Primavera® P6™ Project Management

Reference Manual

Version 6.2.1

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Preface

Primavera's Project Management module is comprehensive, multiproject planning and control software, built on SQL, Oracle, and SQL Server Express server databases for organization-wide project management scalability. The module can stand alone for project and resource management, or it can be used with companion Primavera products to manage your project portfolios.

Primavera Products

Primavera provides an integrated project portfolio management (PPM) solution consisting of role-specific tools to satisfy each team member's needs, responsibilities, and skills. This solution uses standard Windows interfaces, client/server architecture, Web-enabled technology, and stand-alone (SQL Server Express) or network-based (Oracle and Microsoft SQL Server) databases. Primavera offers the following software components:

Project Management The Project Management module enables users to track and analyze performance. It is a multiuser, multiproject system with scheduling and resource control capabilities supporting multi-tiered project hierarchies, resource scheduling with a focus on roles and skills, recording of actual data, customizable views, and user-definable data.

The module is ideal for organizations that need to simultaneously manage multiple projects and support multiuser access across a department or the entire organization. It supports an enterprise project structure (EPS) with an unlimited number of projects, activities, baselines, resources, work breakdown structures (WBS), organizational breakdown structures (OBS), user-defined codes, and critical-path-method (CPM) scheduling and resource leveling. Large-scale implementations for organization-wide project portfolio management use it with Oracle or SQL Server as the project database. For smaller implementations, you can use SQL Server Express.

The module also provides centralized resource management. This includes resource timesheet approval and the ability to communicate with project resources who use the Timesheets module. In addition, the module provides integrated risk management, issue tracking, and management by threshold. The tracking feature enables users to perform dynamic cross-project rollups of cost, schedule, and earned value. Project work products and documents can be assigned to activities and managed centrally. The Report Wizard creates customized reports that extract specific data from its database.

Methodology Management The Methodology Management module is a system for authoring and storing methodologies, or project plan templates, in a central location. Project managers can select, combine, and tailor methodologies to create custom project plans. These customized methodologies can be imported into the Project Management module using the Project Architect wizard and used as templates for new projects. In this way, your organization can continually improve and refine methodology activities, estimates, and other information with each new project.

Timesheets Primavera also provides a Web-based interproject communication and timekeeping system. As a team-level tool for project participants, Timesheets helps team members focus on the work at hand with a simple cross-project to-do list of their upcoming assignments. It also provides views of project changes and timecards for manager approval. Because team members use this module to enter up-to-the-minute information about their assignments and record time against their workloads, project leaders can make crucial project decisions with the confidence that they have the most current information possible.

P6 Web Access P6 Web Access provides browser-based access to project, portfolio, and resource data across the organization. Every web user can create customized dashboards that provide an individualized and focused view of the specific projects and categories of project data that are most relevant to their role in managing project portfolios, projects, and resources. Project Workspaces and Workgroups extend the model of customizable, focused data views by enabling designated project team members to create a uniform team view of data that relates to one specific project or to a subset of activities within a project. P6 Web Access provides access to a wide range of data views and features that enable Web users to manage their projects from initial concept review and approval through to completion.

P6 Web Services P6 Web Services uses open standards, including XML, SOAP, and WSDL, to seamlessly integrate Primavera's project management functionality into other applications. Using P6 Web Services, organizations can share Primavera project management data between applications independent of operating system or programming language. For detailed information, see the Primavera P6 Web Services Administrator's Guide.

Primavera Integration API The Primavera Integration API (Application Programming Interface) is a Java-based API and server that enables developers to create client code that can directly and seamlessly access Primavera's project management database. For detailed information, see the Primavera P6 Integration API Administrator's Guide.

Software Development Kit The Primavera Software Development Kit (SDK) enables users to integrate the data in the Project Management module database with external databases and applications. It provides access to the schema and to stored procedures that encapsulate business logic. The SDK supports the Open Database Connectivity (ODBC) standard and ODBC-compliant interfaces, such as OLE-DB and JDBC, for connecting to the project management database. The SDK must be installed on any computer that needs to integrate with the database. For detailed information, see the Primavera SDK Help.

Claim Digger Claim Digger provides the capability to compare two projects, or a project and an associated baseline, to determine what data has been added, deleted, or modified from the schedules. Based on the data fields you select for comparison, this feature creates a project plan comparison report in one of three file formats. Claim Digger is automatically installed with the Project Management module. You can access it from the Tools menu.

ProjectLink ProjectLink is a plug-in that enables Microsoft Project (MSP) users to work in the MSP environment while being connected to Primavera's enterprise features. The functionality enables users of MSP2002 and 2003 to open and save projects from or to the Project Management module database from within the MSP application. Moreover, MSP users have the ability to invoke Primavera's resource management within the MSP environment. ProjectLink benefits organizations that have a substantial amount of project data stored in MSP but require some users to have the additional functionality and optimized data organization available within Primavera applications.

Microsoft 2007 currently is not supported for use with ProjectLink.

Using Documentation and Help

This book guides you through the process of planning and controlling projects using the Project Management module. Read the first chapter to become familiar with the process of PPM, then follow the steps in each successive chapter to build projects and project components, set up codes and documents, manage the resources required to complete the project plan, update projects as work gets underway, and report results throughout the project life cycle. This manual is organized as follows:

Part 1: Overview and Configuration Provides an overview of project portfolio management, simple steps for getting started quickly, and information about the standard layouts you can use to view project data. This part also provides a quick tour, including instructions for configuring user workstation preferences.

Part 2: Structuring Projects Includes the basics about the enterprise project structure (EPS) and describes how to set up this structure, add new projects to build the hierarchy, use and navigate the EPS, open existing projects, and define project properties. In addition, Part 2 describes how to

■ Use an organizational breakdown structure (OBS) in conjunction with the EPS to ensure that each project is effectively managed and that corresponding security measures are in place

■ Establish the personnel and equipment required to perform the work, define unlimited hierarchical resource codes for grouping and rollups, and create a standard set of roles based on skill requirements that you can assign to resources in all projects

■ Establish and use a work breakdown structure (WBS) as the basis for the budget and spending information, specifications, and milestones within the EPS

■ Establish project budgets and the funding sources behind them, monthly spending plans that show how budgets are distributed throughout project life cycles, and layouts that track and analyze variance as projects progress

■ Set up project codes to categorize projects for organizing, grouping, selecting, and summarizing

■ Define custom fields that enable you to track and report project data in fields customized for your business needs

■ Create calendars that define national and organizational holidays, project-specific work/nonworkdays, and resource vacation days

Part 3: Implementing the Schedule Describes how to define a set of codes you can use to categorize project activities for organizing, grouping, selecting, and summarizing. Part 3 also explains how to

■ Establish the activities that compose projects and apply durations, dates, resource information, activity types, activity relationships, and other activity details

■ Set up the expenses, or nonresource costs, associated with a project, and create global cost accounts to track activity costs and earned value according to your organization's specific cost account codes

■ Assign estimation weights to WBS elements and activities to perform top-down estimation

Part 4: Updating and Managing the Schedule Describes how to establish baseline plans against which you can track project cost, schedule, and performance data. Part 4 also explains how to

■ Create baselines to use for comparison, summarization, and earned value reporting

■ Update projects by applying actual dates directly to activities or by using timesheet data from the Timesheets module, and how to schedule and level projects

■ Summarize and save project data "on-the-fly" or at a regularly scheduled interval you specify

■ Establish issues, or known problems within a project plan, either manually or by defining project thresholds, which monitor project data according to measures you specify

■ Calculate the effect that a project risk—a concern or uncertainty about a project or one of its components—will have on a project's schedule, costs, and durations

■ Catalog and track all project-related documents and deliverables, and track the schedule by setting up additional layouts to monitor project status

■ Compare projects and baselines to determine the project data that has been updated

■ Check projects in and out of the module to maintain the most up-to-date project data possible throughout the organization

Part 5: Customizing Projects Describes how to:

■   customize layouts for analysis and easier data entry

■   display specific information about project

■   produce reports that detail or summarize project information and answer key questions that arise as the project progresses.

■   publish a project on the World Wide Web.

Part 6: Importing and Exporting Data Describes how to:

■   exchange project and methodology data with other Primavera Project Management and Methodology Management users using Primavera's propriety exchange format (XER).

■   exchange project data with other Primavera Project Management users using Primavera XML files.

■   exchange project data with Microsoft Project or Microsoft Excel.

■   exchange project data between the Project Management module and Primavera Project Planner (P3), Primavera Contractor, and Primavera Contract Manager users.

Project Management Help Provides an extensive online help system to supplement the documentation. Use Help to access general information about program options, detailed descriptions of windows and dialog boxes, and step-by-step instructions for specific project tasks. Help also includes Hint Help for column values in various windows. Access Hint Help by clicking the Display Options bar, choosing Hint Help, and then clicking a value in a column.

Where to Get Support

If you have a question about using Primavera products that you or your network administrator cannot resolve with information in the documentation or Help, contact Primavera Customer Support at the times and locations listed below.

Please provide your Primavera product serial number when contacting Primavera. Each interaction is logged to help Primavera resolve your questions quickly.

Office	Time Zone	Hours	Telephone	FAX	E-mail Address*
Bala Cynwyd, Pennsylvania, USA	ET	8:00–8:00 (Mon–Fri) 9:00–2:00 (Sat)	+1-610-668-3030	+1-610-667-0652	support@primavera.com
London, England, UK	GMT	8:30–6:30 (Mon–Thur) 8:30–5:30 (Fri)	+44-20-8563-5555	+44-20-8563-5543	support@primavera.com
Hong Kong	GMT +8	8:00–5:00 (Mon–Fri)	+852-2111-8299	+852-2111-9477	support@primavera.com

*Primavera's Web site at http://www.primavera.com/customer/index.asp provides support and product information, such as knowledgebases, file downloads, user group and newsgroup information, and a product enhancement request form.

In the United States, Primavera periodically and randomly monitors technical support calls to ensure that you receive the highest quality support.

All Primavera products are backed by comprehensive support and training.

Overview and Configuration

In this part: **Understanding Project Management**

Quick Tour

Setting User Preferences

*R*ead this part to learn more about project portfolio management.

"Understanding Project Management" discusses Primavera's approach to managing projects. It also defines the various organization-wide project management roles, explains how these roles can use other Primavera applications to achieve their project goals, and provides an overview of the methods used to successfully manage and control projects.

"Quick Tour" introduces key project portfolio management concepts and explains how to perform basic tasks, such as opening a new project and using wizards.

The "Setting User Preferences" chapter explains how to customize the module to fit your special needs.

Understanding Project Management

Primavera software products are designed to support the project management needs of organizations that manage large numbers of projects at one time.

These integrated applications use project portfolio management (PPM) to support the management needs of project teams in different locations and at varying levels of the organization.

This chapter provides an overview of PPM, the roles used in PPM, and the basic concepts for planning, managing, and controlling your projects.

Why Use Project Portfolio Management?

Large businesses typically have hundreds—even thousands—of projects underway at one time to create the new products and services that build their future. These projects cross normal business hierarchies and chains of command, making project portfolio management (PPM) an organization-wide challenge. The pressure to complete projects on time and within budget, *and* maintain a competitive edge, is driving corporations to develop and implement PPM processes. They are moving away from a traditional functional structure to a multiple-project organization that must achieve clear, but urgent goals, using limited, shared resources, and they need the fastest business payback from those projects to realize potential revenue and increase shareholder equity.

PPM provides comprehensive information on all projects in an organization, from executive-level summaries to detailed plans by project. Individuals across all levels of the company can analyze, record, and communicate reliable information and make timely, informed decisions that support their corporate mission. By putting the right tool in the right hands, PPM enables an organization to

■   Make strategic business decisions

■   Control the minute detail that is necessary to finish projects

■   Understand current resource demands, set priorities, and evaluate long-term staffing requirements

■   Use skilled resources effectively and productively

■   Reorganize projects to fit shifting priorities without sacrificing quality

Your Role in the Organization

By definition, PPM must meet the needs of several types of users. The following section describes the roles as they typically apply to the Primavera applications. Roles may vary or overlap depending on the organization.

Network administrators Network administrators configure an organization's network environment (local- and wide-area networks) for optimal performance with Primavera applications. They install and maintain the server and client components of the applications. In addition, they manage user access to data and develop and maintain a comprehensive security policy to ensure that PPM data are protected from unauthorized access, theft, or damage.

Network administrators ensure that the hardware and software supporting Primavera applications function reliably by

■ Setting up and maintaining the network to ensure reliable connections and the fastest possible data transfer

■ Creating and maintaining accurate lists of network resources and users so that each has a unique network identity

Database administrators Database administrators (DBAs) are responsible for setting up, managing, and assigning access rights for the Primavera database. They set and oversee rules governing use of corporate databases, maintain data integrity, and set interoperability standards.

Database administrators ensure reliable access to the Primavera database by

■ Installing, configuring, and upgrading database server software and related products as required

■ Creating and implementing the database

■ Implementing and maintaining database security, including creating and maintaining users, roles, and privileges for the database

■ Monitoring database performance and tuning as needed

■ Planning for growth and changes and establishing and maintaining backup and recovery policies and procedures

Operations executives Operations executives are responsible for strategic planning and ongoing performance analysis. They use the Project Management module and the Portfolios section of P6 Web Access to analyze schedule, resource, and cost data across projects.

Senior executives may be responsible for

■   Prioritizing projects

■   The profit/loss for a specific business entity

■   Funding and go/no-go decisions about projects

■   Strategic planning over the future of the business or division

Project controls coordinators Project controls coordinators are responsible for ensuring that Primavera applications are implemented properly and operate smoothly. They play a key role during implementation by

■   Working with operations executives and program/project managers to set up methodologies in the Methodology Management module

■   Working with operations executives and program/project managers to structure project, organizational breakdown structure (OBS), and resource hierarchies, set up basic calendars, and define organization-wide custom fields and codes in the Project Management module

■   Working with the project administrator to create user accounts and user groups for the Project Management module

■   Assigning security rights to users in the Project Management module

Program managers Program managers oversee several high-level project managers; they are responsible for multiple projects and use the Project Management and Methodology Management modules, along with P6 Web Access to:

■   Perform cross-project analysis

■   Manage projects to on-time and on-budget completion

■   Prioritize resources across projects

■   Plan projects before they are funded

Project managers Project managers manage multiple small, repetitive projects or a single, complex project. They are responsible for on-time/on-budget completion of the projects and use the Project Management module and P6 Web Access to

■   Allocate specific named resources to a project in conjunction with the functional manager of those resources

■   Communicate project information both up and down the chain of command

■   Manage resources related to the project

Resource/cost managers Resource managers allocate resources across projects and distribute their workloads. They are responsible for resource planning, including recruiting, hiring, and training resources, and they may be responsible for loading resource information in the Project Management module, the Methodology Management module, and the Resource section of P6 Web Access. Cost managers perform detailed financial analysis of projects, handle project billing, and integrate financial information within the company.

Team leaders Team leaders manage the work for a portion of a larger project. They are managers who produce work and manage a team, and they often use the Project Management and Timesheets modules, and P6 Web Access, to prioritize short-term tasks or objectives, typically when the duration is less than the planning period of the project.

Team members Team members are trained in a specific skill required on a project. They work with their manager to develop activities and durations for incorporation into the schedule. Once activities are added to the schedule, team members update them using the Timesheets module to indicate the work they performed during designated accounting periods. Team members may also use personalized dashboards in P6 Web Access to quickly access their projects, activities, documents, and more.

Project Management Process Overview

When contractors develop plans for a building, one of the first steps is laying a foundation. This is also a true for building projects using the Project Management module. The hierarchical structuring of data serves as the foundation before the addition of actual project data. The following is a suggested sequence for setting up these structures:

■ Set up the organizational breakdown structure (OBS), which is the hierarchical arrangement of your company's management structure, either as roles or individuals.

■ Set up the enterprise project structure (EPS), which is the hierarchical structure that identifies the company-wide projects and enables organization and management of those projects in your organization.

■ Set up a resource hierarchy that reflects your organization's resource structure and supports the assignment of resources to activities.

■ For each project, set up the work breakdown structure (WBS), which is a hierarchical arrangement of the products and services produced during and by a project.

For information about setting up security, see the *Primavera P6 Administrator's Guide.* **This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download**.

Project controls coordinators, working with operations executives and program/project managers, structure the OBS and EPS hierarchies. Setting up the OBS first enables association of the responsible managers with their areas of the EPS—either nodes or projects—when the EPS is structured. User access and privileges to nodes and projects within the EPS hierarchy are also implemented via a responsible OBS, so the security profiles that monitor data access by project participants can be established early on in the process.

Once the OBS is established, the EPS can be set up. An EPS can consist of multiple root nodes, which enable particular types of projects to be grouped together, such as project templates or high-risk projects. Within each root node, you can further break down an EPS into multiple EPS nodes, such as Capital Improvement projects and Manufacturing projects, to categorize the types of templates projects.

The WBS acts as a continuation of the EPS for the individual projects in the organization. A WBS provides organization and control of project and activity information through a hierarchy of WBS elements. When you create projects, the Project Management module automatically creates a WBS element at the same hierarchy level and with the same name as the project. You can set anticipated project dates, budgets, and spending plans for a WBS at a high level to indicate when the work should occur and how much its planned budget and monthly spending will be before any projects are added to the EPS. In addition, you can use the pre-established budget amounts and funding information you set for WBS elements for their project and activity counterparts.

For details on setting up these structures, see the applicable chapters in Part 2.

The following example represents how the OBS, EPS, and WBS structures interrelate within one branch of the EPS.

The responsible manager used for the root node in the EPS branch is used as the default for the EPS nodes and projects for that branch; you can change the assignment(s).

The WBS extends beyond the project level—all activities in the project have a WBS association.
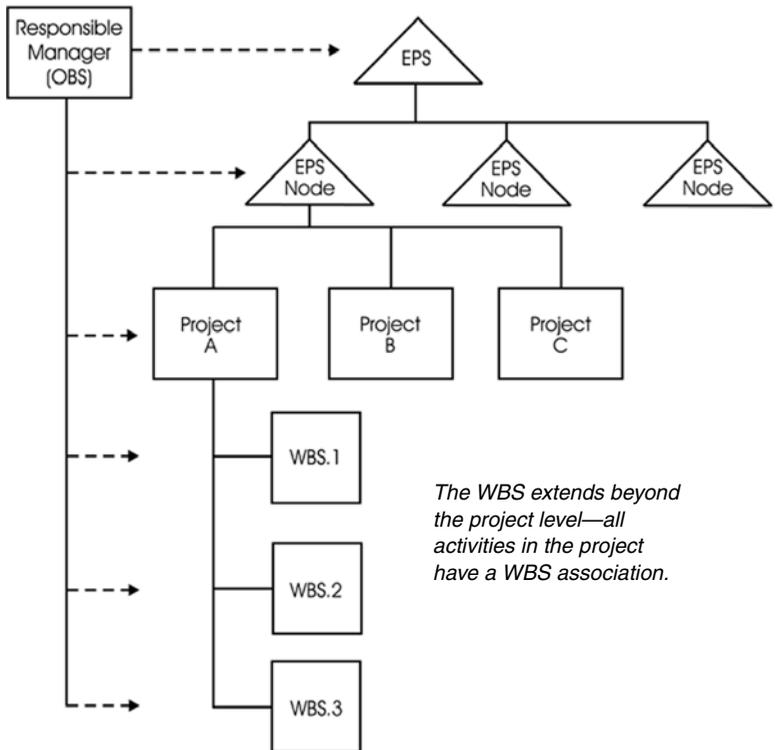
Planning, Controlling, and Managing Projects

Before implementing Primavera to schedule projects, team members and other project participants should understand the processes involved in project management and the associated recommendations that help smooth the Primavera implementation that supports your corporate mission.

If you were driving to a place you had never seen, would you get in the car without directions or a map? Probably not. More than likely you'd take the time to plan your trip, consider alternate routes, and estimate your time of arrival. Planning the drive before you even left would help your trip be more successful. And, along the way, should you encounter road blocks or traffic delays, you would have already identified alternate ways to reach your destination.

Project management follows the same methodology and purpose—to achieve each project's goals, you need to plan them in advance. Good project management is no longer an option in today's corporate world. It is a critical tool to help your company stay on target and accomplish its goals.

Simply stated, project management is the process of achieving set goals within the constraints of time, budget, and staffing restrictions. It allows you to get the most out of your available resources. Resources include

■   People

■   Materials

■   Money

■   Equipment

■   Information

■   Facilities

■   Roles

Project portfolio management factors in all of these variables across multiple projects, enabling project managers and company executives to see an accurate picture of how each project's resource use affects other projects.

The process of project management is guided by three key principles:

■   Planning

■   Controlling

■   Managing

Planning a project   The first step in project management is to define your project.

1   *What is the scope of the work*? What activities will make up the project and what is their relationship to each other? You'll also want to identify the major milestones that will help you monitor the project's progress.

2   *What is the project duration?* What are the dates when the project will begin and end?

3   *What resources are available to the project?* Beyond labor, think about all the types of resources you will require.

4   *Who will perform what tasks?* Determining your labor resources and their available workhours is a key part of building a successful project. You'll need to plan for downtime and holidays and determine the regular workweek for various staffing types.

5   *How much will the project cost?* What are the costs per resource? Are there any hidden project costs?

6   *What is the estimated budget?* Establishing a project budget estimate in advance helps you monitor possible cost overruns.

The answers to these questions form the framework of your project.

Controlling a project   Once you have built your project and estimated your budgeting needs, you save this original plan as a *baseline,* or *target schedule*, to help you control the project. A baseline provides a solid point of reference as your schedule changes over time. It allows you to compare the original schedule to the current one and identify significant changes and develop contingency plans.

You control a project to keep it heading in the right direction. You'll want to track work progress and costs, compare them to your baseline, and then recommend what actions should be taken.

Effective project control reaps many benefits. It allows you to keep a close eye on possible problems before they become critical. It lets the project team and senior management view cost and scheduling timeframes based on the reality of the schedule.

Managing a project The process of guiding a project from start to finish is the responsibility of a project manager. A good project manager wears many hats, acting at various times as a motivator, communicator, coordinator, and advisor. As you control the project's progress, it is your job to keep your team aware of changes to the schedule and possible consequences. In many ways, you are the project's ambassador, ensuring that your project organization is carrying out its responsibilities for the best possible outcome.

To be an effective project manager also requires consistency when you update your projects. Select a day each week, or biweekly, when you will regularly update projects. This regular update will include progress on values such as

■   Dates on which activities started or finished

■   Dates when resources are consumed

■   Changes to resource rates

Determine a standard policy for the update and scheduling procedure, and for reporting progress.

The Project Management module provides many tools to assist you in reporting progress to both team members and senior management. Use the Project Web Site option to create a central location where team members can view project progress. Consider the many system reports as a means for communicating change. In addition, senior management can use the Portfolios section of P6 Web Access to summarize project data and easily capture a snapshot of how a project or group of projects is progressing.

Quick Tour

This quick tour introduces you to the Project Management module and its workspace. It discusses the layout approach to viewing data and includes samples to help you start creating your own layouts. You will also learn the basic steps for starting the module, opening a project, and using wizards to speed up your work.

Getting Started

Refer to the Primavera P6 Administrator's Guide for detailed installation instructions. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

The installation process guides you through setting up the module on your computer.

Start the Project Management module Click Start, then choose Programs, Primavera, Project Management.

Log in Before using the module, you must enter a valid login name and password. If you do not know your login name and password, see your system administrator.

1 Type your login name.

2 Type your password.

3 Accept the database shown, or select another database.

4 Click to open the Welcome dialog box.
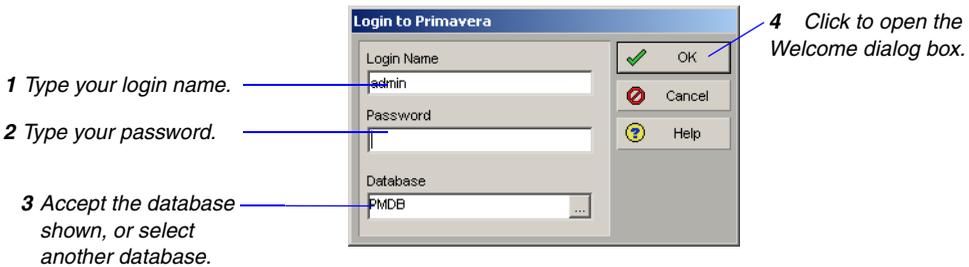
Passwords are case-sensitive and depend on selections in the Admin Preferences dialog box.

If the Enable Password Policy check box is marked in the Admin Preferences dialog box, you are required to enter a password with a minimum length of 8 characters, including one alpha and one numeric character.

If the Enable Password Policy check box is cleared in the Admin Preferences dialog box, you are required to enter a password of up to 20 characters in length.

Your login name can be up to 20 characters in length.

Use the Welcome dialog box to create a new project, open an existing project or the last open project, or open global data only.

Welcome. What would you like to do?

Select Project Portfolio:
All Projects

Click to select a different portfolio

Create New...   Create a new project.

Starts the Create a New Project wizard for adding a new project

Open Existing...   Open an existing project.

Displays the Open Project dialog box for selecting an existing project or EPS node to open

Open Last   Last project: Conv

Opens the last project you used

Open Global Data   Open global data only - EPS, Projects, Roles, Resources, Calendars, etc.

Opens the module without opening or creating a project. Only global data and administrative functions are available.

☐ Do not show this window again.

Help   Cancel

Mark the Do Not Show This Window Again checkbox if you do not want the Welcome dialog box to appear each time you open the module. The last project used at startup automatically opens. To turn this option back on, choose Edit, User Preferences, then click the Application tab and mark the Show the Welcome Dialog at Startup checkbox.

Select a portfolio Select a project portfolio to view a group of projects that have a common characteristic. A portfolio can contain any number of projects. Choose File, Select Project Portfolio to select a portfolio.

Click to change your portfolio display. You can change the table font, color, and row height, or expand/collapse all bands.

Select A Portfolio

Display: Portfolios

Portfolio Name
EPS
All Projects
No Projects
Global Portfolios
2002 tactical
Beyond T+1 Impact
Key Business unit projects
may portoflio
New Project Portfolio
PFIQ20429
Postpone CRM
Postpone ERP
Strategic Projects
User Portfolios
(New Portfolio)
New Project Portfoliotest

OK

Cancel

Help

Display:

- ⦿ EPS bands only for projects in current Portfolio
- ○ All EPS bands

Modify a portfolio Use the Project Portfolios dialog box to view and change general information about the selected portfolio. You can also add and delete portfolios. Choose Enterprise, Project Portfolios to set up project portfolios.

The top portion of the Project Portfolios dialog box contains information about all available portfolios, and the lower portion is divided into two tabs that display specific information about a selected portfolio.

Select who can access the selected portfolio. All Users means the portfolio is available to all users; Current User means only the current user can access the portfolio; and Another User means only the specified user can access the portfolio.
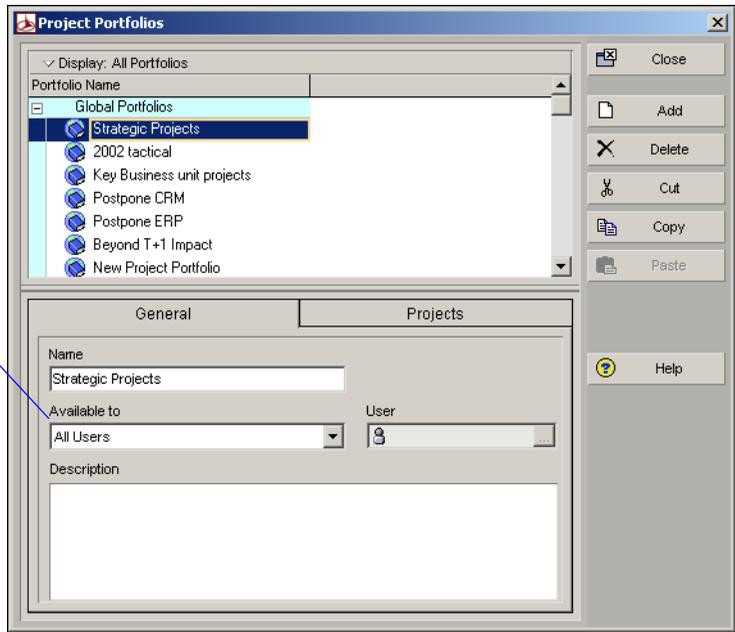
Click to add projects to the selected portfolio.
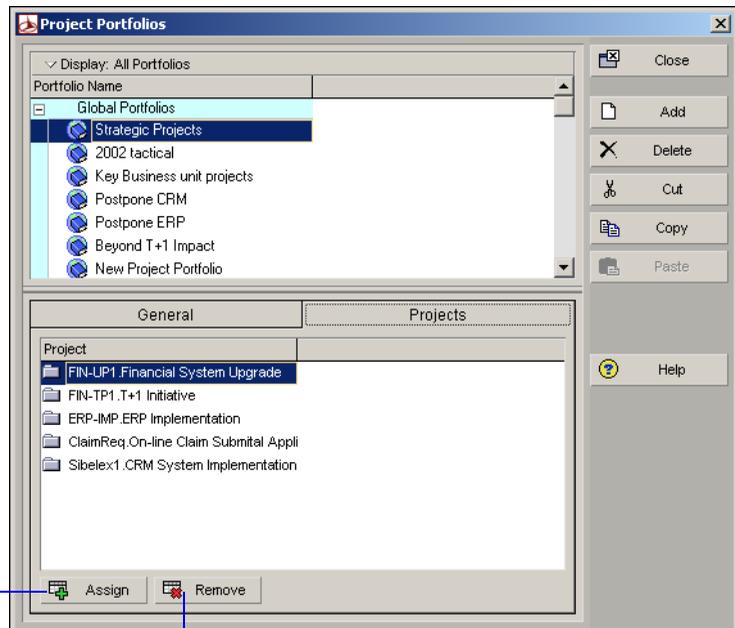
Click to remove projects from the selected portfolio.

Selecting a Language

Use the Set Language dialog box to select the language in which to display the information in menus, dialog boxes, and messages.

This option does not affect the data you enter; this information appears exactly as typed.

Select a language To display the Set Language dialog box, choose Tools, Set Language.
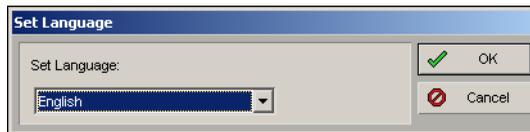
Restart the Project Management module for the language change to work properly.

The Workspace

When you first open a project, the Home workspace displays the main functions available in the module. For example, click Activities to focus on activity data and customize layouts. The workspace for each main window consists of a menu bar, navigation bar, directory bar, toolbar, and command bar.

Use the toolbar to quickly access options that pertain to the window displayed and to change the look of your layout.

Use the navigation bar to move between open windows, display and hide the directory, and open Help quickly for a specific window.

Choose a menu to open a list of commands.

Use the directory to switch your focus.

Click the buttons in the Command bar to perform various functions specific to the open window.

Display the directory bar Use the directory to display windows quickly. Choose View, Toolbars, Directory, to display or hide the directory bar. To display or hide directory bar button text, choose View, Toolbars, Directory Button Text.

Display data at the enterprise level

Displays the Projects window. Use to globally review the global enterprise project structure (EPS), and to work with individual projects.
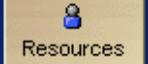
Displays the Resources window. Use to add or modify your organization's resources.

Displays the Reports window. Use to produce reports for all projects or the open project.

Displays the Tracking window. Use to display and create tracking layouts for the open project.

Display data at the project level

Displays the Work Breakdown Structure window. Use to add or modify the open project's work breakdown structure (WBS).

Displays the Activities window. Use to work with activities in the open project.

Displays the Resource Assignments window. Use to view, add, and delete resources assigned to activities.
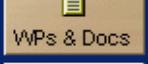
Displays the Work Products and Documents window. Use to create and assign work products/documents for the open project.

Displays the Project Expenses window. Use to work with expense items for the open project.
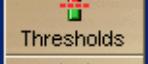
Displays the Project Thresholds window. Use to add or delete thresholds for the open project.
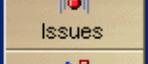
Displays the Project Issues window. Use to add or delete issues for the open project, review issue history, and notify other team members of issues.

Displays the Project Risks window. Use to add, delete, or calculate risks for the open project.

Display the navigation bar Use the navigation bar to move between open windows. You can also use the navigation bar to display and hide the directory and open Help for the current window or dialog box. The navigation bar is displayed or hidden when you choose View, Toolbars, Navigation Bar. To display or hide navigation bar button text, choose View, Toolbars, Navigation Bar Button Text.

Returns to the Home workspace

Displays the next window in a series of windows you opened. The Forward button is available only after you use the Back button to redisplay a previous window.

Displays the last window you opened

Displays or hides the directory

Opens Help
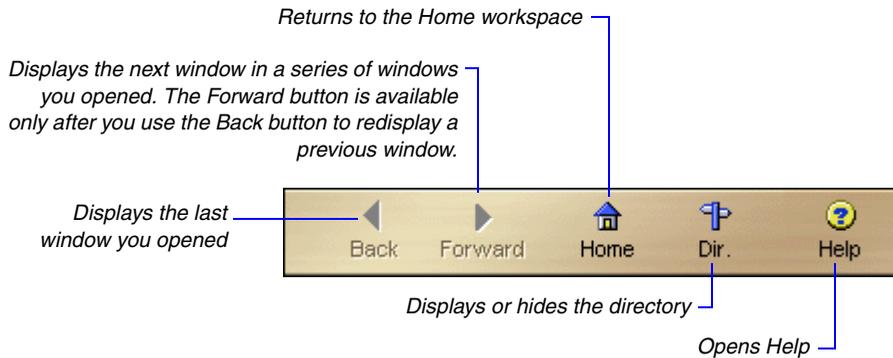
Use shortcut menus Instead of using standard menus and buttons, you can also use the right mouse button to access frequently used commands. To use shortcut menus, right-click an element or the white space in any window, then choose the appropriate command.

