server 2000 or 2005 SQL Server Analysis Services 2000 or 2005

See Also

Plan the client tier

Plan the Web tier

Plan the application tier

Plan the database tier

Plan the EPM Solution data flow

Plan the client tier

This section identifies the key components of the client tier and helps you to distinguish from the parts of the other tiers in the EPM solution.

The client tier of the Microsoft Office Enterprise Project Management (EPM) Solution includes Microsoft Office-based applications, a Web-based client, and any custom applications that are specific to your organization.

Microsoft Office Project Professional 2007

Microsoft Office Project Professional 2007 is a desktop application that is designed to enable project managers to create, publish, and manage projects. In addition to scheduling and tracking tools, Office Project Professional 2007 provides project managers with enterprise resource and portfolio management capabilities.

Microsoft Office Outlook

Office Project Professional 2007 provides integration with Microsoft Office Outlook 2007 or Microsoft Office Outlook 2003. Users can receive e-mail reminder notifications for tasks that they are assigned in projects that are stored in the Microsoft Office Project Server 2007 database. Additionally, by downloading the Microsoft Office Project 2007 Add-in for Outlook, users can import tasks from projects saved to the Office Project Server 2007 database directly into Outlook. The tasks are then visible in the Outlook calendar.

Windows Internet Explorer

Microsoft Office Project Web Access is a rich Web-based client that is designed for users who are not project managers, such as resource managers, viewers, and team members. These users access project information in Office Project Web Access by using Windows® Internet Explorer®. Office Project Web Access provides access to timesheets, project views, status reports, document libraries, and risks. It is a set of Web Parts built by using ASP.NET 2.0.

Third-party and line of business applications

Many organizations use line-of-business client applications or develop business-specific applications. These applications call Office Project Server 2007 by using the Project Server Interface — an extensible set of Web services — and must also be integrated with a Microsoft Windows–based platform.

Plan the Web tier

This section identifies the key components of the Web tier and helps you to distinguish from the parts of the other tiers in the EPM solution.

The Web tier of the EPM Solution includes two components: Microsoft Office Project Web Access and Windows SharePoint Services 3.0, both of which are integrated with Internet Information Services (IIS).

Office Project Web Access

Office Project Web Access is designed for use by all project team members, administrators, and anyone else who needs access to Microsoft Office Project Server 2007 data. Office Project Web Access is essentially a set of Microsoft ASP.NET 2.0 applications that use the Project Server Interface (PSI). Office Project Web Access requires Microsoft Internet Explorer 6.x or Windows Internet Explorer 7 and Office Project Server 2007 Web Parts. Office Project Web Access is built on Windows SharePoint Services 3.0 for ease of use, improved administration, and ease of customization and integration with other applications.

Team members who use Office Project Web Access only for timesheet updates and status reports no longer need to download the ActiveX Project grid control. The grid control is still used on some pages that project managers typically use, such as project details pages.

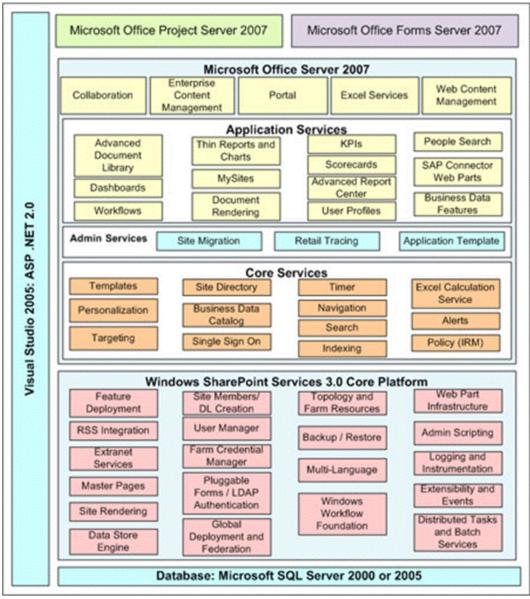
You can install Office Project Web Access with Office Project Server 2007 on the same computer, and you can also install it on one or more separate servers.

Windows SharePoint Services

Windows SharePoint Services 3.0 is a Web-based team collaboration and document management application. When you install Windows SharePoint Services 3.0, you get the following features:

- **Team collaboration** You can create Web sites to help team members share documents, synchronize calendars, stay up to date with team events, create surveys, and assign tasks.
- Document storage and workflow SharePoint sites can be used to store, share, and track
 documents, supporting rich document metadata, workflow, search, check-in and check-out,
 document versioning, and a recycle bin for recovering documents deleted from the site.
- Platform for collaboration and document management solutionsWindows SharePoint Services 3.0 is a powerful platform, providing an application programming interface (API) for building custom Web applications that include collaboration and document-management features.
- SharePoint Central Administration You use this Web browser interface to manage a single server or an entire server farm running Windows SharePoint Services 3.0. If you prefer, you can also use the Stsadm.exe command-line utility to manage your servers.

Windows SharePoint Services 3.0 can be installed along with Office Project Server 2007 on a single server or a load-balanced server farm. Users can use Office Project Web Access to access the Windows SharePoint Services 3.0 features of Office Project Server 2007, although it is also possible to use a stand-alone Windows SharePoint Services 3.0 site. Office Project Server 2007 can be installed in conjunction with other Microsoft Office SharePoint Server 2007 applications and services. Office SharePoint Server 2007 aggregates applications and services that were previously separate products. For example, the functionality of Microsoft Office SharePoint Portal Server 2003 and Microsoft Content Management Server 2002 are now part of Office SharePoint Server 2007. In addition, Office SharePoint Server 2007 adds new administrative, collaboration, business process management, and business intelligence features along with Excel Services in Microsoft Office SharePoint Server 2007, a common search architecture, and workflow.



Plan the application tier

The application tier includes the following components:

- Office Project Server 2007
- Project Server Interface
- Office Project Server 2007 Eventing service
- Office Project Server 2007 Queuing service
- Other applications (described below)

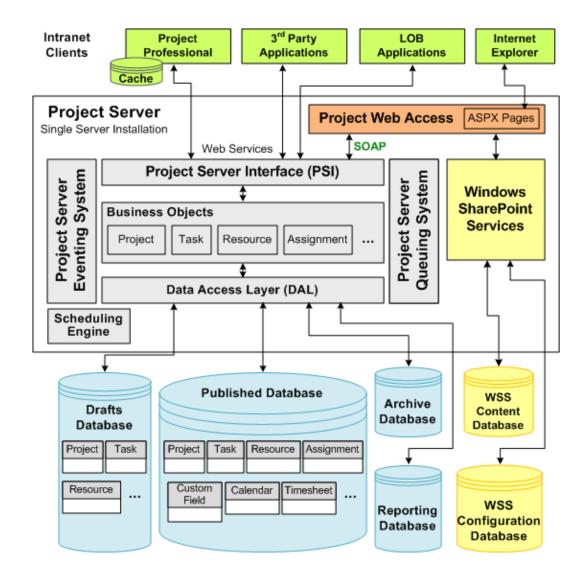
Office Project Server 2007

Microsoft Office Project Server 2007 is the central component of a Microsoft Office Enterprise Project Management (EPM) Solution. Office Project Server 2007 is a robust and highly scalable Web-based server application that is integrated with several client applications, the Microsoft Windows Server platform, and Microsoft SQL Server 2000 or 2005.

You can install Office Project Server 2007 on a single computer or in a load-balanced cluster to provide additional availability and scalability. Office Project Server 2007 is supported on a computer running Windows Server 2003 or later.

Project Server Interface

The Project Server Interface is the application programming interface (API) of Office Project Server 2007. The Project Server Interface object model exposes Office Project Server 2007 functionality to all external applications. Office Project Professional 2007, Microsoft Office Project Web Access, and line-of-business and other third-party applications use the Project Server Interface (PSI) to access Office Project Server 2007 data stored in the Draft, Published, and Archive databases. The Project Server Interface is available through Web service calls by backend line-of-business applications, or through a Project Server Interface proxy for client applications having a user interface.



Office Project Server 2007 Eventing service

The system-level Office Project Server 2007 Eventing service manages the Office Project Server 2007 events. Other applications can subscribe to Office Project Server 2007 pre-events and post-events, and register event handler methods through Office Project Web Access. Event handlers can check business rules and cancel an operation through a pre-event, or extend Office Project Server 2007 with additional processing such as workflow using a post-event (for example, ProjectPublished).

Office Project Server 2007 Queuing service

There are two Office Project Server 2007 queues that operate in the system-level Microsoft Office Project Server 2007 Queuing service:

- To manage heavy peak loads, the Timesheet queue handles submission and updates of timesheet and status reports.
- The Save and Publish queue manages new and incremental saves of working projects to the Draft database and also manages publishing a project — that is, moving the project from the Draft to the Published database.

Other applications

Other applications can be used with Office Project Server 2007 in the application tier. This includes an e-mail server, such as Microsoft Exchange Server 2003, that is used to send task and assignment notification and reminder e-mail messages to the appropriate users. These e-mail messages can be sent by means of any mail server that is compatible with Simple Mail Transport Protocol (SMTP) or Post Office Protocol (POP). Exchange Server offers the most robust integration, along with Microsoft Outlook and Outlook Web Access, which enables users to use Windows Internet Explorer to access their Exchange mailbox.

Third-party and line-of-business applications can be used with Office Project Server 2007. Using the Project Server Interface, a number of project management needs can be addressed by using these applications. The following are some sample scenarios:

- Project proposals Create placeholder projects during project initiation and use project custom fields to tag the project with information needed for the initiation and approval process. Add tasks to identify project phases for key milestones or deliverables. When approved, project proposals can evolve into full-scale projects that are managed by using Office Project Professional 2007.
- Maintenance projects Create placeholder projects to use with resource plans. Reserve or book time against resources for maintenance work or base business. Maintenance projects generally do not have tasks.
- **Financial projects** Create projects for time capture through the timesheet for integration with a financial system. Create tasks for a hierarchy of financial codes that reflect the cost breakdown structure of the financial system. These projects do not require scheduling or status updates.
- Integration with project accounting systems Capture the resource costs and expenses
 associated with projects to feed financial and billing systems and for budget comparison
 purposes. Synchronize tasks, resources, and assignments between the systems. Capture
 timesheet data in one system to feed the other (which timesheet is used depends on the
 needs of the organization or of individual projects).
- Integration with work or task management systems Synchronize tasks and assignments between Office Project Server 2007 and systems such as Microsoft Visual Studio Team System 2005. Microsoft Visual Studio Team System is integrated with Microsoft Office Project Standard 2007 and Office Project Professional 2007, but integration with Office Project Server 2007 requires developing components by using the PSI.
- Process updates from team members For projects that are not actively managed, automatically update projects on the server by using information from team members about

progress and other changes. Projects can be updated and republished without a project manager reviewing the results or making adjustments to the plan.

Plan the database tier

This section identifies the key components of the database tier and helps you to distinguish from the parts of the other tiers in the EPM solution.

The database schema and access to Microsoft Office Project Server 2007 data is very different from the database schema used in Project Server 2003. The data access layer is internal to Office Project Server 2007 and is not exposed to external applications. The data access layer translates between the logical business entity representation of the data and the physical database tables. Each logical entity is stored in a number of different tables. The data access layer encapsulates the work required to manage connections, execute queries, and begin, commit, and roll back transactions. Office Project Server 2007 data is partitioned into four databases in Microsoft SQL Server:

- The Draft database contains tables for saving unpublished projects from Microsoft Office Project Professional 2007. Project data in the Draft database is not accessible by using Microsoft Office Project Web Access.
- The Published database contains all of the published projects. Published projects are visible in Office Project Web Access. The Published database also contains tables that are specific to Office Project Web Access (timesheets, models, views, and so on), and global data tables (outline codes, security, and metadata).
- The Archive database saves backed-up and older versions of projects.
- The Reporting database is the staging area for generating reports and online analytical
 processing (OLAP) cubes. Data in the Reporting database is updated nearly in real-time, is
 comprehensive, and is optimized for read-only report generation.

Only the Reporting database schema is documented. You should access the Drafts, Published, and Archive databases only through the Project Server Interface. You can add data tables, fields (properties), and entities that are not defined in the Office Project Server 2007 database schema. If you do, you must also provide the full stack of a custom assembly, Web service, business objects, and data access.

Plan the EPM Solution data flow

Understanding data flow can help when planning your Microsoft Office Enterprise Project Management (EPM) Solution deployment. Significant changes have been made in the EPM Solution architecture for the release of Microsoft Office Project Server 2007. These changes can result in noteworthy performance improvements over previous versions.

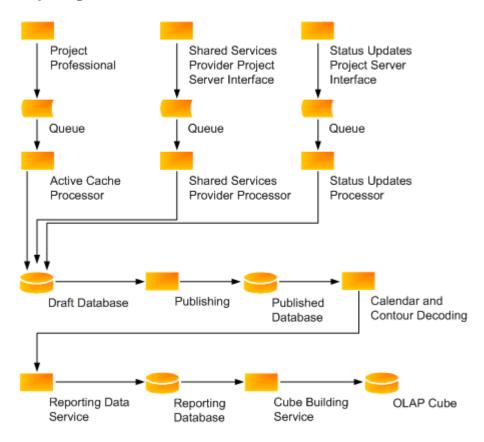
A new queuing service allows for finer control of bits flowing to the server. All data is sent through the queue, and the administrator can control which types of jobs have priority. In previous versions, the Views Notification service was often resource-intensive and could at times represent a bottleneck in the system. The Views Notification service has been eliminated.

Data for projects published to Office Project Server 2007 is cached on first publication. This means that subsequent publications and openings of the project only require that differences be updated. Latency and bandwidth are still considerations when planning your deployment; however, the queuing and caching of data gives you more leeway in these areas.

Performance for OLAP cube building has also been improved. Project data is stored in the Reporting Database and used by SQL Analysis Services for cube building. The information is available at the time of a request for a cube. In the past, all of the information would be assembled at the time the cube building process was scheduled. This is no longer the case; the information is already available in the Reporting database.

The following diagram shows the Office Project Server 2007 data flow.

The Reporting Data Service can get data from project workspaces on publish. SharePoint sites can be listed as a database input to the Reporting Data Service.



III. Plan site structure and navigation

In this chapter:

- Chapter overview: Plan site structure and navigation
- Plan project workspace sites
- Determine paths for sites
- Determine sites and subsites needed
- Plan site navigation

Chapter overview: Plan site structure and navigation

The effectiveness of a Project workspace site, or a group of sites, depends on many factors, but key among them is the ability to predictably locate the site and the content that you need within the site. The structure of a site or group of sites, and the navigation within and between sites, is key to helping users find and share information and work together.

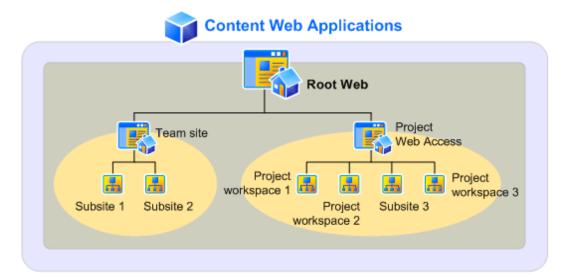
Depending on your role in the planning process, you may delve into your site structure and navigation at different levels.

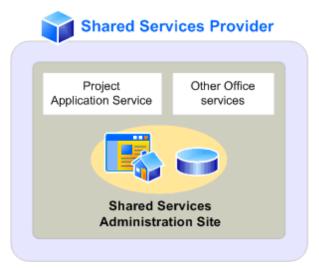
- If you are a member of the IT group for your organization, and are not involved in planning the content in individual sites, but rather the overall framework for sites, then you should read the following sections:
 - Plan site navigation
 - Determine sites and subsites needed
 - Determine paths for sites
- If you are an administrator of a site and simply want to work on the structure of your own, individual site, then you should read the following sections:
 - Determine sites and subsites needed
 - Plan site navigation

Plan project workspace sites

Microsoft Office Project Server 2007 is completely dependent upon Windows SharePoint Services 3.0 to support its user interface, farm topology, and administration features. Office Project Server 2007 shares the same administration infrastructure as Microsoft Office SharePoint Server 2007 and Windows SharePoint Services 3.0. This common platform is manifest in common administration, deployment, and maintenance features that ultimately lead to tighter application integration and easier management. The benefits to your organization are more collaboration features and a reduction in the total cost of ownership over previous versions of Project Server.