Select multiple items To select a group of items that are next to each other in the display, hold down the Shift key, click the first item in the group, then click the last item in the group. To select multiple items that are not next to each other in the display, hold down the Ctrl key, then click each item you want to select.

What Is a Layout?

A layout is a customizable view of project information. To customize a layout to meet specific needs, you can choose from a wide range of project information, columns, colors, fonts, and activity groupings, and you can display these data in the top and/or bottom layouts. For example, show a Gantt Chart in the top layout and an Activity Table in the bottom layout. Each time you change the way data are presented in the top and bottom layouts, you create a unique layout. The module automatically prompts you to save a layout when you close it, allowing you to define a unique name for it so you can use the layout again with the current project or a different project.

You can also customize the Activity Table and Gantt Chart in the Projects window.

Activity Table displays activity information in spreadsheet format. Use this type of layout to quickly update a project. Use the Fill Down function to quickly copy and paste contents of rows in the Activity Table. You can use filters and group data to see only those activities that occur in your current status cycle. You can customize Activity Table columns. You can also sort, filter, and group activities in the Activity Table, as well as change the font of the activity information and the color of the table background. The Activity Table is displayed in the top and bottom layouts.

For more information on using the Fill Down function in the Activity Table, see the Help.

Gantt Chart provides a graphical display of activity progress over the course of the project. You can customize Gantt Chart bars, colors, labels, and symbols. You can also sort, filter, and group activities in the Gantt Chart. The Gantt Chart is displayed in the top and bottom layouts.

Activity Usage Spreadsheet displays units, costs, or earned value data by activity over time. Use this type of layout to review per period and rolled up activity resource/cost data. The Activity Usage Spreadsheet is displayed in the top and bottom layouts.

Activity Network provides a graphical display of activities, including logical relationships. You can specify which information you want to display, and you can change the Activity Network colors and fonts. You can also group and filter activities in the Activity Network. The Activity Network is displayed in the top layout only.

Activity Details display detailed information for an activity you select in either the Activity Table or Activity Network. You can also use Activity Details to enter and edit an activity's information, such as dates, resource assignments, and predecessor and successor relationships. Activity Details is displayed in the bottom layout only.

Resource Usage Spreadsheet displays resource data in spreadsheet format. This approach is helpful when you are updating and maintaining both your organization's resource hierarchy and individual resource information. This spreadsheet is displayed in the bottom layout only.

Activity Usage Profile displays a time distribution of activity units and costs in a Bar Chart format. You can customize all aspects of the Activity Usage Profile display. You can also filter activity information in the Activity Usage Profile. This profile is displayed in the bottom layout only.

Resource Usage Profile displays a time distribution of resource units and costs in relation to activities in a Bar Chart format. You can customize all aspects of the Resource Usage Profile display. You can also filter activity and resource information. This profile is displayed in the bottom layout only. You can also display a stacked histogram for the profile in the Activity window, and in the Resource Analysis type layout in the Tracking window.

Trace Logic provides a graphical display of dependency relationships for an activity you select in either the Activity Table or Activity Network. Trace Logic is displayed in the bottom layout only.

Use toolbar buttons to customize the layout.

To completely close the lower layout and view only the data in the top layout, click the Show/Hide Bottom Layout button.

To hide or show more of the information in each pane, drag the horizontal split bar between the two layouts.

In the sample layout above, the top part of the window shows activity data in a Gantt Chart, while the lower part displays the Activity Details.

Customizing Displays

Most windows and dialog boxes include a Display or Layout Options bar at the top of the screen that contains commands that enable you to customize the current display. Click this bar to display a menu of the commands available for that window or dialog box. You can also access many of these commands from the View menu.

Click the Layout Options bar to display a menu of the options available for the Activities window.
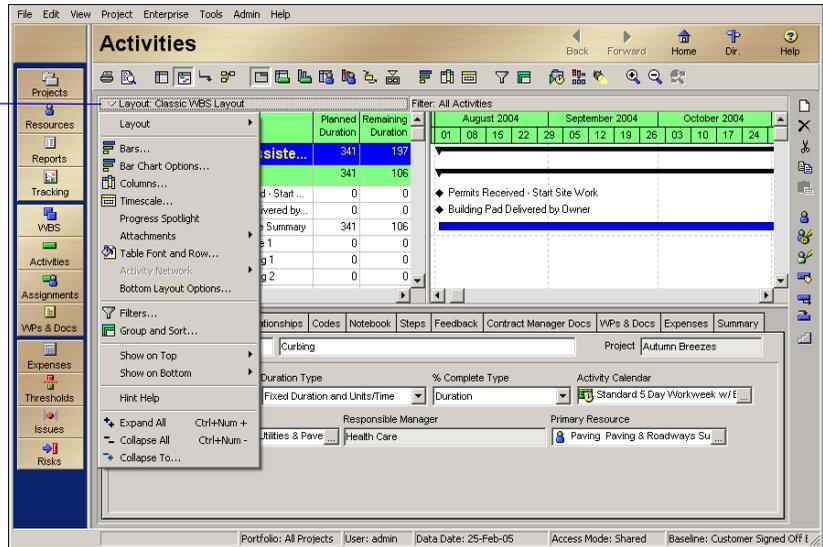
For details about customizing layouts, see "Customizing Layouts" on page 445.

You can switch your display from a hierarchical view to a list view when displaying information, such as resources and the work breakdown structure, that is displayed in different levels. To switch a display from hierarchy to list view, click the leftmost column label that appears in the display.

An outline symbol (⊟) in the leftmost column label indicates a hierarchy view.

A triangle symbol (▽) in the leftmost column label indicates a list view.
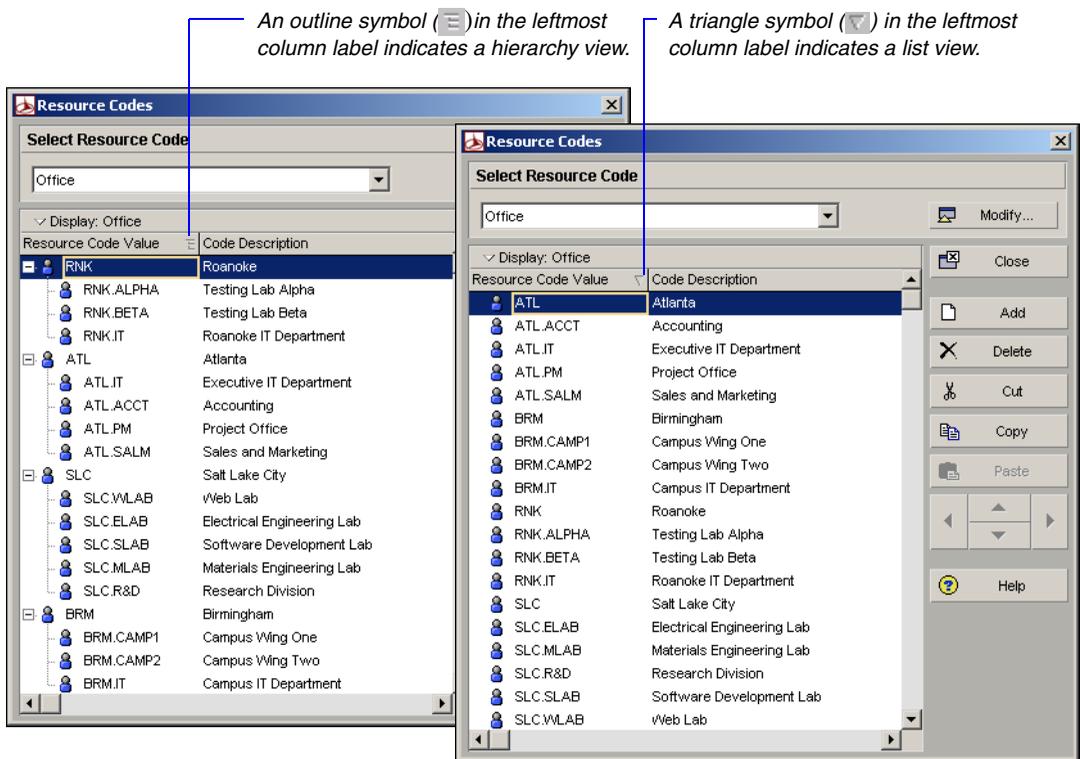
After you change a display to list view, you can also sort the displayed information by clicking any column label.

Sample Layouts

The sample database included with the module provides standard layouts that you can use with your own projects.

To open a sample layout, first open one of the projects from the sample database or your own database in the Activities window, then choose View, Layout, Open.

In this sample layout, you can view your project data based on the project's work breakdown structure (WBS).
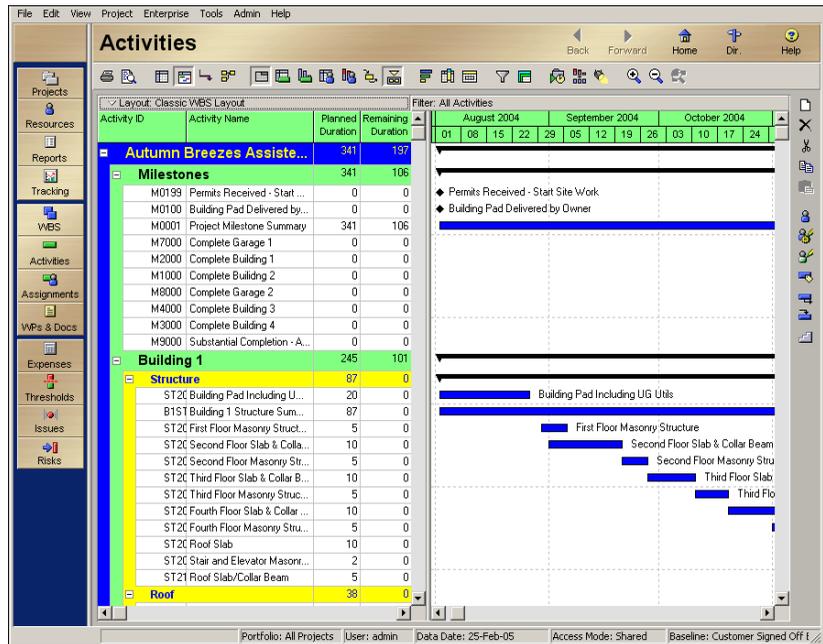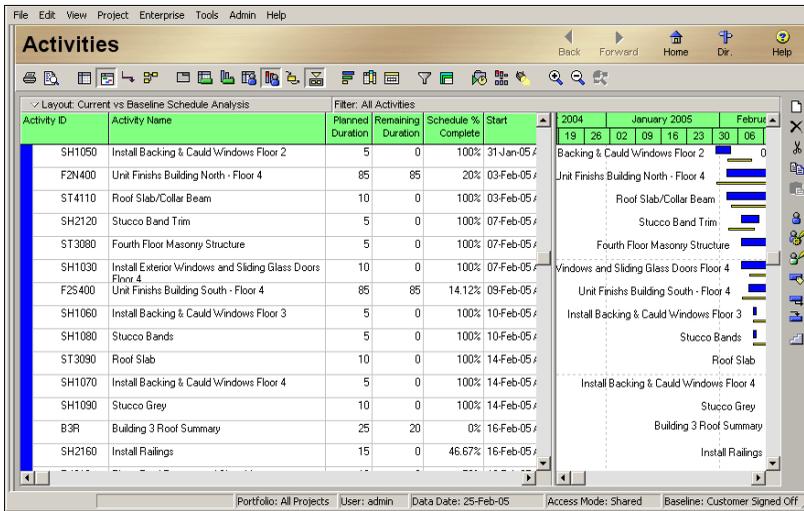
This layout enables you to compare your current dates to your baseline dates.
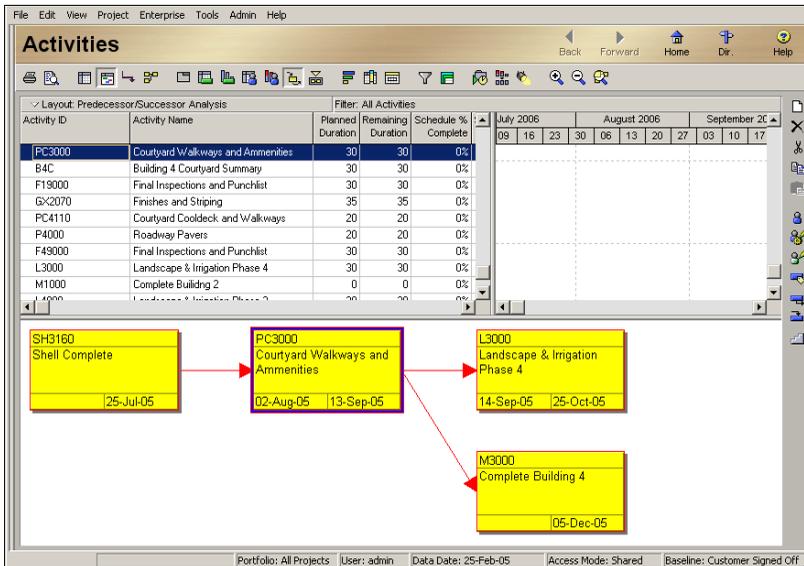
This Activity Network layout enables you to view your project graphically, by predecessor and successor relationships. Click the Activity Network boxes to move along the critical path of the project, or right-click to make changes to the data.

Using Wizards

Wizards are a great way to speed up your work. They quickly guide you through repetitive steps, doing most of the work for you.

The module contains wizards for creating new projects, adding activities, creating resources, and building reports.

If you prefer to work without wizards, mark this checkbox on the first dialog box of each wizard or choose Edit, User Preferences, Assistance, and set your choices in the Wizards section.

*These navigation buttons step you through the wizard. Click **Prev** to change your previous entries and **Next** to move forward.*

You can specify whether you want wizards to help you add activities and resources. Other wizards are also available to create new projects, export and import project data, and define administrative preferences. Wizards are discussed in more detail in the appropriate chapters of this manual or in the Help.

Set wizard options Choose Edit, User Preferences. Click the Assistance tab.

Mark to use the New Resource Wizard.

Mark to use the New Activity Wizard.

Navigate wizards To move between different wizard windows, click Prev or Next. To save your changes and close the wizard at any time, click Finish. To close the wizard without saving your changes, click Cancel.

Setting User Preferences

You can tailor certain options to fit your specific needs. For example, indicate the format for displaying time units and dates, specify the currency to use for viewing costs, and set startup display preferences. You can also indicate how you want to transfer information to and from e-mail installations of the module, and specify whether you want to use the latest calculated summarized data or the most current data in Activity/Resource Usage Spreadsheets and Profiles.

This chapter describes how to set these options.

Formatting Time Units

Time unit settings affect how time unit values are displayed in tracking layouts, activity durations, resource prices, availability, and work efforts. Choose Edit, User Preferences, then click the Time Units tab.

This option is disabled when Show Unit label or Show Duration label is not marked.

Mark to display the time unit abbreviation with the time/duration value.

For each time period, specify the number of hours to use as a conversion factor when you display time unit fields in increments other than hours. These fields are disabled when the Admin Preference 'Allow users to specify the number of work hours for each time period' is not selected.

Units Format

Unit of Time	Sub-unit	Decimals
Day	☐ Hours	0

☑ Show Unit label   Example 5d

Durations Format

Unit of Time	Sub-unit	Decimals
Day	☐ Hours	1

☑ Show Duration label   Example 10.1d

Units/Time Format

Resource Units/Time can be shown as a percentage or as units per duration

◉ Show as a percentage (50%)

○ Show as units/duration (4h/d)

Hours per Time Period

Specify the number of work hours for each time period.

Hours/Day	Hours/Week	Hours/Month	Hours/Year
8.0	40.0	172.0	2000.0

Set time unit options In the Units Format section, select the time unit used to display work efforts, and resource/role prices and availability. In the Durations Format section, select the time unit used to display activity duration values.

Mark the Sub-Unit checkbox to include the next smallest time interval for the Unit of Time selected; the field name changes accordingly. For example, if you select Day in the Units field, the Sub-Units field displays Hours. You can also select the number of decimal places you want to include in time unit displays.

In the Units/Time Format section, choose to show resource units per time as percentages or as units per duration. Your choice determines how rates are displayed. For example, 4h/d is the same as 50 percent of an eight-hour day.

Define the Hours per Time Period Primavera calculates and stores time unit values in hourly increments. When you display or enter data in time unit fields in increments other than hours, the Project Management module converts the data based on the Hours per Time Period settings (either Admin Preference or User Preference - see note below). Conversely, if you enter time units in increments other than hours, the Hours per Time Period settings (either Admin Preference or User Preference - see note below) are used to convert these input values to hours for database calculation and storage.

In order to display time unit data accurately, you should set the Hours per Time Period values according to the activity calendar used by your role in the organization. For example, if you are an engineer and engineers use an 8-hour activity calendar, enter 8 as the Hours/Day value. If you do not enter a value that corresponds to your role's activity calendar, activity durations may be displayed incorrectly when you view your activities in spreadsheets, reports, etc.

If the Admin Preference (Time Periods tab) option 'Allow users to specify the number of work hours for each time period' is not selected, these fields are not editable. When the option is not selected, the Hours per Time Period settings on the Time Periods tab of Admin Preferences are used to calculate display values for time unit fields.

Formatting Dates

Choose Edit, User Preferences, then click the Dates tab to specify how to display dates.

Choose to exclude the time from date fields.

Displays an example of your format preferences

Specify date format Choose the date format you want to use, then choose how to display time values in date fields. Mark the applicable checkboxes in the Options area to indicate how the selected date format should appear. In the Separator field, select the character you want to use to separate days, months, and years.

Setting View Currency and Symbols

Choose Edit, User Preferences, then click the Currency tab to specify the currency used to view cost data, and whether to show or hide the currency symbol and/or decimal values in cost values.

You must enter all cost data in the view currency selected in User Preferences.

Currency Options

Select a currency for viewing monetary values

Dollar

Mark to include the symbol used for the currency. —— ☑ Show currency symbol $

☑ Show decimal digits   0.00
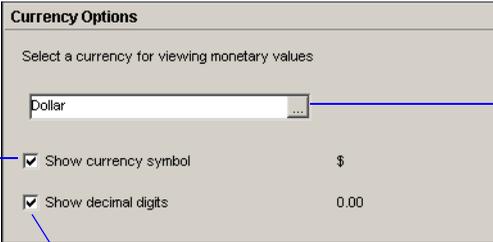
Click to select the currency for viewing costs; this may differ from the base currency used to store monetary values.

Mark to show decimal values for costs.

The currencies available for viewing monetary units are defined by your administrator in the Currencies dialog box.

Setting Mail Preferences

Choose Edit, User Preferences, then click the E-Mail tab to configure the module to transfer information to and from e-mail installations.

Not needed for Internet mail

This is typically the project administrator's address.
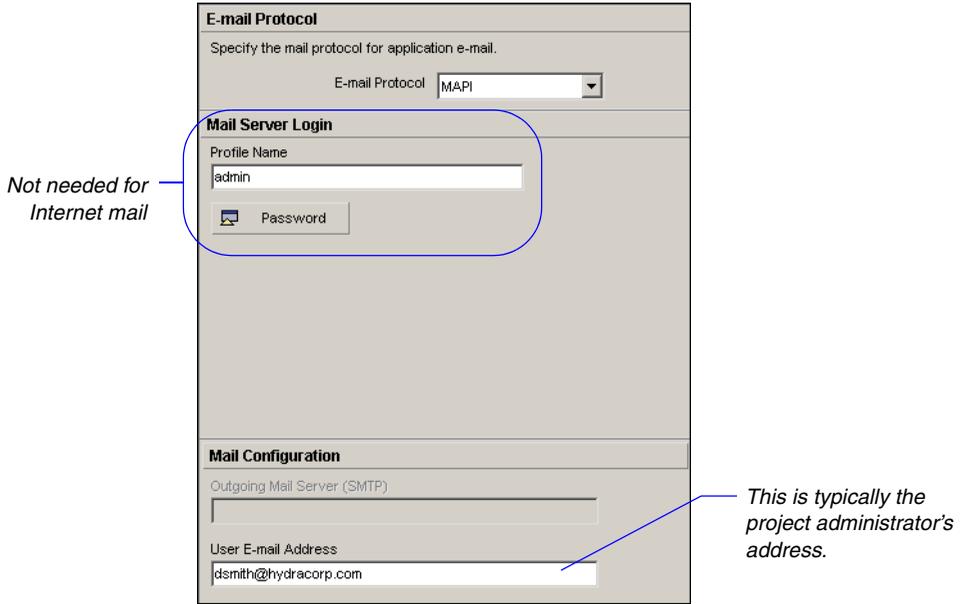
Configure mail settings The module supports both MAPI (Messaging Application Interface) and SMTP (Internet) for sending issues to users via e-mail. Select the applicable protocol for your mail system in the E-Mail Protocol field. When using SMTP, select Internet. If you are using MAPI as the protocol, type the profile name in the Mail Login Name/Profile Name field. The profile name is set in Control Panel in the Mail Settings dialog box (accessible from the Mail and Fax icon) on the workstation running the module. Click Password to enter the password to the MAPI profile.

In the Outgoing Mail Server (SMTP) field, type either the fully qualified domain name of the Internet mail server or its IP address. In the User E-Mail Address field, type the Internet mail address for the user from whom the mail will be sent. If you have a MAPI configuration, clear the Outgoing Mail Server (SMTP) field, and type the Microsoft Exchange e-mail address of the person sending the e-mail notification in the User E-Mail Address field.

Implementing Wizards

Choose Edit, User Preferences, then click the Assistance tab to enable the use of wizards when adding resources and activities.

To discontinue a wizard's use, you can either clear the checkbox in this dialog box or mark the Do Not Show This Wizard Again checkbox in the wizard dialog box. To enable a wizard for future sessions, mark the applicable checkbox again in the Assistance tab of the User Preferences dialog box.

Wizards

Would you like to use wizards when adding new activities and resources?

☑ Use New Resource Wizard
☑ Use New Activity Wizard
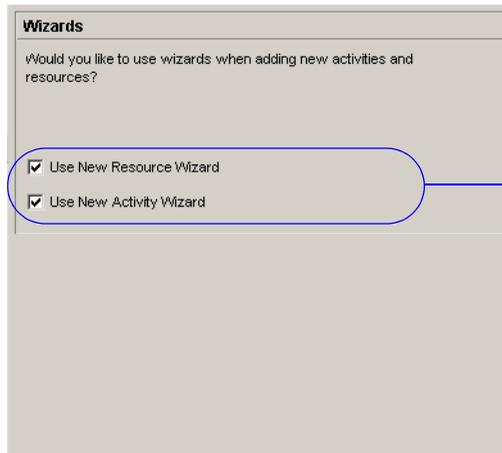
If you clear one or both checkboxes and add a new resource or activity, you will need to use the current layout to add the information.

Set assistance options   Wizards guide you through the steps necessary to complete a function. Once you feel comfortable adding resources and activities, you may not need to use them. Mark the checkboxes in the Wizards section to automatically display the New Resource Wizard when you add a new resource, and the New Activity Wizard when you add a new activity.

Creating a Log of Tasks and Setting Startup, Group and Sort, and Column Options

Choose Edit, User Preferences, then click the Application tab to establish the default window and dialog box that displays when you start the module, and to record the actions you perform to a log file. You can also set options for grouping and sorting.

Mark to automatically create a log file called ERRORS.LOG each time you work in the Project

You must choose Show ID/ Code, Show Name/ Description, or both.

Startup Window

Application Startup Window

Activities

☐ Show the Issue Navigator dialog at startup

☑ Show the Welcome dialog at startup

Application Log File

☐ Write trace of internal functions to log file

Group and Sorting

Labels on grouping bands

☑ Show ID / Code

☑ Show Name / Description

☑ Reorganize Automatically

Columns

Select financial periods to view in columns

2004-10-31   ...   to   2004-12-26   ...

Make your selection based on the area in which you work most often; you can change this setting as your requirements change.

Select the range of financial periods available for display as columns. If you do not select a range, all financial periods are viewable as columns.

Set startup and log file options Select the window to display each time you start the module. Select Home if your work varies each day; the Home workspace enables you to select the applicable window or layout for each session.

You can also indicate whether to display the Issue Navigator dialog box, which contains outstanding issues that are generated based on your preset thresholds, and the Welcome dialog box, which enables you to choose to create a new project, open an existing project, open the last project opened in your previous session, or display global data only.

Primavera recommends that you use the log file only with the assistance of Primavera Customer Support staff.

Set grouping and sorting options You can show or hide the ID/
Code or Name/Description fields as labels in the group-by bands when
grouping by hierarchies that include both an ID/code and a name
description. This user preference setting affects windows/dialog boxes
where you cannot access a Group and Sort dialog box.

Mark the Reorganize Automatically checkbox to enable the Project
Management module to immediately re-sort any changes to activity data
in the current view to reflect the layout's grouping and sorting criteria.

*If you do not want the module to automatically reorganize
data, you can choose Reorganize Now from the Tools menu
to apply the group and sort criteria to the updates in the
current view.*

Set column options for financial periods You can make a range
of financial periods available as columns in the Activities and Resource
Assignments windows, as well as the Resources tab of Activity Details.
You must enter a range to make financial period columns available for
selection in the Columns dialog box. For example, if each financial
period in the Financial Period dictionary has a duration of one month,
you may only want to view the previous six financial periods (six
months). You can change the range of financial periods you want to
display at any time.

Changing Your Password

The Enable Password Policy check box of the Admin Preferences dialog box controls the type of password to enter in the Change Password dialog box:

■   If the Enable password policy setting is selected in the Password Policy field of the Admin Preferences dialog box, enter a password that is a minimum of 8 characters long, and that contains one alpha and one numeric character. This requirement is also shown in the Change Password dialog box.

■   If the Enable password policy setting is not selected, enter a password up to 20 characters long.

Choose Edit, User Preferences, then click the Password tab to open the Change Password dialog box, in which you can enter a new password.

1 Click to change your password.

2 Enter a new password.

3 Enter the new password again to confirm it.
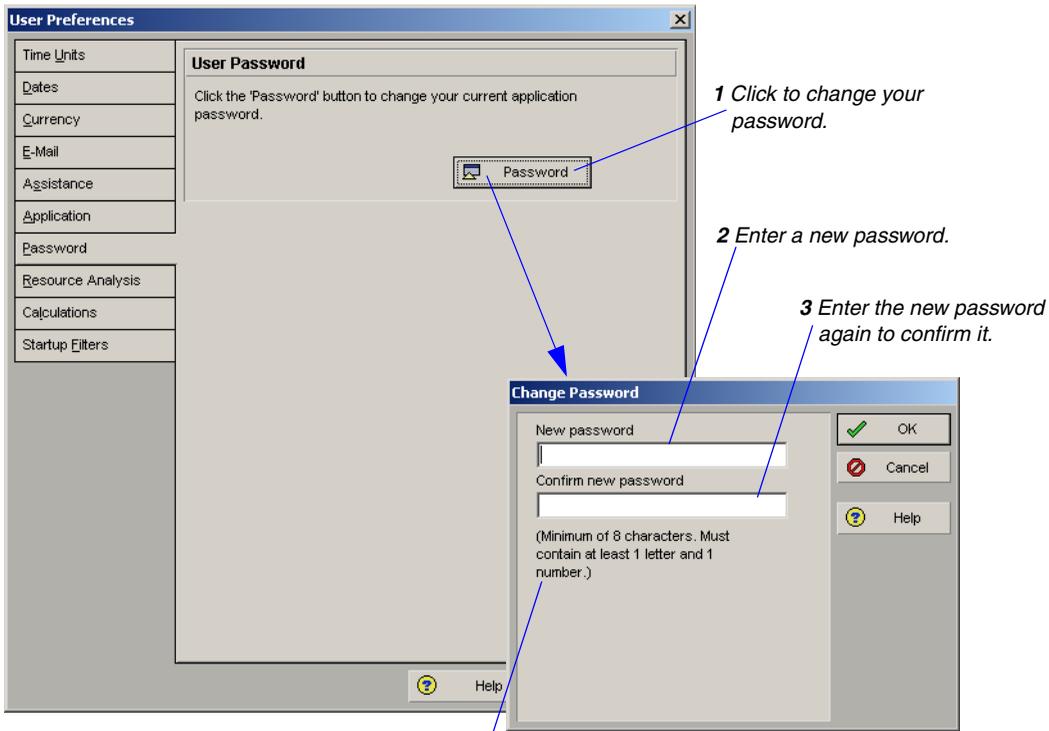
These password specifications are required when the Enabled Password Policy check box is marked in the Admin Preferences dialog box.
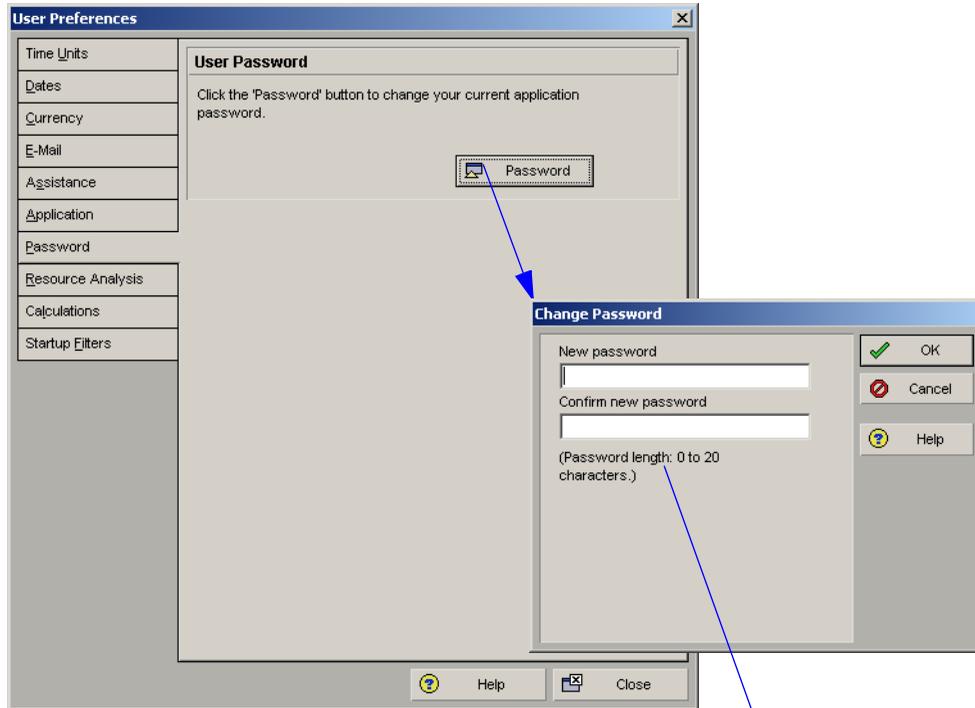
This password specification is required when the Enabled Password Policy check box is cleared in the Admin Preferences dialog box.

Additional Considerations:

■ If the Project Management module is running in LDAP authentication mode, password management is handled through the directory server. You cannot change your password through the module and the Password tab does not appear in the User Preferences dialog box.

■ Passwords are case-sensitive.

■ Passwords that were set before the new password policy was enabled are valid and usable.

■ The same login and password applies to Project Management, P6 Web Access, Timesheets, and ProjectLink. Changing the password in one application propagates the change to all.

Setting Profile and Spreadsheet Data Options

Choose Edit, User Preferences, then click the Resource Analysis tab to choose the project data to use when displaying and summarizing remaining units and costs in Resource Usage Spreadsheets, Resource Usage Profiles, and tracking layouts. You can also choose options for displaying and calculating time-distributed data in Resource Usage Spreadsheets, Resource Usage Profiles, and tracking layouts in the Project Management module, as well as time-distributed charts in P6 Web Access.

All Projects

When All Projects are shown in the Resource Usage Profile and Spreadsheet, all opened projects are included as well as the closed projects specified below.

- ⊙ All closed projects (except what-if projects)
- ○ All closed projects with a leveling priority
  - equal/higher than 1
- ○ Opened projects only

Time-Distributed Data

In the Resource Usage Profile and Spreadsheet, display time-distributed Remaining Early data using

- ○ Remaining Early dates
- ⊙ Forecast dates

Interval for time-distributed resource calculations: Week

Display the Role Limit based on
- ○ Custom role limit
- ⊙ Calculated primary resources' limit

If you choose to calculate the role limit based on custom defined role limits and no limit has been defined for a role, the module assumes the role has a limit of zero maximum units/time.

If you manually plan future period resource allocation in the Resource Usage Spreadsheet, this setting determines the minimum timescale interval in which you can enter a value.

If you do not choose Show All Projects, the module displays profile/spreadsheet and tracking data from open projects only, and the data are live rather than summarized.

Choose the project data to display If you choose Show All Projects from the Display Options bar in a Resource Usage Profile or Resource Usage Spreadsheet, you can specify whether to include data from open and closed projects, or only the projects currently open when calculating remaining units and costs. (Closed projects are any projects in the enterprise project structure (EPS) that are not currently open.)

■   To include live data from all open projects and stored summary data from all closed projects (excluding those with a What-If status), choose All Closed Projects (Except What-If Projects).

Summarized data is available only when projects have been summarized. To summarize data, choose Tools, Summarize, then select to summarize the open projects in the current view, all projects in the EPS (includes both open and closed projects but excludes summary only projects), or summary only projects (those projects for which the Contains Summarized Data Only checkbox is marked in the Project Details Settings tab).

■   To include live data from all open projects and stored summary data from all closed projects with a specific leveling priority, choose All Closed Projects with Leveling Priority Equal/Higher Than, and enter the leveling priority you want to use. (Specify the leveling priority per project in the General tab of the Projects window.) The module uses this value to consider applicable external projects (those not included in the current layout) when deducting from resource availability immediately during leveling.