Office Project Server 2007 is now a full-fledged member of a Windows SharePoint Services 3.0 farm. Office Project Server 2007 middle-tier services are contained inside a Shared Services Provider in Microsoft Office SharePoint Server 2007 while the front-end Web servers are managed in the associated content Web applications.







Project workspace sites can be created as children of any site in the Web application. They may be children of Microsoft Office Project Web Access, other project workspace sites, or even other Windows SharePoint Services 3.0 sites created from non-Project site templates. While this design is flexible, we recommend that project workspace sites be created as children of the Office Project Web Access site. Sites created within the same site collection (that is, under the Office Project Web Access site) share the same Windows SharePoint Services 3.0 content database and can benefit from the cross-site aggregation features of Windows SharePoint Services 3.0. The Office Project Web Access site URL is the default path under which project workspace sites are created, enforcing organization of all projects' collaborative data in this manner. However, this default can be changed at any time in the Project Workspace Provisioning Settings page in Server Settings or programmatically through the Project Server Interface.

Each project may be linked to zero or one project workspace site, and that project workspace site must be created from the Project Workspace site template or include the Project Workspace Collaboration Lists feature. The link between projects and related workspaces is defined when

the project is published, or through the Manage Project Workspaces page in the Server Settings page of Office Project Web Access.

Determine paths for sites

In this section:

- Specific paths
- Additional paths
- Worksheet

Specific paths

You have the ability to use specific paths to contain your SharePoint site collections, similar to the ways that folders contain files or documents in the file system. By default, when you create a Web application, two paths are created for you:

- Root path (/) This is an explicit inclusion that can contain one site collection. For example, if you want a URL to appear as http://company_name/default.aspx, you would create the site collection at this root path.
- Sites path (/sites) This is a wildcard inclusion that can contain many site collections. For example, when you use the /sites path, the URL for a site named Site_A would be similar to http://server_name/sites/Site_A/default.aspx.



Note:

The name of the /sites path varies depending on the installation language.

Additional paths

You can also create additional paths, allowing you to group site collections. Then, when you create a site collection, you can choose to:

- Create the site collection at the root of the Web application (if no site collection has already been created there).
- Create the site collection under the /sites path.
- Create the site collection under any additional paths that have been made available for that Web application.

In general, the /sites path should be sufficient for most installations of Microsoft Windows SharePoint Services 3.0 and /projectserver for most installations of Microsoft Office Project Server 2007. However, consider using paths for the following situations:

You have a complex installation and anticipate having a large number of site collections, and you want to group similar sites together. For example, you could use /personal for individual user sites and /team for group collaboration sites, rather than using /sites for all.

You want to be able to add a filter to your firewall or router to constrain a specific namespace
to internal access only. For example, you could expose the /team path for external
collaboration but not /personal.

Worksheet

If you have decided to use specific paths for your SharePoint sites, you can set them up after deployment. For now, simply record your decision to use paths, and specify which paths you need to create to organize your SharePoint sites on the Site Paths worksheet (http://go.microsoft.com/fwlink/?LinkId=72989).

Determine sites and subsites needed

In this section:

- Using sites and site collections
- Decide whether to use single or multiple site collections or subsites within one site collection
- Design site hierarchy

The information in this section is for site or application administrators who are creating sites. If you are hosting sites, but not designing or creating the sites, you can skip this step and continue on with the planning process.

Using sites and site collections

SharePoint sites work best when they are focused on a single effort or are used by a single team. They become difficult to maintain, out of date, and less useful when too many people are coming to the site for different things. For example, if the same site is used for tracking customers, storing company policies, and sharing documents about projects, then the site is much harder to organize and can quickly become cluttered. When working with Project workspace sites, it is best to maintain focus on the support of the project that it is associated with.

Decide whether to use single or multiple site collections or subsites within one site collection

Microsoft Office Project Web Access is installed as a top-level Web site and as such has its own site collection. There are times when you might want to have more than one site collection to house your project workspace sites. This decision is based on how much the sites have in common with each other, whether you want to be able to manage them individually, and whether you want them to share elements, such as navigation or search. You might also want to manage the size of your content database. You can do this by creating additional top-level Web sites that use their own content database for the site collection.

Microsoft Office Project Professional 2007 allows you to create project workspace sites as children of any site. Microsoft Office Project 2007 allows you to create a project workspace site as a child of the master project workspace site.

Within a site collection, all sites can use the same:

- Navigation bars (top navigation bar and breadcrumb bar)
- Content types
- Workflows
- Security groups
- Lookup fields across lists

- Search scope
- Feature set

Choose top-level Web sites in separate site collections when you:

 Need separate security for different sites. Project Server security groups are automatically synchronized. However, you might want to create your own security groups.

Note:

Although you can have unique permissions for a subsite, at times you may want to be sure that there are no users and permissions in common between two sites. In those cases, you should use separate site collections.

- Might need to move the site collection to a different database in the future.
- Want to be able to back up or restore just that site.
- Want to be able to scope a workflow to just that site.
- Want to have a separate search scope for just that site.
- Want to use quotas to separately manage the amount of space each site takes up.
- Want to decentralize your administration and have site collection administrators perform tasks like approving requests for access or confirming site use.

Choose subsites within the same site collection when you:

- Want to share navigation between sites.
- Want to have subsites inherit permissions from parent sites.
- Want to share lists between sites.
- Want to share design elements (such as themes or styles) between sites.

Design site hierarchy

You can use the <u>Site Hierarchy Planning tool</u> (http://go.microsoft.com/fwlink/?LinkID=73142) (a downloadable Microsoft Office Visio 2007 file) or other method to create a site hierarchy diagram, including all site collections, top-level Web sites, and subsites that you need. We recommend that you use the hierarchy /projectserver if possible. When that won't suffice — for example, it gets too big — separate the project workspace sites across site collections that are relevant groupings of projects.

Plan site navigation

Use this section in combination with the site navigation worksheet to design the navigation for your site.

- Create a site navigation diagram
- Understanding shared navigation
- Determine which sites share the top link bar
- Determine which additional links to add manually to the top link bar
- Worksheet

Create a site navigation diagram

Make a diagram of the sites you want to create. For example, the following diagram is for a small travel company, Margie's travel, which has a set of internal sites to help them organize their core business: planning conventions in Las Vegas, NV.



Your diagram may include a single site collection, as does the example above, or may have multiple site collections if you have a more complex set of sites. Be sure to include all top-level Web sites (such as /projectserver), subsites, Meeting or Document Workspace Sites, or other sites that you plan to create and leave room for future expansion. You many also want to include

the lists and libraries for each site, especially if you are deciding whether to create a subsite for document storage or one or more document libraries. For more information about planning lists and document libraries, see Plan for content and search (http://technet.microsoft.com/enus/library/cc287863.aspx).

Understanding shared navigation

The top link bar appears at the top of all pages in the site, below the site title. You can share the top link bar between sites in a site collection, or have unique top link bars for each site.

The top link bar can display two levels of sites in a site collection. For example, the top link bar for the Margie's Travel site collection could contain links for Margie's Travel Home, Office Management, Convention Planning, and Sales and Marketing. On the site, this top link bar looks like the following:

Home | Office Management | Convention Planning | Sales and Marketing



Note:

Although the top link bar can display two levels of sites, this does not mean that all subsites at the second level have to be displayed on the top link bar. You can determine whether or not a subsite appears on the top link bar when you create it, or by configuring the navigation later in Site Settings.

However, by default, sites at a third level down in the hierarchy do not appear on the top link bar for the top-level Web site, even if they share the navigation. For example, the Tips and Reports sites would not appear on the top link bar of Margie's Travel Home because they are subsites of the Convention Planning site. If you want these sites to appear, you can add them to the top link bar manually, or create them at the second level in the site hierarchy (as subsites under Margie's Travel Home) rather than as subsites of the Convention Planning site.

The top link bar cannot be shared between sites in different site collections. However, you can always add a link to a site in a different site collection manually.

Determine which sites share the top link bar

If you want the Home tab of a subsite to take you to the subsite's home page instead of the shared navigation's home page, then you should use unique navigation. Otherwise, you should use shared. For example, the Margie's Travel site collection could share the top links among all of the second-level sites, so that all sites have the same navigation:

Home | Office Management | Convention Planning | Sales and Marketing

This works for a small team like that in Margie's Travel, where all of the users in the organization work with all of the sites. Each user in the site collection uses each of the sites, so a shared top link bar is useful. However, if the Convention Planning and Sales and Marketing teams work fairly independently and don't need access to each other's sites, then the navigation for Margie's Travel could be customized to be shared at the second level, rather than the top level, as in the following:

Margie's Travel Home site: Home | Office Management

Convention Planning site: Convention Planning | Tips | Blogs

Sales and Marketing site: Sales and Marketing

Keep in mind that the new global navigation bar always contains a link back to the top-level site in the site collection. So, even though users of the Convention Planning site don't have a link to Margie's Travel Home in the top link bar, they do have a link to it in the global navigation bar, right above the site title, and are still one click away from home.



Note:

Although the choice of whether or not to share a navigation bar is made during site creation, you can change this option later. You may have to create links manually if you change your mind, but you can do so easily by using the Top Link Bar page in Site Settings for the affected sites.

Determine which additional links to add manually to the top link bar

Whether you decide to share the top link bar or not, you can customize it to include links to any other URL that you need. Depending on the extent of customization you need, you can choose between the following methods to customize the top link bar.

- If you want to add, remove, or rearrange the links in a top link bar, use the Top Link Bar page in Site Settings for the site.
- If you want to create an entirely custom top link bar, and apply it to all sites in a site collection, or to sites in different site collections, use SharePoint Designer or Visual Studio. For more information, see the Windows SharePoint Services 3.0 Software Development Kit (SDK).

Worksheet

Record your decisions about how to structure the site navigation on the Site Hierarchy Choices worksheet (http://go.microsoft.com/fwlink/?LinkId=73141) to use as a reference when you create the sites.

IV. Plan site and content security

In this chapter:

- Chapter overview: Plan site and content security
- Plan Project Server 2007 authentication method
- Plan encryption method for Project Server 2007
- Plan for IRM with Project Server 2007
- Plan groups, permissions, and categories for Project Server 2007
- Plan Resource Breakdown Structure for Project Server 2007
- Coordinate Project Server and Windows SharePoint Services security
- Plan permission levels and groups for project workspace sites

Chapter overview: Plan site and content security

This chapter covers planning for security in a Microsoft Office Project Server 2007 Enterprise Project Management (EPM) Solution. This material is useful for executives, managers, and system administrators who are responsible for planning the deployment of a Office Project Server 2007 EPM Solution.

The Office Project Server 2007 security model is based on the Windows security model, by which users and groups (security principals) are granted permissions to access security objects. The Office Project Server 2007 security model is designed to enable you to control and manage access to projects, resources, and reports stored in the Office Project Server 2007 database; Microsoft Office Project Web Access pages; and features that are available in Microsoft Office Project Professional 2007 and Office Project Web Access. In addition, the security architecture enables you to manage a large number of users and projects easily by assigning permissions to groups of users and unique categories. This reduces the number of times that you need to update permissions in Office Project Web Access.

There are several elements that make up security for your environment. One of these elements is the permissions that control access to your Project workspace sites and the content in your sites. A new security model and new security features (such as SharePoint groups to control membership and item- and document-level permissions) make it easy to control who has access to what content in your sites. This chapter explains how security for sites and site content works, and it guides you through making choices about site security.

Another element integral to the security of your environment is how you structure security at the Web application level — choosing authentication methods and specifying the encryption methods to use. These topics are covered in this chapter.

Plan Project Server 2007 authentication method

In this section:

- · Windows authentication and forms authentication
- Forms authentication and passwords
- Recommendations for determining user authentication methods

This section covers planning for security in a Microsoft Office Project Server 2007 Enterprise Project Management (EPM) Solution. This material is useful for executives, managers, and system administrators who are responsible for planning the deployment of a Office Project Server 2007 EPM Solution.

The Office Project Server 2007 security model is based on the Windows security model, by which users and groups (security principals) are granted permission to access security objects. The Office Project Server 2007 security model is designed to enable you to control and manage access to projects, resources, and reports stored in the Office Project Server 2007 database; Office Project Web Access pages; and features that are available in Microsoft Office Project Professional 2007 and Office Project Web Access. In addition, the security architecture enables you to manage a large number of users and projects easily by assigning permissions to groups of users and unique categories. This reduces the number of times that you need to update permissions in Office Project Web Access.

Users can connect to Project Server in a number of ways:

- Office Project Web Access client
- Office Project Professional 2007 client
- Third-party applications
- Microsoft Office Outlook 2007

When accessing Office Project Server 2007 by any one of these methods, there are two ways that a user can be authenticated to Office Project Server 2007: Windows authentication and forms authentication.

Windows authentication and forms authentication

Forms authentication is similar to the Office Project Server 2007 authentication mechanism provided in Project Server 2003 in that a user enters a user name and password. The main difference is that the forms authentication users and their passwords are stored in membership stores rather than in the Project Server database. Examples of these stores include Active Directory, an SQL database, and an LDAP store. Access to a membership store is enabled through a membership provider, and there are specific providers for each type of membership store.

Each Project Server Web application (which was called a "virtual server" in Project Server 2003) can have multiple authentication mechanisms, but each IIS Web site within that Project Server Web application can only be associated with one authentication model. For example, it would be possible to extend a Project Server Web application to include one Windows authentication IIS Web site and two forms authentication IIS Web sites, one using an LDAP store and the other Microsoft SQL Server. Because these IIS Web sites are part of the same Project Server Web application, they share the same content database. Therefore, the page content appears the same for users independent of which IIS Web site they access. Because they are separate IIS Web sites, the users need to access them on different port numbers. For example:

- http://contoso/projectserver:80 Windows authentication
- http://contoso/projectserver:81 Forms authentication (LDAP)
- http://contoso/projectserver:8080 Forms authentication (SQL)

When creating an IIS Web site and associating a forms membership provider, you will see an option to select Anonymous Access. Project Server does not offer anonymous access and requires all users to have the Log On Global permission and be active users. Authority for forms authentication comes through Windows SharePoint Services 3.0. Certain situations call for anonymous access on SharePoint sites. If you are using Windows SharePoint Services 3.0 in situations that do not involve Office Project Server 2007, you might want to use Anonymous Access.

For more information about forms authentication and anonymous access, see Plan authentication methods (http://technet.microsoft.com/en-us/library/cc288475.aspx).

For more information about planning authentication settings for Web Applications, see Plan authentication settings for Web applications (http://technet.microsoft.com/enus/library/cc288081.aspx).

For samples configuration settings for different forms authentication methods, see Authentication samples (http://technet.microsoft.com/en-us/library/cc288259.aspx).



Note:

When viewing the documents listed above, note that configuring for a Role Manager is not required for Office Project Server 2007. This is listed as an optional requirement.

Forms authentication and passwords

Settings for IIS Web sites, including passwords, can be stored in the configuration file for the site, named Web.config.

Users who authenticate to Office Project Web Access using forms authentication will find a link to Change Password on the Personal Settings page. However, if enablePasswordReset is set to false in Web.config, which is the default setting, then changing the password through the Office Project Web Access user interface is not possible. For more information on ASP.NET .config files and editing a Web.config file, see ASP.NET Configuration in the MSDN Library (http://go.microsoft.com/fwlink/?LinkId=73257). For more information about using Web.config with Windows SharePoint Services 3.0, see Config.xml file in the 2007 Office system.

Recommendations for determining user authentication methods

Consider the following general security guidelines when determining whether to choose Windows authentication only, forms authentication only, or mixed authentication:

- If all users accessing the computer running Office Project Server 2007 already have (or can have) a Windows domain account, use only Windows authentication.
- If users cannot have a Windows domain account, use forms authentication.

If some users need to access the computer running Office Project Server 2007 from the Internet but do not have a Windows domain account, use mixed authentication, and consider setting up unique sets of roles, permissions, and categories to separate internal-access users from external-access users.

See Also

<u>Plan authentication methods</u> (http://technet.microsoft.com/en-us/library/cc288475.aspx)

<u>Plan authentication settings for Web applications</u> (http://technet.microsoft.com/en-us/library/cc288081.aspx)

<u>Authentication samples</u> (http://technet.microsoft.com/en-us/library/cc288259.aspx)

<u>Configuring SQL Membership Provider forms authentication for Microsoft Office Project Server 2007</u> (http://technet.microsoft.com/en-us/library/cc197472.aspx)

Plan encryption method for Project Server 2007

We recommend that you configure Internet Information Services (IIS) to use Secure Sockets Layer (SSL) for increased security. If you do not configure IIS to use SSL, potentially sensitive data is sent in plain text between the clients and servers on your network. We recommend that you configure servers to use the IP Security (IPSec) protocol for server-to-server communication.