■   To not include resource data from external (closed) projects in the remaining units and cost values for Resource Usage Profiles, Resource Usage Spreadsheets, and tracking layouts, choose Open Projects Only.

Choose the time-distributed data to display   In the Time-Distributed Data section of the Resource Analysis tab, choose a starting point for calculating remaining units and costs for display in Resource Usage Profiles, the Resource Usage Spreadsheet, tracking layouts, and P6 Web Access charts. To focus on the current remaining estimate, choose Remaining Early Dates. To focus on values calculated from a forecast date, choose Forecast Dates.

Next, select the interval at which live resource and cost calculations are performed for Resource Usage Profiles and Resource Usage Spreadsheet displays and in tracking layouts. Profiles, spreadsheets, and layouts are only affected if their timescale interval is set lower than the interval set in the Interval for Time-Distributed Resource Calculations field.

For P6 Web Access users, you can choose how you want to display role limits in the Resource Staffing section of Global Preferences.

Finally, choose to display role limits based on custom role limits defined in the Roles dictionary or on the calculated limit of each role's primary resource. The Resource Usage Spreadsheet, Resource Usage Profile, tracking layouts, and P6 Web Access charts display the role limit according to the option you select.

Setting Calculation Options for Resource and Role Assignments

Choose Edit, User Preferences, then click the Calculations tab to specify how cost and units are allocated when you add or delete multiple resource assignments. You can also choose the default behavior when replacing a resource/role on an existing activity assignment with a different resource/role.

Resource Assignments

When adding or removing multiple resource assignments on activities

○ Preserve the Units, Duration, and Units/Time for existing assignments

● Recalculate the Units, Duration, and Units/Time for existing assignments based on the activity Duration Type

Assignment Staffing

When assigning a resource to an existing activity assignment:

○ Always use the new resource's Units per Time and Overtime factor

○ Always use current assignment's Units per Time and Overtime factor

● Ask me to select each time I assign

When a resource and role share an activity assignment:

○ Always use resource's Price per Unit

○ Always use role's Price per Unit

● Ask me to select each time I assign

Choose resource assignment defaults You can specify how to calculate remaining values when new resource assignments are added to or removed from activities. Remaining duration, remaining units, and remaining units/time will not change for existing assignments, regardless of the duration type.

When the first assignment is added, units/costs are calculated based on the activity's duration type.

■   **Preserve the units, duration, and units/time for existing assignments**

When adding or removing multiple resource assignments on activities, choose this option for units, durations, and units/time to remain constant when additional resources are assigned to any activity. Regardless of the duration type of an activity, this equation is always true:

Remaining Units = Remaining Duration x Remaining Units/Time

■   **Recalculate the units, duration, and units/time for existing assignments based on the activity duration type**

When adding or removing multiple resource assignments on activities, choose this option to calculate a resource assignment's remaining values based on the activity's duration type, specified in the Activity Details General tab.

Choose assignment staffing defaults In the Project Management module, you can choose the module's default behavior when you replace a resource on an existing activity assignment with a different resource and when you assign a resource to an existing role assignment.

When replacing a resource on an existing activity assignment, you can choose to always use the units/time and overtime factor of the new resource or of the current assignment (i.e., the resource you are replacing); or, you can choose to be prompted to select which units/time and overtime factor you want to use each time.

When assigning a resource to an existing role assignment, you can choose to always use the price/unit of the resource or role; or, you can choose to be prompted to select which price/unit you want to use each time.

If you choose to always use the role's price/unit, in the Activity Details, Resources tab, the Rate Source is set to Role. If you choose to always use the resource's price/unit, the Rate Source is set to Resource. The price/unit value used to calculate costs for the assignment is determined by the rate type you select in the Rate Type field (which are resource- and role-specific).

Selecting Startup Filters

Choose Edit, User Preferences, then click the Startup Filters tab to choose the data filters you want to run when starting the module. You can choose to view data for your current projects only, or all data in the database. These filters can reduce the time it takes for your projects to open.

When you change an option in the Startup Filters tab, you must exit and then restart the module for the change to take effect.

Startup Filters

Choose the default filters to start the application. If you choose to view all data the application may take longer to start. These filters can be modified in the individual views.
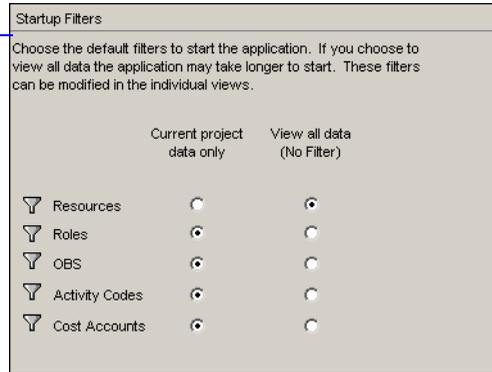
	Current project data only	View all data (No Filter)
▽ Resources	○	●
▽ Roles	●	○
▽ OBS	●	○
▽ Activity Codes	●	○
▽ Cost Accounts	●	○

These filters can be changed in the individual views by clicking the Display Options bar and then Filter By.

Your security privileges control which data are displayed when you select View All Data (No Filter).

Part 2

Structuring Projects

In this part:

Setting Up the Enterprise Project Structure

Setting Up the Organizational Breakdown Structure

Defining Resources and Roles

Reviewing Work Breakdown Structures

Defining Budgets

Establishing Project Codes

Working with User-Defined Fields

Creating Calendars

*T*his part describes how to start planning and creating projects.

The first four chapters explain how to structure and add projects to the hierarchy; establish the managers directly responsible for projects and the users associated with them throughout the organization; set up project resources and roles; and use the work breakdown structure (WBS) to plan and manage project information.

Subsequent chapters explain how to set up project budgets, funding sources, and spending plans; track and analyze variance as projects progress; define project codes and assign values to project information so you can organize it in different ways across the organization; and define custom user fields. Once your project structures are set up, you can define the calendars that determine when work can and cannot occur.

Setting Up the Enterprise Project Structure

This chapter describes how to define the enterprise project structure (EPS) that will be used to organize and manage the projects in your organization. In addition, it explains how to develop, create, and add projects to the EPS, and define project attributes.

Enterprise Project Structure Overview

Typically, users in a large organization will have access to a large database that contains all the projects and related information for their company. The information this database contains must be structured in a way that allows individuals to access the project data they need, quickly and accurately. In addition, users must be able to review project data at the level appropriate for their role in the organization and the specific questions they need to answer.

Your database of projects is arranged in a hierarchy called the enterprise project structure (EPS). The EPS can be subdivided into as many levels or nodes as needed to parallel work in the organization. Nodes at the highest, or root, level might represent divisions within your company, project phases, site locations, or other major groupings that meet the needs of your organization, while projects always represent the lowest level of the hierarchy. Every project in the organization must be included in an EPS node.

Use the Admin Preferences, Data Limits tab to specify the maximum number of EPS levels you can define. Specify up to 50 combined EPS/WBS levels.

The number of EPS levels and their structure depend on the scope of your projects and how you want to summarize data. For example, you may want to define increasingly lower levels of EPS nodes, similar to an outline, to represent broad areas of work that expand into more detailed projects. In the following example, the Caprini Corporation EPS node includes a lower-level node called Apex Project. The Apex Project node is further divided into the Apex Construction node. This node contains the projects that constitute their part of the Apex Project. For example, the Apex Construction node contains the Automated System, Office Building Addition, and Conveyor System projects. You can specify as many projects as necessary to complete the required work and fulfill the scope set forth by operations executives and program managers in your organization.

This EPS shows the Caprini Corporation node, which is further divided into nodes that contain projects corresponding to the types of projects within the organization.

A project is the lowest level in the EPS.

Multiple levels enable you to manage projects separately while retaining the ability to roll up and summarize data to higher levels. For example, you can summarize information up to each node in the EPS. Conversely, top-down budgeting can be performed from higher-level EPS nodes down through their lower-level projects for cost control.

Ideally, one person or group controls the EPS across the organization. The project controls coordinator creates the hierarchical structure that identifies the company-wide projects. The coordinator works with the project manager in each area of the organization to define basic project information for each group and to develop standards before any projects are added. The following diagram is a simplified representation of responsibilities and projects within a hierarchy.

```
        ┌─────────────────┐
        │  Review portfolio │
        │  performance in P6 │──── Operations Executive
        │   Web Access      │      and Program Manager
        └─────────────────┘

           ┌──────────┐
           │ High-level │──── Project Controls Coordinator
           │ EPS node   │
           └──────────┘

              ┌──────────┐
              │Lower-level│──── Project Manager and
              │EPS node   │      Resource/Cost Manager
              └──────────┘

                    ┌──────────┐
                    │ Project  │──── Team Leader
                    └──────────┘
   ┌──────────┐
   │Timesheets │
   │ module    │     ┌──────────┐
   └──────────┘     │ Project  │──── Team Leader
Team Members         └──────────┘
```
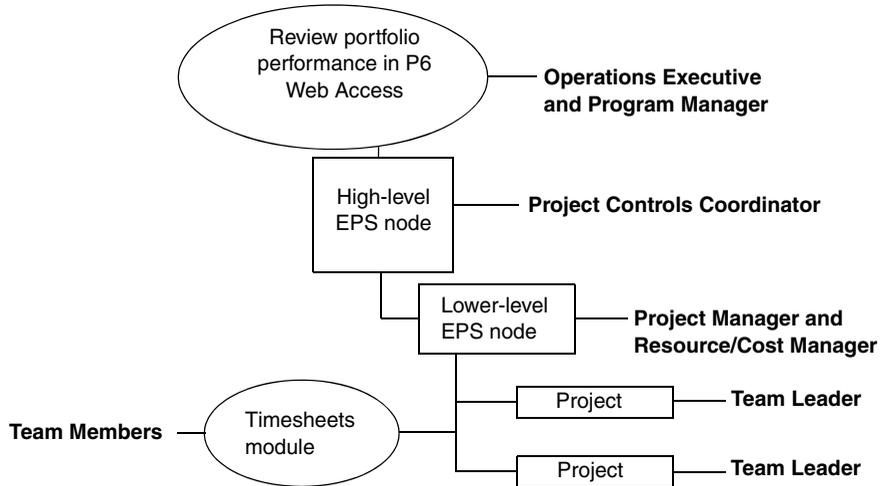
Move around in the EPS When you first start the module, click Open Existing on the Welcome dialog box, or choose File, Open, from within the module. EPS nodes that contain other nodes and projects are identified by a pyramid symbol. A + symbol indicates that more nodes or projects are rolled up beneath the selected node. Click + or double-click the node to display additional levels in the hierarchy.

Root level of the enterprise project structure

Indicates that this level is expanded. Click the + to expand the item; click the - to collapse it.

Indicates that this node contains more rolled up nodes or projects

Identifies a project, the lowest level of the hierarchy

Select the EPS node or project you want to open, then click Open. To view the EPS structure, click Projects from the Home workspace.

You can right-click in the Projects window and choose Open Project to display the Open Project dialog box.

Click Projects to display the enterprise project structure.

You can group and sort by any defined project code; click the Display Options bar, then choose Group and Sort By to select a code.

The Specifications project was opened from the Open Project dialog box; this project is located under the Manufacturing to Specifications node in the EPS.
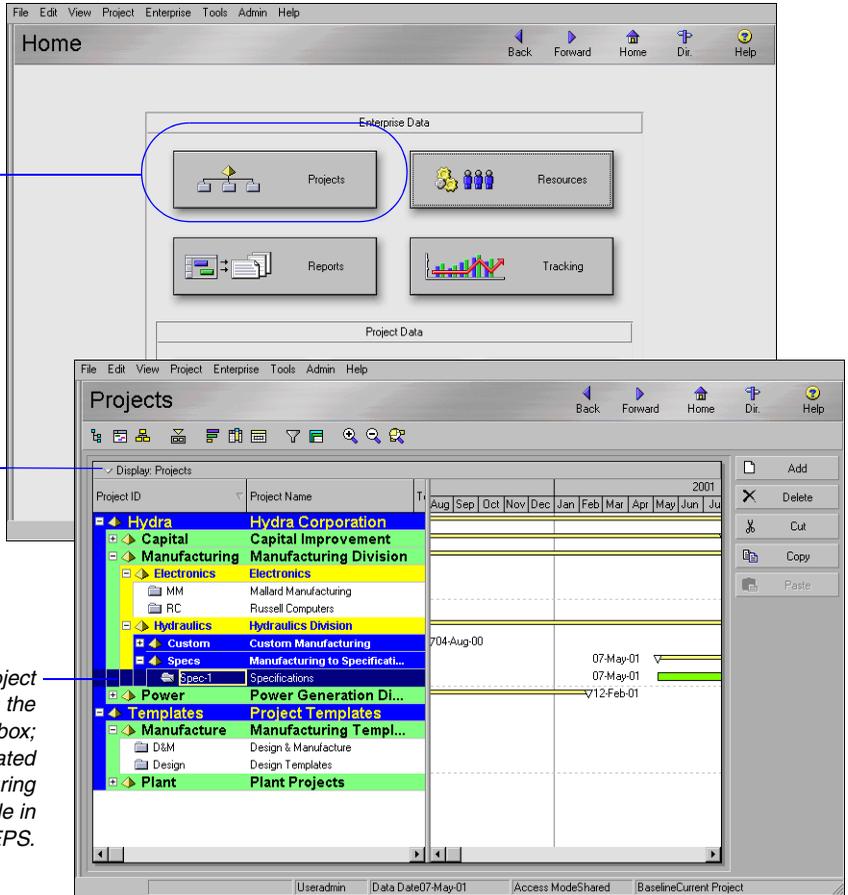
If you converted projects from a version prior to 4.1 to version 4.1 or later, the Project Management module displays the project groups and member projects in the EPS as a two-level hierarchy showing the project group as the EPS node, and the member projects as projects of the node.

Other project structures Other project data, such as the organizational breakdown structure (OBS), the work breakdown structure (WBS), resources, and project codes, use a similar structure. These data correspond directly with the various levels of the EPS to denote logical and meaningful divisions in the organization.

Work breakdown structure Each project has its own WBS, which shows the hierarchy of products and services produced during and by a project. The summary rollup of the highest WBS level is equal to that of the project level in the EPS. This effectively extends the EPS hierarchy down to the activity level in the EPS, as shown in the following example.
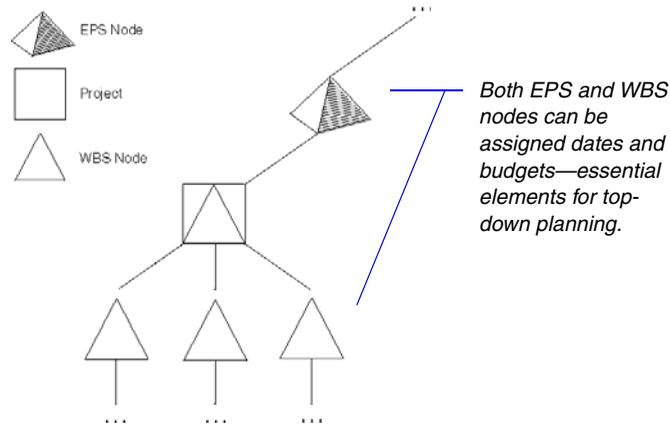
Both EPS and WBS nodes can be assigned dates and budgets—essential elements for top-down planning.

Organizational breakdown structure User access and privileges to nodes within the EPS hierarchy are implemented through a global OBS that represents the management responsible for the projects in the EPS. Each manager in the OBS is associated with his or her area of the EPS, either by node or by project, and the WBS of the particular level of the hierarchy.

Each level of the OBS is associated with a level of the EPS hierarchy, whether it be a node or a project.
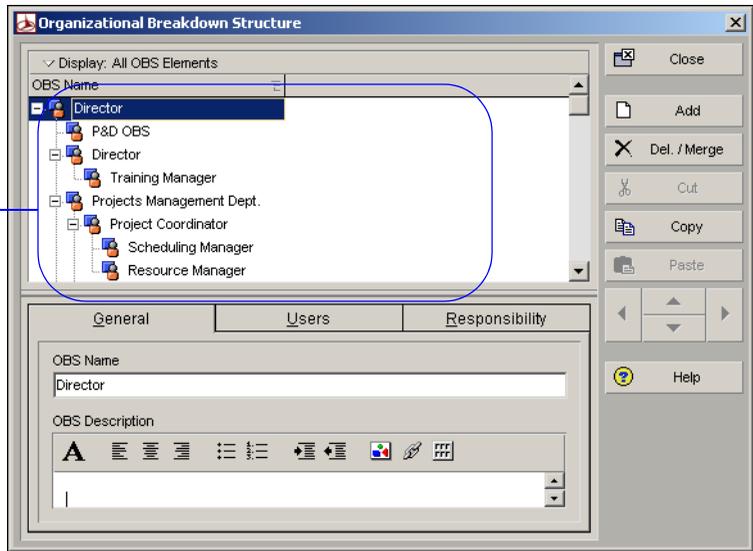
Resources Resources are the personnel and equipment that perform the work across all projects. You can set up a resource hierarchy that reflects your organization's resource structure and supports the assignment of resources to activities.

For more information about the resource hierarchy, see *"Defining Resources and Roles"* **on page 115.**
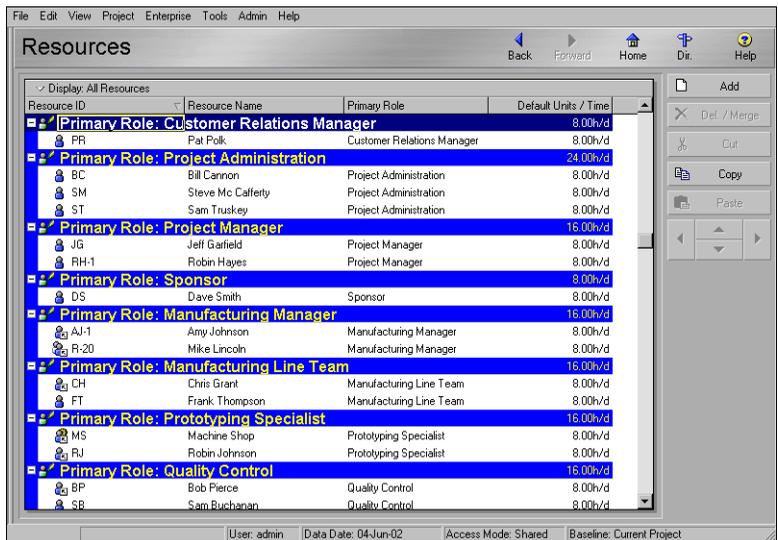
Project codes Project codes are another way to group and sort projects in the organization. When you have many projects in the hierarchy, codes enable consolidation and/or filtering of potentially vast amounts of information located in different areas of the organization.

When you open a high-level EPS node, you can organize the layout by project code to quickly see only projects assigned to that code.
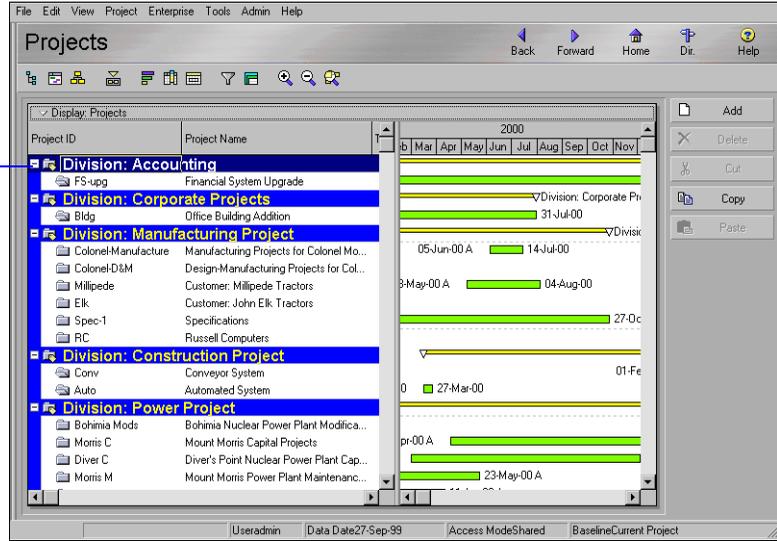
Summarizing Projects

You can view summary data for all projects in the organization in the Projects window of the Project Management module and in many P6 Web Access views. The Project Management module enables you to summarize data at regularly scheduled intervals or on demand, using the Tools, Summarize command. Summarize data to obtain a broad overview of project information and to display project data more quickly.

For more information on setting administrative options for summarization, refer to the *Primavera P6 Administrator's Guide*. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

An administrative preference determines how resource and role assignment data is summarized: by calendar intervals, by financial period intervals, or both. Since P6 Web Access displays summary data on many tabs and pages, project data must be appropriately summarized to view it in P6 Web Access. For example, to view project data in Financial Period timescale intervals in P6 Web Access, resource and role assignment data must be summarized by financial period.

Setting Up the Enterprise Project Structure

To establish the EPS nodes that will contain your projects, choose Enterprise, Enterprise Project Structure.

This dialog box presents a high-level picture of your EPS, enabling you to set up appropriate divisions of information in the organization.
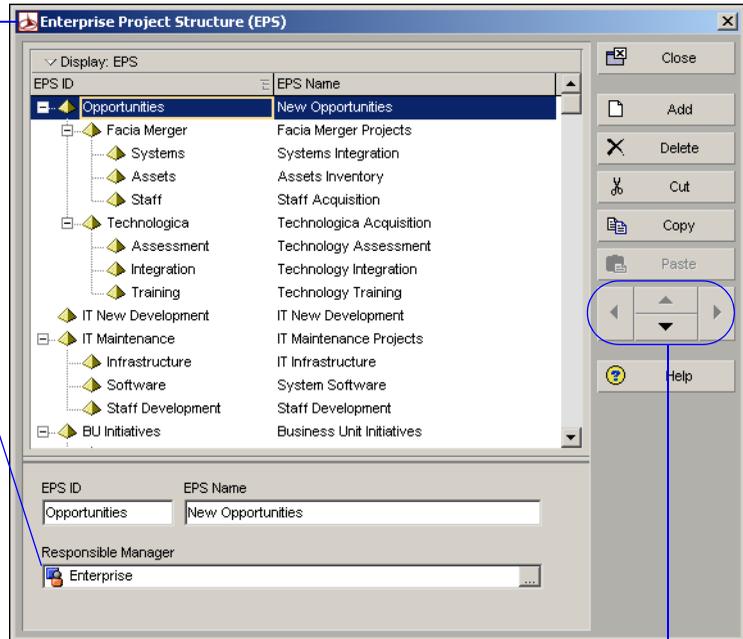
You must specify a responsible manager for each node in the EPS to enable security rights and privileges; the module uses the OBS root as the default for all nodes if you don't provide one.

Click to move nodes up/down or indent/outdent.

Add a node to the EPS Select the node under which you want to add a node. The new node will be placed below the selected node in the hierarchy. Click Add in the Enterprise Project Structure (EPS) dialog box. Type a unique ID and name for the node directly in the column cells, or in the EPS ID and EPS Name fields. Accept the responsible manager shown, or click the Browse button in the field to select a different OBS element for the node. Use the arrow keys to indent/outdent a node to denote its placement in the EPS, and to move a node up/down in the hierarchy.
Click Close.

Add multiple root nodes You can distinguish different branches of the EPS hierarchy by including more than one root node. For example, you might want to separate current projects from completed projects or from template projects that you use as the basis for new projects. Add a root EPS node the same way you add an EPS node, but outdent the root to the left-most position in the hierarchy.

Add root nodes to separate projects with an Inactive status or to distinguish projects used as templates.
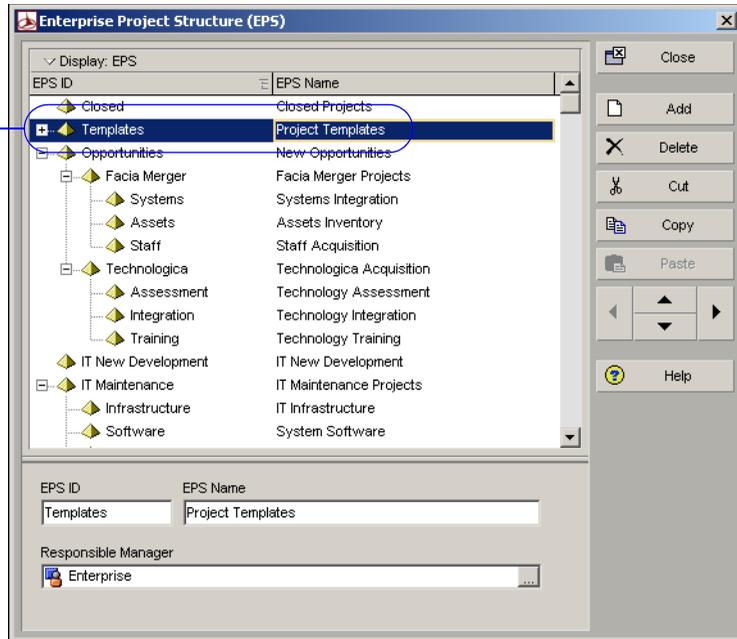
For more information about security profiles, see the *Primavera P6 Administrator's Guide*. **This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.**

Build the hierarchy After you set up an EPS, you can define additional data about each EPS node, such as anticipated dates, budgets, and spending plans. Use the Project Details to specify this information, as described later in this chapter. Or, you can begin adding projects under the applicable nodes in the structure if you have access rights to these functions. Access rights are set by your network or database administrator.

Adding a New Project to the Enterprise Project Structure

A project is a set of activities and their associated information that constitutes a plan for creating a product or service. A project has a start and finish date, work breakdown structure (WBS), and any number of activities, relationships, baselines, expenses, risks, issues, thresholds, and work products/documents. A project may also have its own Web site.

While resources typically work on several projects, each project has its own resource assignments. Similarly, while calendars, reports, and activity codes may span all projects, they may also be project specific.

Determine your requirements for adding a new project to the hierarchy. As a project manager who manages one or more higher-level projects in the organization, you'll probably want to add an EPS node that encompasses these projects. If you are a team leader, you'll probably want to add an individual project that incorporates the tasks your group needs to perform to complete the higher-level EPS node. You will create this individual project below one of the EPS nodes previously established by your project manager.

You can also use the Project Architect wizard to create new projects. See "Using Project Architect" on page 79.

Use the Projects window to add a project to the EPS hierarchy. Define general information such as the project's ID and name, planned start and must finish by dates, and the responsible manager.

Add a project to the EPS Choose Enterprise, Projects, or click Projects on the Home workspace to open the Projects window. Select the EPS node to which you want to add a project. (If you have not yet created any EPS nodes, select the root EPS node created for you when you installed the module.)

Click Add. The Create a New Project Wizard guides you through the steps required to add a project, including selecting the node in which to place the project in the EPS, naming the project, and identifying the responsible manager for the project.

You cannot add projects below existing projects.

The root node was selected as the EPS node in which to place the new project.

Identify the new project using the General tab in Project Details.

Use the default information provided, or change it to accommodate the project requirements.
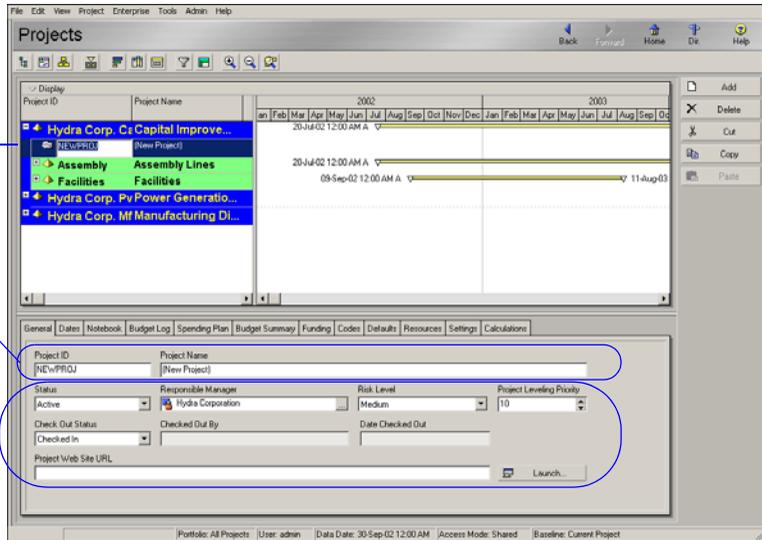
To define additional project information, display Project Details at the bottom of your layout (click the Display Options bar and choose Show on Bottom, Project Details), then refer to the "Defining Enterprise Project Structure Details" on page 92.

For more information about importing and converting projects, see the *Primavera P6 Administrator's Guide.* This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Import projects You may want to build your EPS using projects previously created in an earlier version of the Project Management module, Microsoft Project, or Primavera Project Planner 3.0 (P3). The Import Wizard prompts you to specify the information to be imported and where the project should be placed in the current EPS hierarchy.

Using Project Architect

For more information on using methodologies, see the *Methodology Management Reference Manual.* This manual is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

The Project Architect wizard helps you select and import methodologies as pre-built project plans from the Methodology Management module. Use Project Architect to create a new project plan or to add activities and associated information to an existing project. Because Project Architect copies methodologies from the Methodology Management module database, the information you change does not affect source methodologies.

In addition to providing access to methodologies, Project Architect also contains a bottom-up estimation feature that allows you to estimate resource units and costs for your methodology selections. Project Architect bases this estimate on the project complexity value that you specify during the architect process. This enables you to estimate work effort and cost before adding a project.

You can also access the Project Architect wizard from the File menu. Use this option to incorporate methodologies into the current project.

Start Project Architect Wizard Choose File, New to start the Create a New Project wizard. Select the EPS level in which to place the new project. Name the project and specify a start date.

Select a responsible manager. Depending on the choices you make when you run the Project Architect, the OBS element you select here will appear at the top of the new project's OBS.

Choose the default rate type. Then choose Yes and run the Project Architect.

The options that you select in Project Architect for the Responsible Manager and default rate may override the selections you choose in the New Project wizard.

Select methodologies and estimate project complexity Click Select Base Methodology or Plug-in Methodology to select the methodology you want to import. Click Next to select the Base or Plug-in Methodology you want to import. Click Next and type a value for the project complexity, or click the Size and Complexity Wizard button to calculate a value for the project complexity. The module uses the project complexity percentage to calculate a value between the low and high estimated values defined for the labor and nonlabor units, material costs, and expense costs defined for each activity in the project.

The project complexity value can be between 0 and 100 percent. If the project complexity value equals 0, the module uses the low estimate for each activity. If the project complexity value equals 100, the module uses the high estimate for each activity. For project complexity values between 0 and 100, the module calculates an intermediate value between the low and high estimates for each activity. The value calculated using the project complexity value is then copied into the budgeted labor/nonlabor units, material costs, and expense costs for each activity.

Project Architect

Project Architect

Select Base Methodology

Choose the Base Methodology you would like to add to your current project.

The WBS tree of the Base Methodology you select will be the primary WBS tree for the methodology content you save to your current project at the end of the Project Architect.

Selected Base Methodology

<No Base Methodology Selected>

☐ Select Base...

Click to select a methodology from the list of base methodologies stored in the Methodology Management module.

⊘ Cancel   ◀ Prev   Next ▶   ▨ Finish

Select Base Methodology

Display: Base Methodologies

Methodology Name	Total Activities	Low Labor Units	High Labor U
☐ Automated System	45	1364.36	2344
☑ Conveyor System	20	790.13	1508
☐ Office Building Addition	71	2862.67	5296
☐ Roadway Extension	45	12469.20	24085
☐ School Addition Project	134	208.00	208

Close

Select

Details...

Rationale...

Help
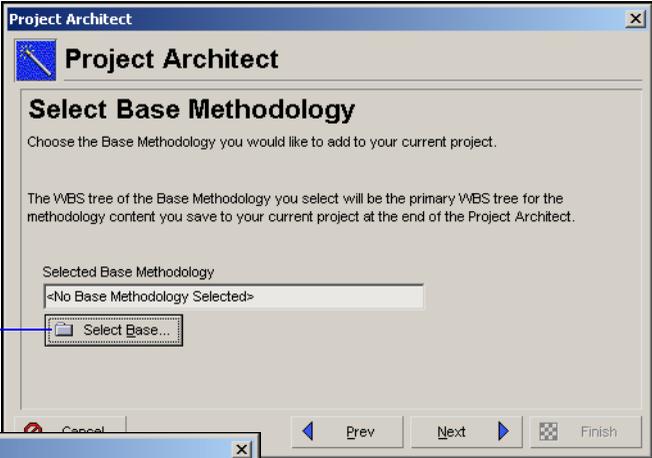
Click to display information about this Project Architect session. You can enter additional information to explain your choice of a base methodology. The Rationale information is added as a Notebook Topic at the project level.

Base Methodology Selection Rationale

Project Architect Action

Project Architect Session Date: 10-Dec-03 User: admin Project: Office Building Addition Size and Complexity: 50% BASE METHODOLOGY Selected Base Methodology: Conveyor System

Rationale

A   ≡ ≡ ≡   ⋮≡ ⋮≡   ◀≣ ▶≣   🔲 🖉 ⊞

I have selected this methodology because...

⊘ Cancel   ✓ OK
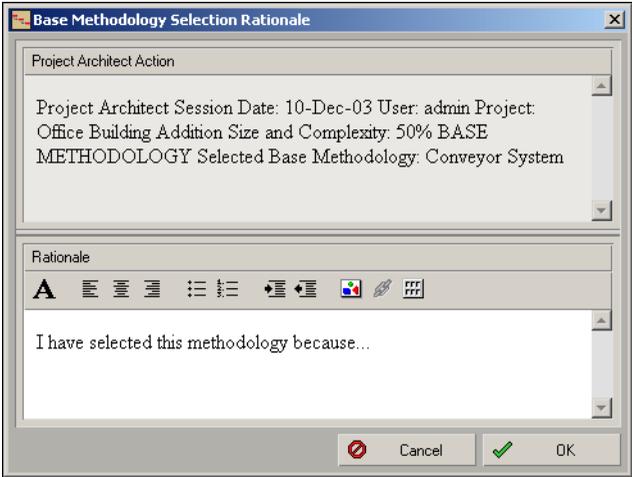
Tailor the WBS elements You can modify the Work Breakdown Structure (WBS) elements associated with the selected methodology. Click Tailor to view the details and activities of each WBS element.