If you are using forms authentication, by default the password is sent in plain text. You should plan to encrypt this information. You can either use SSL or configure the ASP.NET <forms> element to encrypt the forms authentication password. For more information, see INFO: Help-Secure Forms Authentication by Using Secure Sockets Layer (SSL)

(http://go.microsoft.com/fwlink/?LinkId=73258) in the Microsoft Knowledge Base.

Plan for IRM with Project Server 2007

Information Rights Management (IRM) was introduced in Microsoft Office 2003 to help end users protect their content from inappropriate access, use, and distribution. IRM can now be incorporated in Windows SharePoint Services 3.0. Key project documents can be controlled by using this feature. Please note, however, that IRM is not available for Microsoft Office Project Professional 2007 and Microsoft Office Project Standard 2007. For additional information about planning IRM, see Plan document libraries (http://technet.microsoft.com/en-us/library/cc288641.aspx).

Plan groups, permissions, and categories for Project Server 2007

In this section:

- Users and groups
- Permissions
- Categories

Project Server security is based on users and groups. This section addresses planning for users and groups in your Project Server deployment.

Users and groups

It is a good idea to use groups whenever possible. Groups contain sets of users who need to access the same set of data in the same way. For example, every project manager in a particular division within your organization may need to be able to access all of the projects managed within that division and to be able to open and save those projects. You can create a group that includes all of the project managers in that division. After you create groups, you can add users and groups to security categories (including custom security categories) as a means to associate security principals (users and groups) with a specific set of security objects (projects, views, resources, and so on).

Define your groups by identifying common needs based on the areas (objects) of Microsoft Office Project Server 2007 to which users in your organization need access. After you define your groups, you can add users to the groups and grant permissions to the groups; permissions assigned to groups apply to all of the users that the group contains. Using groups to control access to Office Project Server 2007 security objects simplifies security administration in Project Server. Group memberships can change frequently, but the access requirements for groups change infrequently.

Users can belong to multiple groups according to their role in the organization and their access requirements. The following groups are created by default when Office Project Server 2007 is installed, each of which is assigned a set of predefined categories and permissions:

- Administrators
- Executives
- Portfolio managers
- Project managers
- Resource managers
- Team leads
- Team members

Administrators usually assign permissions by adding a user account to one of the built-in groups or by creating a new group and assigning specific permissions to that group.



For a complete list of Microsoft Office Project Web Access global permissions, see Office Project Server 2007 global permissions, and for category permissions, see Office Project Server 2007 category permissions.

Permissions

Permissions can be set in a number of different places within the Office Project Server 2007 administration menu. You can enable or disable permissions by selecting the check boxes in the Allow and Deny columns. You must select the check box to allow a permission or to deny a permission. If neither the Allow nor the Deny check boxes are selected, the default state is Not Allow. The Not Allow state does not prevent users from accessing the feature associated with the permission if they are granted permission in some other way. (For example, a user might belong to one group for which permission is not configured, but might be granted permission by means of membership in a group for which the permission is allowed.) However, if the permission is explicitly denied anywhere, permission is denied everywhere for a particular user or group.

You can configure all Office Project Server 2007 permissions by using Office Project Web Access. Permissions can be configured in the following ways:

- Allow Enables users or group members to perform the actions associated with the permission.
- **Deny** Prevents a user or group from performing the actions associated with the permission. Use caution when denying permissions. Note that if a user is denied a specific permission, the deny setting supersedes any Allow settings that might apply to other groups to which the user belongs. No permissions are set to Deny by default.
- Not Allow If you select neither Allow nor Deny for a permission, the default state is Not Allow. If a user belongs to more than one group, and a permission is set to Not Allow for one group and is set to Allow (but not Deny) for another group, then the user is allowed to perform the actions associated with the permission.

It is important to consider when you are configuring a permission to **Deny** that the **Deny** setting supersedes any Allow settings that apply to the user for that permission by means of other group memberships. Limiting your use of the **Deny** setting can simplify permissions management for large groups of users.



Note:

The **Deny** setting enables you to deny access to functionality, because this setting overrides any other permission settings. Therefore, use caution when selecting the Deny check box. Select the **Deny** check box to prevent a user from outside the organization from accessing Project Server security objects or to deny functionality to a user or group).

For organizations that include a large number of users, assigning and administering permissions on an individual basis can be an overwhelming task. You can use groups to assign permissions

to multiple users with a single action. Create the groups and define the set of permissions to associate with the groups as part of your initial Office Project Server 2007 deployment planning process, before you assign users to groups and groups to categories. After you define groups, the permissions associated with the groups, and group memberships, the day-to-day administration of users, groups, and categories involves adding users to or removing users from security groups. This helps to reduce the volume of day-to-day administrative tasks required.

You can allow or deny permissions to individual Office Project Web Access users or groups of Office Project Web Access users. You can use security templates to define sets of permissions and then assign permissions to users and groups by applying security templates to those users and groups. You can use categories to define the specific projects, resources, and views to which you allow users and groups various levels of access. You can also set permissions for Office Project Web Access features to make them available or unavailable to the organization as a whole.



Note:

For a complete list of Office Project Web Access global permissions, see Office Project Server 2007 global permissions, and for category permissions, see Office Project Server 2007 category permissions.

Permissions in Office Project Web Access work similarly to permissions in the Microsoft Windows Server operating system. Users and groups are security principals. Projects, resources, and views are security objects. Categories are collections of security objects. You can apply permissions in order to allow or deny security principals access to security objects. When configuring Office Project Web Access permissions, the following are the fundamental elements of the security model:

- 1. Users Any individuals who access Office Project Web Access. Each individual user must be granted permission to view or access the data in a particular area of Office Project Web Access, Office Project Server 2007, or Office Project Professional 2007. You can grant permissions at the user level or, to increase efficiency, you can assign users to groups and grant permissions at the group level. A single user can be a member of any number of groups.
- 2. Groups Collections of individual users who have the same permission requirements. You can combine individual users who have common security requirements into a single group to reduce the number of security principals that you need to manage. For example, if your company employs consultants who work temporary assignments, you may want the consultants to have a different set of permissions than regular team members have. You can create a group and add the individual contractors to that group in order to standardize the permissions assigned to those individuals.

You can apply security templates with groups to simplify the administration of permissions. First, create a new security template. Next, apply that security template to the group when you create the group by using the **Manage users and groups** section in Office Project Web Access.

Project Web Access includes the following default groups:

Administrator

- Executive
- Portfolio manager
- Project manager
- Resource manager
- Team lead
- Team member

Categories

Categories are collections of security objects. It is a good idea to use categories sparingly. When you do use categories, augment their use with security rules. Security rules define the members of a category. These rules can be enabled in each category. When enabled, the rules examine each user's granted permissions on the category and apply permissions to all projects returned by the rule for that user. Rules enable a category and permissions to be dynamic. You can create custom categories to provide new ways to access data for projects, resources, and views. Office Project Web Access includes the following default categories:

- My Organization
- My Projects
- My Tasks

Organization

The term "organization" refers to the complete collection of data that exists in a basic installation of Office Project Server 2007. Setting permissions at the organizational level allows you to make features available or unavailable to all users of Office Project Web Access, Office Project Server 2007, or Office Project Professional 2007, depending on the permission. If you allow or deny permissions at the organizational level, then all users within the organization are affected regardless of permissions set elsewhere. Only a single organization exists for each Project Server installation.



Note:

For a complete list of Office Project Web Access global permissions, see Office Project Server 2007 global permissions, and for category permissions, see Office Project Server 2007 category permissions.

Security Templates

Security templates are predefined sets of permissions. Use security templates to simplify the process of granting permissions to groups of users who need access to the same data. Office Project Web Access includes the following default security templates:

- Administrator
- Executive

- Portfolio manager
- Project manager
- Proposal reviewer
- Resource manager
- Team lead
- Team member



Note:

When you change the settings for a security template, the changes are not automatically applied to the users and groups that the template was applied to.

Security templates provide a means for you to quickly apply or reset predefined permission profiles to new or existing users, groups, and categories. By applying security templates, you can easily standardize the permissions that you assign according to users' role in the organization. Several predefined security templates are created by default when Project Server 2003 is installed. These align with the predefined groups. You can customize these security templates and create new security templates according to your needs.

Creating custom security templates requires planning. You must first identify the common Office Project Server 2007 usage patterns in your organization that are not reflected in the default Office Project Server 2007 security templates. This helps you to identify your requirements for custom security templates. Then, determine the permissions that the users who share the common Office Project Server 2007 usage patterns require. This defines the security template. Next, determine the set of projects, resources, views, and so on, that the users and groups require access to; this defines the security category. Create the custom security template and apply it to the group of users that share common usage patterns. The permissions that you defined in the custom security template will enable users to access the Office Project Server 2007 security objects that they require.

Plan Resource Breakdown Structure for Project Server 2007

Resource Breakdown Structure (RBS) is an Enterprise Resource Outline Code that is saved in the Enterprise Global Template. It is typically used to define lookup table values based on the management reporting structure of your organization, although it can also be structured in other ways. RBS can be an important element in your Project Server security model when it is used to define the reporting relationships among users and resources in your organization. When you specify values for RBS for all resources in the Enterprise Resource Pool, you can take advantage of the security rules that can be defined for each security category.

Security rules use RBS codes to determine which projects and resources particular users can view or access. The following table lists the security rules that use RBS.

Category	Rule	Description
Projects	Allow users in this category to view all projects managed by resources that they manage	If a project is managed by a resource that has an RBS code that is below the category member in the RBS hierarchy, then the category member is able to view the project in the Project Center site in Project Web Access.
Projects	Allow users in this category to view all projects assigned to resources that they manage	If a task in a project is assigned to a resource that has an RBS code that is below the category member in the RBS hierarchy, then the category member is able to view the project in the Project Center site.
Resources	Allow users in this category to view information for all resources that they manage	If a resource has an RBS code assigned to it that is below the category member in the RBS hierarchy, then the category member is able to view the resource information.

Category	Rule	Description
Resources	Allow users in this category to view information for all resources in projects that they manage	If a project manager creates a project that includes ten resources, then that project manager is able to view the information for those ten resources.
Models	Allow users in this category to view models created by resources that they manage	If a model was created by a resource that has an RBS code that is below (in the same branch of the RBS tree) the user requesting access to the model, then the user is able to view the model.

Note:

Establish RBS for your organization before you associate users, groups, and views with security categories outside of the default Microsoft Office Project Server 2007 security category settings.

See Also

Security and protection for Office Project Server 2007 (http://technet.microsoft.com/enus/library/cc197499.aspx)

Coordinate Project Server and Windows SharePoint Services security

Windows SharePoint Services security groups

Microsoft Office Project Server 2007 is completely dependent upon Windows SharePoint Services to support its user interface, farm topology, and administration features. Security is tightly integrated between Office Project Server 2007 and Windows SharePoint Services. When a project is published, if the server has been configured to allow it, a project workspace site is created. On the Project Workspace Provisioning Setting page, which can be accessed from the Server Settings page in the Operational Policies section, you can select the box to Automatically add Project Web Access users to project team Web site when SharePoint site is created or when the project manager publishes the project information to Project Server.

When you do this, users who have been added to the project or who have been granted **Manage Windows SharePoint Services** permission in Office Project Server 2007 are added to at least one of four Windows SharePoint Services groups:

- Web Administrator (Microsoft Office Project Server) Users who have Manage Windows SharePoint Services permission in Office Project Server 2007 and are contributors to the project workspace site, meaning that they can create and edit documents, issues, and risks.
- Project Managers (Microsoft Office Project Server) Users who have published this
 project or who have Save Project permission in Office Project Server 2007 and are
 contributors to the project workspace site, meaning that they can create and edit documents,
 issues, and risks.
- Team members (Microsoft Office Project Server) Users who have assignments in this
 project in Office Project Server 2007 and are contributors to the project workspace site,
 meaning that they can create and edit documents, issues, and risks.
- Readers (Microsoft Office Project Server) Users who have been added to this project in Office Project Server 2007, but not assigned to tasks.

Office Project Server 2007 groups and Windows SharePoint Services are synchronized whenever a project is published or the administrator selects a project workspace site on the Project Workspaces page and then clicks **Synchronize**.

Additional Project Server permissions that govern Windows SharePoint Services access are:

- **Log on** Denies or allows user access to the Project Web Access site and to project workspace sites.
- View Project Workspaces Category permission that denies or allows user access to projects in the category.

• **Create object links** Category permission that denies or allows user ability to create links between Windows SharePoint Services objects and tasks.

There might be a circumstance where you want to grant people who are not members of the project access to the project workspace site. Anyone assigned to the Web Administrator group can create new users for a project workspace site. In addition to the four groups mentioned above, there are four default Windows SharePoint Services groups. They are:

- Full Control Has full control.
- **Design** Can edit lists, document libraries, and pages in the Web site.
- Contribute Can view pages and edit list items and documents.
- Read Can view pages, list items, and documents.

Project workspace security groups are equivalent to the Windows SharePoint Services security groups.

- Web Administrator equals Full Control
- Project Managers equals Design
- Team members equals Contribute
- Readers equals Read

Plan permission levels and groups for project workspace sites

Microsoft Office Project Web Access is a Windows SharePoint Services 3.0 site. However, synchronization of users with Microsoft Office Project Server 2007 is handled in very specific ways. It is hard-coded in the product. Permissions for users and groups can be managed through Office Project Web Access. For more information about planning Users and Groups, see Plan Project workspace sites.

On the Project Workspace Provisioning Setting page, which can be accessed from the Server Settings page in the **Operational Policies** section, you can clear the box to **Automatically add Project Web Access users to project team Web site when SharePoint site is created or when the project manager publishes the project information to Project Server.**

If you do this, you will need to manage permissions on project workspace sites. This will not be done automatically.

For more information about determining permission levels and groups, see <u>Determine permission</u> <u>levels and groups to use</u> (http://technet.microsoft.com/en-us/library/cc287625.aspx).

Plan for administrative and service accounts

In this section:

- About administrative and service accounts
- Standard account requirements
- Planning recommendations for accounts

Use this section to plan for the account requirements and recommendations for accounts that are required to install, configure, and use Microsoft Office Project Server 2007.

You must provide credentials for these accounts when you run Setup and during configuration. This section does not discuss accounts for which you do not need to configure or provide credentials.

About administrative and service accounts

This section lists and describes the accounts that you must plan for. The accounts are grouped according to scope. If an account has a limited scope, you might need to plan multiple accounts for this category.

For example, if you are implementing multiple Shared Services Providers (SSPs), you must designate multiple SSP accounts.



Note:

All Office Project Server 2007 and SharePoint Products and Technologies service accounts must be granted interactive logon permissions for the computer where the service is running. Such permissions are normally granted by default when a new account is set up, but you may need to make manual adjustments if your organization normally denies interactive logon permissions for service accounts. For more information about configuring interactive logon access, see Allow log on locally (http://go.microsoft.com/fwlink/?LinkId=129546&clcid=0x409) in the Windows Server 2003 Product Help on Microsoft TechNet.

Server farm-level accounts

The following table describes the accounts that are used to configure Microsoft SQL Server and to install Office Project Server 2007.

Account	Purpose
SQL Server service account	SQL Server prompts for this account during SQL Server Setup. This account is used as the service account for the following SQL Server services: • MSSQLSERVER • SQLSERVERAGENT If you are not using the default instance, these services will be shown as: • MSSQL\$InstanceName • SQLAgent\$InstanceName
Setup user account	The user account that is used to run Setup on each server
Server farm account	This account is also referred to as: Database access account This account is: The application pool account for the SharePoint Central Administration Web site The process account for the Windows SharePoint Services Timer (SPAdmin) service

SSP accounts

The following table describes the accounts that are used to set up and configure an SSP.

Account	Purpose
SSP application pool security account	Security account for the application pool that the SSP resides in.
SSP service account	 Used by the following: SSP Web services for inter-server communication SSP Timer service to run timer jobs

Windows SharePoint Services Search accounts

The following table describes the accounts that are used to set up and configure Windows SharePoint Services Search. In Office Project Server 2007, this service is referred to as the Windows SharePoint Services Help Search service because this service is used to provide search capability for Help. If you are installing Office Project Server 2007, plan for these accounts only if you plan to implement the service to search Help content.

Account	Purpose
Windows SharePoint Services Search service account	Used as the service account for the Windows SharePoint Services Search service. There is only one instance of this service in a farm.
Windows SharePoint Services Search content access account	Used by the Windows SharePoint Services Search application server role to crawl content across sites.

Content application pool accounts

The following table describes the application pool account. Plan one application pool account for each application pool you plan to implement.

Account	Purpose
Application Pool process account	Used to access content databases associated with the Web application

Standard account requirements

This section details the requirements for each of the accounts. The specific requirements for each account depend on whether you are configuring a single server environment or a server farm environment. The account requirements detail the specific permissions that you need to grant prior to running Setup. In some cases, additional permissions that are automatically granted by running Setup are noted.

At this time, this section does not include account requirements for environments that use SQL authentication.

Server farm-level accounts

The following table describes the standard account requirements for server farm-level accounts.

Account	Single server requirements	Server farm requirements
SQL Server service account	Local system account (default)	Database system administrator
Setup user account	Member of the Administrators group on the local computer	 Domain user account Member of the Administrators group on each server on which Setup is run
Server farm account	Network Service (default) No manual configuration is necessary.	 Domain user account Additional permissions are automatically granted for this account when Office Project Server 2007 is installed and when additional computers are added to the farm, including additional permissions on frontend Web servers and application servers. This account is automatically added to the following SQL Server security roles: Logins Dbcreator Securityadmin Database owner (db_owner) for all databases

SSP accounts

The following table describes the standard account requirements for SSP accounts.

Account	Single server requirements	Server farm requirements
SSP application pool account	No manual configuration is necessary.	The following permissions are automatically granted for this account when Office Project Server 2007 is installed: Database owner for the SSP content database Read/write to the SSP content database Read/write to content databases for Web applications that are associated with the SSP Read from the configuration database Read from the Central Administration content database Additional permissions on front-end Web servers and application servers
SSP service account	No manual configuration is necessary.	The same permissions as the SSP application pool account are automatically granted.

Windows SharePoint Services Search accounts

The following table describes the standard account requirements for Windows SharePoint Services Search accounts.

Account	Single server requirements	Server farm requirements
Windows SharePoint Services Search service account	By default, this account runs as the local service account. If you want to crawl remote content by using crawl rules, change this to a domain account. If you do not change this account to a domain account, you cannot change the default content access account to a domain account. This behavior is designed to prevent elevation of privilege for any other process running as the local service account.	 Must be a domain account Must not be a member of the Farm Administrators group Permissions are automatically granted for this account when Office Project Server 2007 is installed: Read/write to content databases for Web applications Read from the configuration database Read/write to the Windows SharePoint Services Search database
Windows SharePoint Services Search Content access account	Must not be a member of the Farm Administrators group Read access to Web applications	Same requirements as the Windows SharePoint Services Search service account Read access to Web applications Permissions are automatically granted for this account when Office Project Server 2007 is installed: Added to the Web application Full Read policy for your farm

Application pool accounts

The following table describes the standard account requirements for application pool accounts.

Account	Single server requirements	Server farm requirements
Application pool process account	No manual configuration is necessary.	The following SQL Server roles and permissions are automatically assigned to this account:
		Database owner role for content databases associated with the Web application
		Read/write access to the associated SSP database
		Read from the configuration database
		Additional permissions for this account on front-end Web
		servers and application servers are automatically granted by Office Project Server 2007.

Planning recommendations for accounts

This section describes planning recommendations for implementing accounts in the following two deployment scenarios:

- Secure farm environment
- Single-server environment

These recommendations are practical for most environments.

Secure farm environment

These planning recommendations are for individual accounts in a secure farm environment.

Server farm-level accounts

The following table describes the planning recommendations for server farm-level accounts in a secure farm environment.

Account	Recommendation
SQL Server service account	A domain account is recommended over a SQL Server account or a local account. No special domain permissions are required.
	Do not use the server farm account for this account.
Setup user account	A domain account is recommended.
	For a workgroup environment, this can be a local Windows account.
	Note:
	Using a local Windows account is only valid in a single-server environment.
Server farm account	A domain account is recommended.

SSP accounts

The following table describes the planning recommendations for SSP accounts in a secure farm environment.

Account	Recommendation
SSP Application Pool account	A domain account is recommended. Use a domain account that is unique (different from the farm or content application pool accounts).
SSP service account	Use the SSP application pool account.

Windows SharePoint Services Search accounts

The following table describes the planning recommendations for Windows SharePoint Services Search accounts in a secure farm environment.

Account	Recommendation
Windows SharePoint Services Search service account	The local service account is used by default. After completing Setup, change this account to a domain account.
Windows SharePoint Services Search content access account	The local service account is used by default. After completing Setup, change this account to a domain account. You can use the same account used by the Windows SharePoint Services Search service. However, if you implement multiple search servers for isolation, use a separate account. It is recommended that you select a unique user account that cannot modify content and is not a member of the Administrators group on your front-end Web servers or on your database servers.

Application pool accounts

The following table describes the planning recommendations for application pool accounts in a secure farm environment.

Account	Recommendation
Application pool process account	Plan a unique domain account for each application pool. We recommend that you select a unique user account that does not have administrative rights on any server or resource in the server farm.

Single-server environment

The following table describes the planning recommendations for several different single-server environments. These are environments where a single server hosts all server roles.

Scenario	Recommendation
Microsoft SQL Server 2005 Express Edition	Use the standard administrator account to run Setup. Use the default accounts assigned by Setup. Assign to the Network Service account the necessary permissions to SQL Server.
SQL Server in a domain environment	Use the recommendations provided for a secure farm environment.
SQL Server in a workgroup environment	Use the recommendations provided for a secure farm environment, except use Windows accounts instead of domain accounts.

V. Plan project life cycle

In this chapter:

- Chapter overview: Plan project life cycle
- Create projects
- Maintain projects
- Retire projects

Chapter overview: Plan project life cycle

This chapter addresses planning for the three major stages in the project life cycle:

- · Create projects
- Maintain projects
- Retire projects

This section is about planning for the key activities relating to these stages when using Microsoft Office Project Server 2007. There are many methodologies and systems that have been designed to effectively manage a project life cycle. This chapter does not advocate for any one of these over another. The chapter is written for Project Server administrators, providing a list of project creation, maintenance, and archival activities. These tasks are general in nature and will be the same, or at least similar, regardless of the methodology being used by your organization. Planning these activities can help to ensure that projects are being managed in a way that is consistent with the purpose of your organization and can foster a satisfactory experience for the end user. The various options and processes available with the features described in this chapter are discussed in greater detail in Operations for Office Project Server 2007. The purpose of this section is to alert those responsible for planning the deployment and configuration of Office Project Server 2007 that some choices will need to be made relating to these features.

Create projects

In this section:

- Plan proposals
- Plan Resource Breakdown Structure (RBS)
- Plan resources
- Plan custom fields
- Plan categories

The creative process is dynamic and ever-changing. Project creation is no exception. Projects have many ways of moving from concept to reality. Sometimes the process is informal and may be the result of a brainstorm on a whiteboard that happened in under an hour. Other times a project is created after years of study and careful analysis. If it isn't planned and managed, this creation process can become chaotic. This chaos can cost your organization in many ways: reduced efficiency, misallocated resources, misaligned priorities, duplication of effort, conflicting approaches, and missed opportunities, to name a few. What follows are some key points to consider when using Microsoft Office Project 2007 to create projects for your organization.

Plan proposals

The project proposal feature provides a mechanism for controlling the entry of projects into Project Server. It provides added value for business decision makers by storing proposal data along with project data. This feature provides better reporting, modeling, and pipeline analysis and helps automate proposal management business processes.

Proposals are projects that are limited in nature. They are limited because all of the features available when using Office Project Professional 2007 are not available when using proposals. Project proposals are not enterprise projects. This limited or lighter type of project is beneficial and useful to many users. The proposal allows users to submit project proposals (aided with simple project and resource planning features) — and provides a simple gating mechanism for projects to be added to Office Project Server 2007. Project proposals are subject to a review before they can be transformed into enterprise projects. Project proposals contain basic information that allows a business decision-maker to approve or reject the proposal. The proposal may contain information such as:

- Project name
- Project description
- Proposed start and end date
- Proposed cost
- Resource requirements

Proposals are created in Microsoft Office Project Web Access. Proposals are accessed from the Office Project Web Access home page. The **Proposals and Activity Plans** link is found in the menu on the left under **Projects**. This link takes you to the Proposals and Activity Plans Web page. From this page, users can view, create, and manage proposals. Anyone who has access to Office Project Web Access can view proposals. To create project proposals, you must be assigned the Create New Maintenance Project permission. Members of the Team Members security group have the Create New Maintenance Project permission, by default.

Project proposals have a State field. The State field can have the following values:

Field	Description
Proposed	The default value for a proposal. This indicates that the proposal is still in the process of being reviewed.
Approved	This value indicates that the proposal has been reviewed and has been approved for additional work.
Rejected	This value indicates that the proposal has been reviewed and has been rejected. Proposals marked with this state are generally purged from the system by an administrator.

The Project State field can be modified only in Office Project Web Access or by using the Project Server Interface. The Project State field can be edited by users who have the appropriate category permissions to modify the proposals and have the Change Project State global permission. The Project State field is workflow-aware. This means that proposals can be configured to work with workflows that are available in Microsoft Office SharePoint Server 2007. To use workflows, Office Project Server 2007 and Microsoft Office SharePoint Server 2007 would need to be installed on the same farm, and the administrative setting for Project State field would need to be set. If the "State" field is governed by an external workflow, then the "State" field is always disabled in Office Project Web Access. If it is not governed by an external workflow, then it is enabled when the users have the appropriate permission. If the Project State field is not governed by an external workflow, then workflow will be done manually.

To configure the Project State Field to use workflow

- 1. Log on to Office Project Web Access as a user who is a member of the Administrators security group.
- 2. In the menu on the left side of the home page, click **Server Settings**.
- 3. On the Project Server Administration Web page, under the **Operational Policies** menu, click Additional Server Settings.
- 4. On the Additional Server Settings Web page, in the Project State Field section, select

When the proposal workflow is done manually, State field changes and notifications are no longer automated and must be done by the proposal creators and reviewers. For example, the proposal owner creates a proposal and manually sets the State field to Proposed. The proposal owner then contacts the proposal reviewers, who must review the proposal, accept or reject it, and then notify the proposal owner of the decision.

When the proposal feature is configured for a workflow, the workflow automatically does much of the work. When a proposal is created, the workflow generates task assignments for proposal reviewers and the proposal creator as the proposal makes its way through the proposal process. These tasks are shown to their owners through the Web part for Proposal Workflow Tasks.

If you are installing Office SharePoint Server 2007 to an existing Office Project Server 2007 deployment, there are additional configuration procedures you must do to use the workflowenabled proposals feature. For more information, see Deploy Office SharePoint Server 2007 to an existing deployment of Project Server 2007 (http://technet.microsoft.com/enus/library/cc197594.aspx).



Note:

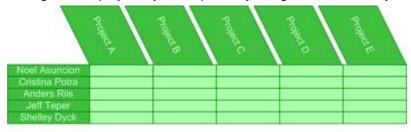
If you are installing Office Project Server 2007 to an existing Office SharePoint Server 2007 deployment, no additional configuration is needed to enable the proposals feature to work with workflows. For more information, see Deploy Office Project Server 2007 with Office SharePoint Server 2007 (http://technet.microsoft.com/enus/library/cc197758.aspx).

Plan Resource Breakdown Structure (RBS)

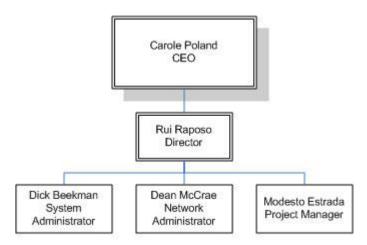
Enterprise Resource custom fields are used to enforce standardization across all projects, tasks, and resources within an organization. You can define as many Enterprise Resource custom fields as you need in Office Project Server 2007. Because these custom fields are hierarchical, they help to facilitate detailed reporting and modeling of common organizational structures.

Given the importance of RBS in application security and resource management for Project Server, properly defining an RBS code for your organization is a very important part of configuring Office Project Server 2007 for your organization. The following three factors affect the RBS that you define for your organization:

The process that you use for resource assignment in your organization. Are project managers
or resource managers responsible for staffing projects? If project managers staff projects in
your organization, you are probably using a matrix style of resource management. If resource
managers staff projects, you are probably using a hierarchical style.



Matrix approach to assigning resources.



Hierarchical approach to assigning resources

- The goals of your organization for securing the project management environment.
- The method that you use in your organization to determine whether a resource is appropriate for an assignment

RBS is a predefined Enterprise Resource custom field and is used in the same way that other Enterprise custom fields are used. You can use RBS to define the reporting relationships among users and resources in your organization. Office Project Server 2007 uses the relationships that are defined in RBS to simplify the management of access for users and groups. This is an integral component of resource management and application security.

You can use RBS to define five security rules when you are creating security categories in Office Project Web Access. RBS is also used in the following features: Resource Substitution Wizard, Portfolio Analyzer, Build Team from Enterprise in Office Project Professional 2007 and Build Team in Office Project Web Access, and two default security categories, My Direct Reports and My Resources. If you plan to use these features and you plan to use the Enterprise Resource Pool, then you should consider using RBS.

Determine the process

To plan an effective RBS, first determine the process that you use for resource assignment in your organization. For example:

- Does the resource manager assign resources?
- Does a project manager select a team and then assign resources to tasks?
- Do both occur?
- Is the process collaborative?
- Does an organization or group make staffing decisions?

RBS has the greatest impact on the resource assignment process when a resource manager is responsible for assigning resources. RBS is less important when the assignment process is collaborative or is the responsibility of a group within your organization. RBS has a small to minimal effect on the resource assignment process when project managers are responsible for resource management.

Determine the goals

Next, determine what your organization's goals are for securing your project management environment. For example:

- Is minimal administration a goal for your organization?
- Does your organization generally allow people to view and edit all project and resource data or does your organization prefer to limit access and editing privileges?
- If you want to limit access to data, do users within the same group or division of the organization need to be able to view each other's data?

If your organization wants a secure system that is also easy to administer, then RBS will play an integral role. If your organization's project management style is generally less defined or is decentralized, then RBS might play a less important role in your organization's security model.

Determine the method

Finally, identify the method that your organization uses to determine whether a resource is appropriate for a project. For example:

- Does the departmental or organizational structure matter?
- Does the geographic location of a resource matter?
- Are the skills of a resource an important factor in determining resource assignments?
- How are the above three items prioritized?

The answers to these questions can help you to determine the appropriate structure for your organization's RBS code. Most organizations can use one of the following three options:

- An organization-based RBS
- A geographic-based RBS
- A modified organization-based RBS

Because you can only implement one RBS code, it is important to identify the structure that is most appropriate for your organization. You can modify your RBS over time, but implementing a new RBS after you are already using Office Project Server 2007 to manage projects is a major adjustment.

Plan resources

Enterprise resources are the people, equipment, and materials that are used to complete tasks in an enterprise project. Enterprise resources are part of your organization's pool of resources and are stored centrally in the Office Project Server 2007 database. You can create the Enterprise Resource Pool that project managers will use when assigning resources to tasks in projects by adding resources to the Enterprise Resource Pool or by importing resources. You should define the contents of the Enterprise Global Template before adding resources to the Enterprise Resource Pool.

When you install Office Project Server 2007, only one Project Server user account is stored within the Project Server database: the Windows user account that was identified as the Farm Administrator during setup. All other user accounts must be added to the Project Server database.

Before you can properly create and maintain the Enterprise Resource Pool for your organization, you must carefully define and document your Enterprise Resource custom fields and create them. In addition, for large organizations, the process of initially populating the Enterprise Resource Pool is just as important as the process of keeping the Enterprise Resource Pool accurate and up-to-date. Tracking significant changes to the resource information that is stored and managed in the Enterprise Resource Pool can be a full-time activity.