*Organizations using Primavera ProjectLink cannot modify Microsoft Project (MSP)-managed WBS elements in the Project Management module. For more information on ProjectLink, refer to the Primavera ProjectLink Help in Microsoft Project (available only if ProjectLink is installed). You can access the help by clicking the Help button on any ProjectLink screen.*
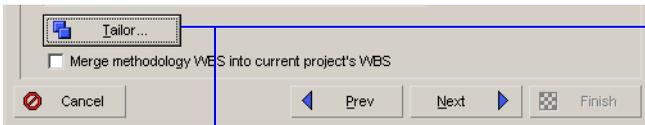
Click to view the details and activities of each WBS element.
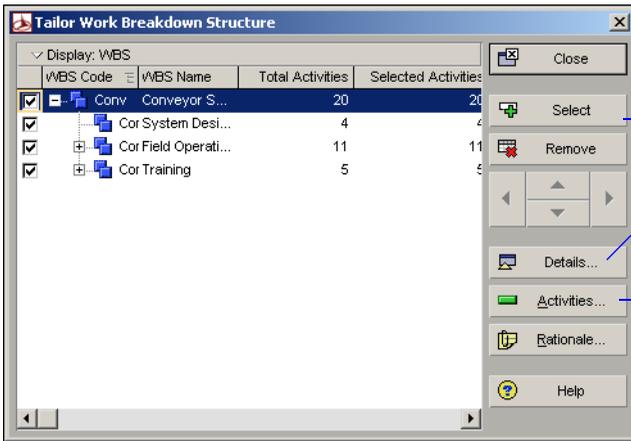
Click to include the selected WBS element.

*Click to view the details of the selected WBS element.*

Click to specify which of the activities for the selected WBS you want to include in your project plan. Clear the corresponding checkbox to exclude the selected activity.

Determine whether to merge the methodology WBS into the current project's WBS To replace the top level WBS node with the WBS from the methodology, mark the Merge methodology WBS into current project's WBS checkbox. To assign the current top level project OBS node to the project, clear the checkbox.

Mark to replace the top level WBS node with the WBS from the methodology.

Clear to assign the current top level project OBS node to the project
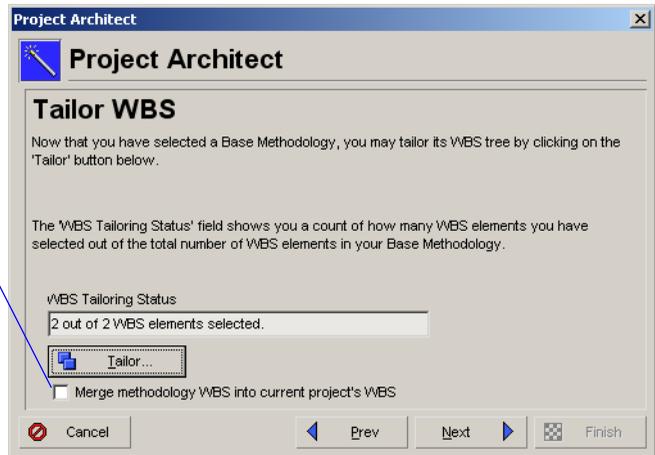
Tailor the WPs and Docs You can view the work products and documents associated with the selected methodology. Click Tailor to view the details of each work product or document and to select which documents to include in the project plan.

Review the tailored methodology Click Next to view the results after tailoring the methodology. Click Overview to review the changes made to the selected methodology.

Choose Assignment Rate Type You can use the rate type that has been set for the project. Alternatively, you can copy the price/unit rate type from the methodology.

Click to use the rate type that has been set for the project.

Click to copy the price/unit rate type from the methodology.
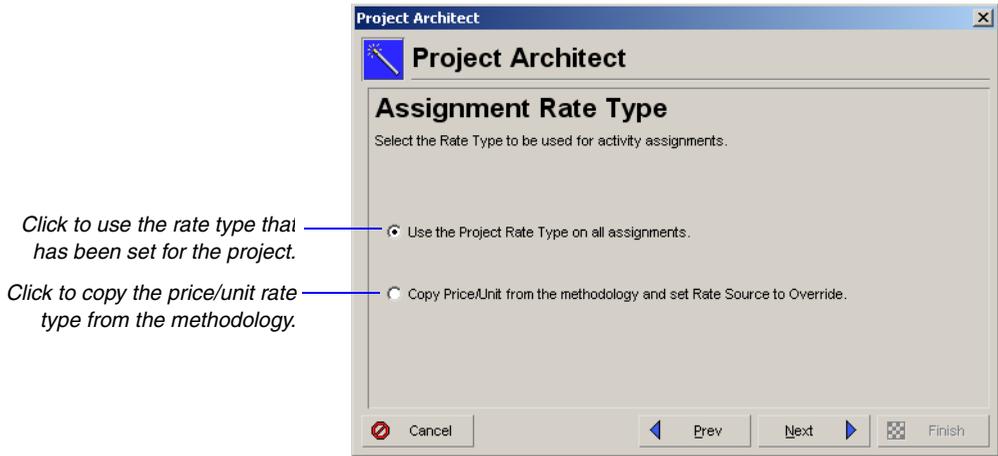
Choose the responsible manager to be used for the project and WBS assignments You can use the responsible manager assignments from the project or the methodology.

Click to assign a responsible manager based on the WBS assignments in Project

Click to use the responsible manager assignments that are made in the methodology.
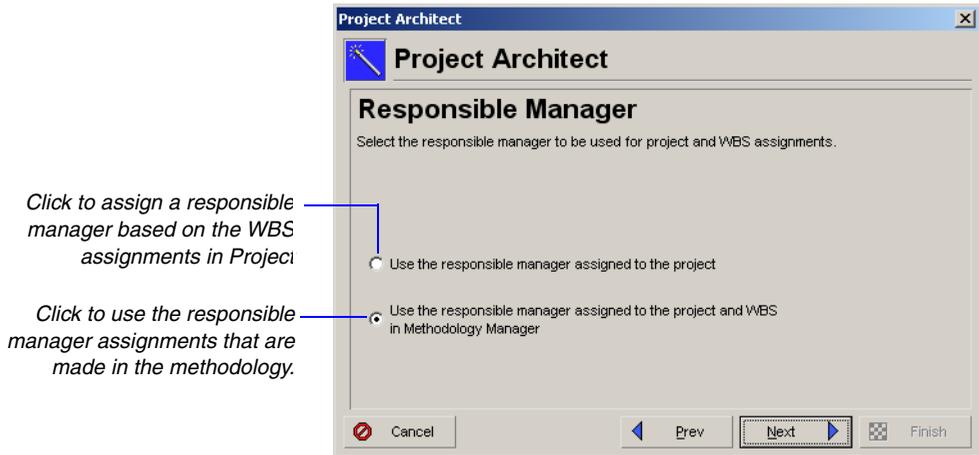
If you elect to use the assignments from the methodology, the top level WBS/project node assignment is determined by whether you selected the Merge option in an earlier dialog.

Choose update project options Select a layout configuration to use when bringing methodology data into the project. You can create and save several different configurations; however, only one configuration is used to import the file. Select Yes in the Use field next to the configuration you want to use.

Click to customize the layout configuration.

Click to create a new layout configuration.
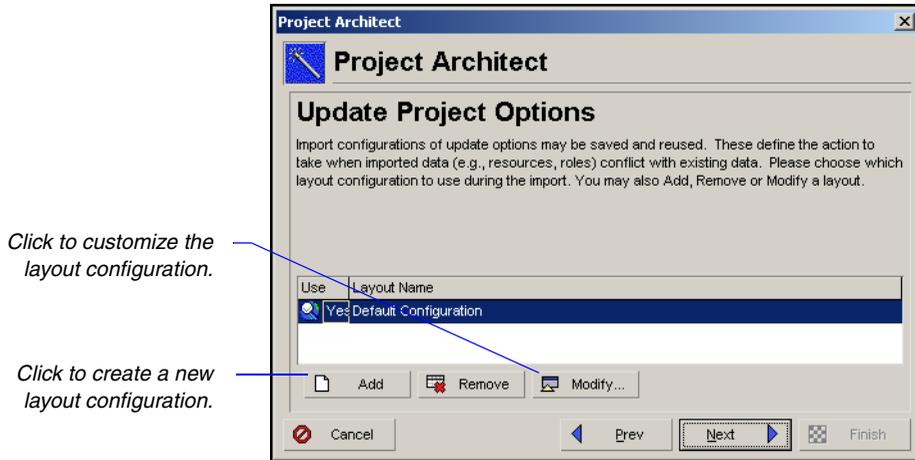
Modify a layout configuration To modify the options specified in a layout configuration, select the layout in the Update Project Options dialog box, then click Modify. The Action specified in the layout determines how to import data that match in the import file and in the existing project database.
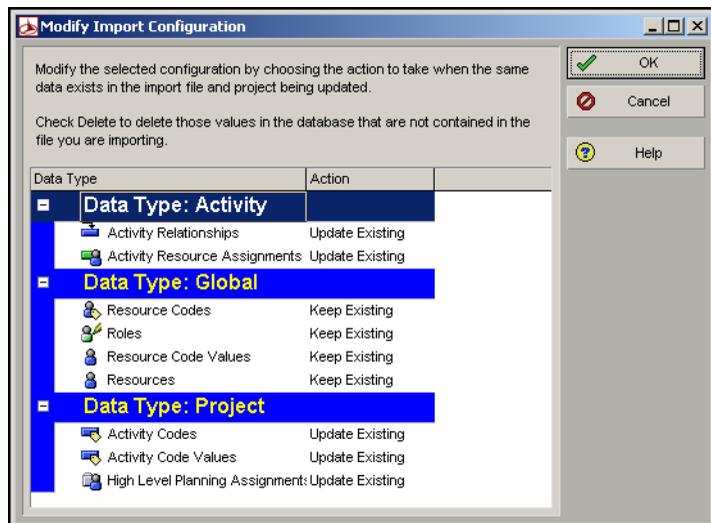
The Modify Import Configuration dialog box lists the data types for which you can set options. Select one of the following in the Action field to indicate how you want to update the data type:

■   **Keep Existing** Retains data in the existing database and does not overwrite them with the updated methodology data; adds new data if the record does not exist.

■   **Update Existing** Overwrites data in the existing database with the updated methodology data; adds new data if the record does not exist.

■   **Insert New** Retains data in the existing database and adds any new data items. For example, if a new role was added in the Methodology Management module, but you don't want to change the existing roles, choose Insert New to add the new role to the project management database.

■   **Do Not Import** Retains data in the existing database and does not import the methodology data.

Click OK to save changes to the modified layout configuration. Click Next to specify where you would like to place the Base or Plug-in methodology, then click Finish to create the project.

Working with the Enterprise Project Structure

Open an EPS node to open all the projects that compose it, or open projects individually. You can also select nonconsecutive projects to see their combined status, resources, or costs. Choose File, Open, select the nodes or projects you want to open, then click OK.

Click to view a list of users who currently have the selected project open.
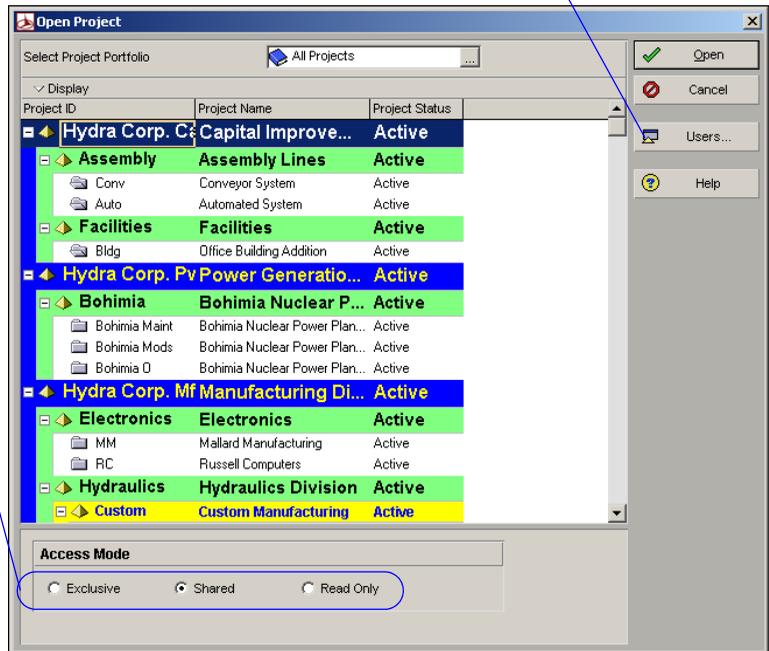
Depending on your security profile or the way in which other users have opened the project, one or more of these options may not be available.


Only one user at a time can have Exclusive access to a project.

Use status for filtering projects in the EPS You can change an open (Active) project to closed (Inactive) when the project is completed. You can also assign a What-If status to a copied project that you want to use for analysis. Project status can be used to organize and summarize information, and to filter projects.

Choose File, Open. Select the EPS node or project whose status you want to change and click Open. Then, click Projects in the Home workspace.
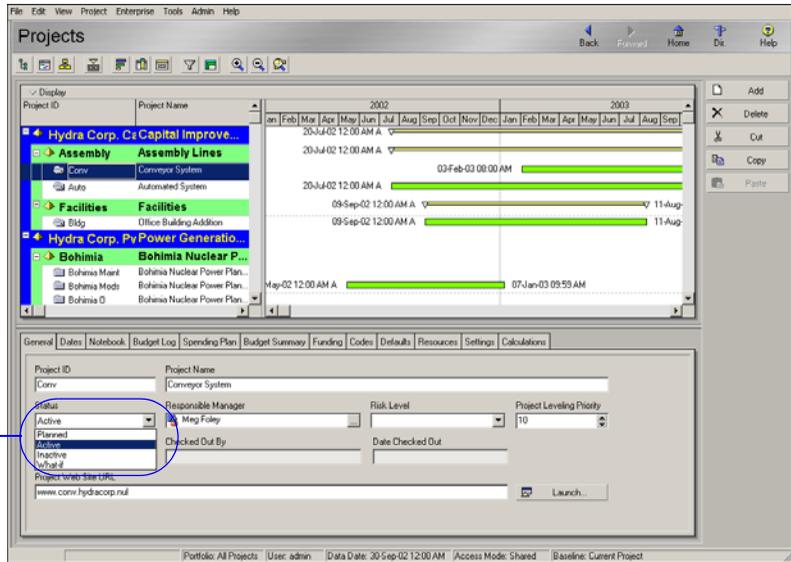
In the General tab, select the project's status.

To view only those projects with a specific status, choose View, Filter By, Status, then choose the status you want to use. You can also choose View, Filter By, Customize. In the Filters dialog box, mark the applicable Select checkboxes for the statuses of the projects you want to see.
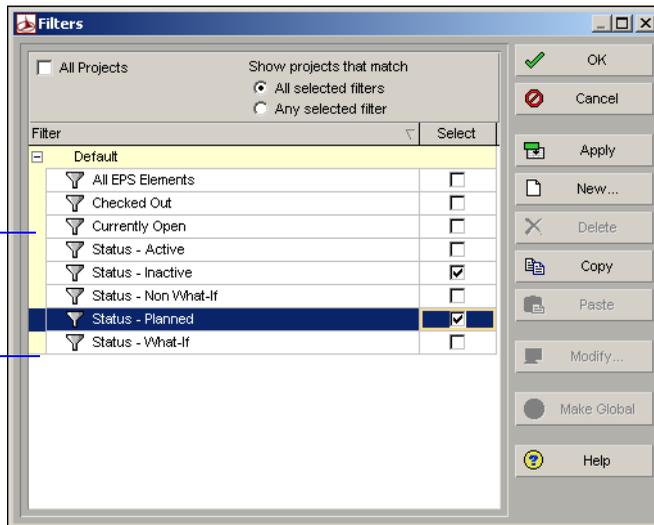
Status filters

Using Root Nodes to Denote Project Status

Another way to distinguish projects with statuses other than Active is to place them under separate root nodes in the EPS. The projects remain part of the hierarchy, but they are not considered when you budget, schedule, and level your active projects. Choose Enterprise, Enterprise Project Structure, to set up root nodes as placeholders within the EPS. You can then drag and drop projects to these root nodes when status changes.

You may want to place the status root nodes at the bottom of the EPS to keep them separate from the rest of the hierarchy.

Click to move a selected node to the left-most position and designate it as a root node.
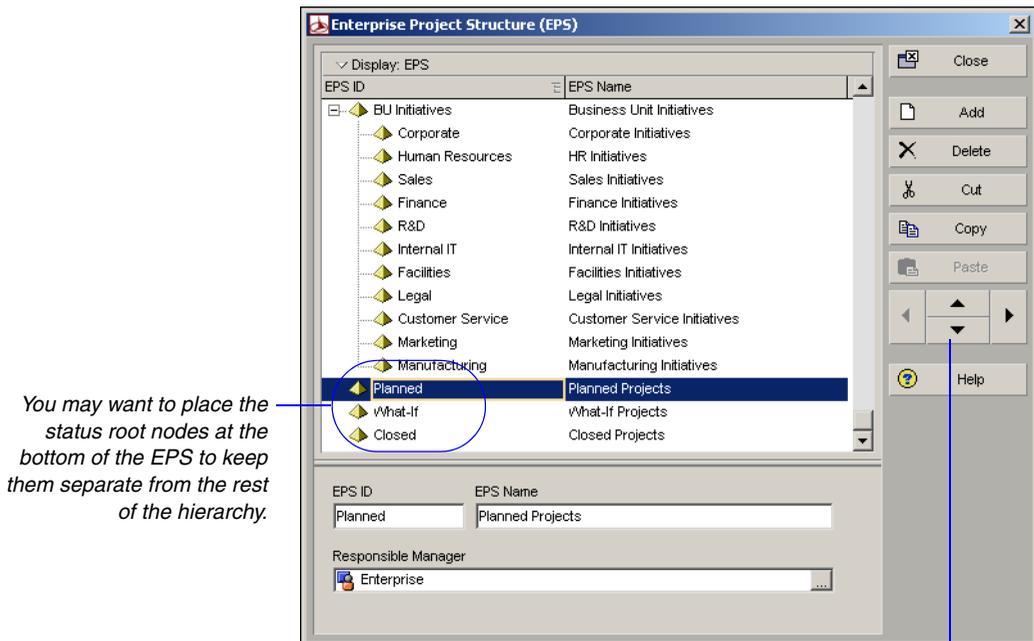
Copy an EPS node or project You can copy an existing node or project to use as a template for a new one. Rename the node or project after you copy it, then make the necessary changes to it.

When you open the Projects window, include the node/project you want to copy as well as the node to which you want to copy it. Select the node/project you want to copy, then click Copy from the command bar. Select the node to which you want to copy the node/project, then click Paste in the command bar. When you copy a project to another location in the EPS, you can also choose to copy the links to the WBS, documents, OBS, and other related elements. Mark the applicable checkboxes in the dialog boxes that are displayed when you click Paste. Click OK in each dialog box to proceed with the copy.

*Mark the checkboxes for the elements you want to copy.*
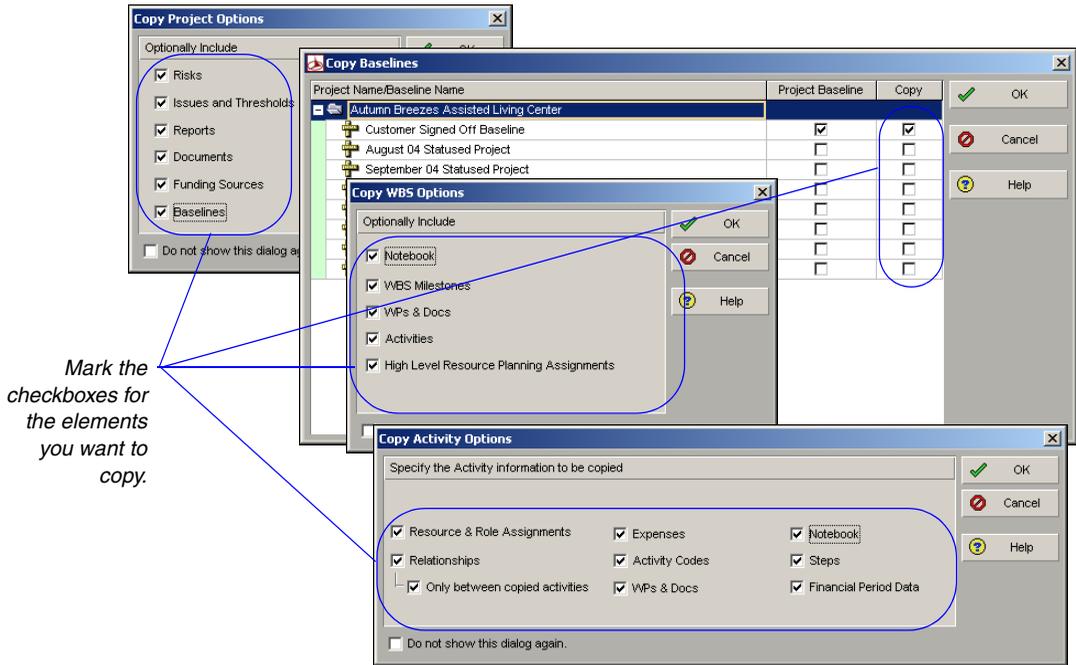
You can only delete projects that are opened in Exclusive mode.

Delete an EPS node or project When you delete a node, all projects in that branch of the hierarchy will also be removed. If you don't want to delete these projects, you must copy and paste them to another area of the hierarchy before you delete the higher-level EPS node.

To delete an EPS node, choose Enterprise, Enterprise Project Structure. Select the EPS node you want to delete, then click Delete. Confirm that you want to delete the selected node by clicking Yes. To delete a project, open the Projects or WBS window with that project included. Select the project, then click Delete. Confirm that you want to delete the selected project by clicking Yes.

Click to delete the selected project.


Click to delete the selected node.
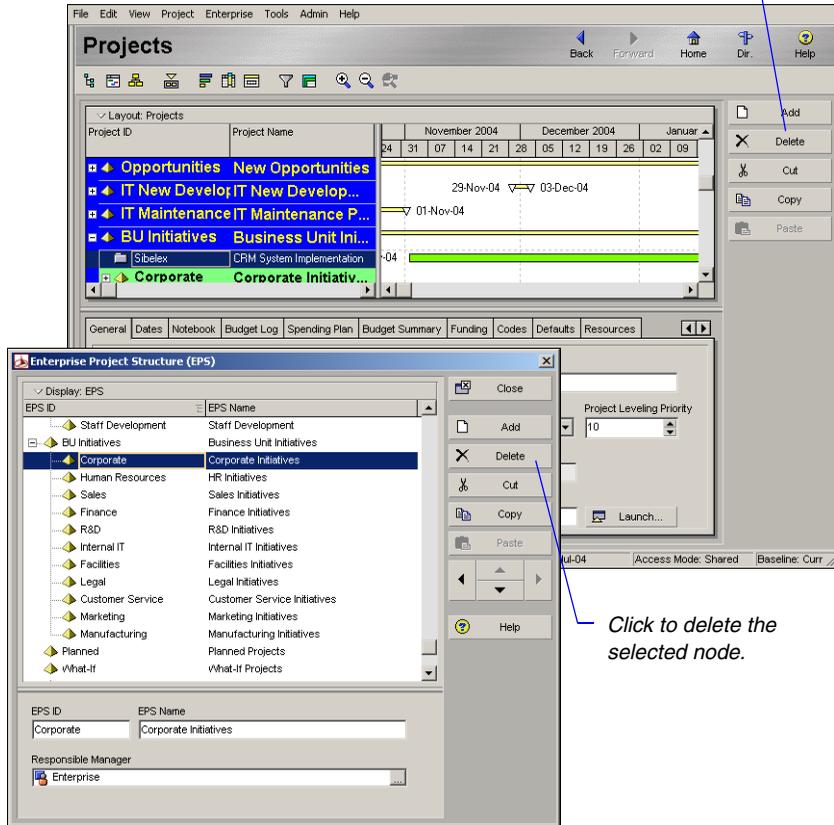
Defining Enterprise Project Structure Details

Define project details and defaults used throughout a project using the Project Details tabs in the bottom portion of the Projects window. You can also define information specific to the EPS nodes in your hierarchy. To display Project Details, click the Display Options bar, then choose Show on Bottom, Project Details (the box next to Project Details should be marked).

Make sure Project Details are displayed so you can define properties.
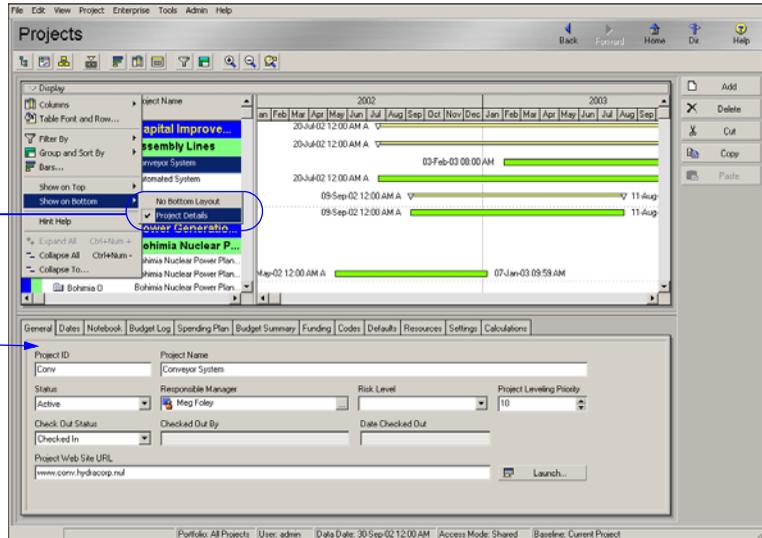
To include/exclude tabs, right-click in the Details area, and choose Customize Project Details.

Open each tab to view and edit that type of information for the selected node or project.

> *For details about the Budget Log, Spending Plan, Budget Summary, and Funding tabs, see "Defining Budgets" on page 159.*

General information The General tab enables you to view and edit general information about the selected node or project. This information includes the ID, name, responsible manager, leveling priority, and risk level. You can also view or edit the project's Web site address, if applicable.

Use status to identify active (Active) or closed (Inactive) projects. You can also select What-If status for analysis before establishing a more permanent project schedule, or Planned status for use during the project planning phase.

The node's/project's assigned organizational breakdown structure (OBS) element. The Responsible Manager is a mandatory assignment for each level of the EPS.

The name of the user and the date and time the user checked out the project. This field is blank when the Check Out Status is Checked In.

The overall risk in performing the node/ project. Use the risk level to organize, filter, and report project information.

Use this value to consider applicable external projects (those not included in the current window) when deducting from resource availability immediately during leveling.

Leveling Priority

You can include assignments from closed projects during leveling. Mark the Consider Assignments in Other Projects with Priority Equal/Higher Than checkbox in the Level Resources dialog box and indicate a Project Leveling Priority for those projects on the General tab in the Projects window. You can enter a value from 1 to 100, with 1 being the highest priority. To use the priority level as a tie breaker during leveling, include Project Leveling Priority under Leveling Priorities in the Level Resources dialog box.

Dates The Dates tab enables you to edit schedule information for the selected project. This information includes the current data date, planned start date, and the scheduled finish date. If you have an EPS node selected, you can also enter the dates you anticipate the node will start and finish.

The latest early finish date calculated when the project was last scheduled

A date constraint placed on the project end date

The user-defined date the project is expected to start or finish

The start date of the project

The date used as the starting point to calculate the schedule

Schedule Dates		Anticipated Dates
Planned Start 05-Jun-01	Must Finish By	Anticipated Start 05-Jun-01
Data Date 05-Jun-01	Finish 04-Dec-01	Anticipated Finish 21-Nov-01
Actual Start	Actual Finish	

The actual finish date of the project, if the project has finished—all activities in the project have actual finish dates.

Anticipated Dates

Anticipated start and finish dates are used during the project planning stage, and can be set at the EPS, project, or WBS level. If the selected project has no activities, or the activities have not started, the Start date or Finish date (in columns) is set equal to the Anticipated Start or Anticipated Finish. Click the Browse button to select a new date.

Notebook The Notebook tab enables you to assign notebook topics and details to the selected node or project. These topics are defined in the Notebook Topics tab of the Admin Categories dialog box.

Click to add a topic, select a topic in the Assign Notebook Topic dialog box, then click Assign.
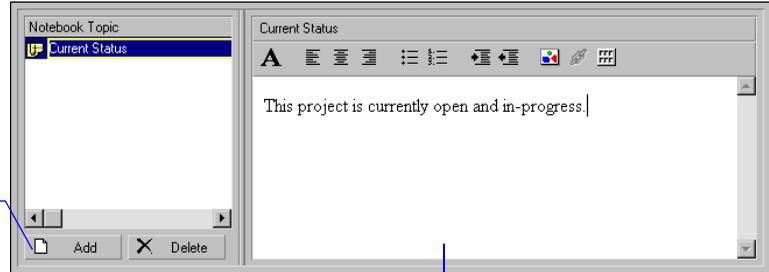
Click in this area to type a description of the selected topic.

For free-form, user-defined details, you can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

Project codes The Codes tab enables you to assign project code values to the selected project. You must first add project codes and values (choose Enterprise, Project Codes).

To sort the display, click the applicable column label.

Default values The Defaults tab enables you to specify the default settings for the selected project. This information includes the default cost account for resource assignments to activities, the defaults for automatic activity numbering, and the default activity calendar, duration type, and percent complete type.

If you change the default calendar, the module applies the default calendar only to new activities.

The default cost account for resource assignments to activities and project expenses in the project

The default duration, percent complete, and activity types for activities in the project. Changing these settings does not affect existing activities.

Mark to automatically number new activities one increment greater than the selected activity, when adding manually.

Defaults for New Activities

Duration Type	Fixed Duration & Units
Percent Complete Type	Duration
Activity Type	Task Dependent

Cost Account	PRJ Project Costing
Calendar	Standard 5 Day Workweek

Auto-numbering Defaults

Activity ID Prefix	Activity ID Suffix	Increment
A	1000	10

☑ Increment Activity ID based on selected activity

New activity IDs are numbered according to this increment.

Auto-Numbering Activity IDs

When a new activity is created, the activity ID is automatically generated using auto-numbering. Activity ID auto-numbering concatenates the prefix and the suffix, with the suffix incremented to make the ID unique. For example, "A" (prefix), "1000" (suffix), "10" (increment) yields activity IDs of "A1010," "A1020," "A1030," and so on. If you change the activity ID prefix, suffix, or increment, the change applies to new activities only.

Resources The Resources tab enables you to specify project level resource permissions for the Timesheets application. Permissions include allowing resources to assign themselves to activities and to report their activities and assignments as completed. You can also specify whether resources enter remaining units or activity completion percentages for their assigned activities and whether to allow the dates of new resource assignments to be independent of the activity or to allow new assignments to force a recalculation of activity dates and duration.

This setting is used to calculate the cost for activities that have labor/nonlabor units with no assigned resources/ roles or resources/roles that do not have prices.

Timesheets	Assignment Defaults
☐ Resource can view activities from an inactive project	Specify the default Rate Type for new assignments
☑ Resources can assign themselves to activities	Price / Unit
☑ Primary resources can mark activities as completed	☐ Drive activity dates by default
☐ Resources can mark assignments as completed	
	Resource Assignments
◉ Resources can edit activity assignment percent complete	
○ Resources can edit activity assignment remaining units	☑ Resources can be assigned to the same activity more than once

Mark to allow new resource/role assignments to determine the dates and durations of the activity.

> *Marking the Drive Activity Dates by Default checkbox simply flags the corresponding resource in the RBS—if you customize columns in the Resources window to include the "Drive Activity Dates" editable column, a checkmark will appear in that column for the corresponding resources.*

Settings   The Settings tab enables you to view and specify summarization information and project-level settings for the selected project.

Mark to maintain only summarized data for the project.

Maximum WBS level the project data can be stored to in the database for summarization. This summarize level impacts the data shown in P6 Web Access when viewing summary, rather than "live," data.

The month the project's fiscal year begins. You can select a new month.

Summarized Data	Project Settings
☐ Contains Summarized Data Only	Character for separating code fields for the WBS tree [.]
Last Summarized On	Fiscal year begins on the 1st day of [January ▼]
Nov-12-04 15:26	Baseline for earned value calculations
Summarize to WBS Level	○ Project baseline ● User's primary baseline
[2] ▲▼	**Define Critical Activities**
Summarize project based on	● Total Float less than or equal to [0.00d]
○ High level resource planning	○ Longest Path
● Detail activity resource assignments	

Choose to identify all activities that have an early finish equal to the latest calculated early finish for the project with driving relationships traced to the project start date.

The maximum float time for activities in the project before they are marked critical. You can type a new number and timeperiod.

Marking the Contains Summarized Data Only checkbox enables an organization to maintain summary-level data for projects managed externally from the Project Management module.

Calculations The Calculations tab enables you to set activity and resource/role assignment preferences for the selected project.

In the Resource Assignments area, for the setting When Updating Actual Units or Cost, to calculate a new At Complete as the sum of the actual and remaining units or costs (At Complete = Actual units/costs + Remaining units/costs), choose Add Actual to Remaining. Actual units and costs are normally calculated using this option. To calculate the remaining units or costs as the difference between the At Complete and actual units or costs (Remaining units/costs = At Complete units/costs – Actual units/costs), choose Subtract Actual from At Completion.