Before you create your Enterprise Resource Pool for Office Project Server 2007, you must determine your starting point. The process of adding resources to the Enterprise Resource Pool varies according to whether you are:

- Starting with new projects Minimal preparation is necessary for this scenario. The
 process is simplified if you can gather all required resource information in a single document.
 You could make a list on paper. Then you would import your identified resources from Active
 Directory, or from a membership store if you were using forms authentication. Alternatively,
 you can gather this information by using Microsoft Office Excel 2007. Then you would import
 the resulting spreadsheet into Office Project Professional 2007 and save it to the Project
 Server database.
- Migrating active projects In this scenario, multiple projects are currently managed with
 Microsoft Project 2000, Microsoft Project 2002, or Microsoft Project 2003, and projects are
 usually saved to a database. Each project might use a different resource name, rate
 schedule, or calendar for the same resource. To simplify the migration of these projects to
 Office Project Server 2007, it can be helpful to standardize the use of resources in your
 organization and to ensure that all projects use a consistent definition of resources.
- Creating the enterprise resource pool In this scenario, you are creating the Enterprise Resource Pool in Office Project Professional 2007. Using Project Professional, connect to

Office Project Server 2007 and check out the Enterprise Resource Pool. Enter the resources and save the Enterprise Resource Pool.

Plan custom fields

Office Project 2007 includes extra fields that can be customized. A field is a location in a sheet, form, or chart that contains a specific kind of information about a task, resource, or assignment. For example, in a sheet, each column is a field. In a form, a field is a named box or a place in a column. In Office Project 2007, fields that can contain customized data are text, flags, numbers, dates, cost, start and finish dates, and durations. You can customize these fields to obtain the information you want using formulas, specific value calculations, or graphical indicators.

For instance, you can write your own formulas, including references to other fields, to be calculated in a custom field. You can create a list of values for a custom field to ensure fast and accurate data entry. You can display a graphical indicator in a custom field instead of the actual data. That way, you can quickly see when the data in that field meets certain criteria, such as when the data exceeds a specified range or when resources are over-allocated. You can also create a hierarchical structure of custom fields for information in your project. For instance, you might want to associate your company's cost codes with your project data. After you create this structure and apply these custom fields to your data, you can easily use them to filter, sort, and group project data.

In Office Project 2007 there are two types of custom fields — local and enterprise. Local custom fields are used by the project manager within the scope of a particular project. Enterprise custom fields are used by the Project Management Office (PMO) to collect data for rollup reporting across the organization. For enterprise task and project custom fields, Office Project Server 2007 supports the notion of scoping to a specific program (collection of projects). In this way, an enterprise custom field can be defined that applies to a subset of projects.

Plan categories

Categories define common sets of data access needs, usually aligned with business units, departments, or other project boundaries. Categories are collections of projects, resources, assignments, and views. Categories define the scope of the information accessed, providing multiple types of access to data for groups or users. Categories are collections of security objects. It is a good idea to use categories sparingly. When you do use categories, augment their use with security rules. Security rules are used to define the members of a category. These rules can be enabled in each category. When enabled, the rules examine each user's granted permissions on the category and apply permissions to all projects returned by the rule for that user. Rules enable a category and permissions to be dynamic. You can create custom categories to provide new ways to access project, resource, and view data. Project Web Access includes the following default categories:

 My Tasks — This category is intended for the individual team members who are assigned to tasks in one or more enterprise projects. It grants users permission to view Microsoft Windows SharePoint™ Services Documents, Issues, Risks, and timesheets and status reports for the projects to which they are assigned.

- My Projects This category is intended for project managers. This category grants project
 managers read and write access to project plans that they have created. By default, project
 managers can view all enterprise resources.
- My Resources This category is intended for resource managers. This category uses a security rule that is based on RBS and is useful only when RBS is defined.
- My Direct Reports This category is intended for resource managers who need to be able to approve timesheets.
- My Organization This category is used to grant access to all information in the
 organization. This category is intended for members of a Project Management Office (PMO),
 executives in an organization, and other key users who require the ability to view projects and
 resources across the entire organization.

You can add custom security categories as necessary to create a Office Project Server 2007 security model that meets the specific needs of users and groups in your organization. An example of when a custom category might be needed is when your RBS is configured such that two people working on the same project would not both be able to access it. This might occur if your RBS was arranged by geography and the users were from different locations. Creating a custom category would enable users from different locations to access the project.

Maintain projects

In this section:

- Plan timesheets
- Plan task management
- Plan reporting
- Enterprise Reports

Once the project is created, there are activities that serve to update the project and move it to completion. Some of these activities benefit from planning. This section addresses this planning.

Plan timesheets

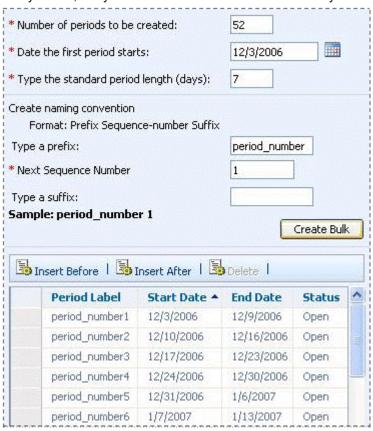
If you plan to introduce timesheets in your organization for the first time, you'll want to work with your accounting department, managers, executive management, and project managers to determine how to structure timesheets and how they relate to updating task status. The process of using timesheets introduces practical and cultural changes to an organization, both areas that need to be carefully managed.

If you have used timesheets in previous versions of Microsoft Project, it is important to note that they have been significantly changed for Microsoft Office Project 2007. In Microsoft Office Project Server 2007, every timesheet entry is represented by a row in a database table. This means that timesheet data will be precise and accessible though the Project Server Interface. For more information about the **Timesheet Web Service**, see the Office Project 2007 SDK. Another significant difference from previous versions of Microsoft Project is that anyone who has access to Microsoft Office Project Web Access can make an entry in timesheets. This means that the user does not need to be assigned to any project. They merely need to be a member of the Viewers security group. This can be useful if an organization wants to collect information about work or other administrative activities that have not been anticipated within a project.

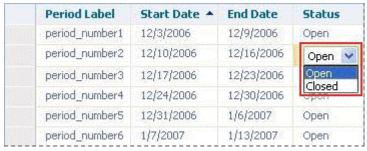
Management of timesheets is done in Office Project Web Access on the Server Settings page in the **Time and Task Management** section. When planning timesheets, consider the server settings found under **Timesheet Periods**, **Timesheet Classifications**, **Timesheet Settings and Defaults**, and **Administrative Time**.

Timesheet Periods

Accessing and making changes to the **Timesheet Periods** Web page requires that the user be assigned to the Project Server Administrators group. To plan the configuration of timesheet periods, you will need to know the number of periods, the length of each period and the starting date for the first period. The default setting is 52 periods with a length of 7 days starting on today's date, but you can choose whatever scheme fits your needs.



You then create your periods by clicking **Create Bulk**. The status field allows for periods to be open or closed. If a period is closed, Office Project Web Access users are not able to enter time in future periods. The best practice is to leave future periods open. This allows users to enter planned time for upcoming events like vacations or training. However, if your organization requires that future periods be closed, you can do this in the status column in the **Create Periods** section of the page.



Changes are committed to the database when you click Save.

Timesheet Classifications

Accessing and making changes to the **Timesheet Classifications** page requires that the user be assigned to the Project Server Administrators group. Here you can create new timesheet line classifications. There are many reasons for doing this. Here are a couple of examples.

- You have a task that is common throughout your project. It is done many times. The reasons
 for doing the task can be different. In some instances the task is done as a matter of standard
 maintenance and in other instances it is done to satisfy warranty requirements. You want to
 track why the work was performed. Creating a timesheet line classification would allow you to
 track this distinction.
- Your organization supports three types of overtime: 150%, 200%, and flex time. You want to be able to differentiate between these types of overtime. Creating a timesheet line classification would allow you to track these overtime differences.

Administrative Time

Administrative time is the way to track non-working and non-project time. By default, three categories of administrative time are created:

- Administrative
- Vacation
- Sick

In Office Project Server 2007, administrative time is managed and tracked in Office Project Server 2007. If you are a member of the Project Administrator group, you can add or edit existing administrative time categories on the Administrative Time Web page. This Web page is found by logging in to Office Project Web Access, clicking **Server Settings**, and then clicking

Administrative Time in the **Time and Task Management** section. You can ensure that each user's timesheet has a line for that category by selecting the **Always Display** option.

In Microsoft Office Project Server 2003, Administrative Projects were available as a Project template that could be used in the enterprise. To create an administrative project, you needed to be using Project Professional 2003 and needed to be connected to the Project Server database. You did not need Project Professional to enter time against a task in an administrative project. Non-project and non-working time, such as vacation or sick leave, could be reported directly in a resource's timesheet in Project Web Access 2003.

If you want to use your Administrative Projects from Microsoft Office Project Server 2003 in Office Project Server 2007, you can continue to do so. You migrate the Administrative Projects in the same way that you would any other project. However, the user does not automatically see the administrative task in the timesheet, as is possible in Office Project Server 2007. To have full Office Project Server 2007 Administrative Time functionality, you will need to create the tasks anew on the **Administrative Time** Web page. If it is not convenient to do this at the time you migrate your deployment, we recommend that you pick a time that makes sense for your organization — for example, at the beginning of your next fiscal year or at the beginning of the next calendar year.

Plan task management

When resources update their task status and submit it for approval, you can approve or reject those updates if you have approval permissions. Office Project Web Access enables you to set up rules to approve task updates, or you can approve or reject task updates manually. If you manage a large number of resources, you might find rules helpful in approving those task updates that are in alignment with your projects. For information about how to configure approval rules, refer to Help in Office Project Web Access under the article named "Approve or reject task updates."

Plan reporting

Data Analysis

The Data Analysis feature of Office Project Server 2007 makes use of Microsoft Office Web Components, which is a collection of Microsoft ActiveX components. Office Project Server 2007 uses Office Web Components to access OLAP cube data that is stored in the Analysis Services database (an Analysis Services database is created for each OLAP cube that is created in Office Project Web Access). Users can interact with this data in Office Project Web Access and Office Project Professional 2007 by using fully interactive PivotTable and PivotChart reports. Users can sort, filter, add, or modify data, expand and collapse details, and save their results for future reference.

Plan to configure Data Analysis with Microsoft SQL Server 2000

The Data Analysis feature requires Analysis Services, Service Pack 3 or later, which is part of Microsoft SQL Server 2000. Data Analysis requires Decision Support Objects (DSO), running with the same service pack as Analysis Services. If Analysis Services is not installed on the computer that is running Office Project Server 2007, DSO must also be installed on the computer running Office Project Server 2007. For additional information about installing DSO, see the Analysis Services article, "Running Setup," in the SQL Server Books Online, which is available with the installation media for Microsoft SQL Server 2000.

Plan to configure Data Analysis with Microsoft SQL Server 2005

Data Analysis requires Analysis Services, Service Pack 1, which is part of Microsoft SQL Server 2005. Service Pack 1 provides a backward compatibility component that can be installed on Analysis Services. If Office Project Server 2007 is installed on a different computer, the backward compatibility component should be installed there as well. This backward compatibility component provides the DSO support needed for Data Analysis to work.

Prepare for Data Analysis users

Users can use Office Project Web Access to create and work with Data Analysis views and can use Office Project Professional 2007 to work with Data Analysis views. In order to create and work with Data Analysis views, users:

- Must be assigned permission to access the Data Analysis pages in Office Project Web
 Access that allow interaction with Data Analysis, and they must have permissions to access
 the data that will be part of the Data Analysis view.
- Must be assigned permission to view Data Analysis from the Report Center site in Office Project Web Access or from Office Project Professional 2007.
- Must have a fully-interactive version of Office Web Components (OWC) 2003 installed on
 their computer. Fully interactive versions of OWC are only available in Microsoft Office 2003
 and Project Professional 2003. OWC must be available on the computer from which Portfolio
 Analyzer is being accessed. If the client computer does not have OWC, then Project Server
 2003 will install a non-interactive version of OWC that enables users to view Portfolio
 Analyzer views but does not enable them to create or modify the views.

In order to use the Data Analysis feature, users must be assigned the following permissions:

- View Data Analysis This is a global permission that allows a user to view the Data Analysis by using Office Project Web Access or Office Project Professional 2007.
- Manage Project Web Access Views This is a global permission that allows a user to create new views in Office Project Web Access.

Review Enterprise Settings

Settings in the Office Project Server 2007 Enterprise Global Template and Enterprise Resource Pool can have a significant effect on the way that data is handled when users are using Data Analysis. Before using Data Analysis, consider the following:

- Has your organization defined Enterprise Project custom fields and Enterprise Resource custom fields?
- Have you added all required resources to the Enterprise Resource Pool?
- Have values been assigned to any of the Enterprise custom fields?
- Have you assigned resources in the Enterprise Resource Pool to the correct Project Server security categories to allow access to Data Analysis views? (If you import resources or synchronize the Enterprise Resource Pool with the Active Directory directory service, all resources are added to the Team Members security category.)



For more information about building an OLAP cube, creating Data Analysis views, or working with Data Analysis views, see Operations for Office Project Server 2007 (http://technet.microsoft.com/en-us/library/cc197578.aspx).



For more information about migrating views from Microsoft Office Project Server 2003 to Office Project Server 2007, see the <u>Migration Guide for Office Project Server 2007</u> (http://technet.microsoft.com/en-us/library/cc303388.aspx).

Enterprise Reports

The Enterprise Reports feature of Office Project Server 2007 uses Microsoft SQL Server Reporting Services to produce enterprise reports. SQL Server Reporting Services is a comprehensive, server-based reporting solution designed to help you author, manage, and deliver both paper-based and interactive Web-based reports. If you are going to use Enterprise Reporting, you will need to enter the Microsoft Reporting Service URL. To do this:

- 1. Log on to Office Project Web Access as an Administrator.
- 2. Click the **Server Settings** link on the Office Project Web Access home page.
- Click the Additional Server Settings link in the Operational Policies section of the Server Settings page.
- Type the default URL for Microsoft Reporting service in the box in the Microsoft Reporting Service URL section of the Additional Server Settings page.
- 5. Click Save.

In a default installation of Office Project Server 2007, only one SQL Server Reporting Services instance can be accessed. It is possible to access additional instances by creating a new Web part. If you are going to use Enterprise Reporting extensively, we recommend that you split the Project Reporting Database to a separate server.



Note:

For more information about creating a new Web part to access additional instances of SQL Server Reporting Services, see Operations for Office Project Server 2007 (http://technet.microsoft.com/en-us/library/cc197578.aspx).

Retire projects

In this section:

- Plan archiving
- Plan clean up

There are certain activities that you should consider when retiring projects. Doing some basic clean-up when a project is retired can help to improve Project Server performance. Also, you can secure projects to ensure that only those who need the information — for example, for historical purposes — can see the projects. Deleting other enterprise objects that are not being used, such as resources and assignments, can help to prevent degradation of server performance. This section addresses accomplishing these objectives.

Plan archiving

A number of enterprise objects can be backed up in Microsoft Office Project Web Access.

- Projects
- Enterprise Resource Pool and Calendars
- Enterprise Custom Fields
- Enterprise Global
- View Definitions
- System Settings
- · Category and Group Settings

Backing up these objects allows you to selectively restore specific items, and you can retain multiple versions of these items.

Backups are done on the Server Settings page in **Database Administration**. There are two methods available:

- Schedule Backup
- Administrative Backup

Administrative Backup allows you to back up enterprise objects at any time. Schedule Backup, as the name implies, allows you to back up enterprise objects daily at a scheduled time. We recommend that you back up your enterprise objects regularly and, if scheduled, at a time when server utilization is low. You should also have a plan for backing up your databases. For more information about contingency planning, see Back up and restore the Project Server 2007 farm (http://technet.microsoft.com/en-us/library/dd207295.aspx).

When an object is backed up, it is saved to the Project Server 2007 Archive database.

When a project is complete, there are a few options available for retiring the project.

- Delete the enterprise objects from the Project Server 2007 Published and Draft databases, and retain copies in the Archive database.
- Delete enterprise objects from all Project Server 2007 databases and rely upon database backups for archival.
- Place the project in a special Project Server category that denies access to all but a few users.

Place the project in a special Project Server category

To allow only certain users to view a retired project, you can create a special Project Server category for that purpose. Add the project and all users who you do not want to have access to the project and set all of their permissions to deny. For more information about Users, Groups, and Categories, see Security and protection for Office Project Server 2007 (http://technet.microsoft.com/en-us/library/cc197499.aspx).

Plan clean up

Deleting unused enterprise objects when a project is completed can help to prevent degradation of server performance. It is particularly beneficial for long term server performance to delete assignments. It is also a good idea to delete resources if they are no longer being used in the enterprise. Deleting unused enterprise objects when a project is completed also saves disk space on your database server. Deletions are done on the page in the **Database Administration** section.