This setting is used to calculate the cost for activities that have labor/nonlabor/material units with no assigned resources/roles or resources/roles that do not have prices.

Choose to determine the true At Complete units/costs.

Choose to track the amount remaining before you exceed the budget.

Mark to base percent complete on activity steps when using the physical percent complete type.

Mark to update the Budgeted unit/cost values, and finish dates, when the Remaining or At Completion values are changed on activities that have not started. Then, choose how to calculate the duration and units when progress is removed from an activity.

Activities	Resource Assignments
Default Price / Unit for activities without resource or role Price / Units $12.00/h	When updating Actual Units or Cost ⊙ Add Actual to Remaining ○ Subtract Actual from At Completion
☐ Activity percent complete based on activity steps	☐ Recalculate Actual Units and Cost when duration % complete
☑ Link Budget and At Completion for not started activities ⊙ Reset Original Duration and Units to Remaining ○ Reset Remaining Duration and Units to Original	☑ Update units when costs change on resource assignments ☑ Link Actual and Actual This Period Units and Cost

Mark to recalculate actual or actual this period units and costs when one of these values is updated. This option must be selected to store period performance.

Refer to the Help for further information about the calculation settings.

Mark the Recalculate Actual Units and Cost when Duration% Complete Changes checkbox to automatically update the actual units and costs when the Duration% complete is updated. If this checkbox is cleared, the module does not estimate actuals, and the actual fields remain blank unless you specify values.

If you use timesheets or Apply Actuals to update or apply actuals, you can still select the Recalculate Actual Units and Cost when Duration % Complete Changes option; however, when you apply actuals, the module overwrites existing actuals values that were recalculated based on this setting.

You must have the project privilege Edit Project Details except Financials to edit this setting. You can check the project privileges in Admin, Security Profiles.

To recalculate units when costs are updated for resource assignments, mark the Update Units when Costs Change on Resource Assignments checkbox.

Mark the Link Actual and Actual This Period Units and Cost checkbox if you intend to store past period actuals using the Store Period Performance feature. If this option is not selected, you cannot store period performance or edit past period actuals.

Setting Up the Organizational Breakdown Structure

An organizational breakdown structure (OBS) is a hierarchical arrangement of a project's management structure. User access and privileges to nodes and projects within the enterprise project structure (EPS) are implemented via responsible managers, defined in an organization-wide OBS hierarchy.

An OBS is not the same as a resource pool. While resources are assigned to activities, OBS elements are associated with EPS nodes and projects. The OBS element corresponding to an EPS node is the project manager responsible for all work included in that branch of the hierarchy. In this way, an OBS supports larger projects that involve several project managers with different areas of responsibility.

Read this chapter to learn how to set up an OBS and associate its elements with the EPS.

The OBS

The organizational breakdown structure (OBS) is a global hierarchy that represents the managers responsible for the projects in your organization. The OBS usually reflects the management structure of your organization, from top-level personnel down through the various levels constituting your business. You can associate the responsible managers with their areas of the EPS — either nodes or individual projects. When you associate a responsible manager with an EPS node, any projects you add to that branch of the EPS are assigned that manager element by default. The OBS hierarchy is also used to grant users specific access privileges to projects and the WBS levels within projects.

Click the Display Options bar, then Filter By, Current EPS/ Projects to view only the OBS elements assigned to the open projects.
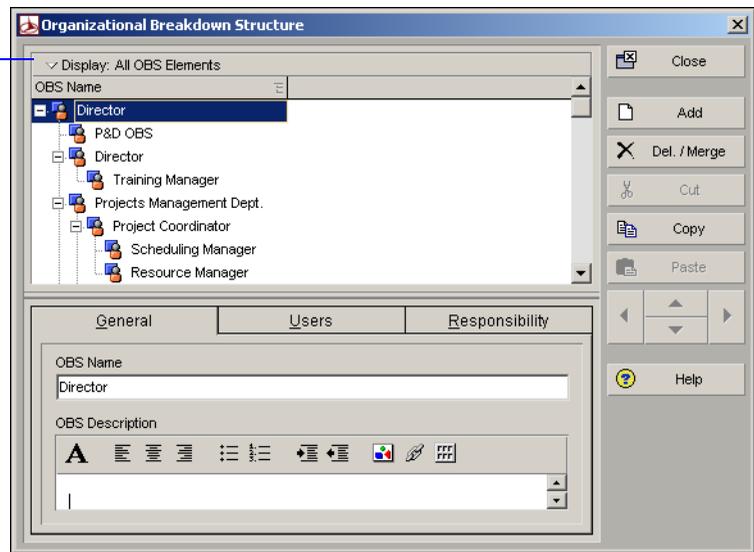

You may want to create your OBS to match each EPS node and project set up in the EPS. You can initially match OBS names to the EPS node and project names. For example, for the Corporate (Corporate IT) node, name the OBS element, Corporate IT Manager.

Assign users, by their login names, to the OBS elements to grant access to the corresponding EPS nodes or projects. The type of access granted to a user is determined by the project security profile assigned to the user. Security profiles are set up on the Security Profiles dialog box (choose Admin, Security Profiles) and then assigned to users on the Users dialog box (choose Admin, Users).

This user will have project manager rights for the OBS element to which he or she is assigned.
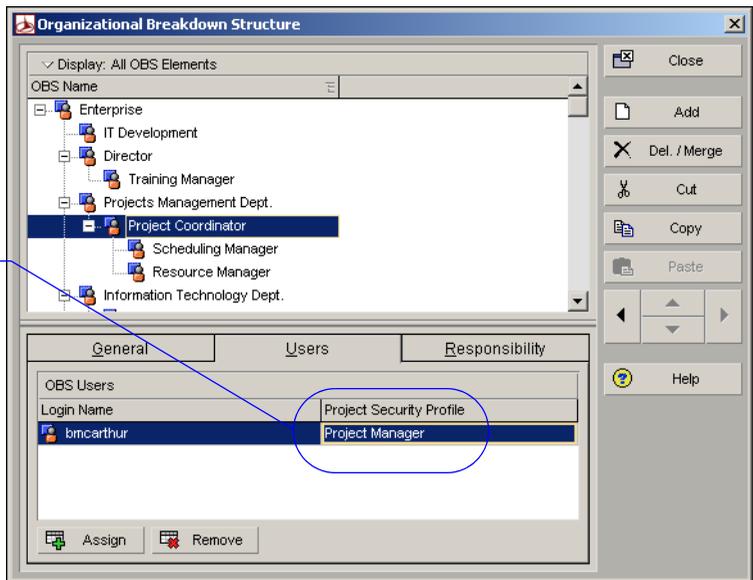
OBS nodes Creating an EPS node or a project in the Projects window automatically creates and associates an OBS node as the responsible manager.
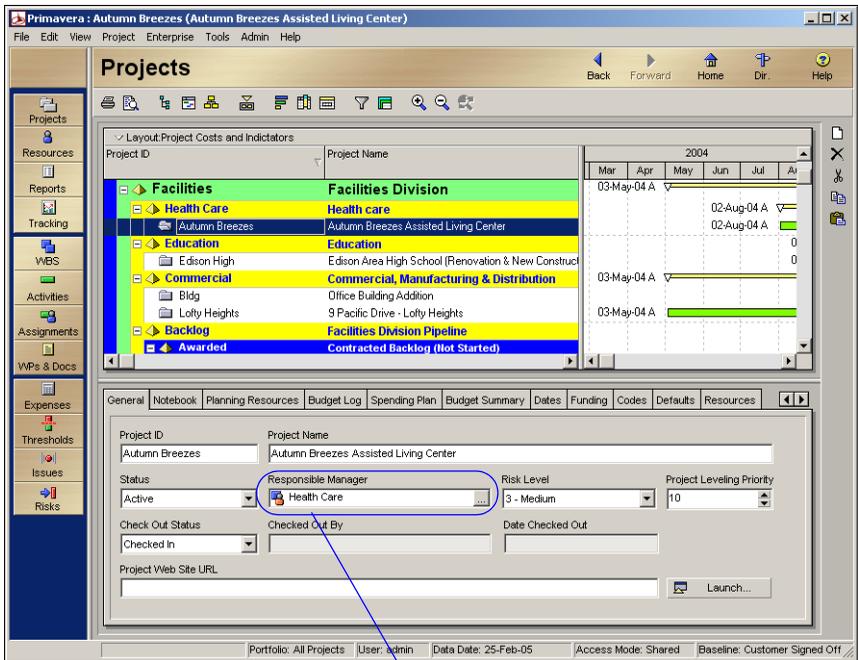
The module automatically associates the OBS assigned to the EPS node in which the new project is added.

The OBS can mirror the EPS at the node and project level, or include additional OBS levels to accommodate your management organization. For example, you may want to specify team leaders as the responsible managers for the WBS levels of a project, and the project manager above the team leaders in the OBS as the responsible manager of the project. In this way, you can delineate appropriate access and security measures at various levels of the EPS while maintaining an OBS that accurately reflects your organization chart.

An OBS can have only one root element.

For more information about producing OBS and other standard reports, see "Customizing Reports" on page 473.

You can also produce reports based on your OBS; several standard OBS reports are included with the sample projects.

Viewing an OBS

You can view an OBS in two ways: as a chart or a table. Choose Enterprise, OBS, to open the Organizational Breakdown Structure dialog box.
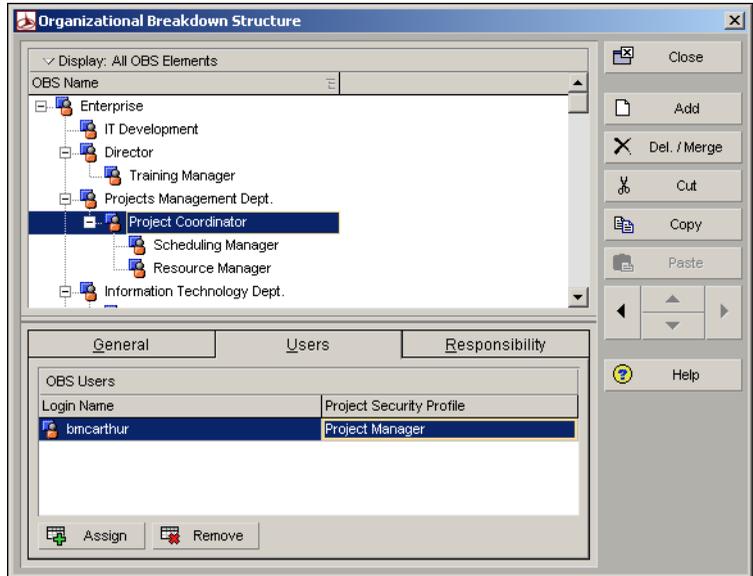
View the OBS chart Click the Display Options bar, then choose Chart View. To change the information included in the chart and the way it is displayed, click the Display Options bar and choose Chart Box Template, Customize.

This chart shows the OBS name and associated users for each OBS element; choose Chart Box Template, Customize to edit the information shown in the boxes and the box height and width.

OBS Details are hidden so that more of the chart is visible.
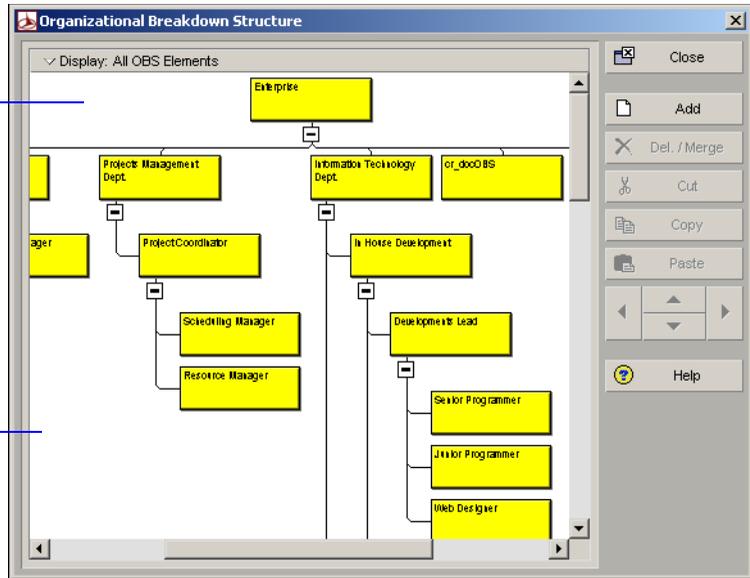
View the OBS table Click the Display Options bar, then choose Table View.

Click the OBS Name column once to view the OBS hierarchy; click it again to list and sort OBS elements.
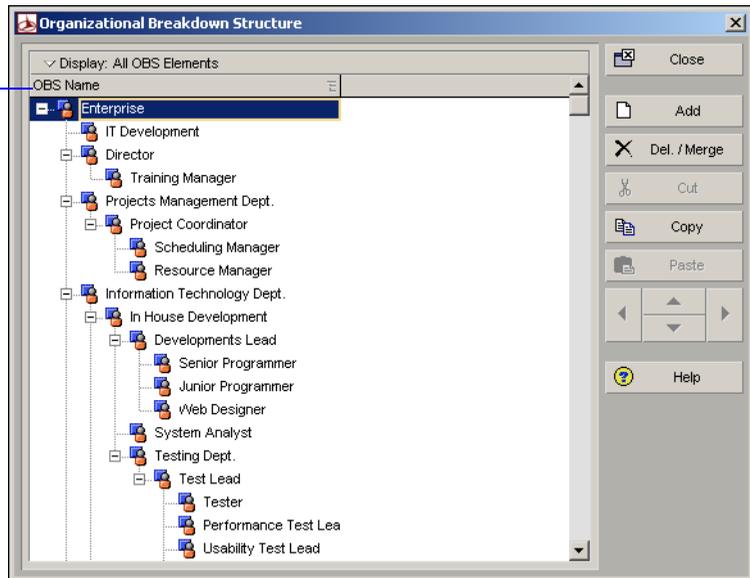
Setting Up an OBS

Use the Organizational Breakdown Structure dialog box to create, view, and edit the global OBS. You can also use this dialog box to view a list of users who can access an OBS element's global and project information, and to see how people are assigned across the projects.

For more information about establishing EPS nodes, see *"Setting Up the Enterprise Project Structure"* on page 67.

Create an OBS A root OBS node is automatically assigned to the root EPS node so that a default OBS element can be assigned to each project you add to the EPS root. When you use the Enterprise Project Structure dialog box to set up the EPS nodes that make up the foundation of the EPS, you can use the existing root EPS as the default for each node, or you can set up the OBS before you build the EPS. You can then assign actual responsible managers when you create EPS nodes. Once your basic OBS is in place, you can include additional OBS elements to provide access to specific EPS nodes, projects, and WBS elements, to users not included with the original OBS node.

Choose Enterprise, OBS. Select the OBS element immediately above and of the same hierarchy level as the element you want to add, then click Add.

Click the OBS Name column to display the OBS hierarchy, as indicated by this symbol.

The module inserts the new OBS element at the same level as the selected element.

Type a meaningful name for the new OBS.
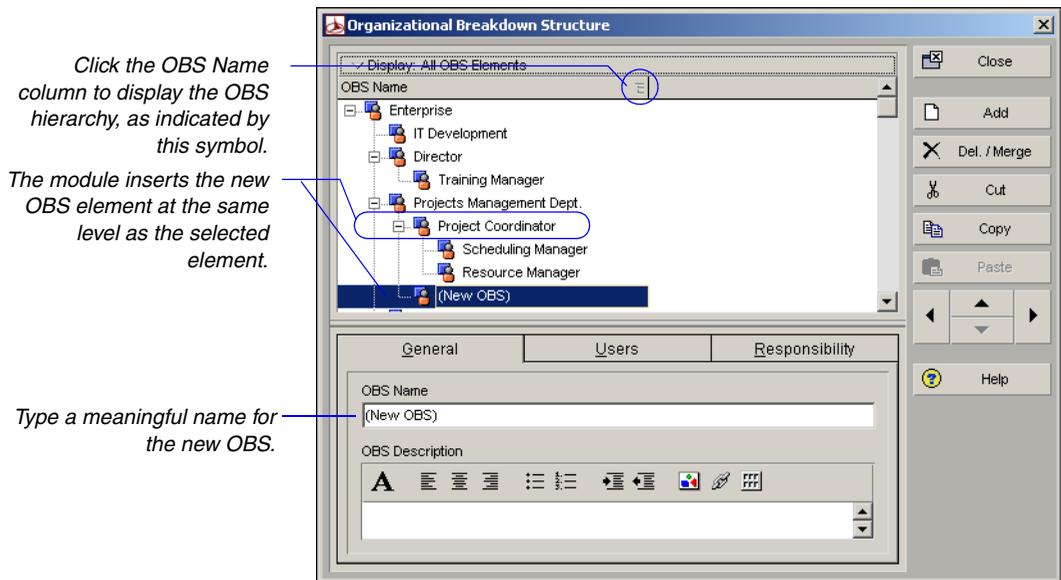
Click in the OBS Description area on the General tab to type a description of the OBS element. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

For details on establishing users and profiles, see the *Primavera P6 Administrator's Guide.* **This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.**

View users associated with OBS elements   Click the Users tab in the Organizational Breakdown Structure dialog box to view the users and corresponding security profiles associated with an OBS element. You can also assign users from this tab, if you have appropriate access rights.
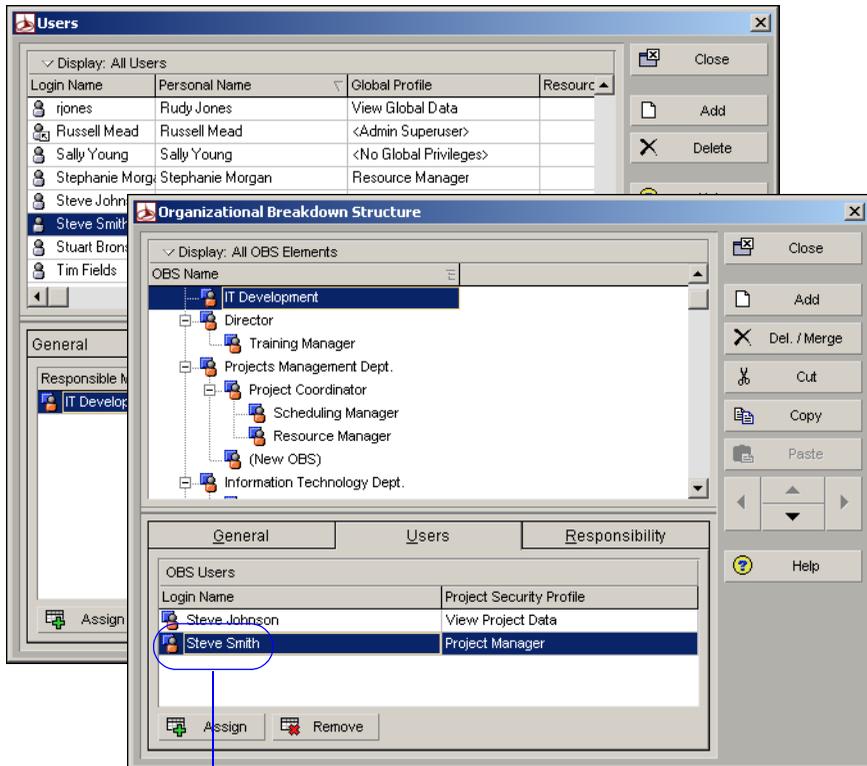
The user associated with the selected OBS at that particular level of the hierarchy.

View a responsibility list Click the Responsibility tab to quickly see where responsible managers (OBS elements) are assigned across the organization. Select the OBS name for whom you want to see assignments.
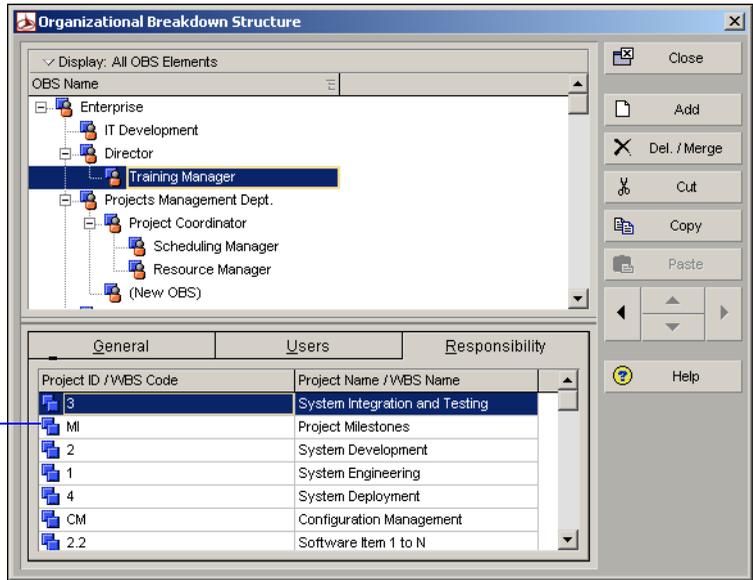

Assignments for the selected manager are shown by WBS level across the EPS.

Editing OBS Elements

You can edit an OBS in several ways. You can change an existing OBS element's position and information, you can add an OBS element (described earlier), and you can delete an OBS element.

Edit an OBS element Choose Enterprise, OBS. Click the OBS Name column label to display the OBS hierarchy. An outline symbol (▤) in the OBS Name column label indicates a hierarchy display. Select the OBS element you want to edit. To change the element's information, click the General tab and enter new information. To change the element's position in the OBS, click the appropriate arrow buttons.

The Scheduling Manager OBS element is moved to the right using the right-arrow button, to make it an element of the Project Coordinator OBS.
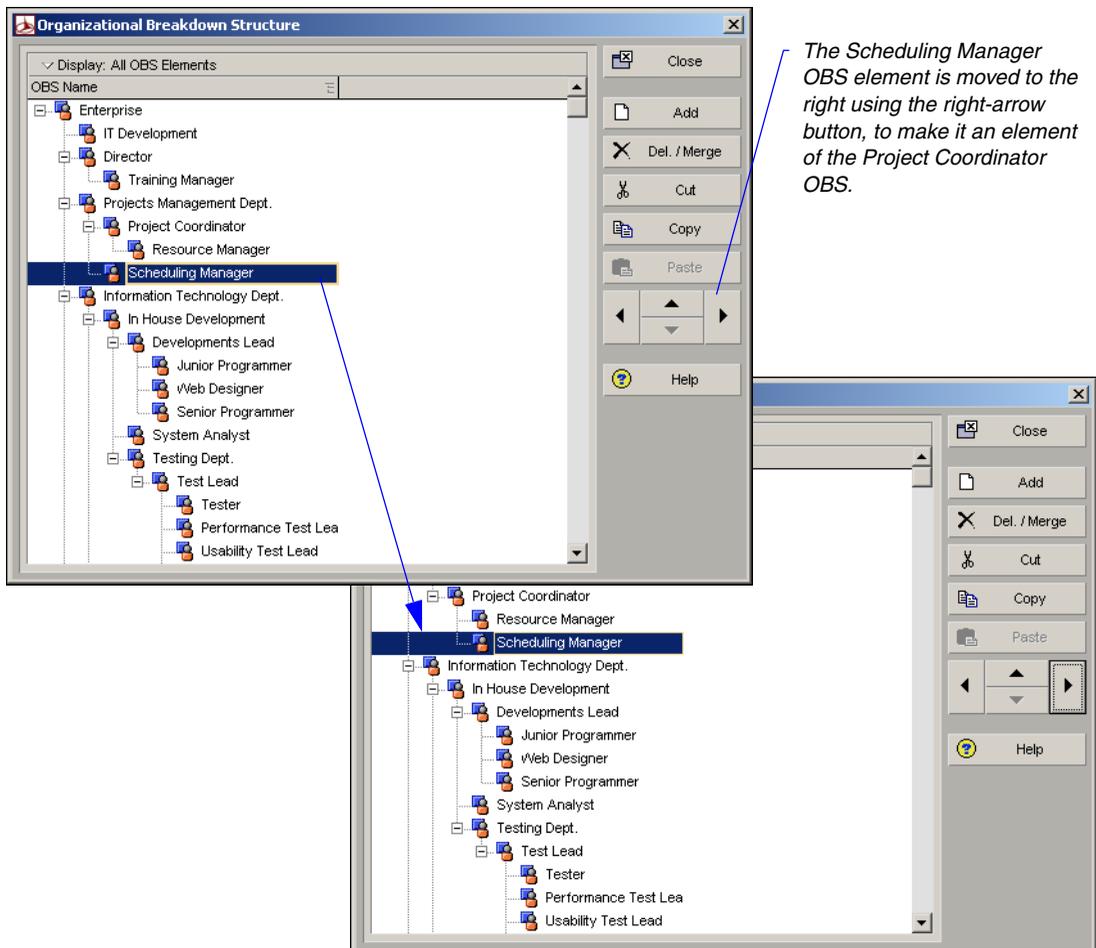
Delete an OBS element Choose Enterprise, OBS. Click the OBS Name column label to display the OBS hierarchy. Select the OBS element you want to delete, then click Del/Merge. If the OBS element you want to delete has WBS, issue, threshold, risk, or any other data item assignments, you are prompted to merge the element with its higher-level OBS element. Click Yes, then click Yes again.

If you delete a higher-level OBS element, the module deletes all of the elements contained in that element.

Defining Resources and Roles

Resources include the personnel and equipment that perform work on activities across all projects. Labor and nonlabor resources, such as engineers and equipment, are always time-based and are usually assigned to other activities and/or projects; material resources, such as supplies and other consumable items, are recorded in terms of cost per unit, rather than hours.

You can create a resource hierarchy that reflects your organization's resource structure and supports the assignment of resources to activities. You can establish unlimited hierarchical resource codes for grouping and rollups.

In addition, you can set up roles with specific skill sets and use them as resource assignments until specific resources can be assigned. This enables you to schedule and plan costs by role at the project planning stage. You can also assign resource calendars and define contact information, and define the price over time for resources and roles. This chapter describes resources, roles, and resource codes.

Resources Overview

You can develop a resource plan that integrates resources, costs, and the schedule so you can effectively control your projects. Begin by defining a list of all the resources necessary to complete the projects included in your enterprise project structure (EPS). For each resource, set availability limits, unit prices, and a calendar to define its standard worktime and nonworktime. Define shifts and apply one or more of the shifts to the resources to whom they apply. Group the resources by broad categories so you can easily find a specific resource when assigning resources to a project.

To enable grouping and rollups of your resources across the organization set up resource codes and assign code values. Use this information to produce resource reports and profiles. Analyze the resource allocation, and adjust your project plan to avoid overallocation and peaks and valleys of resource use.

Resources are different than expenses. While some resources are time-based and generally extend across multiple activities and projects, expenses are one-time expenditures for nonreusable items required by activities.

Roles If you are in the planning stage of your project or want to see how certain resource assignments will affect the schedule, you can assign roles as temporary placeholders for resource assignments. Roles are project personnel job titles or skills. They represent a type of resource with a certain level of proficiency—rather than a specific individual. Roles can also be assigned to specific resources to further identify that resource's skills.

Primary resources An activity's primary resource is typically the resource who is responsible for coordinating an activity's work. The primary resource updates the activity's start date, finish date, and expected end date. In addition, if an activity has any material resources, the primary resource may be responsible for reporting the material resource's hours/units.

Primary resources are also responsible for editing the physical percent complete when weighted steps are linked to activity percent complete for the corresponding activities in a selected project.

Viewing and Adding Resources

Use the Resources window to view and add the resources required to complete all projects across the organization. Structure the hierarchy of resources according to the work performed. For example, you may have various teams comprised of individuals in several resource groups in the organization. You can set up the hierarchy so that the people managing these groups are at a higher level than the resources in the groups.

You can set up multiple root, or top-level, elements in a resource breakdown structure (RBS). A root RBS element serves as the lead person (such as a manager), instead of a division or a department. For this reason, you cannot roll up lower-level resources to the root resource.

You can also open the Resources window at the global level—without any projects open.
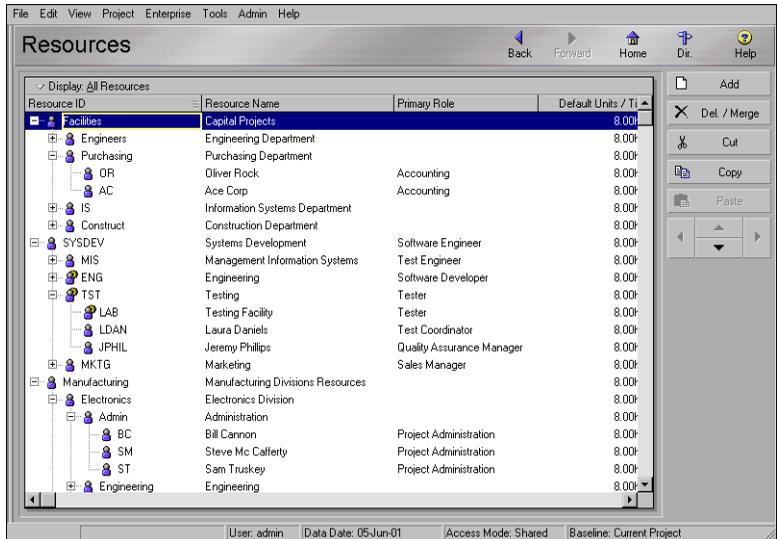
Team leaders, project managers, and resource managers in charge of teams or groups in the organization should jointly establish the resource hierarchy. The program manager and/or project controls coordinator may need to participate in this process to make sure resources are distributed consistently based on availability.

View resources Choose Enterprise, Resources, or click Resources on the Home workspace. Click the Display Options bar, then choose one of the following:

To change the resource display from hierarchy to list view, click the Resource ID column label. A triangle symbol in this column label indicates a list display. You can sort resource information in a list display by clicking a column label.

■ To view detailed information about a specific resource, choose Details, then select the resource whose information you want to view.

■ To view resources as a chart, choose Chart View.

■ To select the columns to include in the display, choose Columns, Customize, or one of the predefined column displays.

■ To select the resources to display, choose Filter By, then choose All Active Resources, All Resources, or Current Project's Resources.

■ To organize the resource hierarchy, choose Group and Sort By, and choose one of the predefined groupings or customize your own.

If resource security is enabled, the module only displays the resources you have access rights to view. Refer to the Primavera P6 Administrator's Guide *for more information.*

Add a resource Choose Enterprise, Resources. Click the Display Options bar, then choose Group and Sort By, Default, to display the resource hierarchy. Select the resource immediately above and at the same level as the resource you want to add, then click Add. Depending on your user preferences, the New Resource wizard may be started. The wizard prompts you to add the information included on each tab in Resource Details. If you do not use the wizard, this information can also be entered directly on each tab. To display Resource Details, click the Display Options bar, then choose Details.

Refer to this section to establish basic resource information. To specify additional information, refer to the following sections later in this chapter:

■ Codes – "Defining and Assigning Resource Codes and Values" on page 125

■ Roles – "Setting Up Roles" on page 128 and "Assigning Roles to Resources" on page 133
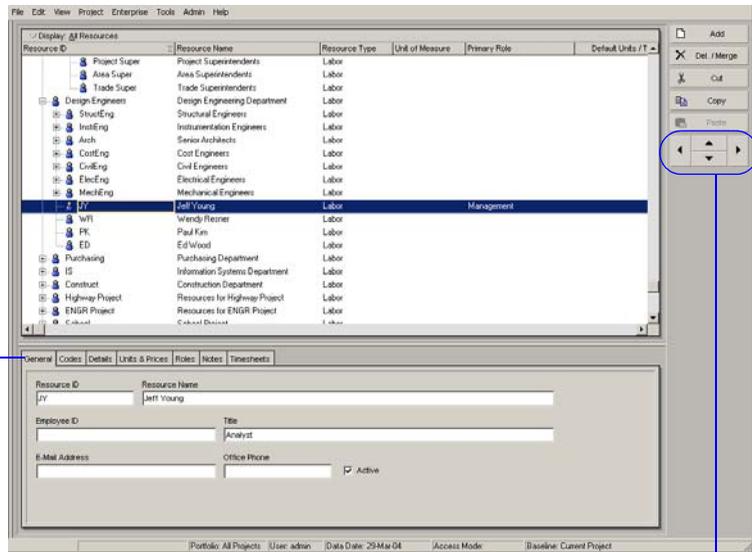
Use Resource Details to add, view, and edit detailed information about a new or selected resource.

Click the left/right arrows to indent or outdent a selected resource to denote its position in the hierarchy; click the up/down arrows to move a selected resource up or down in the hierarchy.

General information Use the General tab to enter general information about the selected resource, including the resource's ID, name, title, employee ID, e-mail address, office phone numbers, and status.

The employee identifier corresponding to the resource, such as social security number, used for the employee in your company

If the resource is associated with a user in the Timesheets module, this field will correspond to the E-Mail Address on the Contact tab of the Users dialog box.

If this checkbox is marked, the resource is available for assignment; if cleared, it indicates an inactive status or unavailability.

Details Use the Details tab to specify a resource's labor classification—labor (personnel), nonlabor (equipment), or material (supplies), indicate whether a resource can log overtime hours, assign a calendar to the selected resource, specify the resource's default units/ time, specify how actual and remaining units are applied for a resource's assignments, and indicate that any assignments for a resource will have its quantities recalculated whenever any cost changes occur.

The module uses your calendar assignments for activity scheduling, tracking, and resource leveling; you can select a global calendar or a resource calendar for the resource.

The minimum amount of time a resource is available to work on an activity

You can select a unit of measure name and abbreviation for the material resource.

By default, displays the view currency selected in User Preferences when the resource was added; you can select a different currency to associate with the resource.

Resource Type

○ Labor   ○ Nonlabor   ● Material

Unit of Measure

Currency and Overtime

Currency

Dollar

☐ Overtime Allowed   Overtime Factor
                           0.0

Profile

Calendar

1. Standard 5 Day Workweek

Default Units / Time

8.00Unit/d

☑ Auto Compute Actuals
☑ Calculate costs from units

Mark to enable the labor or nonlabor resource to record overtime hours for activities in the Timesheets module.

*Type the number by which the resource's standard price should be multiplied to determine the resource's overtime price (standard price * overtime factor = overtime price).*

Mark to automatically calculate the selected resource's actual quantity of work according to project plan rather than reported hours in the Timesheets module; clear if you are using the Timesheets module to update actuals.

Mark to indicate that any new assignments for this resource will have its costs recalculated whenever any quantity changes occur, such as changing the estimate to complete for an activity.

Default Units/Time

You can enter the default units/time value as a numeric value followed by a forward slash (/) and the appropriate time duration, depending on your user preference setting for time units, or as a percentage for labor and nonlabor resources. For example, if the selected resource is one person, a reasonable value may be eight hours (units) per day (duration). In this case, the Default Units/Time would be 8.00h/d, or eight hours of work per day. If you are entering a percentage, you would enter 100% indicating that the resource is available to work full-time. Similarly, if the selected resource is a department with five people, the Max Units/Time may be 40.00h/d, or 500%. This means that five people can perform 40 hours of work per day, rather than one person performing 8 hours of work per day. The module uses this value in conjunction with the calendar assignment to calculate resource allocation/distribution during scheduling and leveling.

Marking the Calculate Costs From Units checkbox simply flags the corresponding resource in the RBS—if you customize columns in the Resources window to include the "Calculate Costs From Units" column, a checkmark will appear in that column for the corresponding resources. The actual setting to perform a recalculation of resource quantities is on the Calculations tab of Project Details.

Units and prices   Use the Units & Prices tab to specify available quantities (limits) for the resource. Setting limits helps you quickly identify areas of resource overload in Resource Usage Profiles using different colors to represent limits and overallocated units in histograms. The module automatically adjusts the resource's costs for its assigned activities to reflect price changes for different timeperiods.

Select the resource's shift calendar and type the applicable shift number for which you are setting limits, if the shift calendar has more than one shift. See the Defining Resource Shifts *section for information about defining shifts.*

Double-click the cell, then type the resource's price followed by a forward slash (/) and the unit associated with the price.

You can set varying limits and prices over time by specifying the effective start date for each change.

The number of units available during each workperiod (hour, day, week, or month) of the specified timeframe; you can enter a percentage, or a numeric value followed by a forward slash (/) and the appropriate time duration, depending on your user preference setting for time units.

To level resources, you must set availability limits (Max Units/ Time).

You can rename the five available Price/Unit fields in Admin Preferences, Rate Types tab.

Using Limits for Delayed Resource Start

Use limits to delay the start of a resource in the project schedule until the resource is available. For example, suppose you hire a new engineer, Joe, but he does not start for another month. You can add Joe's activities and assignments to the project and then set the resource limits as follows:

Effective Date	Max Units/Time
10AUG01	*0h/h*
10SEP01	*1h/h*

Notes Use the Notes tab to enter comments about the resource. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

Resource Notes

Laura is responsible for authoring test plans.
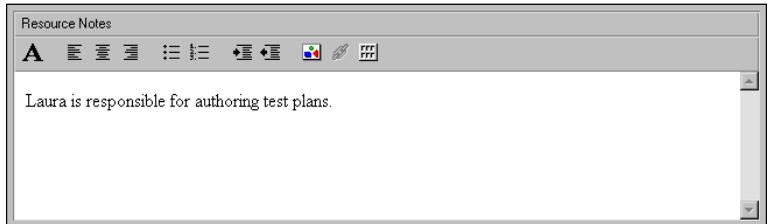
For more information about configuring resources for use with the Timesheets module, see the *Primavera P6 Administrator's Guide*. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Timesheets Use the Timesheets tab to specify the selected resource's timesheet login name and whether the resource uses timesheets to record hours for assigned activities. You must first set up login names in the Users dialog box. Choose Admin, Users, then click the General tab.

Click the Browse button to select a login name for Timesheets.

Mark if the resource uses timesheets to record time spent on his or her activities.

Login

User Login

JY Jeff Young   Edit User...

Timesheet

☑ Uses Timesheets

Timesheet Approval Manager

admin Administrator Account
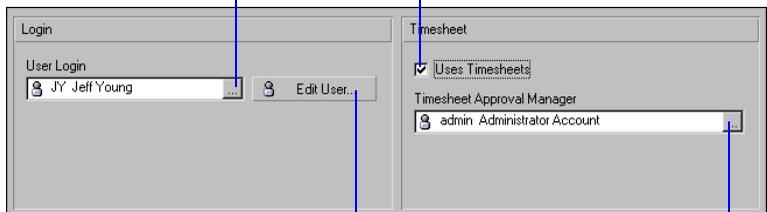
Click to access the Users dialog box, where you can specify a different login name and password.

Click the Browse button to select the resource's timesheet approval manager.

Defining Resource Shifts

You can globally define shifts that span specific work hours over a certain period of time and apply one or more shifts directly to the resources to whom they apply. The module considers the shift hours when calculating units and prices during leveling. The resource calendar is used to determine when the resource can work, and the limits for that period are determined from the shift definition on that resource.

Define resource shifts Choose Enterprise, Resource Shifts. Click Add, then type the new shift's name. To edit the new shift, click Modify.

The total shift hours must add up to 24 hours, and each shift must have a duration of at least one hour.

The start hour must begin and end on the hour, for example, 8:00 rather than 8:30.
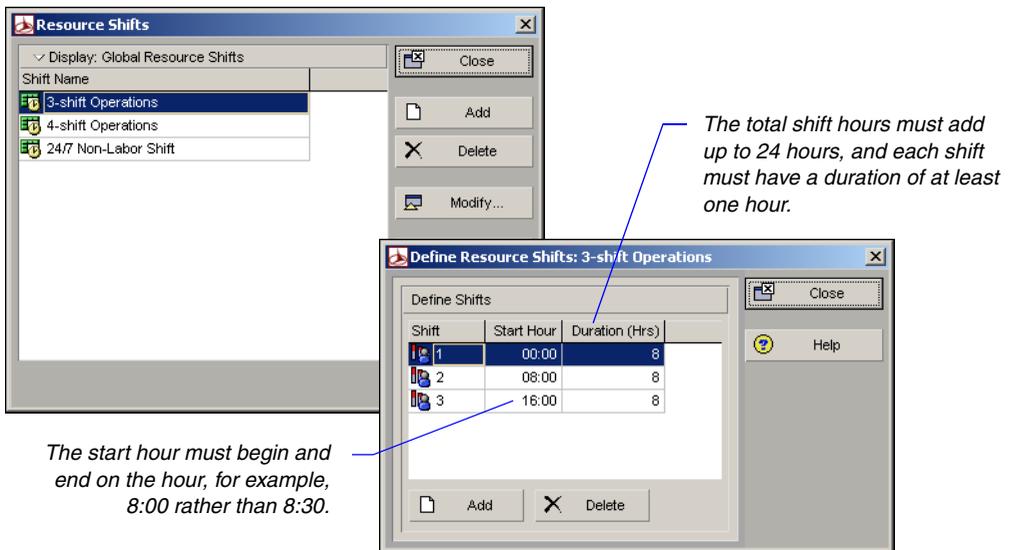
Choose Enterprise, Resources to assign the resource shifts to resources in the Resources Window, Units & Prices tab.

Defining and Assigning Resource Codes and Values

Resource codes provide another way to categorize project resources. For example, establish a code called Classification, and create values for it, for example, Management and Engineering. Assign these values to the appropriate resources so you can quickly group, filter, or sort by all managers or all resources on the engineering team.

Set up resource codes Choose Enterprise, Resource Codes. Click Modify to add resource code definitions—broad categories for which you will be adding values. Type the resource code name and enter the maximum number of characters for each value you will be assigning to the code. Click Close when you are finished adding codes and value lengths.
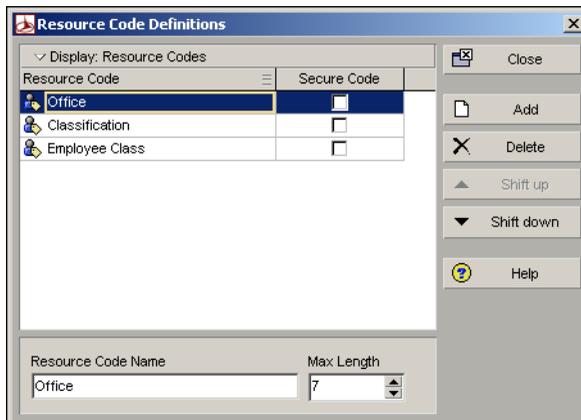
Add resource code values In the Resource Codes dialog box, select the code for which you want to establish values, then click Add. Type the resource code value name; the maximum number of characters is preset at the resource code level. Type a description for the value. To create a hierarchy of code values, click the right arrow key to indent the selected value one level.

You can further categorize code values by arranging them in a hierarchy.

Resource Codes

Select Resource Code

Office

Modify...

Display: Office

Resource Code Value	Code Description
RNK	Roanoke
RNK.ALPHA	Testing Lab Alpha
RNK.BETA	Testing Lab Beta
RNK.IT	Roanoke IT Department
ATL	Atlanta
ATL.IT	Executive IT Department
ATL.ACCT	Accounting
ATL.PM	Project Office
ATL.SALM	Sales and Marketing
SLC	Salt Lake City
SLC.WLAB	Web Lab
SLC.ELAB	Electrical Engineering Lab
SLC.SLAB	Software Development Lab
SLC.MLAB	Materials Engineering Lab
SLC.R&D	Research Division

Close
Add
Delete
Cut
Copy
Paste
Help

Assign resource code values You can assign code values to resources using the Codes tab in Resource Details or by creating resource code columns in the Resources window and then assigning values in the columns. To use the Codes tab, click the Display Options bar and choose Details (the box next to the Details command should be marked). Click the Codes tab, then click Assign. To use columns, click the Display Options bar, then choose Columns, Customize, and add one or more resource code columns. Refer to the following example:

Customize columns to include the resource codes for which you want to assign values; click in the column cell for each resource to select the resource code value assignment...

or

click Assign to select the resource code value for the selected resource

File Edit View Project Enterprise Tools Admin Help

Resources

Back Forward Home Dir. Help

Display: Current Project's Resources

Resource ID	Resource Name	Resource Type	Home Office	Unit of Measure	Primary Role
Concrete	Concrete Foundation Subcontractor	Labor	HO		
Conveying	Conveying Subcontractor	Labor			
Drywall	Drywall Subcontractor	Labor			
Electrical	Electrical Subcontractor	Labor			
Finish Carpentry	Finish Carpentry Subcontractor	Labor			
Finishes	Finishes & Fit-out Subcontractor	Labor			

General Codes Details Units & Prices Roles Notes Ti

Resource Code	Code Value	Code Description
Home Office	HO	Houston, TX

Select Home Office

Display: Home Office

Search

Resource Code	Code Description
HO	Houston, TX
SF	San Fransico, CA
LV	Las Vegas

Assign Remove

Portfolio: All P   Mode: Shared   Baseline: Customer Signed Off

Group and summarize using resource codes One way to use resource codes is for grouping and sorting in Resource Usage Spreadsheets. Right-click in a Resource Usage Spreadsheet layout and choose Group and Sort By, Customize. Grouping by resource codes enables you to quickly see the activities that are assigned to a particular area of responsibility or are being performed by a specific group throughout your organization. Click a group band to see a summary or rollup of a particular group.

This section lists the activity assignments for selected resources or roles.

This section is grouped by resource code.

Setting Up Roles

Roles are project personnel job titles or skills, for example, project planner, quality assurance tester, and engineer. You can create a standard set of roles that you can assign to labor and nonlabor resources and activities in all projects in the organization. You can establish an unlimited number of roles and organize them in a hierarchy for easier management and assignment. The set of roles you assign to an activity defines the activity's skill requirements. You can also define multiple price per unit rates and unit/time limits for each role to accurately plan future costs and allocation.

Assign roles to activities as you would resources during project schedule and cost planning. When your plans are finalized, you can replace roles with resources, based on each activity's role and skill requirements.

View roles Choose Enterprise, Roles, then click the Display Options bar.

■   To view only those roles that have assignments in the open project, choose Filter By, Current Project's Roles.

■   To view all roles, choose Filter By, All Roles.
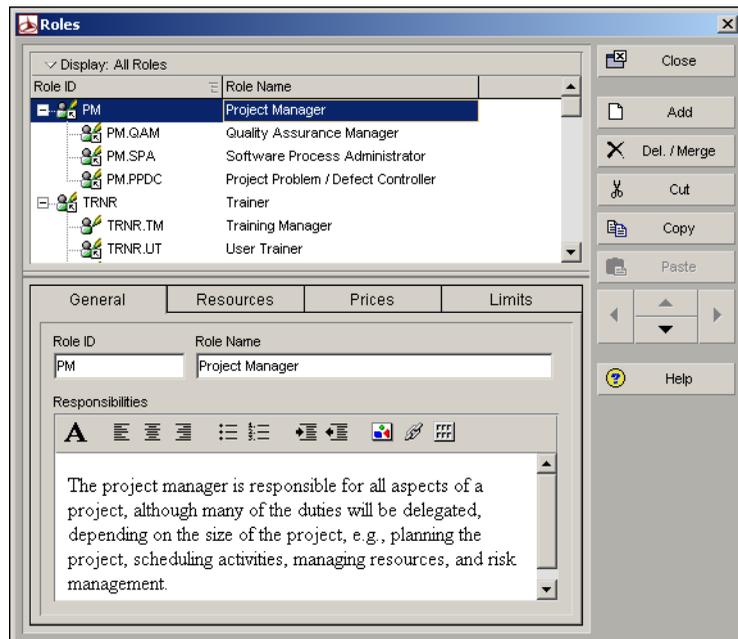
View roles for a specific resource Choose Enterprise, Resources.
Select the resource whose roles you want to view. Display Resource
Details by clicking the Display Options bar and choosing Details. Click
the Roles tab.
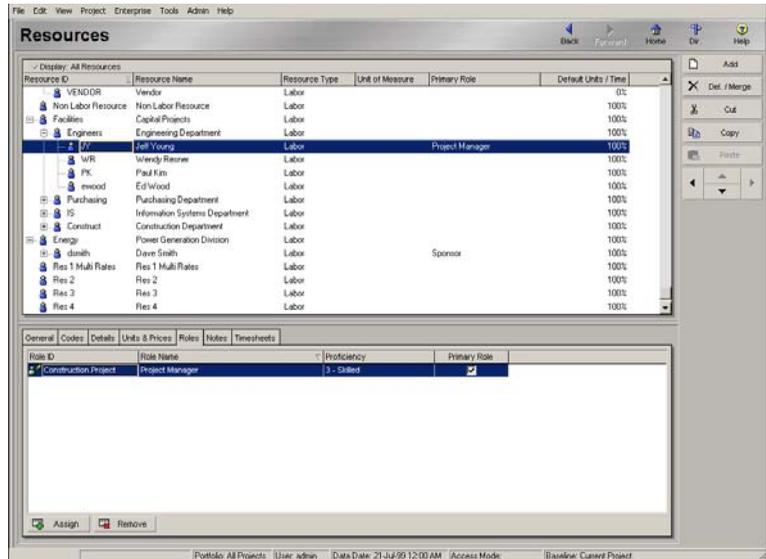
Add a role Choose Enterprise, Roles. Select the role immediately
above and at the same level as the role you want to add, then click Add.
Type the role's ID and name. To create a hierarchy of roles, click the
right arrow key to indent the selected role one level. For example, you
may want to list specific roles included under Project Manager, such as
Design Manager.

Type a description of the role's responsibilities. You can use HTML
editing features, which include formatting text, inserting pictures,
copying and pasting information from other documents (while retaining
formatting), and adding hyperlinks.

Replace the highlighted text with the ID and name of the new role.
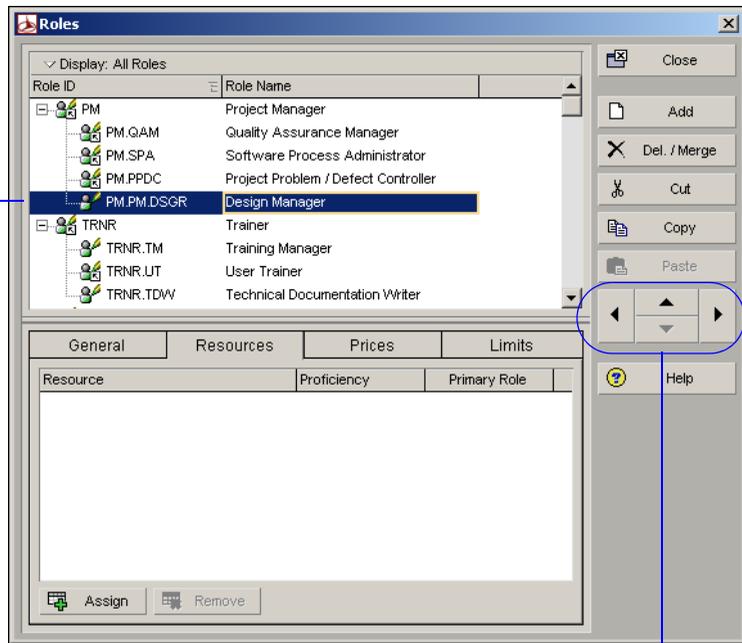
Click the up/down arrows to move a role up or down in the list; click the left/right arrows to change a role's hierarchy level.

For more information on assigning roles to activities, refer to "Assigning Resources and Roles" on page 230.

Add rates to a role   You can add up to five price per unit rates for each role in the roles dictionary. When you assign a role to an activity during project planning, you can choose which rate you want to use to calculate cost. Defining rates for specific roles yields more accurate project cost planning results.

To add rates to a role choose Enterprise, Roles. If tabs are not displayed in the Roles dialog box, click the Display Options bar and choose Roles Details. Select the role you want to assign rates to, then click the Prices tab. Enter up to five Price/Unit rates for the selected role.

For example, if the price per unit is $25/hour, enter 25h; if the price per unit is $50000/year, enter 50000y. You can only enter unit values in minutes, hours, days, weeks, months, and years. Your system administrator defines the abbreviations for these units in the Admin Preferences, Time Periods tab.
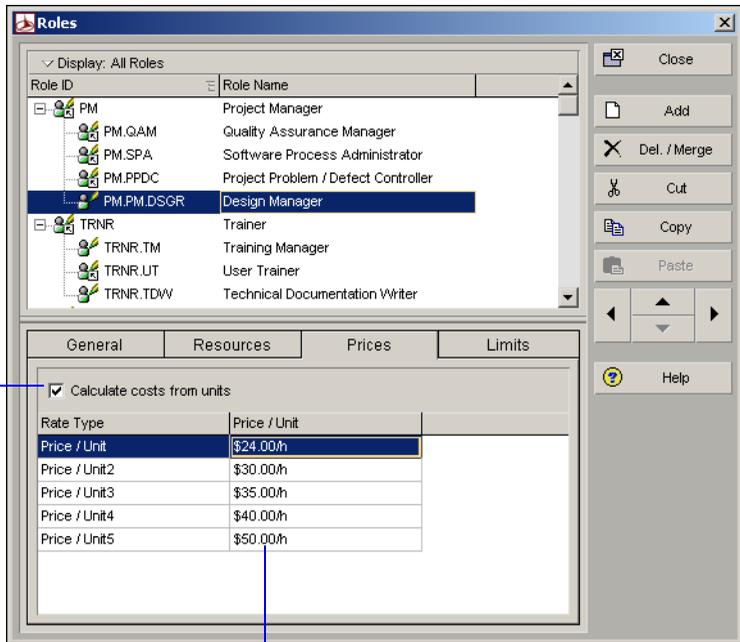
Mark to indicate that any new assignments for this role will have its costs recalculated whenever any quantity changes occur, such as changing the estimate to complete for an activity.

Enter the price and unit for the selected role. The unit must be the same for each rate defined for a specific role (e.g., you cannot mix hourly and weekly time units for the same role). If multiple rates are defined for a role and you change the unit for one rate, the module changes the unit for all other defined rates. If you enter a price but not a unit, the default unit is hours.

Define role limits Use the Limits tab to specify available quantities (limits) for a role. Setting limits helps you quickly identify areas of role overload in Resource/Role Usage Profiles, using different colors to represent limits and overallocated units in charts and histograms.

In P6 Web Access, you can view role limits in all charts and histograms that display role data, such as the Capacity Planning chart (Portfolios section), Role Usage histogram (Resources section), and Team Usage histogram (Projects section).

By default, role limits are calculated based on the limit defined for each role's primary resource, which may not accurately reflect a role's planned allocation. In the Project Management module, on the User Preferences, Resource Analysis tab, you can choose to display role limits based on the custom role limits you define in the Roles dictionary. In P6 Web Access, you can set this same option in the Global Preferences, Resource Staffing section.

To define role limits, choose Enterprise, Roles. If tabs are not displayed in the Roles dialog box, click the Display Options bar and choose Roles Details. Select the role you want to define limits for, then click the Limits tab. Click Add at the bottom of the Roles dialog box. Double-click in the Effective Date column, then click the Browse button to select the date the limit takes effect. In the Max Units/Time column, enter the allocation limit for the role as a unit value or as a percentage, depending on your user preference settings for resource units/time (User Preferences, Time Units tab).

You can set varying limits over time by specifying the effective start date for each change. Each effective date must be unique.

The number of units available during each workperiod (hour, day, week, or month); you can enter a percentage, or a numeric value followed by a forward slash (/) and the appropriate time duration, depending on your user preference setting for time units.

Assigning Roles to Resources

The set of roles you assign to a resource describes the resource's skill capabilities. These role assignments make it easy to assign resources to activities according to role. You can also assign roles to activities directly when you are unsure of the actual resources available to work on those activities. You can later replace the roles with the applicable resources.

For information on assigning resources to activities by role, see "Working with Activities" on page 211.

You can assign roles to resources in two ways: from the Resource Details window or from the Roles dialog box.

Assign roles to resources from the Resource Details window Choose Enterprise, Resources, select the resource to which you want to assign a role, click the Display Options bar, then choose Details. Click the Roles tab, then click Assign.

Mark the checkbox for the role you want to use as the default role, if there are more than one listed for the resource.

Displays resource roles for the selected resource; click the Role ID column label to sort the display.

Role ID	Role Name	Proficiency	Primary Role
Engineering	Engineering	3 - Skilled	☐
Management.PM	Project Manager	2 - Expert	☑

Assign   Remove

You can modify role names in the Roles dialog box (choose Enterprise, Roles).

You can analyze resource and skill supply and demand using role and proficiency usage profiles.

Assign roles to resources from the Roles dialog box Choose Enterprise, Roles. Click the Display Options bar, then choose Roles Details. Select the role you want to assign. Click the Resources tab, then click Assign.
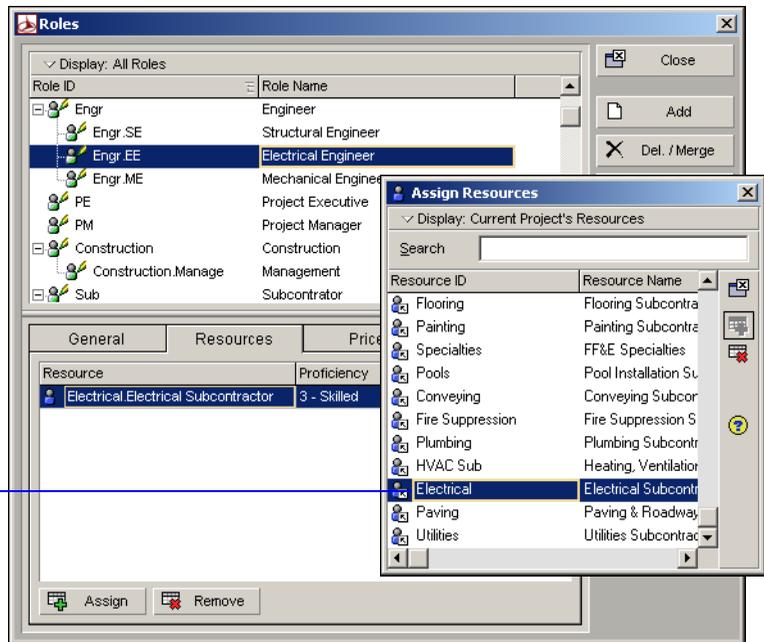
Select the resource to which you want to assign the selected role; click the Assign button, then click the Close button.

Double-click the displayed proficiency level, then select the appropriate proficiency level.

Defining Custom Resource Curves

Resource/cost distribution curves enable you to specify how you want resource units or costs spread over the duration of an activity. Resource units and costs are distributed evenly during an activity unless you specify nonlinear distribution using curves. The Resource Usage Profile and Resource Usage Spreadsheet reflect resource curves. Resource curves are not used when leveling.

If some of your activities require unique future period allocations because planned work cannot be accurately distributed using custom resource curves, you can manually enter future period budgeted and remaining units values for assignments in the Resource Usage Spreadsheet (Resource Assignments and Activities windows). Refer to

The module contains a set of pre-defined resource curves you can assign to resource/role assignments. When the pre-defined resources curves do not accurately capture how units should be spread for some of your project's activities, you can create global custom resource curves. If many activities require resource/role units to be spread using the same distribution curve, you can define the custom curve and assign it to the necessary resource/role assignments.

If timesheet data exists for the actuals, curves are ignored for the actuals and are spread using the timesheet data. Activities with timesheet data continue to spread the remaining units using the curve. To use curves to calculate the Actual Units/Cost and EV Units/Costs, mark the Recalculate Actual Units and Costs when duration % complete changes checkbox in the Calculations tab in Project Details.

> *Resource curves do not support expenses. The Accrual Type field will continue to spread the expenses.*

Add a custom resource curve Choose Enterprise, Resource Curves. Click Add. Select an existing curve from which to copy the curve value percentages, then click Select. Type a name for the new resource curve.

You can type up to 60 alphanumeric characters for the new resource curve name.
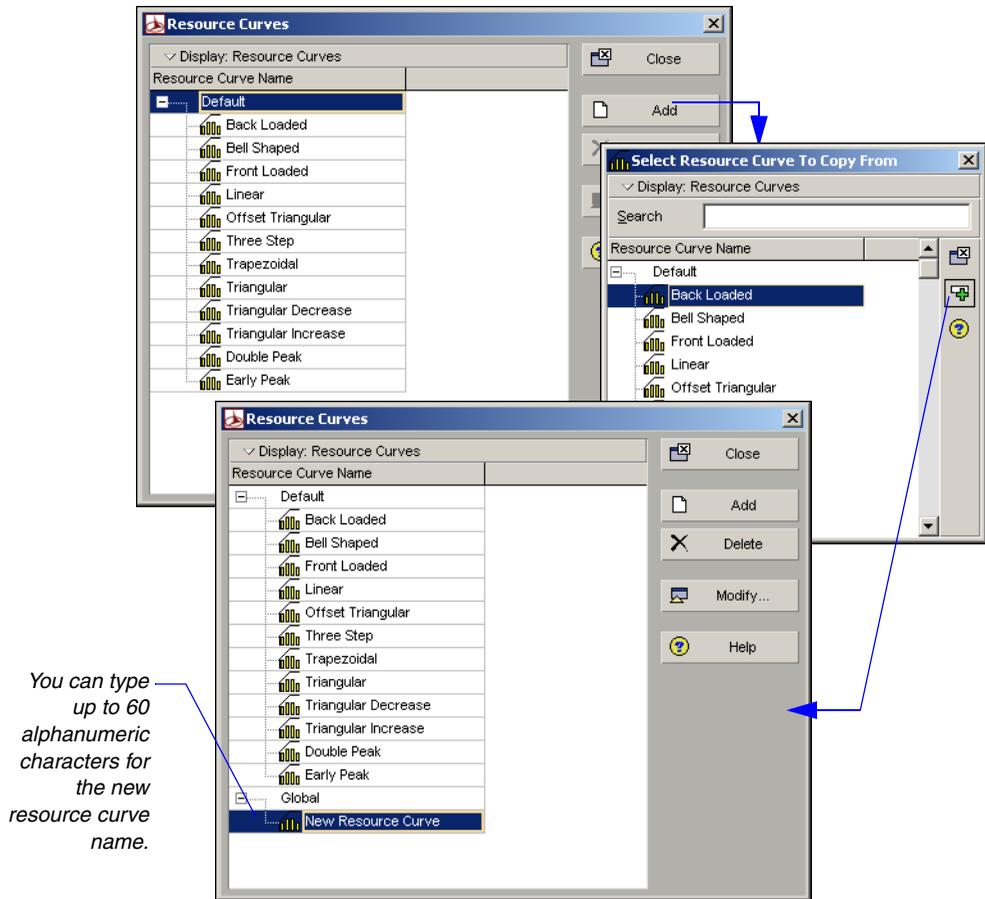
Click Modify to define the curve's distribution. Edit the curve value percentages to create a curve that indicates how your costs/units should distribute over time. Curves are defined by 21 points (at 5% intervals from 0 to 100). Click Prorate to make the total of the distribution values equal to 100% while maintaining the shape you specified. Click OK, then Close.
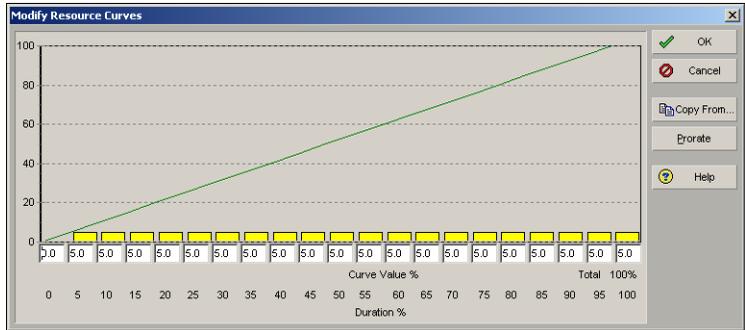
> *Resource lag is taken into consideration. The curve should begin on the "lagged" start date.*

Delete a custom resource curve Choose Enterprise, Resource Curves. Select the global curve you want to delete. Click Delete, then click Yes.

> *You cannot delete the default curves. If you delete a resource curve assigned to a resource or role assignment, the curve is removed from the assignment, and earned value for those assignments is recalculated.*

Reviewing Work Breakdown Structures

A work breakdown structure (WBS) is a hierarchical arrangement of the products and services produced during and by a project. The project is the highest level of the WBS while an individual activity required to create a product or service is the lowest level. Each project in the enterprise project structure (EPS) has its own WBS.

When creating a project, the project manager typically develops the WBS first, assigns work products and documents to each WBS element, and then defines activities for performing the element's work. Specific earned value calculations can be specified for each WBS element, along with an organizational breakdown structure (OBS) element responsible for all work included in the WBS element.

Read this chapter to learn how to set up and implement a WBS.

The WBS

The work breakdown structure (WBS) consists of the WBS for each project included in the enterprise project structure (EPS), in effect, extending the EPS beyond the project level. You can view the entire WBS at once, or you can display only the work breakdown structures for a specific node or project. Open the EPS element whose WBS you want to view, then choose Project, WBS.

When you create a project, the module automatically creates a WBS element at the same hierarchy level and with the same name as the project; you can differentiate the WBS level from that of the project by adding numbers or letters such as Bldg.1, Bldg.D&E.

You can break down the work further, essentially extending the EPS to another level.
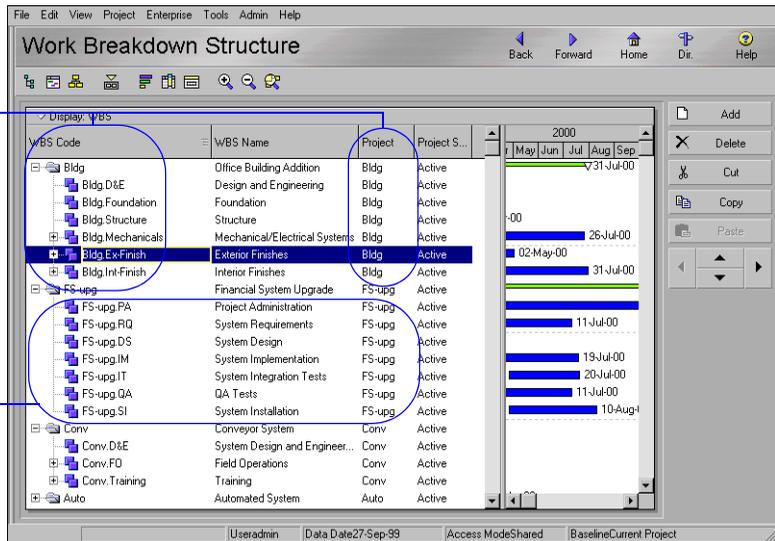
Planning and budgeting You can set anticipated dates, budgets, and spending plans at a high level in a WBS to indicate when the work should occur and how much its planned budget and monthly spending will cost. Because financial information is shared between projects and their WBS elements, you can use the pre-established budget amounts and funding information you set for WBS elements immediately for their project and activity counterparts.

Date	Spending Plan	Spending Plan Tally	Undistributed Curr...	Benefit Plan	Benefit Plan Tally
Total	**$21,550,000**	**$0**	**$21,550,000**	**$19,250,000**	**$0**
01 - Mar	$1,700,000	$0	$1,700,000	$0	$0
01 - Apr	$1,400,000	$0	$1,400,000	$4,500,000	$0
01 - May	$1,200,000	$0	$1,200,000	$0	$0
01 - Jun	$1,300,000	$0	$1,300,000	$2,450,000	$0
01 - Jul	$1,400,000	$0	$1,400,000	$0	$0
01 - Aug	$800,000	$0	$800,000	$0	$0
01 - Sep	$950,000	$0	$950,000	$0	$0
01 - Oct	$0	$0	$0	$0	$0

General

WBS Code: Spec-1

WBS Name: Specifications

Status: Active

Responsible Manager: Product Line Manager

Anticipated Dates

Anticipated Start: 05-Jun-01

Anticipated Finish: 21-Nov-01

Original Budget: $10,000,000.00   Current Budget: $23,000,000.00   Proposed Budget: $28,000,000.00

Budget Change Log

Date	Amount	Responsible	Status	Reason	C
Pending 5,000,000.00					
12-Jun-01	$5,000,000.00	CS	Pending	Booked Orders Q1 '01	3
Appro... 3,000,000.00					
28-May-01	$7,000,000.00	CS	Approved	Booked orders Q3 '00	1
04-Jun-01	$6,000,000.00	CS	Approved	Booked Orders Q4 '00	2

Add   Delete

The budget and spending plan can stand alone to represent financial data for the WBS level.