VI. Plan for system requirements

Determine hardware and software requirements

In this section:

- About hardware and software requirements
- Stand-alone installation
- Server farm installation

This section describes the hardware and software requirements for installing Microsoft Office Project Server 2007.

About hardware and software requirements

An installation of Office Project Server 2007 can range from a single computer (stand-alone installation) to many computers (server farm). The requirements for your installation will depend on the availability and scale requirements for your solution. This section describes the minimum and recommended hardware requirements based on whether you are deploying a stand-alone installation or a server farm. This section also lists the software prerequisites for installing Office Project Server 2007.

This section does not provide guidance about choosing a farm topology or hardware based on availability requirements or performance and capacity requirements. For more information about designing your solution to address these requirements, see Plan for performance and capacity (http://technet.microsoft.com/en-us/library/cc303416.aspx).

The hardware and software requirements described in this section apply to both x32-bit-based and x64-bit-based systems.



Note:

Itanium-based systems are not supported.

Stand-alone installation

You can install Office Project Server 2007 on a single computer by using either of the following methods:

- By selecting Basic.
- By selecting Advanced, and then selecting Stand-alone in Office Project Server 2007 Setup.

Hardware requirements

The following table lists the minimum and recommended hardware requirements for deploying Office Project Server 2007, including the deployment of Microsoft SQL Server 2005 Express Edition, for a stand-alone installation.

Component	Minimum	Recommended
Processor	2.5 gigahertz (GHz)	Dual processors that are each 3 GHz or faster
RAM	1 gigabyte (GB)	2 GB
Disk	NTFS file system–formatted partition with a minimum of 3 GB of free space	NTFS file system–formatted partition with 3 GB of free space plus adequate free space for your Web sites
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive
Display	1024 × 768	1024 × 768 or higher resolution monitor
Network	56 kilobits per second (Kbps) connection between client computers and server	56 Kbps or faster connection between client computers and server

Software requirements

Because Office Project Server 2007 is built on Windows SharePoint Services 3.0, the requirements that apply to Windows SharePoint Services 3.0 also apply to Office Project Server 2007.

We recommend that you perform the installation on a computer that has a new installation of the Microsoft Windows Server 2003 operating system with Service Pack 1 (SP1) or later and all critical updates.



Note:

Because the Office Project Server 2007 installation and configuration wizard marshals many components, if you uninstall Office Project Server 2007, and then later install Office Project Server 2007 on the same computer, the Setup program could fail when creating the configuration database, which would cause the entire installation process to fail. You can prevent this failure by deleting the existing configuration database or by using the psconfig command to create a new configuration database.

Database

When you perform a Basic installation, SQL Server 2005 Express Edition is automatically installed. When you perform an Advanced installation on a stand-alone computer that already has Microsoft SQL Server installed, ensure that the computer meets the hardware and software

requirements for a database server. For more information, see <u>Database server</u> later in this section.

Because of Windows licensing restrictions, if you are using Windows Server 2003, Web Edition in a single server environment, you can only perform a Basic installation. This is because the full SQL Server editions cannot be installed on Windows Server 2003, Web Edition. However, you can install SQL Server 2005 Express Edition or SQL Server 2000 Desktop Engine (Windows) (WMSDE).

Operating system

Office Project Server 2007 runs on Windows Server 2003 with SP1 or later. We recommend that you apply all critical updates. You can use the following Windows Server 2003 editions:

- Windows Server 2003, Standard Edition
- Windows Server 2003, Enterprise Edition
- Windows Server 2003, Datacenter Edition
- Windows Server 2003, Web Edition

Because of Windows licensing restrictions, if you are using Windows Server 2003, Web Edition in a single server environment, you can only perform a Basic installation. This is because the full SQL Server editions cannot be installed on Windows Server 2003, Web Edition. However, you can install SQL Server 2005 Express Edition or SQL Server 2000 Desktop Engine (Windows) (WMSDE).

Office Project Server 2007 administration functions require Microsoft Internet Explorer 6.0 with the most recent service packs or Internet Explorer 7.0.

Windows components

After you have installed the operating system and applied all critical updates, you must configure the computer to be a Web server by enabling Internet Information Services (IIS) 6.0, including:

- Common files
- WWW
- Simple Mail Transfer Protocol (SMTP)

You must configure the server to use **IIS 6.0 worker process isolation mode**. This is the default setting in new installations. However, if you have upgraded from IIS 5.0 on Windows Server 2000, **Run WWW in IIS 5.0 isolation mode** is enabled, and you must change this setting to use **IIS 6.0 worker process isolation mode**.

To enable e-mail notifications, you need to configure incoming and outgoing e-mail settings. To configure sending e-mail alerts and notifications, you must specify an SMTP e-mail server. To configure your installation so that your SharePoint sites can accept and archive incoming e-mail, you must install the IIS SMTP service.

Microsoft .NET Framework 3.0

Before installing Office Project Server 2007, you must install the Microsoft .NET Framework 3.0 and then ensure that ASP.NET 2.0 is enabled.



You can also use the Microsoft .NET Framework version 3.5. You can download the .NET Framework version 3.5 from the Microsoft Web site (http://go.microsoft.com/fwlink/?LinkId=110508).

To enable ASP.NET v2.0.50727, open the Web service extension in the IIS snap-in on the Microsoft Management Console (MMC). If ASP.NET 2.0 is installed on the computer before IIS is enabled, you must enable ASP.NET 2.0 by running the command aspnet_regiis -i.

Server farm installation

The primary difference between a single server and a server farm topology is that you can use one or more computers to host the following server roles:

- Application server
- Front-end Web server
- Database server

This section describes the minimum and recommended system requirements for each server role. If you install more than one role on a single computer, ensure that the computer meets the minimum requirements for all server roles.

Application server

Hardware requirements

The following table lists the minimum and recommended hardware requirements for deploying an Office Project Server 2007 application server.

Component	Minimum	Recommended
Processor	2.5 GHz	Dual processors that are each faster than 2.5 GHz
RAM	2 GB	4 GB
Disk	NTFS file system–formatted partition with a minimum of 3 GB of free space	NTFS file system–formatted partition with 3 GB of free space plus adequate free space for your data storage requirements

Component	Minimum	Recommended
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive
Display	1024 × 768	1024 x 768 or higher resolution monitor
Network	56 Kbps connection between client computers and server	56 Kbps or faster connection between client computers and server
	For connections between computers in your server farm, 100 megabits per second (Mbps) connection	For connections between computers in your server farm, 1 gigabit per second (Gbps) connection

Software requirements

Because Office Project Server 2007 is built on Windows SharePoint Services 3.0, the requirements that apply to Windows SharePoint Services 3.0 also apply to Office Project Server 2007.

We recommend that you install Office Project Server 2007 on a computer that has a new installation of Windows Server 2003 with SP1 or later and all critical updates.

Operating system

Office Project Server 2007 runs on Windows Server 2003 with SP1 or later. We recommend that you apply all critical updates. You can use the following Windows Server 2003 editions:

- Windows Server 2003, Standard Edition
- Windows Server 2003, Enterprise Edition
- Windows Server 2003, Datacenter Edition
- Windows Server 2003, Web Edition

Office Project Server 2007 administration functions require Internet Explorer 6.0 with the most recent service packs or Internet Explorer 7.0.

Windows components

After you have installed the operating system and applied all critical updates, you must configure the computer to be a Web server by enabling IIS 6.0, including:

- Common files
- WWW
- SMTP

You must configure the server to use IIS 6.0 worker process isolation mode. This is the default setting in new installations. However, if you have upgraded from IIS 5.0 on Windows Server 2000, Run WWW in IIS 5.0 isolation mode is enabled, and you must change this setting to use IIS 6.0 worker process isolation mode.

To enable e-mail notifications, you need to configure incoming and outgoing e-mail settings. To configure sending e-mail alerts and notifications, you must specify an SMTP e-mail server. To configure your installation so that your SharePoint sites can accept and archive incoming e-mail, you must install the IIS SMTP service.

Microsoft .NET Framework 3.0

After you have configured the server as a Web server, you must install the Microsoft .NET Framework 3.0 and then ensure that ASP.NET 2.0 is enabled.



You can also use the Microsoft .NET Framework version 3.5. You can download the .NET Framework version 3.5 from the Microsoft Web site (http://go.microsoft.com/fwlink/?LinkId=110508).

To enable ASP.NET v2.0.50727, open the Web service extension in the IIS snap-in on the MMC. If ASP.NET 2.0 is installed on the computer before IIS is enabled, you must enable ASP.NET 2.0 by running the command aspnet_regiis -i.

Front-end Web server

Hardware requirements

The following table lists the minimum and recommended hardware requirements for deploying an Office Project Server 2007 front-end Web server.

Component	Minimum	Recommended
Processor	2.5 GHz	Dual processors that are each 3 GHz or faster
RAM	2 GB	More than 2 GB
Disk	NTFS file system–formatted partition with a minimum of 3 GB of free space	NTFS file system–formatted partition with 3 GB of free space plus adequate free space for your data storage requirements
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive

Component	Minimum	Recommended
Display	1024 × 768	1024 × 768 or higher resolution monitor
Network	 56 Kbps connection between client computers and server For connections between computers in your server farm, 100 Mbps connection 	 56 Kbps or faster connection between client computers and server For connections between computers in your server farm, 1 Gbps connection

Software requirements

Because a front-end Web server is a subset of an application server, all features on a front-end Web server are available on an application server. The software requirements for the front-end Web server are the same as the software requirements for the application server before you add specific resources to meet the demands that you forecast as a result of your capacity planning phase.

Database server

The computer that hosts the database server role must have SQL Server 2000 with SP3a or later or Microsoft SQL Server 2005 SP1 or later. Some advanced features require SQL Server 2005 Analysis Services SP1 or later. For information about the hardware and software required to deploy a database server, see SQL Server 2005 System Requirements (http://go.microsoft.com/fwlink/?LinkID=75010&clcid=0x409).



- Office Project Server 2007 supports Microsoft SQL Server 2008. However, your Office Project Server 2007 farm must have the following service packs applied to use SQL Server 2008:
- For information about applying both service packs, see Deploy Service Pack 1 for Office Project Server 2007.

Because of Windows licensing restrictions, if you are using Windows Server 2003, Web Edition in a single server environment, you can only perform a Basic installation. This is because the full SQL Server editions cannot be installed on Windows Server 2003, Web Edition. However, you can install SQL Server 2005 Express Edition or SQL Server 2000 Desktop Engine (Windows) (WMSDE).

Plan browser support

In this section:

- About browser support
- Browsers supported for use with Project Server 2007
- Browsers not supported for use with Project Server 2007

About browser support

Microsoft Office Project Web Access is used for online access to Microsoft Office Project Server 2007. The Web browsers used by Office Project Web Access require the download and installation of required ActiveX controls. This requirement means that only Level 1 Web Browsers are supported for use with Office Project Web Access.

As part of planning your deployment of Office Project Server 2007, we recommend that you review the browsers used in your organization to ensure optimal performance with Office Project Server 2007.

Browsers supported for use with Project Server 2007

Level 1 Web browsers take advantage of advanced features provided by ActiveX controls and provide the most complete user experience. Level 1 browsers also offer full functionality on all SharePoint sites, including the Central Administration Web site. Level 1 browsers are:

- Microsoft Internet Explorer 6.x (32-bit)
- Windows Internet Explorer 7.x (32-bit)



Level 1 browser support is only available for computers running the Windows operating system.

Browsers not supported for use with Project Server 2007

All other browsers other than Level 1 browsers are not supported for use with Office Project Server 2007. This includes all Level 2 browsers such as Firefox 1.5, Mozilla, and Netscape Navigator 8.1.

Older browsers — such as Internet Explorer 5.01, Internet Explorer 5.5*x*, Internet Explorer for Macintosh, and older versions of third-party level 2 browsers — are not supported.

Enabling ActiveX controls on the client in secure environments

Some of the features in Office Project Server 2007 use ActiveX controls on the client to provide functionality. In secured environments, these controls might not have been downloaded and the user might be prevented from downloading them because of security restrictions. You must download and enable these controls on the client for these features to work.

The ActiveX controls reside in two .cab files that are located on your Project Server site in the following folder:

C:\Program Files\Common Files\Microsoft Shared\web server extensions\12\TEMPLATE\LAYOUTS\PWA\OBJECTS\1033

The following are the two .cab files:

- Piclient.cab
- Pjcintl.cab (in the 1033 subfolder or other language folders)

These two cab files contain the following files:

Pjcintl.cab:

- langcabENU12.inf (This file is not required to manually install controls.)
- Pj12ENUc.dll

Pjclient.cab:

- Microsoft.vc80.crt.manifest (This file is not required for the manual installation of controls.)
- Msvcr80.dll
- Pjgrid12.ocx
- Pjprint12.dll
- Piguery12.ocx
- Pjres12c.dll
- Pitextconv12.dll

To enable client-side controls

- 1. Log on to the client computer as Administrator.
- Connect to the Project Server, and then copy the Pjclient.cab file and the Pjcintl.cab file from the following folder: C:\Program Files\Common Files\Microsoft Shared\web server extensions\12\TEMPLATE\LAYOUTS\PWA\OBJECTS\1033
- 3. Paste the files in a folder on the computer.
- 4. Double-click the Pjcintl.cab file to open it, and then click the Pj11enuc.dll file.
- 5. On the **File** menu, click **Extract**.
- 6. Expand My Computer, expand Local Disk, expand Windows, and then click **Downloaded Program Files**.
- 7. Click Extract.

- 8. Close the Pjcintl.cab file.
- 9. Double-click Pjclient.cab to open it, and then click **Select all** on the **Edit** menu.
- 10. On the File menu, click Extract.
- 11. Expand My Computer, expand Local Disk, expand Windows, and then click **Downloaded Program Files**.
- 12. Click Extract.
- 13. Close the Pjclient.cab file.
- 14. Click Start, click Run, type CMD, and then click OK.
- 15. Type CD %COMMONPROGRAMFILES%\Downloaded Program Files, and then press ENTER.
- 16. Type regsvr32 pj12enuc.dll, and then press ENTER.
- 17. Type regsvr32 pjres12c.dll, and then press ENTER.
- 18. Type for %i in (pj*.dll) do regsvr32 %i, and then press ENTER.
- 19. Confirm that registration was successful in each window that opens. Click OK to close each regsvr32 window.
- 20. Type for %i in (pj*.ocx) do regsvr32 %i, and then press ENTER.
- 21. Confirm that registration was successful in each window that opens. Click OK to close each command window.

VII. Plan Microsoft Office Project Server configuration

In this chapter:

- Chapter overview: Plan Office Project Server 2007 configuration
- Plan Office Project Server 2007 configuration

Chapter overview: Plan Office Project Server 2007 configuration

After you have evaluated your current environment, identified relevant environmental factors, and determined how these elements can affect the architecture of your Microsoft Office Enterprise Project Management (EPM) Solution, you can identify the configuration scenario that best meets the needs of your organization. This chapter provides some examples that you can use for configuring your server environment.

Plan Office Project Server 2007 configuration

In this section:

- Select a Project Server configuration
- Scenario 1: Internal Hosting
- Scenario 2: External Hosting
- Scenario 3: Portfolio Management Deployment
- Scenario 4: Professional Services/Timesheet Deployment
- Scenario 5: Program Deployment
- Plan for growth
- Worksheets

Select a Project Server configuration

After you have evaluated your current environment, identified relevant environmental factors, and determined how these elements can affect the architecture of your Microsoft Office Enterprise Project Management (EPM) Solution, you can identify the configuration scenario that best meets the needs of your organization. Selecting a Project Server configuration involves:

- Identifying the configuration scenario that best reflects your organization. Select the configuration scenario that most closely represents the size of your organization, the Project Server features that you plan to use, the number and type of projects that you manage, and the number and types of users in your organization.
- Selecting a configuration option (standard or alternate) that best meets your needs, if applicable. The configuration option that you choose is based on your specific infrastructure and environmental factors, your availability needs, and your project management requirements.
- If necessary, modifying the configuration to meet the specific needs of your organization. For example, you might need to modify your configuration if you are:
 - Providing access to Project Web Access over the Internet or an extranet.
 - Operating in an environment that does not have an Active Directory directory service domain.
 - Supporting a hosted configuration that provides multiple Project Server sites on a consolidated set of hardware.
 - Supporting more than 12,000 users.
 - Sizing the hardware for your deployment.