You can also summarize project data to a specific WBS level when calculating and maintaining summary data.

Project Details

Summarized Data

☐ Contains Summarized Data Only

Last Summarized On: Nov-12-04 15:29

The WBS levels to which you want to summarize data for viewing in P6 Web Access.

Summarize to WBS Level: 2

Summarize project based on

○ High level resource planning

● Detail activity resource assignments

Project Settings

Character for separating code fields for the WBS tree: .

Fiscal year begins on the 1st day of: January

Baseline for earned value calculations

● Project baseline   ○ User's primary baseline

Define Critical Activities

● Total Float less than or equal to: 0.00d

○ Longest Path

You can also use the WBS at the planning stage of a project for top-down estimations and summary rollups of data not yet associated with projects. For example, you can create a WBS for a higher-level node of the EPS and include summary data, planned budgets, and dates, independent of any project.

Viewing a WBS

You can view a WBS as a chart or a table. Open the Work Breakdown Structure window by choosing Project, WBS; you can also click WBS from the Directory bar or from the Home workspace.

View the Work Breakdown Structure chart Click the Display Options bar, then choose Show on Top, Chart View. To change the displayed information, click the Display Options bar and choose Chart Box Template, then an information type.

To change the display's content and appearance, click the Display Options bar, then choose Chart Box Template and/or Chart Font and Colors.
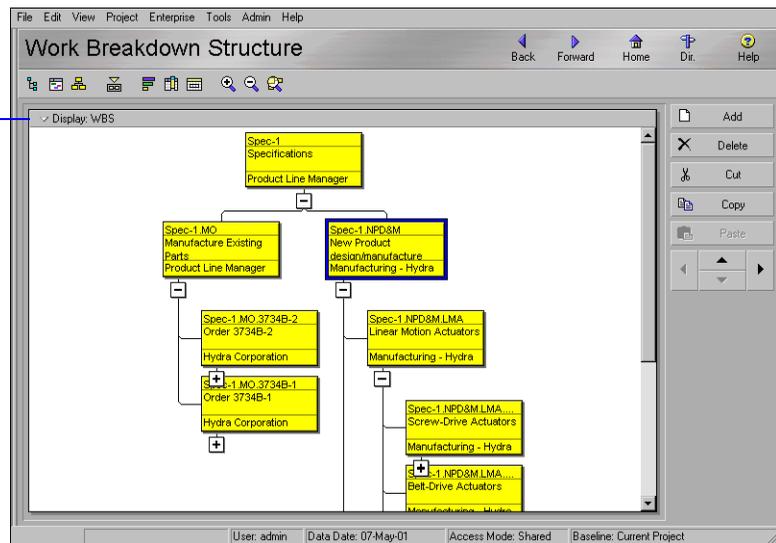
View the Work Breakdown Structure table Click the Display Options bar, then choose Show on Top, WBS Table. To list and sort WBS elements, click the WBS Code column label. To change the information the table displays, click the Display Options bar, then choose any of the following:

■   To view detailed information about a specific WBS element, choose Show on Bottom, WBS Details, then select the WBS element whose information you want to view. To hide WBS Details, choose Show on Bottom, No Bottom Layout.

■   To change the columns in the WBS display, choose Columns, then one of the predefined displays, or customize the columns.

You can also choose to display a Gantt Chart to the right of the WBS table. Click the Display Options bar, then choose Show on Top, Gantt Chart.

Click the Display Options bar, then choose Columns, Customize, to select only the columns you want to display.

This display is grouped according to OBS assignment.
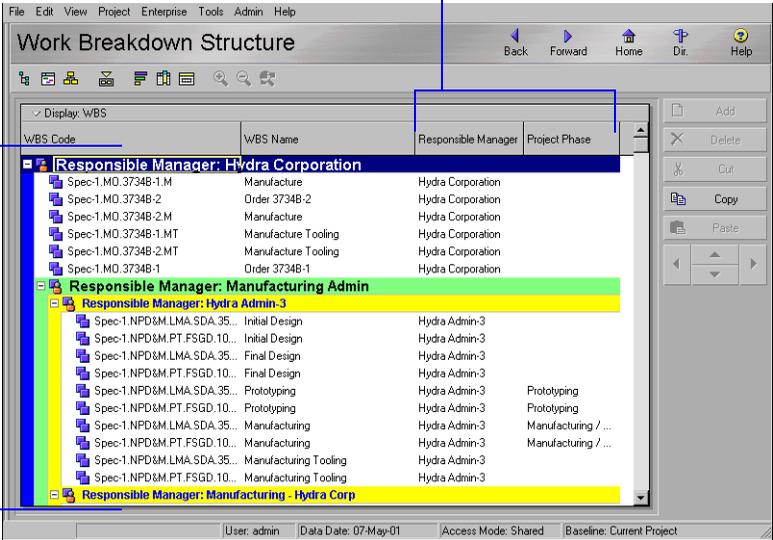
Grouping by WBS Path

You can organize multiple projects that use the same work breakdown structure (WBS) by grouping their identical WBS levels. The WBS path lists activities grouped by WBS levels, without displaying the project level node. Group by WBS path in the Activities and WBS windows. You can also filter or display the WBS path as a column in projects and reports. Further organize a layout by sorting to arrange the order of activities. If you use both grouping and sorting to organize a layout, the items are grouped first, then sorted.

Organize multiple projects that follow the same work breakdown structure path.
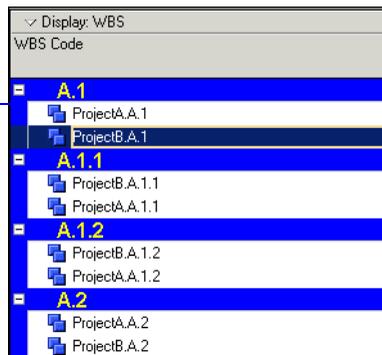
Group activities by WBS path Choose Project, Activities, then choose View, Group and Sort. In the Group By section, click the cell, then select WBS Path. Click Sort, then select a sort order for the WBS path. Click OK. Click Sort, then select a sort order for the WBS path. Click OK.

To view the WBS path in the WBS window, choose Project, WBS, then View, Group and Sort by, WBS Path.

Adding WBS Elements and Assigning Properties

When you create projects, the module automatically creates a WBS top-level element with the same name and EPS and project IDs as the project. Use the Work Breakdown Structure window to view and edit the open project's WBS.

Add a WBS element Choose Project, WBS. Select the WBS element immediately above and under which you want to add the new element, then click Add. The new WBS element is indented one level under the selected WBS element.

Display Work Breakdown Structure Details by clicking the Display Options bar and choosing Show on Bottom, WBS Details. Refer to the following sections to establish basic WBS properties. To specify additional information, refer to the following chapters:

To include/exclude tabs, right-click in the Details area, and choose Customize WBS Details.

■ Notebook tab – "Setting Up the Enterprise Project Structure" on page 67

■ Budget Log, Spending Plan, and Budget Summary tabs – "Defining Budgets" on page 159

■ WBS Milestones – "Using WBS Milestones" on page 149

■ WPs & Docs tab – "Maintaining a Project's Document Library" on page 375

■ Earned Value tab – "Defining Earned Value Settings for Specific WBS Elements" on page 152
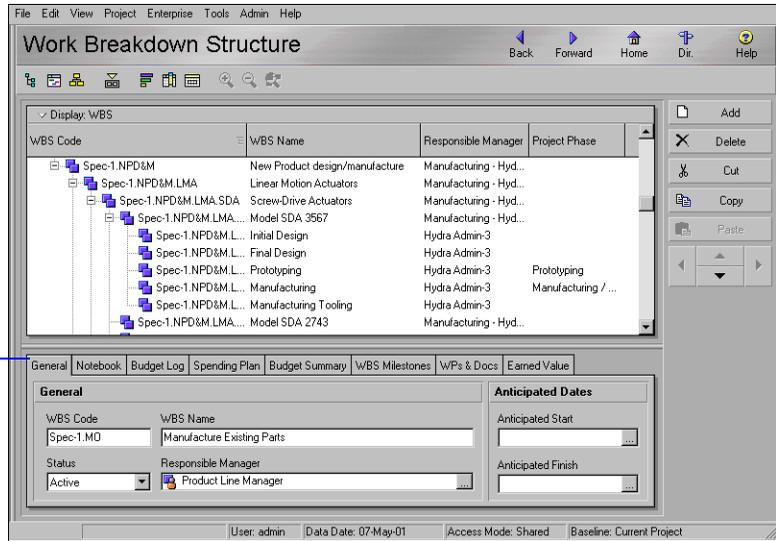
Display Work Breakdown Structure Details so you can add and assign information for each WBS element you create.

General information Use the General tab to view and edit the selected WBS element's general information. This includes the code, name, status, and responsible manager.

The user-defined dates the project/activities associated with the WBS element are expected to start and finish; used during the project planning stage, and set at the WBS, EPS, or project level
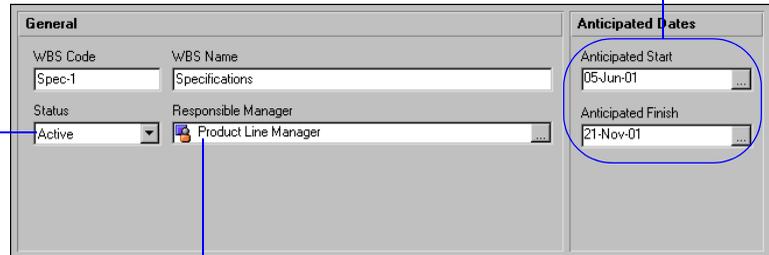
Determines whether Timesheets users have access to activities within the WBS. In general, only Active status enables access. However, a project level option can be set to enable read-only access when the WBS status is Inactive.

The name of the selected WBS element's root OBS element

You can also directly edit some WBS information in the Work Breakdown Structure table. Double-click the information you want to change, then type or select the new value.

Edit a WBS element Select the WBS element you want to edit. To change the element's position in the WBS, click the appropriate arrow buttons at the bottom of the command bar on the right side of the Work Breakdown Structure window. Display Work Breakdown Structure Details by clicking the Display Options bar and choosing Show on Bottom, WBS Details, then enter new information in the tabs.

Delete a WBS element Choose Project, WBS. Select the WBS element you want to delete, then click Delete. If the WBS elements you want to delete have activity assignments, you are prompted to delete the WBS element and all of its activity assignments, or delete the WBS element and reassign, or merge, all of its activity assignments to the element's higher-level WBS element. Click OK, then click Yes.

> *If you delete a higher-level WBS element, the module also deletes all elements contained in that element.*

How a WBS Element's Status Affects Timesheets Users

There are four status types for WBS elements: Planned, Active, Inactive, and What-If.

Planned WBS elements If a WBS element's status is Planned, Timesheets users cannot view any activities included in the WBS element. This prevents Timesheets users from assigning themselves to and performing work on activities assigned to a WBS element that is not authorized for actual use.

Active WBS elements If a WBS element's status is Active, Timesheets users can view all activities included in the WBS element. Depending on their timesheet privileges, users may also be able to assign themselves to and perform work on activities that are included in an Active WBS element.

If a WBS element belongs to a higher-level WBS element, the element has the same status as that element.

Inactive WBS elements If a WBS element's status is Inactive, a project level setting on the Project Details Resources tab determines whether Timesheets users can view activities that belong to the WBS. When this option is turned on, Timesheets users can view, but can not edit activities that are included in the Inactive WBS element.

What-If WBS elements If a WBS element's status is What-If, Timesheets users cannot view any activities included in the WBS element. This prevents Timesheets users from assigning themselves to and performing work on activities assigned to a WBS element that is not authorized for actual use.

If a WBS element belongs to a higher-level WBS element, both elements have the same status.

Using WBS Milestones

In the initial stages of project planning, the project manager, and other individuals responsible for establishing project processes, need to decide how the module will calculate earned value, percent complete, resource use, and financial data.

You can add an unlimited number of WBS milestones, which can also be used to calculate earned value. Milestones are assigned at the WBS level, and each milestone is given a weight that indicates its importance to the project schedule. When you mark a WBS milestone as complete, the module uses its weight to calculate the performance percent complete of all activities included in the WBS level. That is, the performance percent complete is applied to all activities under that WBS level and then rolled back up to the WBS.

For example, suppose a particular level of the WBS includes ten activities, and actual finish dates have been entered for five of these activities. The same WBS level is also assigned four WBS milestones having equal weights, but only one of these milestones is marked as complete. The module uses the completed WBS milestone to calculate the WBS level's performance percent complete as 25, even though half the activities included in the WBS level are finished.

You may want to use WBS milestones when higher-level task increments comprise a body of activities and you want to control the activities at the WBS level. For example, to control the design of a new product, you might assign WBS milestones to the major steps required to complete the design—such as drafting the requirements, writing the design specifications, and so on. Each of these milestones would contain the detailed activities required to complete it.

The first milestone is complete, and the corresponding performance percent complete, relative to the other WBS milestones, is shown.

% Complete	33.33%		
WBS Milestone	Weight	Completed	
Initial Design	1.0	☑	
Initial Review	1.0	☐	
Investigation to decide on features of product	1.0	☐	

Add   Delete   ▲   ▼

> *If a WBS element has no activities beneath it, and you mark milestones as complete, the performance percent complete will remain zero. To calculate performance percent complete, add a dummy activity to the WBS element.*

Add WBS milestones Use the WBS Milestones tab to add an unlimited number of WBS milestones to a WBS element. Click Add, then type a name for the milestone and assign a weight for calculating performance percent complete for all activities in the WBS element.

The module calculates this performance percent complete, or earned value, based on the weighted milestones you mark as Completed on this tab, independent of the child activities corresponding to the selected WBS element.

Type a number indicating the significance of this milestone relative to the others listed, and to calculate a corresponding percent complete value when the milestone is marked Completed.

% Complete	20%		
WBS Milestone		**Weight**	**Completed**
Coordinate consultants		1.0	☑
Install the pilot		2.0	☐
Analyze the impact		2.0	☐

Add   ✕ Delete   ▲   ▼
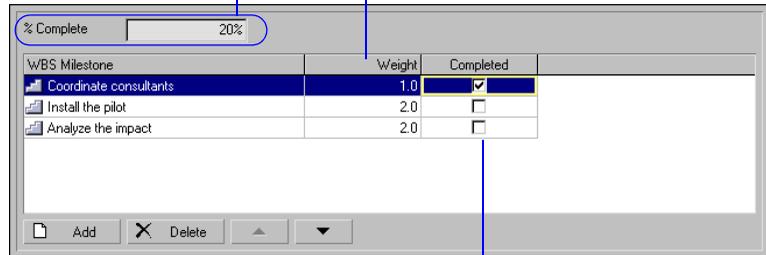
When you mark the checkbox for a milestone, the module calculates the performance percent complete for the WBS element based on the milestone's weight value in combination with the other milestones listed.

How Weights Affect Percent Complete

If all weighted milestones for a WBS element have a value of 1.0 and you have a total of four milestones, marking one as Completed would indicate that the WBS element is twenty-five percent complete. If this same milestone had a weight of 9.0, and the other three had 1.0 weights, marking it Completed would indicate that the WBS element is seventy-five percent complete. The module uses the following formula to calculate percent complete from weighted milestones:

Actual Weight of Completed Milestones / **Total Possible Weight of All Milestones**

Applying this formula to the previous example, the completed milestone has a weight of 9.0, and is divided by the total weight of all milestones (12.0), to equal seventy-five percent complete.

Assigning WBS Category Values

Depending on your security profile, you can define a custom category and category values for WBS elements. This category and its values are not project-specific; you can assign category values to all WBS elements in the EPS, which allows you to customize the module to reflect your organization's terminology and unique requirements. This category and its values also enables you to group, sort, and filter WBS elements.

For more information about defining a WBS category and values, refer to the *Primavera P6 Administrator's Guide*. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Establish a custom category and its values using the Admin Categories dialog box. The Admin Categories dialog box appears when you choose Admin, Admin Categories.

Assign a WBS category value Choose Project, WBS. Add the WBS category as a column by clicking the Display Options bar and choosing Columns, Customize. Select the WBS category name under General in the Available Options area, then click the right arrow button to move it to the Selected Options column; click OK. Select the WBS element to which you want to assign a category value, then click the Browse button in the WBS category column.

Select the value to assign to the WBS element, click the Select button, then click the Close button.
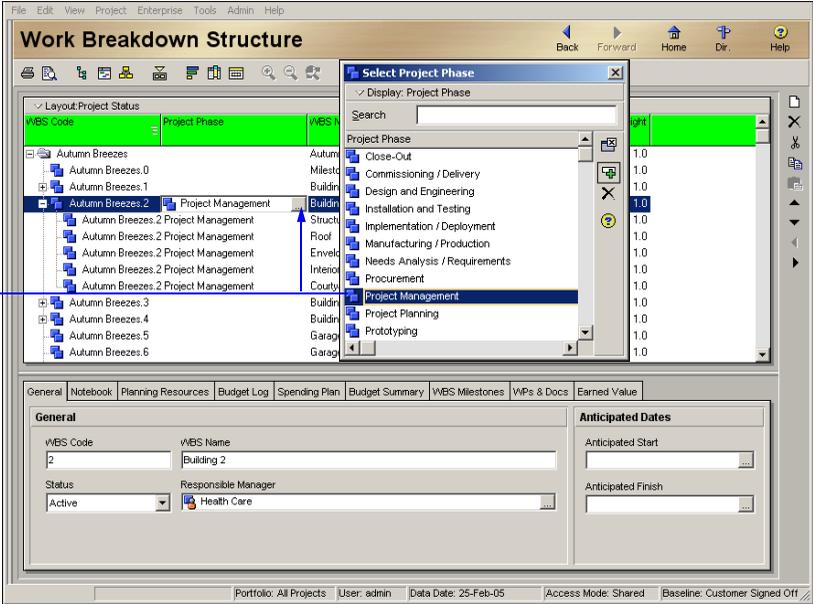
Defining Earned Value Settings for Specific WBS Elements

Earned value is a technique for measuring project performance according to both project costs and the schedule. This technique compares the budgeted cost of the work to the actual cost. While earned value analyses are typically performed for WBS elements, you can also perform an earned value analysis for activities and groups of activities.

Use the Earned Value tab in Work Breakdown Structure Details to specify settings for calculating the selected WBS element's earned value. Earned Value cost is the portion of the budgeted total cost of the activity that is actually completed as of the project data date; it is calculated as

Earned Value = Budget At Completion (BAC) x Performance % Complete

The method for calculating the performance percent complete depends on the earned-value technique selected for the activity's WBS.

To define default earned value settings for all WBS elements, choose Admin, Admin Preferences, then click the Earned Value tab.

Define earned value settings for a specific WBS element
Display Work Breakdown Structure Details by clicking the Display Options bar and choosing Show on Bottom, WBS Details. Select the WBS element whose earned value settings you want to define, then click the Earned Value tab.

In the Technique for Computing Performance Percent Complete area, choose the completion percentage method you want to use when calculating an activity's earned value:

■ **Activity Percent Complete:** Calculates earned value according to current activity completion percentages and the percent complete type selected on the General tab of Activity Details.

■ **Use Resource Curves / Future Period Buckets:** If you want to override the Activity Percent Complete type for activities that have a resource curve assigned to at least one of the resource assignments, or for activities that have assignments with manually-defined future period bucket values. If a curve is assigned, Units Percent Complete is always multiplied by the Budget at Completion to calculate Earned Value.

■ **WBS Milestones Percent Complete:** Calculates earned value according to completion of the WBS element's weighted milestones, rather than the completion percentages of the element's activities.

■ **0/100 Percent Complete:** Calculates earned value as 100 percent only after the activity ends. Until the activity is complete, the activity's earned value is zero percent.

■ **50/50 Percent Complete:** Calculates earned value as 50 percent after the activity starts and until the activity ends. After the activity ends, the activity's earned value is 100 percent.

■ **Custom Percent Complete:** Calculates earned value as a percentage you specify. This percentage applies after the activity starts and until the activity ends. After the activity ends, the activity's earned value is 100 percent.

In the Technique for Computing ETC area, choose the method you want to use when calculating an activity's estimate to complete (ETC) value:

■ **ETC = Remaining Cost for Activity:** Calculates ETC values as the remaining cost to complete an activity (ETC = remaining duration of activity * applicable resource rates).

■ **PF = 1:** Calculates ETC values as Budget At Completion (BAC) less Earned Value Cost. This method yields an optimistic result.

■ **PF = 1/CPI:** Calculates ETC values according to a Performance Factor (PF) of 1 divided by the Cost Performance Index (CPI).This method yields the most likely result.

- **PF = 1/(CPI*SPI):** Calculates ETC values according to a PF of 1 divided by the product of the CPI and Schedule Performance Index (SPI). This method yields a pessimistic result.

- **PF =:** Calculates ETC values according to a PF you specify.

Assigning Estimation Weights to WBS Elements

You can assign estimation weights to work breakdown structure (WBS) elements and activities to perform Top-down estimation. You can assign estimation weights directly in the Project Management module or import them from the Methodology Management module using Project Architect.

The Project Management module uses the estimation weights to calculate the number of units that each WBS element receives in relation to its lower-level elements in the WBS hierarchy. For example, if 1,000 days of labor are applied top down to three WBS elements with estimation weights of 30, 30, and 40, then each WBS element receives 300 days, 300 days, and 400 days, respectively. Top-down estimation weights are relative values between elements in the WBS hierarchy; the absolute values of the estimation weights have no meaning.

Top-down estimation uses the WBS Estimated Weight field to determine how to "push down" the units within each branch of the WBS. The algorithm is:

$$\text{WBS 1.1 Units} = \frac{\text{WBS 1.1 Weight}}{\text{Sum of All WBS Weights at WBS Level}} \times \text{Est Units}$$

where:

WBS 1.1 Weight = Weight of WBS 1.1
WBS 1.1 Units = Number of Units Allocated to WBS Element 1.1
Sum of All WBS Weights at WBS Level = Sum of Weight of All WBSs at Same Level of Hierarchy as WBS 1.1
Est Units = Number of Estimated Units Distributed Among All WBSs at WBS Level 1.N

For example, if you select a WBS with three, level-one WBS elements beneath it, and each of those elements has a weight of 1 with an estimate of 100 days, the module calculates each WBS as having 33.3 days, as follows:

$$\text{Units} = \frac{1}{1 + 1 + 1} \times 100d = 33.3d$$

Alternatively, if the weights for each WBS element vary, such as 6 for one element and 2 each for the other two elements, the result is 60 days for the first element, and 20 days each for the other two elements:

$$\text{Units} = \frac{6}{6 + 2 + 2} \times 100d = 60d$$

The algorithm continues to calculate any lower-level WBS elements in the WBS branch to distribute the units accordingly. This process continues until all WBS levels in the branch have been considered; it then continues with the next branch in the hierarchy. The module ignores any WBS element that does not have activity assignments when distributing units within a branch of the WBS.

If an activity has multiple resources assigned, each resource will be allocated remaining units in proportion to how many remaining units each resource previously was assigned for that activity. For example, if Resource 1 previously had six hours of remaining units on an activity with remaining units of five days, and Resource 2 previously had four hours of remaining units, Resource 1 will now have remaining units of three days (24 hours) and Resource 2 will have remaining units of two days (16 hours).

> *If an activity is completed, that activity is allocated zero remaining units. If all activities under a WBS are completed, zero units are distributed to that WBS.*

Assign estimation weights to WBS elements Choose Project, WBS. Click the Display Options bar, then choose Columns, Customize. In the Est Weight column, enter the applicable weights for each element listed.
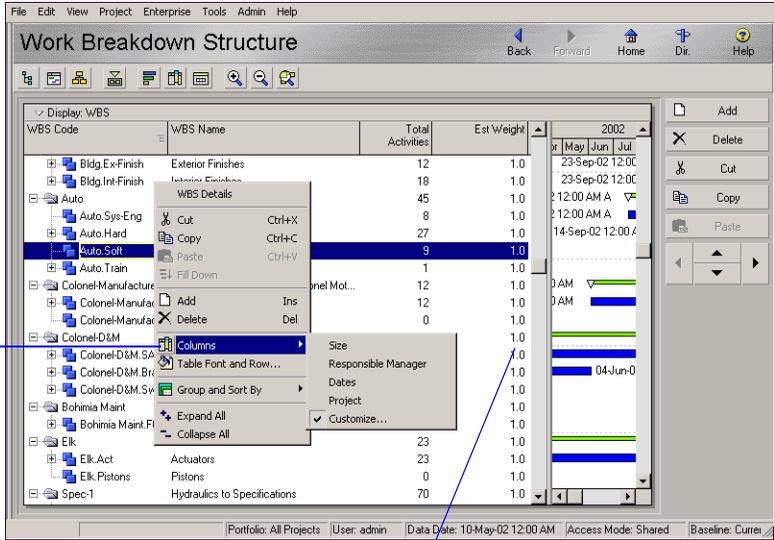
You can also right-click to select the columns to display for entering data.

Type directly in the column field for the WBS element to enter its estimated weight.

Assign estimation weights to activities Choose Project, Activities. Click the Display Options bar, then choose Columns. Add the Est Weight column by selecting it in the Available Columns list and clicking the right arrow. Click OK. Enter the applicable weights in the Est Weight column for each activity listed.
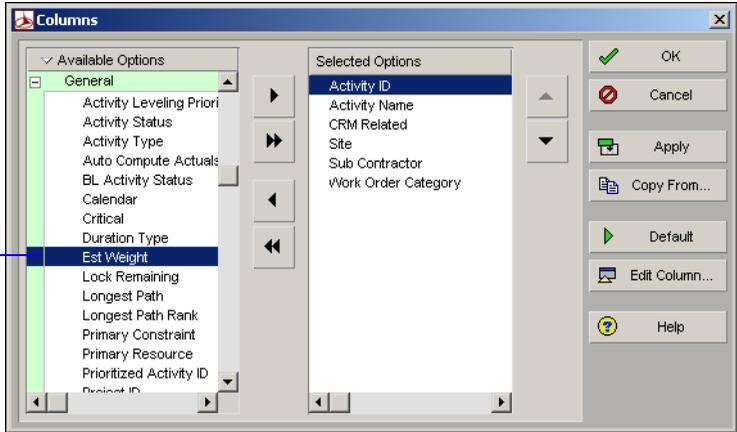
Est Weight is located under the General listing.

Defining Budgets

Budgets consist of the total estimated effort (or quantities) necessary, and the cash flow required, to complete a project. Before a project starts, the resource/cost manager, along with the operations executive, program manager, and project manager, determine scope and budget requirements, and set these estimates. As requirements change, resource and financial support are adjusted to compensate for those changes. The individuals involved in project funding and financial support can perform top-down estimating and log changes to the budget in the project planning stage, or after the project is underway. The module tracks these changes, while retaining the original amounts.

Read this chapter to learn how to establish a budget, note and implement changes to it, and track monthly spending and variance at various levels in your organization—enterprise project structure (EPS) node, project, and work breakdown structure (WBS).

Top-Down Budgeting

The ability to perform top-down planning is key to organizational-wide planning and control. If an organization's projects have a budget of $5 billion over the next two years, the details probably will not be worked out until some period after the first project commences. The structure used by a company to organize its projects must be flexible enough to allow each project and group of projects to maintain its WBS and to draw only against the resources normally allotted to it.

The module facilitates a top-down budgeting approach to cost management. The resource/cost manager or other person responsible for making decisions about project launches generally establishes high-level budget estimates. These estimates are set at each EPS node. Project managers distribute the budgets to the projects for which they are responsible in each node, as shown in the following example.

Set original budget estimate at EPS node.	**Assembly**	$6,000,000
Distribute original budget at the project level. Values do not roll up, and distributed values do not have to equal the budget of the higher-level EPS node.	**Auto**	$4,000,000
	Conv	$2,000,000
	Corporate	$1,500,000
	FS-upg	$1,500,000
	Facilities	$3,000,000
	Bldg	$2,500,000
	Hydra-DE	$500,000

Once budget estimates are set at the EPS level, you can establish a monthly spending plan to keep track of cash flow for each node and project.

Assembly	$6,000,000
MAY03	*$180,000*
JUN03	*$360,000*
JUL03	*$710,000*
AUG03	*$2,000,000*

Spending plan at EPS node

AUTO	$4,000,000
MAY03	*$100,000*
JUN03	*$200,000*
JUL03	*$300,000*
AUG03	*$850,000*

CONV	$2,000,000
MAY03	*$100,000*
JUN03	*$170,000*
JUL03	*$450,000*
AUG03	*$850,000*

Spending plan at project level

With spending plans in place, you can compare the monthly totals for the EPS node with those of all projects in the node, to ensure monthly spending does not exceed your original budget estimates.

	Spending Plan (Assembly)	Spending Plan Tally (AUTO+CONV)	Variance
MAY03	*$180,000*	*$200,000*	*– $20,000*
JUN03	*$360,000*	*$370,000*	*– $10,000*
JUL03	*$710,000*	*$750,000*	*– $40,000*
AUG03	*$2,000,000*	*$1,700,000*	*$300,000*

Negative variance indicates a need to reevaluate planned spending during these months.

If your projects use funding to support budgets, you can also set up a Funding Source dictionary, which you can then use to quickly assign specific funding sources to budget items as you develop projects.

When estimates are firmly established, resource/cost managers and team leaders can set budget amounts and spending plans at the WBS levels for which they're responsible. Resources and budgets can then be allocated at the activity level.

Once projects are underway, you can monitor budget changes using change logs, and continue to track monthly spending as actual costs are applied.

When your projects are complete, you can record and maintain the benefit, or return on investment (ROI), of performing each project. This value assists the operations executive in the strategic planning process when undertaking future projects.

The remainder of this chapter discusses how to establish budgets, spending plans, and funding, as well as how to track changes.

Establishing Budgets

You can establish budget estimates at the planning stage, then refine them as projects progress. Document budget changes as they occur, and then use these changes to calculate the latest budgeted amounts for the project. You can also record monthly spending of budgeted funds, track the current and undistributed variance amounts, and roll up the monthly spending plan of each project in a branch to its higher EPS nodes.

Set up the total budget for each EPS node in the hierarchy first, then enter the applicable portion of the total budgeted amount to each project in the node's branch. Once these initial total amounts are entered, you can start apportioning anticipated monthly spending amounts per project. The module then tallies the amounts for the projects so you can keep track of the total spending plan and assess the variance between this total and the current budget. This process is ongoing through the project life cycle. Close to the completion of the project, you can better determine profitability and enter the ROI. This amount can be used as a gauge when determining whether a project of this type should be undertaken in the future.

Display Project Details by clicking the Display Options bar and choosing Show on Bottom, Project Details.

Establish budgets Choose Enterprise, Projects, to open the Projects window. (If you already set budget estimates for nodes and projects, open the WBS window to enter budgets for the WBS levels in your projects.) Click the Budget Log tab for the selected node/project (or WBS element). Enter the total budgeted amount you anticipate for this project in the Original Budget field.
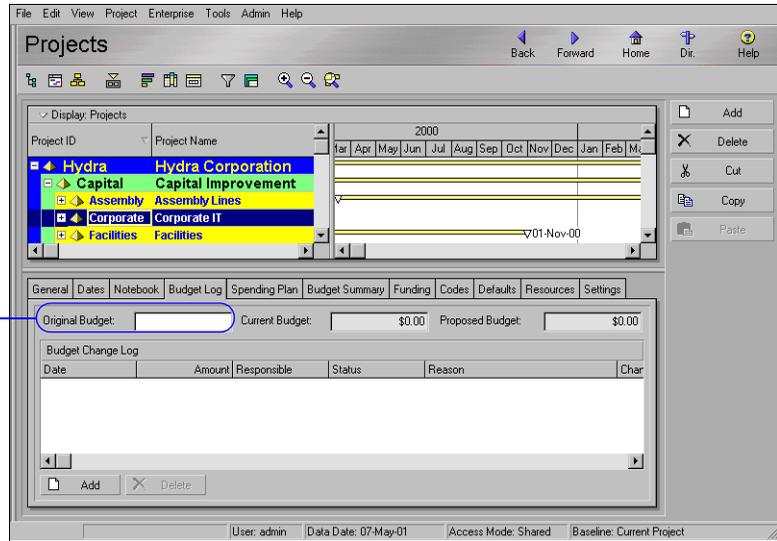
Enter the total estimated budget amount for the selected EPS node or project.

After you have entered budgeted totals for a node and its projects, you can start apportioning anticipated monthly spending amounts for each of the projects in the branch. Read the next section for more information.

Establishing a Monthly Spending Plan

You can distribute the budget monthly for each EPS node and project to create a spending plan. The Spending Plan tab also totals the spending plans of lower levels of the EPS on a monthly basis so you can compare how much you distributed at a high level to how much was actually distributed at lower levels. In the following example, at the EPS node level Assembly, the spending plan for 01MAY is $150,000. The combined spending plans of Assembly's projects (AUTO and CONV) is $160,000. Because this amount is $10,000 more than was planned, it appears in red ($10,000) in the Undistributed Current Variance column.

Monthly spending plan of levels beneath the EPS node selected

The difference between the EPS node's monthly spending and that of its projects' tallies.

Enter monthly spending amounts at the EPS level Click the Spending Plan tab in the Projects window for a selected EPS node or project. Enter total expenditures for each month in the Spending Plan column. The Spending Plan Tally column shows any amounts previously recorded for project spending plans.