This section describes five basic configuration scenarios that might be used in organizations or departments within large organizations that can serve as a starting point for your configuration planning. Each configuration scenario includes a description, information about users and projects, and standard and alternate configuration examples.

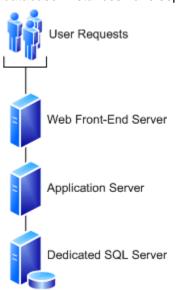
These configuration scenarios are not designed to reflect the needs of all organizations that deploy a Microsoft EPM Solution, but rather are representative examples of types of organizations that require a solution for enterprise project management.

Scenario 1: Internal Hosting

Scenario 1 deploys multiple instances of Project Server on shared hardware for departments or groups within an organization. In this case, all Project Server instances provide users with a unique top-level site collection, but are provisioned to a common Windows SharePoint Services 3.0 application pool. Individual instances are logically separate and access data stored in the database through a shared Project Server Interface. Databases for each instance can be deployed to dedicated computers running SQL Server.

Sample "Internal Hosting" Server Topology

Project Server is installed and configured one time. New instances are created by using a provisioning process. Instances are provisioned to the same Web application pool and to the same Shared Services Provider. Instances share a common set of services, such as the Project Server Interface on the application tier. Instances use a common Windows SharePoint Services configuration database. Instances use a common Windows SharePoint Services content database. Instances have separate project databases.



Worksheet action

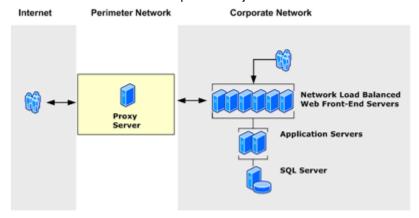
You can document your plan for internal hosting by using the Plan for internal hosting (http://go.microsoft.com/fwlink/?LinkId=73275) worksheet.

Scenario 2: External Hosting

Scenario 2 isolates multiple instances of Project Server on shared hardware. Like scenario 1, Project Server instances provide users with unique top-level site collections. However, in scenario 2, each instance is provisioned to a separate Windows SharePoint Services 3.0 application pool; access to data stored in the database is provided through the Shared Services Provider Web application. This scenario provides additional data security by isolating data and data access.

Sample "External Hosting" Server Topology

New instances are created by using a provisioning process. New instances are provisioned to separate application pools. Instances use separate Windows SharePoint Services content databases. Instances use a dedicated set of services, such as the Project Server Interface, on the application tier. Instances use a common Windows SharePoint Services configuration database. Instances have separate Project Server databases.



Weighing the benefits of "Internal Hosting" versus "External Hosting"

The key benefit to the "External Hosting" scenario is process account isolation. This is because there are two Shared Services Providers using unique accounts, and access to the Project Server database is isolated to their respective users. Further, since Web applications can only have one

Shared Services Provider, Web application security is isolated as well. The drawback to the "External Hosting" scenario is that performance is affected by each Shared Services Provider. Also, the additional application pools and databases mean that additional disk space is needed. Sharing these resources, as in the case of "Internal Hosting," means the that overhead for utilization of the IIS application pool process across multiple Microsoft Office Project Web Access instances is maximized.

Worksheet action

You can document your plan for external hosting by using the <u>Plan for external hosting</u> (http://go.microsoft.com/fwlink/?LinkId=73277) worksheet.

Scenario 3: Portfolio Management Deployment

The Microsoft Office Project Server 2007 Portfolio Management Deployment scenario can apply to any medium-to-large organization that wants to use Project Server to manage project portfolios. These organizations are typically characterized by the following:

- A large number of projects that have many assignments
- A high percentage of project managers
- High usage of Microsoft Office Project Professional 2007
- A single Shared Services Provider Web application

Organizations that fall into this scenario typically use the breadth of Project Server features, including: timesheets, document library/issues/risks, enterprise global templates, and the enterprise resource pool.

The organization to which this scenario can apply can be as small as a medium-size organization (or a department in a larger organization) whose users all share the same physical location on the same LAN, or it can be a large organization whose users exist in a number of different physical locations.

Sample Departmental Server Topology

To support usage and service-level requirements as a medium-size organization, the baseline server topology might consist of the following: One server running the front-end Web and Application server components. One database server running SQL Server 2000 or SQL Server 2005 to accommodate the required databases. This topology is optimal when there are less than 20 project managers and from 100 to 500 active projects at one time.



User Requests



Front-End Web and Application Server

IIS 6.0 Project Server Front-End Project Server Interface Windows SharePoint Services



Project Databases Draft Database Published Database Archive Database

Reporting Database

Windows SharePoint Services Databases

Content Database Shared Services Provider Database Configuration Database

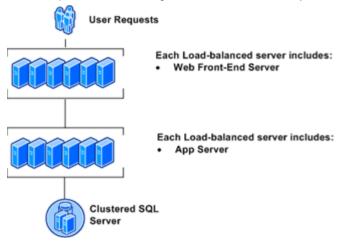
Sample Corporate Server Topology for scenario 3

As your system grows to where it has 50 or more project managers and more than 1,000 active projects, it can implement a Corporate Server topology. In this topology, the Project Server frontend Web server is deployed in a load-balanced cluster to provide higher availability. This configuration helps ensure availability in the event of hardware failure, and it provides the additional benefit of increased performance by accommodating a larger number of concurrent TCP connections caused by timesheet users. Moreover, to better accommodate calls to the Project Server Interface (PSI) caused by the increased number of large projects, the application tier is placed on its own server. As the organization scales to a larger size, a new data center will need to communicate by using WAN links and will need firewalls to ensure security.



Sample Enterprise Server Topology for scenario 3

As your EPM Solution scales in size to a large organization and needs to support a greater number of active projects (3,000 or more), it should scale to a server topology that provides redundancy at each tier for greater availability. An additional front-end Web server provides a better experience for a large number of Office Project Web Access users.



Worksheet action

You can document your plan for a portfolio management deployment by using the <u>Portfolio management</u>

(http://go.microsoft.com/fwlink/?LinkId=73279) worksheet.

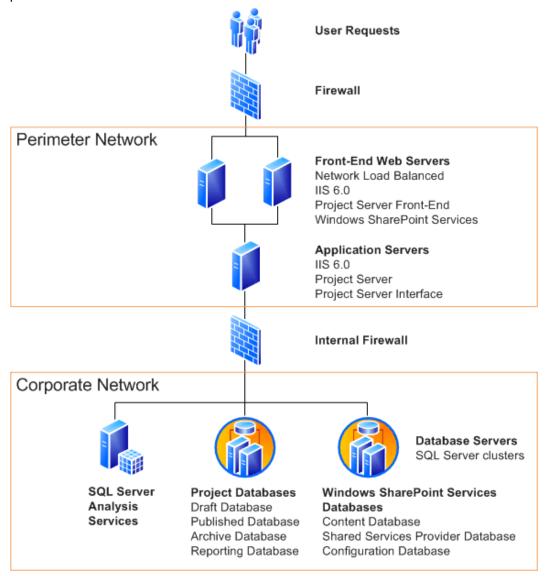
Scenario 4: Professional Services/Timesheet Deployment

The Office Project Server 2007 Professional Services/Timesheet Deployment scenario can apply to a large organization that wants to use Project Server mainly to capture and report time. Employees and contractors' services will use Project Server timesheet functionality to submit hours worked on tasks during specific time periods.

This scenario is characterized by the following:

- Minimal Office Project Professional 2007 usage
- · Predominantly time and material billing
- A large number of projects (600 to 2,500) with relatively few tasks
- A predictable peak period of usage that corresponds to scheduled timesheet entry in Office Project Web Access
- A single instance of Office Project Web Access

Organizations that fall into this scenario typically use a limited set of Project Server features to track time and costs by using timesheets to capture information. Scalability issues ensue because intensive system resource utilization results from many timesheets being submitted within a short period of time.



Sample Corporate Server Topology for scenario 4

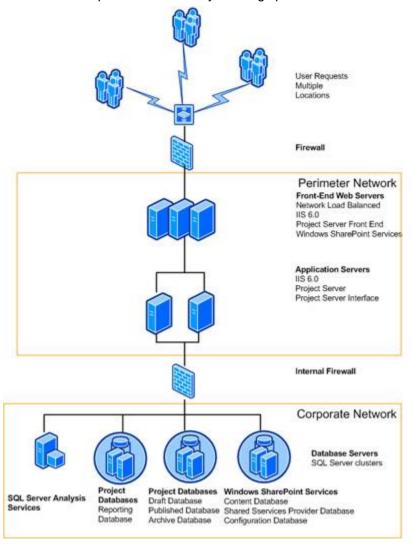
For a large organization of 12,000 employees, use this corporate server topology. In this topology, the Project Server front-end Web server is deployed in a load-balanced cluster to accommodate higher availability. This configuration helps ensure availability in the event of hardware failure and provides the additional benefit of increased performance by accommodating a larger number of concurrent TCP connections caused by timesheet users. Moreover, in order to better accommodate calls to the Project Server Interface (PSI) caused by the increased number

of large projects, the application tier is placed on its own server. A load-balanced cluster is also applied to the database tier.



Sample Enterprise Server Topology for scenario 4

If your organization grows to a size of 20,000 employees, the increase in timesheet users and viewer categories will require the company to scale to this enterprise server topology. This topology increases redundancy in the front-end Web and application tiers. Additional users increase the amplitude of the Friday evening spike in timesheet use.



Worksheet action

You can document your plan for a timesheet deployment by using the <u>Timesheet scenario</u> (http://go.microsoft.com/fwlink/?LinkId=73280) worksheet.

Scenario 5: Program Deployment

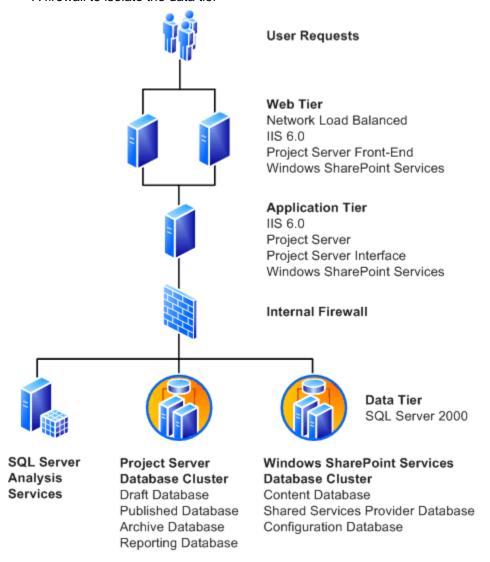
The Office Project Server 2007 Program Deployment scenario applies to a large organization whose area of focus is top-down planning driven through the Project Management Office (PMO). This scenario is more commonly seen in the product development and manufacturing markets. It is characterized by:

- A small number of large projects that are often related
- Focus on the PMO
- Extensive Office Project Professional 2007 usage
- Proposal and Activity Plan usage

Sample Corporate Server Topology for Scenario 5

To support usage and service-level requirements, the baseline server topology could consist of the following:

- Two Office Project Web Access front-end Web servers configured in a load-balanced cluster
- One application server running the Project Server Interface (PSI). The application server is deployed to a one-node load-balanced configuration to simplify the process of adding another application server in the future.
- Separate clusters of computers running Microsoft SQL Server to accommodate the required databases
- A firewall to isolate the data tier



Worksheet action

You can document your plan for a program deployment by using the <u>Program deployment</u> (http://go.microsoft.com/fwlink/?LinkId=73281) worksheet.

Plan for growth

Whatever server configuration you choose, it is best to plan how you will respond to growing demands on your EPM Solution. You have two options for expanding your system: scaling up and scaling out.

Scale up

- Increase size of the database server by adding more/faster processors and RAM or by using 64-bit hardware.
- Increase speed of network between servers
- Maximize throughput on database servers
- · Add network interface cards to isolate traffic
- Add network segment or reduce nodes on SQL segment
- Use network interface card teaming on the server with Microsoft SQL Server for performance and redundancy

Scale out

- Add application servers to handle increased Office Project Professional 2007 usage. This
 also adds redundancy.
- Add front-end Web servers as additional instances of Office Project Server 2007 are added.
- Cluster database servers to add performance and reliability.

Worksheets

Plan for internal hosting (http://go.microsoft.com/fwlink/?LinkId=73275)

Plan for external hosting (http://go.microsoft.com/fwlink/?LinkId=73277)

Portfolio management (http://go.microsoft.com/fwlink/?LinkId=73279)

<u>Timesheet scenario</u> (http://go.microsoft.com/fwlink/?LinkId=73280)

Program deployment (http://go.microsoft.com/fwlink/?LinkId=73281)

VIII. Plan for performance and capacity

Chapter overview: Plan for performance and capacity

Capacity planning is the process of mapping your solution design to a farm size and set of hardware that will support your business goals.

The sections in this chapter include the following:

- About performance and capacity planning walks you through the process of determining the hardware requirements for a single farm, and provides an overview of the planning process.
- <u>Plan for software boundaries</u> provides a starting point for planning the performance and capacity of your system. This section includes performance and capacity testing results and guidelines for acceptable performance.

Additional sections will be published as the become available.

About performance and capacity planning

This chapter walks you through the process of determining the hardware requirements for a single farm. It identifies the characteristics that will impact your capacity requirements and provides recommendations for the following:

- Number of server computers in the server farm.
- Configuration of application server roles in the server farm.
- Hardware requirements for specific server roles in the server farm.

Planning for capacity vs. availability

This chapter assumes that you have already planned for availability requirements using the Planning for fault tolerance and availability in Project Server 2007

(http://technet.microsoft.com/en-us/library/dd162399.aspx) article. As a result of using the "Plan for availability" article, you will start the capacity planning exercise with a topology that meets your organization's minimum availability requirements. Given the topology you have chosen, this chapter will help you determine:

- If you need to add additional servers to meet your goals for capacity and performance.
- If you need to adjust the configuration of application server roles to optimize capacity and performance of the server farm.
- If you need to plan for more than one server farm based on your capacity requirements.

In some cases, an organization's requirements for availability can result in a server farm size that provides much greater capacity or performance than is otherwise required. If this is the case, capacity planning can focus on sizing the server hardware economically, rather than on adding additional server computers or scaling up with higher-performing hardware.

In many cases, the topology that meets an organization's minimum availability requirements is used as a starting point and server computers are added or scaled up to meet capacity and performance goals.

Capacity planning approach

There are many variables that impact capacity planning. For this reason, it can be difficult to receive a crisp answer to a straightforward question. Consequently, the most common answer to a capacity-related question is, "It depends . . ."

The capacity planning exercise provided in this chapter is designed to reduce the number of variables in consideration so that straightforward answers can be provided based on common scenarios. However, this chapter also includes the guidance for calculating your capacity and performance requirements based on your individual solution characteristics. This chapter includes two types of capacity planning guidance:

Recommendations for estimating capacity requirements — A series of articles are provided based on targeted scenarios. Each article defines a typical usage profile and identifies the key characteristics that will impact capacity and performance for the scenario. Based on the profile and key characteristics, pre-canned data allows you to estimate capacity requirements for your solution.

Formulas and guidance for calculating specific capacity requirements — Using this guidance, you can develop your own usage profile (or modify one of the scenario profiles) and calculate all of the variables that impact the capacity and performance of your solution.

Capacity planning process

Capacity planning focuses on three aspects of a sizing your solution:

- Capacity boundaries of the software Each of the features that can be implemented and the objects that can be created have scale limitations. Planning for capacity boundaries ensures that your solution design fits within the scale recommendations of the software.
- Throughput targets Each type of action performed by a server farm introduces a
 performance load on the server hardware. Primary actions include user operations, indexing
 content, and operations tasks (such as backing up the databases). The use of specific
 features, such as Excel calculation services and content staging, also add a performance
 load. Developing throughput targets involves estimating or calculating the number of
 operations per second that a server farm will need to process in order to support the
 expected throughput load.
- Data capacity Data capacity includes the expected volume of content databases and the
 configuration database. Each server role also has unique data requirements based on the
 solution, such as disk space for content indexes or for cached content.

See Also

Plan for software boundaries

Plan for software boundaries

In this section:

- Test environment
- Test results
- Guidelines for acceptable performance

This section provides information to help you understand the tested performance and capacity limits of Microsoft Office Project Server 2007, provides information about the test environment and test results, and offers guidelines for acceptable performance. Use the information in this section to determine whether your planned deployment falls within acceptable performance and capacity limits.

The test results and guidelines provided in this section apply to a single installation of Office Project Server 2007. Adding server computers to the installation does not increase the capacity limits of the site objects that are listed in the table in the <u>Guidelines for acceptable performance</u> section. On the other hand, adding server computers does increase the throughput of a server farm, which might be necessary to achieve acceptable performance with large numbers of objects. In some cases, the requirements for high numbers of objects within a solution might require the use of more than one server farm.

In this section, the guidelines are determined by performance. In other words, you can exceed the guidelines provided, but as you increase the scale, you may experience reduced performance.

Note that there are many factors that can affect performance in a given environment, and each of these factors can affect performance in different areas. Some of the test results and recommendations in this section might be related to features or user operations that do not exist in your environment, and therefore do not apply to your solution. Only thorough testing can provide you with exact data related to your own environment.

Because Office Project Server 2007 is based on Windows SharePoint Services 3.0, most of the factors that affect the performance and capacity of Windows SharePoint Services 3.0 will also affect Office Project Server 2007. For more information about capacity and performance planning for Windows SharePoint Services 3.0, see Plan for performance and capacity (http://technet.microsoft.com/en-us/library/cc288124.aspx).

Test environment

To provide a high level of test-result detail, several farm configurations were used for testing, including one server computer performing Web server and application server roles, one or two client computers, and a single database server computer running Microsoft SQL Server 2000 database software. Some testing was performed with a separate application server computer. A dedicated domain controller computer was also used in the test lab. All server computers were 32-bit.

The following table lists the specifications of the computers performing each role in the test environment.

Computer role	Specifications
Web server and application server	4 AMD Opteron 2.2 gigahertz (GHz) processors, 2 gigabytes (GB) RAM
Application server	4 AMD Opteron 2.2 GHz processors, 2 GB RAM
Database server	4 Intel Xeon 1.5 GHz processors, 4 GB RAM
Client	1 Pentium D 3 GHz processor, 2 GB RAM
Domain controller	2 Pentium III 1 GHz processors, 512 megabytes (MB) RAM
	Note:
	Based on CPU and memory usage during testing, the relatively low specifications of the domain controller did not present a significant bottleneck.

A 100 megabit Ethernet network was used between the farm computers.

Test results

The following charts, graphs, and tables show how the test environment performed given server configuration, user operations, and load conditions. Results provided apply to all similar Office Project Server 2007 environments.



Mote:

Additional configurations will be tested in the future. Test results will be published as they become available.

Performance metrics for different operations depend on such factors as how large the project files are, how many baselines exist in a given project, and the throughput of the farm. For example, a small project file — smaller than 1 megabyte (MB) — might require less than one second to save, whereas a 50 MB project file will likely require more than one minute to save, depending on your farm configuration and network latency.

Project size test standards

The following table describes the three different sizes of project files that were used in testing.

Size	File size (MB)	Number of tasks	Number of resources	Number of assignments
Small	0.896	10	10	10
Medium	2.03	1,420	94	1,486 assignments on real resources, 380 unassigned
Large	8.139	10,422	2	5 assignments on real resources, 7,693 unassigned

Active Directory synchronization

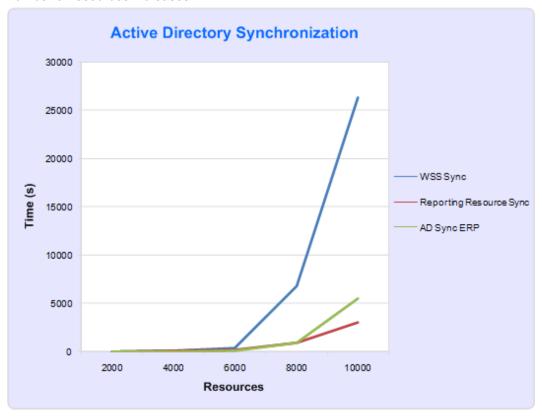
This test was conducted to measure how the performance of Active Directory directory service synchronization degrades as the number of resources increases.

Windows SharePoint Services 3.0 provides the underlying security and user management architecture for Office Project Server 2007. To manage domain users as resources in Office Project Server 2007, you must synchronize Active Directory for the domain with Windows SharePoint Services 3.0 on one of the servers in your farm.

Active Directory synchronization does not show linear complexity with regard to the number of resources imported. Complexity is roughly quadratic, and synchronization between Windows SharePoint Services 3.0 and Active Directory exemplifies this. Based on test results, we can estimate that Windows SharePoint Services 3.0 synchronization for a 20,000-seat organization would require approximately 28 hours on the test hardware. Windows SharePoint Services 3.0 synchronization for a 40,000-seat organization would complete in approximately 109 hours (4.6 days). Note that these estimates are based on the hardware and network specifications used for this testing.

In general, doubling the size of the resource pool requires nearly four times the amount of time required for Active Directory synchronization for a given farm configuration and network bandwidth. Regardless of hardware, for a very large organization, the first Active Directory synchronization job will likely run for more than one day.

The following graph shows the time required to complete Active Directory synchronization as the number of resources increases.



For more information about synchronization between Active Directory and Office Project Server 2007, see Manage Active Directory synchronization in Project Server 2007 (http://technet.microsoft.com/en-us/library/cc197402.aspx).

The effect of baselines on performance

Office Project Server 2007 allows as many as 11 baselines to be saved within a given project. As the number of baselines in a project increases, performance is affected in a number of ways. Testing was conducted to determine the effect of saving increasing numbers of baselines for small, medium, and large projects.

In our testing, file sizes and virtual memory increases appear to be roughly linear with regard to the number of saved baselines in a project. The amount of time required to save a baseline increases with the size of the project. The time required for file I/O operations did not increase for small and medium-sized projects up to the maximum number of baselines. For large projects, the time required for file I/O operations increased significantly after an eighth baseline was added.



Project depth and breadth limits

Tests were conducted to determine how performance is affected when subprojects are inserted into master projects. Two different types of tests were performed:

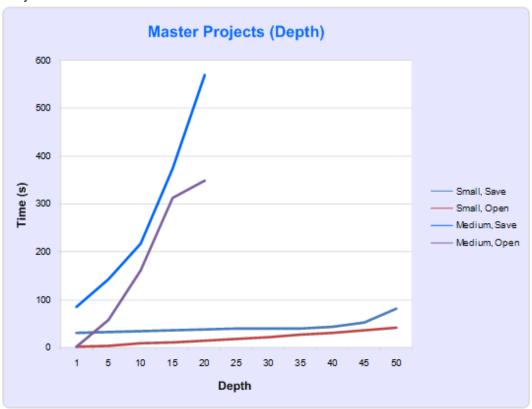
- Depth testing (recursive)
- Breadth testing (non-recursive)

Depth testing

Depth testing involved recursively inserting subprojects. For example, Proj01 was inserted into Proj02. This chain was then inserted into Proj03. This chain was inserted into Proj04, and so on. Each project in the chain was identical, and the goal of the testing was to see how many times each project (small, medium, large) could be recursively inserted, and how various performance metrics responded.

In testing of recursive insertion, virtually all significant parameters scaled linearly. The limiting factor on depth is memory usage — for example, at 16 levels, the large project, which contained approximately 10,000 tasks, approached 32-bit virtual memory limits. Even in this example, however, save operations executed very quickly. Other operations, such as closing and then reopening the master project, inserting new layers, and forcing recalculation, were significantly more time-consuming. A 64-bit server platform would significantly increase the number of projects that you could insert, but projects that would require such depth are not common.

The following graph shows how the time required to complete file I/O operations increases when the number of recursively inserted projects increases. Note that large projects are not represented, as the performance of medium-sized projects showed significant degradation after a fairly small number of recursions.



Breadth testing

Breadth testing involved inserting subprojects at the same outline level (that is, non-recursively) into a single master project.

Every major parameter scaled linearly with project breadth. Memory usage becomes a bottleneck after approximately 35 medium-sized non-recursively inserted files, and the time required to complete save and open operations is approximately 400 seconds at a breadth of 20 projects. As with recursive insertion, the use of a 64-bit platform would significantly increase the number of projects that could be inserted, but projects requiring such breadth are not common.

The following graph shows how the time required to complete file I/O operations increases for medium-sized projects when the number of non-recursively inserted projects increases.



Project server performance and network latency

Office Project Server 2007 performs well in environments that have high network latency. The design changes made for Office Project Server 2007 provide significant benefits in common single-user file I/O scenarios, especially in high-latency wide-area network (WAN) environments. Opening a large file across a high-latency (50 ms) WAN in Project Server 2003 could take as long as 45 minutes, but the same operation tested on Office Project Server 2007 required less than one minute. Team Builder in Office Project Professional 2007 shows similar performance gains in WAN environments. Although there are clear benefits to using a low-latency network connection, the performance of Office Project Server 2007 over WANs has improved dramatically from the performance of previous versions.

Although initial startup performance of Office Project Server 2007 lags behind that of Project Server 2003, it performs significantly better on subsequent starts and outperforms its predecessor.

Guidelines for acceptable performance

Capacity is directly affected by scalability. This section describes the objects that can compose a Microsoft Office Enterprise Project Management (EPM) Solution and provides guidelines for acceptable performance for each type of object.

If your solution plans exceed the recommended guidelines for one or more objects, perform one or more of the following actions:

- Evaluate the solution to ensure that compensations are made in other areas.
- Flag these areas for testing and monitoring as you build and deploy your solution.
- Re-design the solution to ensure that you do not exceed capacity guidelines.

The following table lists the Office Project Server 2007 objects to which limits apply, and includes recommended guidelines for *acceptable performance*. Acceptable performance means that the system as tested can support that number of objects, but that the number cannot be exceeded without some performance degradation. An asterisk (*) indicates a hard limit; no asterisk indicates a tested or supported limit.

Object	Guidelines for acceptable performance	Notes
Resources per farm	40,000	This is the tested limit.
Baselines per project	7 recommended 11 maximum*	Testing indicated performance degradation for certain operations on large project files when more than seven baselines were generated. For more information, see "The effect of baselines on performance" earlier in this section.
Depth of inserted projects (recursive)	16	Performance degradation at this level is significant.
Breadth of inserted projects (non-recursive)	20	Performance degradation at this level is significant.
Tasks per project	5,000	This is the tested limit.
Task length in months	300	The amount of time for a project to publish is dependent on task length when work contours are applied to tasks. This impact can be significant, especially if EPM Solution is used to create projects that span several years. This is the tested limit.

Object	Guidelines for acceptable performance	Notes	
Assignments per task	16,000	This is the tested limit. Although you can add more than 16,000 assignments per task, it took over seven seconds to add an assignment to a task that already contained 16,000 assignments.	
Local custom formula fields	10-30	The number of local custom formula fields allowed per task depends on the type of custom field. The following list shows the types of custom fields and their limits:	
		Task Text: 30	
		Task Cost: 10	
		Task Date/Start/Finish: 10	
		Task Duration: 10	
		Task Flag: 20	
		Task Number: 20	
		Task Outline Code: 10	
		Resource Text: 30	
		Resource Cost: 10	
		Resource Date/Start/Finish: 10	
		Resource Duration: 10	
		Resource Flag: 20	
		Resource Number: 20	
		Resource Outline Code: 10	
Enterprise custom formula fields per server	32,000	This is a theoretical limit, and the limit applies to each entity type to which you can apply a field. However, performance testing has not been conducted with more than approximately 1,000 enterprise custom fields.	

Object	Guidelines for acceptable performance	Notes
Team Builder resource limits	10,000 resources	The Team Builder dialog box takes less than five seconds to display even when 10,000 resources are present on the server. Although 10,000 resources is the tested limit, Team Builder can be used with more resources if the subsequent increase in time required for the dialog box to appear is acceptable.

See Also

<u>Manage Active Directory Synchronization in Project Server 2007</u> (http://technet.microsoft.com/en-us/library/cc197402.aspx)

Planning worksheets for Office Project Server 2007

In this section:

- Planning worksheets by task
- Planning worksheets by title

This section provides links to worksheets that you can use to record information that you gather and decisions that you make as you plan your deployment of Microsoft Office SharePoint Server 2007. Use these worksheets in conjunction with — not as a substitute for — Planning and architecture for Office Project Server 2007.

Planning worksheets by task

For this task	Use this worksheet	To do this
Determine organization and user needs	Planning team roles and responsibilities worksheet (http://go.microsoft.com/fwlink/?LinkID=73260&clcid=0x409)	List stakeholders, team members, and accountabilities.
	Project management requirements worksheet (http://go.microsoft.com/fwlink/?LinkID=73262&clcid=0x409)	Summarize requirements for managing a project.
	Projects and project characteristics worksheet (http://go.microsoft.com/fwlink/?LinkID=73261&clcid=0x409)	List projects by category, and record project characteristics.
	<u>Users and user types worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73259&clcid=0x409)	Record number of users, types of users, and user access requirements.
Plan EPM Solution architecture		

For this task	Use this worksheet	To do this
Plan site structure and navigation	Site hierarchy choices worksheet (http://go.microsoft.com/fwlink/?LinkId=73141&clcid=0x409)	Record decisions about how to structure site navigation.
	Site hierarchy planning tool (http://go.microsoft.com/fwlink/?LinkId=73142&clcid=0x409)	Create a site hierarchy diagram in Microsoft Office Visio.
	Site paths worksheet (http://go.microsoft.com/fwlink/?LinkId=73150&clcid=0x409)	Record managed paths that need to be created for hosting collaboration sites.
Plan site and content security		
Plan project life cycle		
Plan Office Project Server 2007 configuration	Plan for in-hosting worksheet (http://go.microsoft.com/fwlink/?LinkID=73275&clcid=0x409)	Plan an in-hosting scenario.
	Plan for out-hosting worksheet (http://go.microsoft.com/fwlink/?LinkID=73277&clcid=0x409)	Plan an out- hosting scenario.
	Portfolio management worksheet (http://go.microsoft.com/fwlink/?LinkID=73279&clcid=0x409)	Plan a portfolio management scenario.
	Program deployment worksheet (http://go.microsoft.com/fwlink/?LinkID=73281&clcid=0x409)	Plan a program deployment scenario.
	<u>Timesheet scenario worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73280&clcid=0x409)	Plan a timesheet scenario.

Planning worksheets by title

Use this worksheet	For this task	To do this
Plan for in-hosting worksheet (http://go.microsoft.com/fwlink/?LinkID=73275&clcid=0x409)	Plan Office Project Server 2007 configuration	Plan an in-hosting scenario.
<u>Plan for out-hosting worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73277&clcid=0x409)	Plan Office Project Server 2007 configuration	Plan an out- hosting scenario.
<u>Planning team roles and responsibilities worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73260&clcid=0x409)	Determine organization and user needs	List stakeholders, team members, and accountabilities.
Portfolio management worksheet (http://go.microsoft.com/fwlink/?LinkID=73279&clcid=0x409)	Plan Office Project Server 2007 configuration	Plan a portfolio management scenario.
<u>Program deployment worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73281&clcid=0x409)	Plan Office Project Server 2007 configuration	Plan a program deployment scenario.
Project management requirements worksheet (http://go.microsoft.com/fwlink/?LinkID=73262&clcid=0x409)	Determine organization and user needs	Summarize requirements for managing a project.
Projects and project characteristics worksheet (http://go.microsoft.com/fwlink/?LinkID=73261&clcid=0x409)	Determine organization and user needs	List projects by category, and record project characteristics.
Site hierarchy choices worksheet (http://go.microsoft.com/fwlink/?LinkId=73141&clcid=0x409)	Plan site structure and navigation	Record decisions about how to structure site navigation.
Site hierarchy planning tool (http://go.microsoft.com/fwlink/?LinkId=73142&clcid=0x409)	Plan site structure and navigation	Create a site hierarchy diagram in Microsoft Office Visio.

Use this worksheet	For this task	To do this
Site paths worksheet (http://go.microsoft.com/fwlink/?LinkId=73150&clcid=0x409)	Plan site structure and navigation	Record managed paths that need to be created for hosting collaboration sites.
<u>Timesheet scenario worksheet</u> (http://go.microsoft.com/fwlink/?LinkID=73280&clcid=0x409)	Plan Office Project Server 2007 configuration	Plan a timesheet scenario.
Users and user types worksheet (http://go.microsoft.com/fwlink/?LinkID=73259&clcid=0x409)	Determine organization and user needs	Record number of users, types of users, and user access requirements.