You can also use the Spending Plan tab to establish a monthly benefit plan. This plan helps you track the financial benefit of performing the projects on a monthly basis. Enter the benefit amount, or profit return on your monthly spending, in the Benefit Plan column. The module also tallies the benefit plans for the combined project amounts in a selected EPS node branch.

Tracking Budget Changes

As projects progress, changes in scope, resource reallocation, funding additions/withdrawals, or other factors that affect original budgeted amounts, often occur. The Budget Change Log enables you to track modifications that affect the budget; this log also provides a clear indication of the who, what, when, where, and how behind the change.

Date	Amount	Responsible	Status	Reason
10-Jul-2000	500,000	Jane Brown	Approved	Inflation
21-Jul-2000	1,000,000	Eileen Jones	Not Approved	Estimated wrong
05-Aug-2000	250,000	Frank Anderson	Pending	Unforseen Circumstances

Change amounts are not incorporated in the current budget until these amounts have an Approved status. Only authorized project participants may issue budget changes and mark them as approved. You may post a change amount as Pending; the program manager of the affected EPS node, or the project manager of the affected project, must then mark the amount as Approved or Not Approved. The module recalculates the new budgeted amount and adjusts the current budget based on approved changes to the log:

Proposed Budget = Original Budget + Approved Budget Changes + Pending Budget Changes

Current Budget = Original Budget + Approved Budget Changes
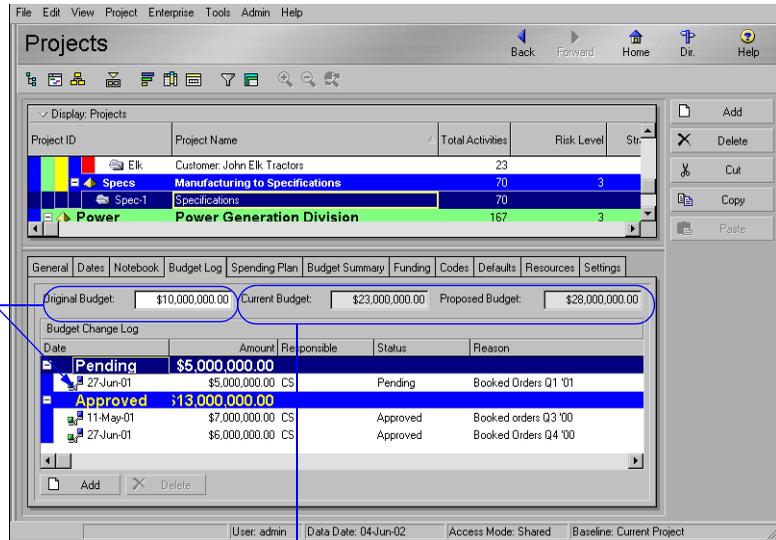
Enter the budget. As the project progresses, record any changes.

The module calculates these fields based on the original budget and approved and pending budget changes.

Click the Budget Summary tab to track budget and spending totals as projects progress and changes occur. The Budget Summary tab enables you to see the current budget, distributed current budget, and benefit plan totals for an overall picture of how your projects are doing financially.

Current Budget –Total Spending Plan

Total Spending Plan – Total Spending Plan Tally

Establishing Funding

If you are working on government, capital, or other projects that are traditionally funded by sources outside or within your organization, you can set up a Funding Source dictionary, which you can then use to quickly assign specific funding sources to budget items as you develop projects.

You can apply unlimited funding assignments to each EPS and project level.

Define funding sources   Choose Enterprise, Funding Sources. Select the funding source immediately above and at the same level as the fund you want to add, then click Add. You can set up the Funding Source dictionary as a hierarchy to categorize and group similar funds, such as those affiliated with a particular agency.

Type any additional information about the fund in the Description area using HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks, then click Close.

To display your funding hierarchy as a chart, click the Display Options bar and choose Chart View.

The funds you establish are global, or available to any EPS node or project in your EPS hierarchy.

Use the arrows to change the placement of a selected fund in the hierarchy.
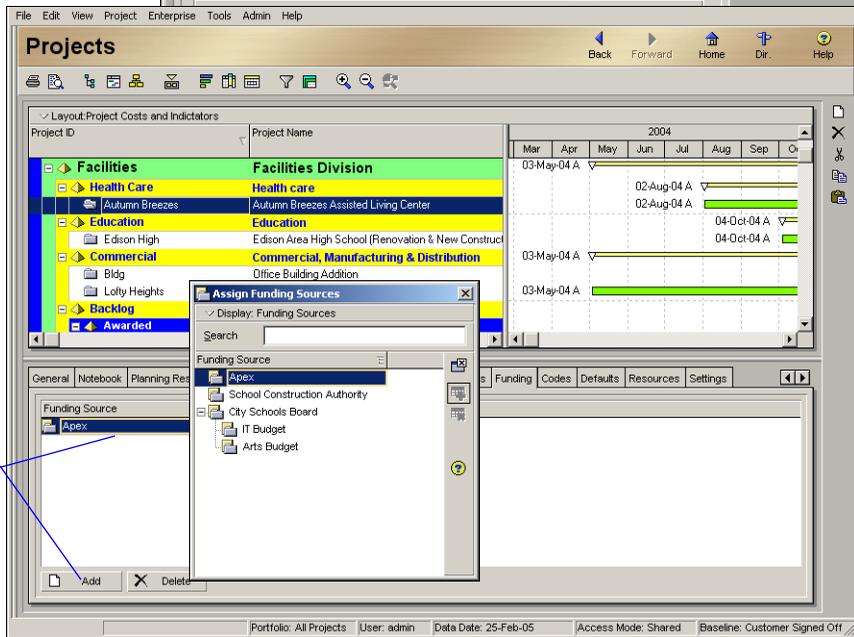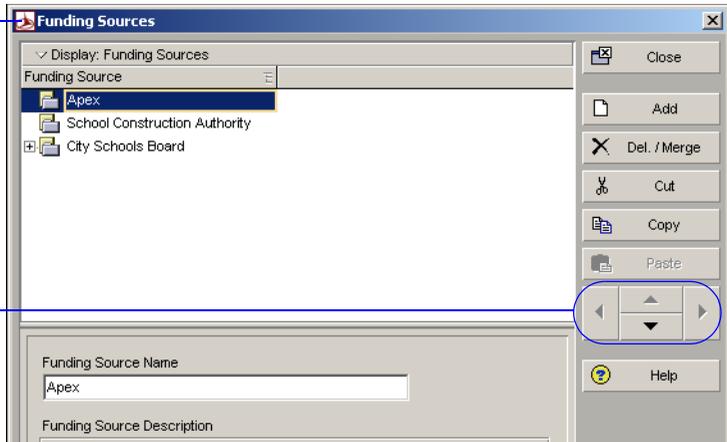
Specify your funding source, amount, and fund share percentage at the EPS or project level.

The fund share value is the portion of the total funded amount contributed by the funding source for the assignment. You can assign the same funding source multiple times with varying monetary amounts and share contributions for different levels of the EPS. You define both the amount and share values for the fund. Funds do not roll up; you edit them for each EPS level to allow for top-down planning. You can add a Total Funding column in the Projects window to display the sum of the funding for each project and EPS node.
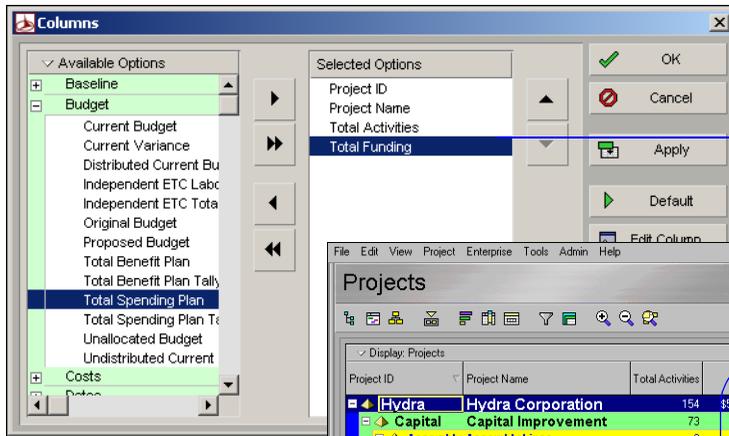
The totals shown represent the total funding amount for a particular EPS node or project; you can assign one or more funds to each node or project.

Set up fund contributions individually to the applicable EPS nodes and projects.
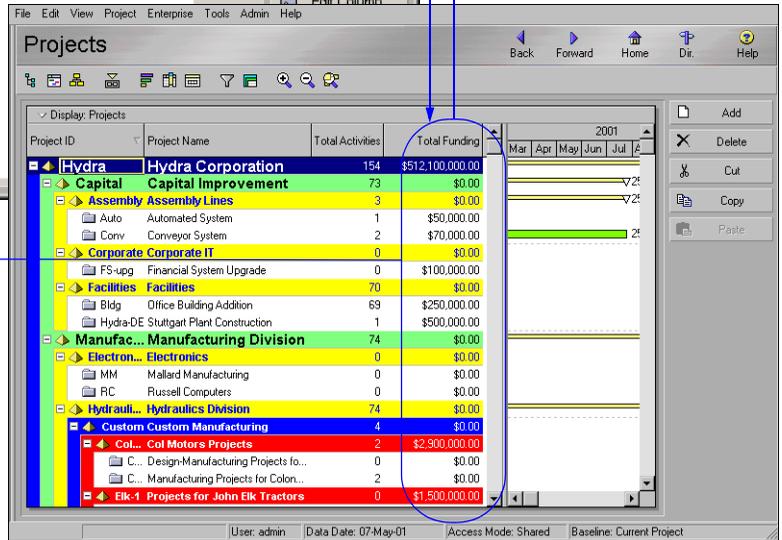
Tracking and Analyzing Budgets

The resource and cost spreadsheets provide an overall picture of unit and cost budget distributions, along with the variance amounts resulting from current use versus original estimates at the activity level. At the EPS level, you can customize columns and produce reports to display original budget amounts per project, along with the current variance amounts. This is beneficial in the early stages of your projects when you may not have all resources and estimates in place to cover the scope and goals set forth by upper management.

Create a layout for budget and variance comparison Open the Projects window, then click the Display Options bar and choose Columns, Customize. You can select any budget-related columns from the list of choices. The following example compares the original budget amounts assigned to the projects and the current variance resulting from budget spending on those projects to date.

When current spending differs from original budget estimates, a variance results. A variance amount shown in parentheses indicates a negative variance amount for the project.

For information about assigning and analyzing budgets at the WBS, activity, and cost account levels, see "Reviewing Work Breakdown Structures" on page 139, "Working with Activities" on page 211, and "Working with Cost Accounts and Project Expenses" on page 257, respectively.

For information about running reports, see "Printing Layouts and Reports" on page 509.

Establishing Project Codes

You can organize the projects in the enterprise project structure (EPS) in groups according to specific categories, such as location and division, using project codes. The module supports an unlimited number of hierarchical project codes; you can establish as many as you need to meet the filtering, sorting, and reporting requirements for your projects. For example, use project codes to arrange projects hierarchically when your EPS contains many projects within many levels.

Read this chapter to learn how to set up project codes, assign code values to projects, and use project codes to organize your layouts.

Defining and Assigning Project Codes

You can use project codes to group projects and consolidate large amounts of information, and to generally distinguish one project from another. You can group by project code in the Open Project dialog box and in the Projects window, by right-clicking anywhere in the dialog box or window, choosing Group and Sort By, then selecting the project code name. All projects assigned a value for that code display in the Open Project dialog box or the Projects window, grouped by their corresponding value. Any project not assigned a value for the project code is placed at the bottom of the window under a No Code group band.

Choose to group the selected projects by project code; all predefined project codes are available in the Group and Sort By menu.
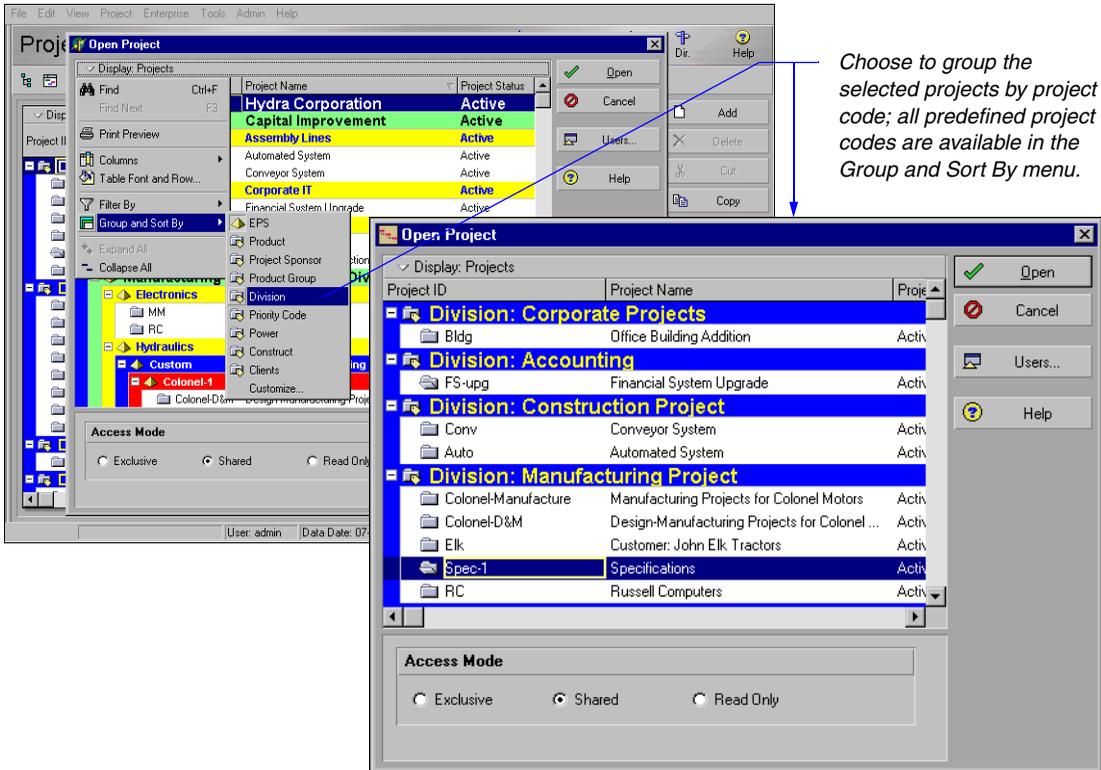
Project codes are set up in the Project Codes dictionary, which is available to the entire organization. You can create values for the predefined codes, or you can create new project codes and values for use with your projects. Assign code values to projects using the Codes tab in Project Details.

Define project codes and values Choose Enterprise, Project Codes. Click Modify in the Project Codes dialog box, then define as many project code definitions as you need.

Click Modify, then supply a project code name, along with the number of characters that will be available for each code value.
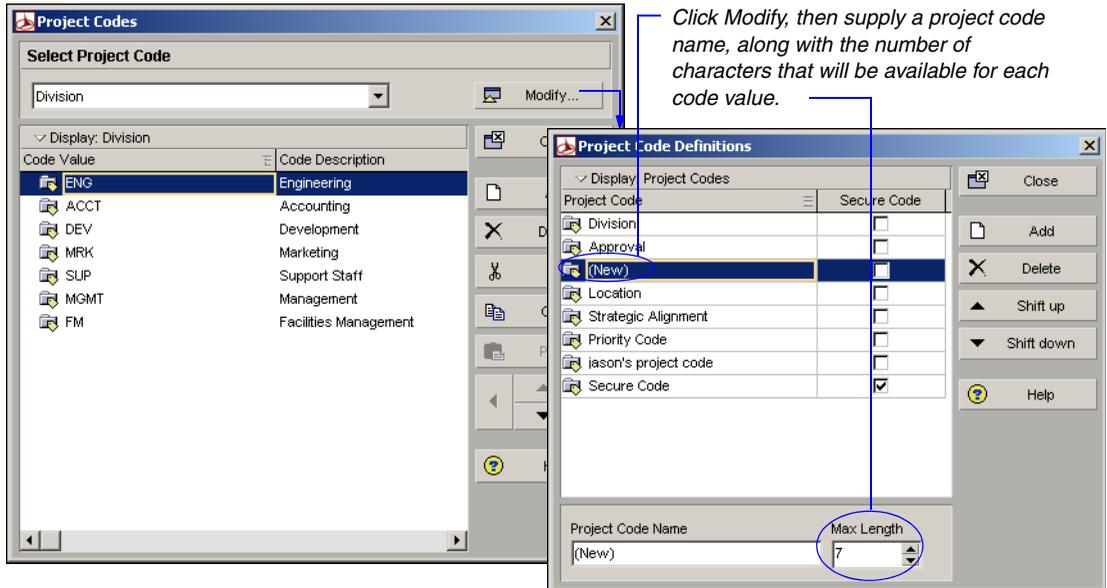
To add values to a project code, click Close in the Project Code Definitions dialog box. In the Project Codes dialog box, select the project code for which you want to establish values, then click Add and type the values and descriptions. To change a code value's position in the project codes hierarchy, select the code, then click the appropriate arrow button.

For example, if you create a code called Location, you may then want to specify code values for the different cities in which your company has offices, such as Philadelphia, Chicago, and San Francisco. Within these office locations, you can create values for the specific departments located in that city. To indent a department beneath a city location, first select the department, then click the up or down arrow buttons until it is directly below the city location. Click the right arrow button to indent the department.

Click the arrows to move values up or down in the list, or to change a selected value's position in the hierarchy.
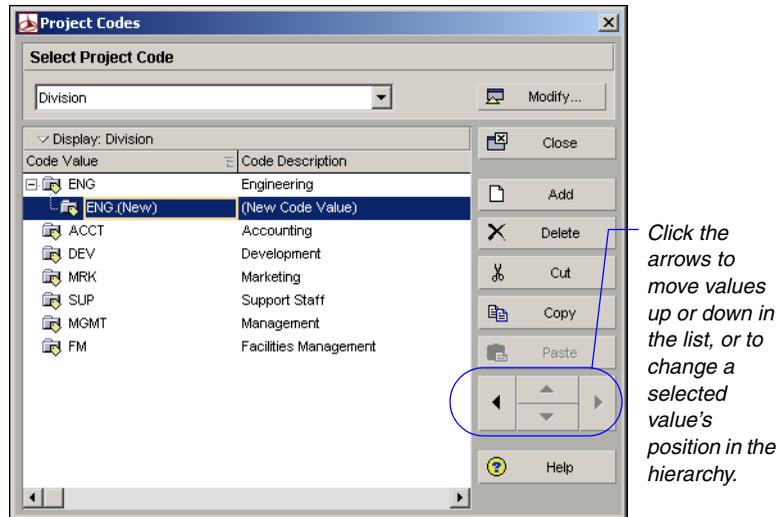
To see a graphical display of your project codes hierarchy, click the Display Options bar and choose Chart View. You can also modify the appearance of the table or chart using the other menu commands available from the Display Options bar.

Defining weighted project codes Weighted project codes enable you to rank or prioritize projects using a weight value and then view projects by score. The Project Management module works with the project codes and scoring feature of P6 Web Access to determine the score of each project code. For example, assume you rank projects in terms of risk. Project codes with the highest score have the most risk; those with the lowest score have the least risk.

To add weight to a project code, in Project Codes, enter a value in the Weight column. To display the Weight column, click the Display Options bar, select Columns, then choose Weight.

In P6 Web Access, you can display the Project Score field in the Project Statistics portlet and scorecard portfolio views to view the score of each weighted project code you create.

In Project Code Definitions, you can display the Weight column along with the Weight Percent and Max Code Value Weight columns. To display these columns, click the Display Options bar, select Columns, then choose Weight. The Weight Percent column displays the project code weight divided by the total of all project code weights. The Max Code Value Weight column enables you to enter the maximum allowed weight value for a specific project code type.

If the Codes tab is not shown in Project Details, right-click in the Details area of the Projects window and choose Customize Project Details; select Codes from the list of available tabs, click the right-arrow button to move it to the Display Tabs column, then click OK.

Assign project code values In the Projects window, select the project for which you want to assign project code values. Display Project Details by clicking the Display Options bar and choosing Details (the box next to the command should be marked). Click the Codes tab, then click Assign. In the Assign Project Codes dialog box, click the value for the applicable code, then click the Assign button.

Close button

Assign button

Click the Close button in the Assign Project Codes dialog box when you are finished assigning project code values to the project.

You can also assign several values at once. Press and hold the Ctrl key, then select each value you want to assign. Click the Assign button.

Grouping, Summarizing, and Filtering by Codes

Use project codes to group projects in Activity Table and Gantt Chart layouts within the Projects window. Grouping enables you to focus on a particular aspect of projects, such as product line or location. In the following example, projects assigned the same division values are grouped together and identified by description bands. Current bars, which represent the early or actual start and finish dates for each project, and summary bars, which represent all projects within each group band, are included in the layout. The summary bar begins at the earliest start date of all projects that are assigned the code value and extends to the latest early finish date of all projects that are assigned the code value.

Group by project codes so the layout is easy to read.

To select the bars included in the Gantt Chart, click the Display Options bar, then choose Bars.
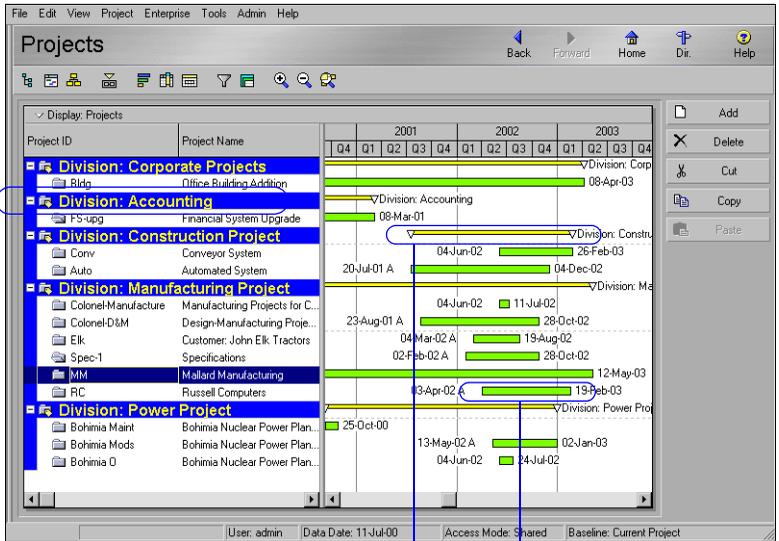
Summary bar   Current bar

Group by project code Click the Display Options bar, then choose Group and Sort By. Choose a specific project code or choose Customize to include additional codes or other project elements in your layout. The module creates a group band for each Group By parameter you select in the Group and Sort dialog box.

You can customize the appearance of each group band, choose whether to show summary data, indent the group band, specify the lowest level you want to include for the Group By element, and enter the time interval by which to group date-related elements.

Mark to hide group title bands that do not contain activities within the group.
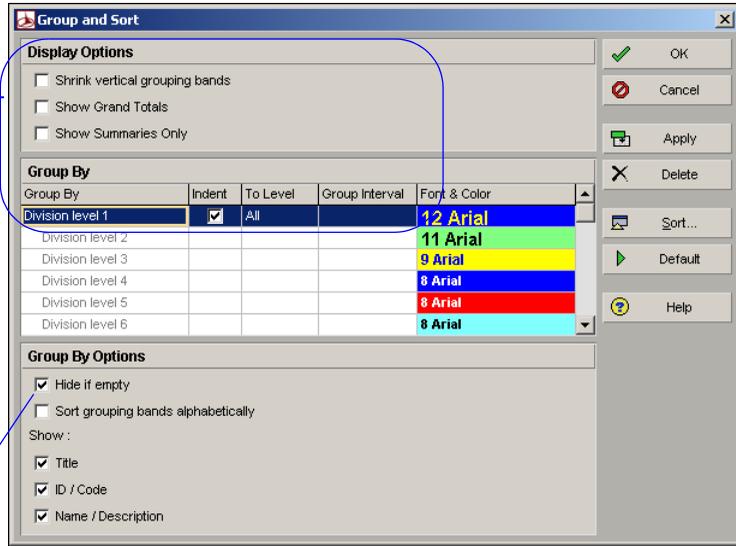
Click in the first row of the Group By column, then select the project code or other parameter by which you want to group. You can group by more than one item by adding additional rows. Mark the Indent checkbox for hierarchical items to show all levels or only levels up to the number indicated in the To Level cell. You can indent only one level per group. If you select a date Group By item, you can select the time interval in the Group Interval cell. To change the font and background color of the group bands, double-click the Font & Color cell for each item.

Summarize project code groups By default, the module summarizes the data included under each group band at the group band level in the layout and shows summary bars in the Gantt Chart. If the Gantt Chart is not displayed, click the Display Options bar, then choose Show on Top, Gantt Chart. The summary data are current up to the date when data were last summarized.

Mark to display a summary bar for each group band in the layout. If your layout is grouped by EPS also, mark the Display checkbox for the EPS Summary bar.
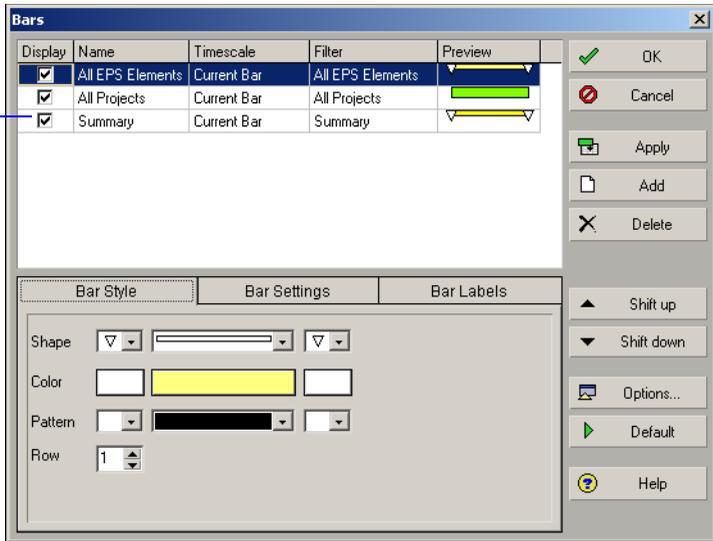
To exclude the project details and show only a summarized band, double-click the band. A plus sign (+) displays before the group band name when a group is summarized. To summarize all groups in the layout, click the Layout Options bar and choose Collapse All.

Filter by project code You can create custom filters that use project codes to limit the projects that are included in the Projects window. For example, to review only the projects within a specific division, select the Division project code. Click the Display Options bar, then choose Filter By, Customize. Click New in the Filters dialog box to add a filter.

Identify the filter with a meaningful name.

Select the filter parameter. In this case, all projects with the project code value of Accounting for the Division project code will be selected.
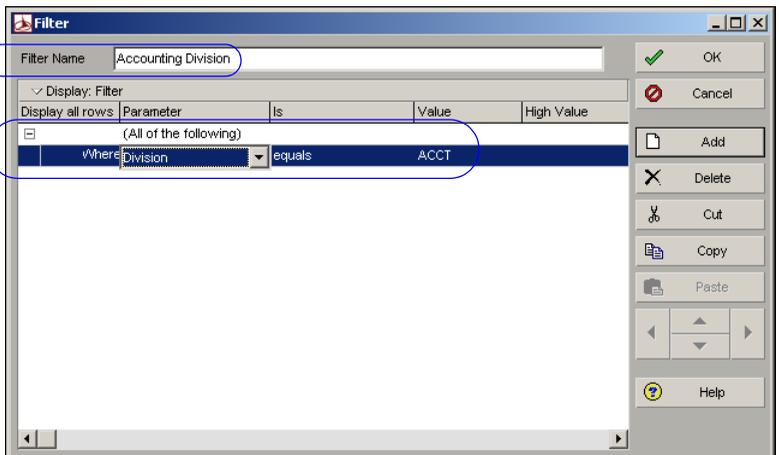
Click OK to return to the Filters dialog box. The new filter is listed under User Defined filters, and the corresponding select checkbox is marked, indicating it is active. Click Apply to see the projects selected by the filter, or click OK to apply the filter to the layout and close the dialog box.

This layout contains the projects selected by the filter. You can also display specific information for these projects by modifying column data—click the Display Options bar, then choose Columns, Customize.
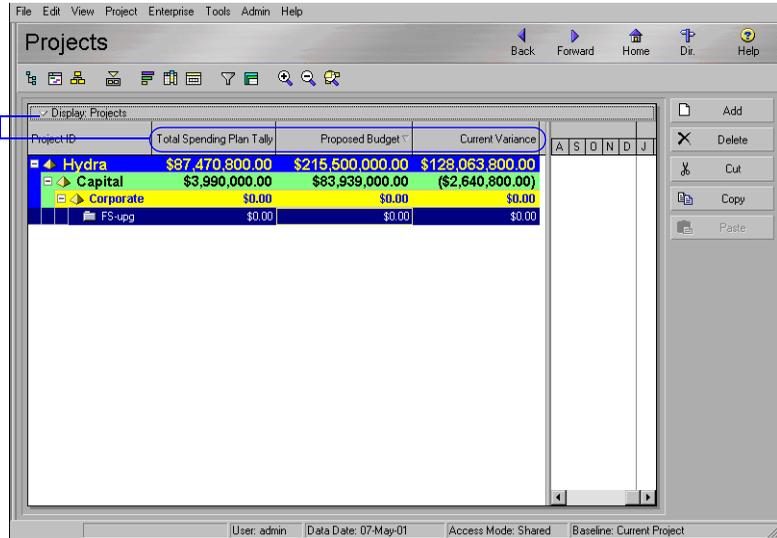
Working with User-Defined Fields

User-defined fields enable you to customize fields and values and add them to the project database. For example, you can use them to track additional activity data such as delivery dates and purchase order numbers. You could also track resource- and cost-related data such as profit, variances, and revised budgets.

This chapter describes how to configure user-defined fields to meet your project's needs.

Creating User-Defined Fields

User-defined fields (UDFs) enable you to add an unlimited number of custom fields and values to the project database. Examples of UDFs include purchase order numbers, delivery dates, drawing numbers, profit, variances, and revised budgets.

Subject areas You may customize an unlimited number of UDFs in any of the following subject areas: Activities, Activity Steps, Activity Resource Assignments, Projects, Resources, WBS, Expenses, Issues, Risks, and Work Products & Documents. In each of these subject areas, you can add columns and group, sort, and filter data based on the UDFs applicable to the subject area.

Data types For each custom field you create, you can specify any of the following data types for that field: Cost, Integer, Number, Text, Start Date, Finish Date, and Indicator. The data type you select determines the type of data you can specify in a field. For example, if you select Start Date, when you create a column for the Start Date you can only enter dates in the Start Date column.

The Indicator UDF is a special type of field that enables you to enter color-coded values and display them in columns and reports.

The following table summarizes the data types available and their uses in user-defined fields:

Data Type	Use For
Text	Text or combinations of text and numbers
Start Date	Start date
Finish Date	Finish Date
Number	Numeric value with two decimal places
Cost	Currency value
Indicator	An indicator field that you can use to enter color-coded icon values in columns and display color-coded text in reports
Integer	Numeric data except money

Defining user-defined fields Choose Enterprise, User Defined Fields. Select the subject area to which you want to add a new field, then click Add.

Double-click in the Title column and type a name for the UDF. Double-click in the Data Type column and select the appropriate data type, then click Close.

Organizations using Primavera ProjectLink cannot define or assign values to UDFs for Microsoft Project (MSP)-managed projects in the Project Management module. For more information on ProjectLink, click the Help button on any ProjectLink screen to access the Primavera ProjectLink Help in Microsoft Project (available only if ProjectLink is installed).

You must select a subject area before entering a Title or Data Type.

Enter a Title and Data Type for the user-defined field. For example, in the Project Expenses subject area, you could enter Change Order # as the title and select Cost as the data type.

User Defined Fields		
User Defined Fields		Close
Project Expenses		Add
		Delete
Title	Data Type	Help
Change Order #	Cost	
Change Order Cost	Cost	
Purchase Order #	Integer	
Purchase Order Cost	Integer	

The Add and Delete buttons are disabled if you do not have edit privileges for user-defined fields.

Only users with security privileges to edit UDFs can add, modify, or delete UDFs in the User Defined Fields dialog. Users that do not have access rights to edit UDFs can still view them in the User Defined Fields dialog. Any user can assign values to existing UDFs in columns. Also, only users with project security privileges to view project cost data can view UDF values with a Data Type of Cost.

Working with User-Defined Fields

Like other data fields, you can create columns for UDFs, group, sort, and filter based on UDF data, and view UDF data in reports. Read the following sections to learn more about utilizing these capabilities.

Creating UDF columns You can display UDFs in the columns of the Activity Table, Activity Steps, Activity Resource Assignments, Projects, Resources, WBS, Project Expenses, Issues, Risks, and Work Products and Documents.

For detailed information on adding columns, refer to "Customizing Layouts" on page 445.

You can only create columns for a UDF in the layout of the subject area in which you created the UDF. For example, if you create a UDF called Purchase Order Number in the Project Expenses subject area, the Purchase Order Number UDF can only be viewed in the Expenses layout.

For detailed information on grouping, sorting, and filtering data, refer to "Grouping, Sorting, and Filtering Data" on page 435.

Group, Sort, and Filter UDFs When a layout is grouped by user field, you can group, sort, filter, and view summaries. To group and sort based on UDFs, click View, Group and Sort. To filter data based on a UDF, select View, Filters.

For detailed information on Global Change, refer to "Using Global Change" on page 253.

Global change using UDFs You can use Global Change to assign values to Activity, Activity Resource Assignments, and Expenses user fields. To assign a global change click Tools, Global Change.

You must create UDFs in the User Defined Fields dialog before you can assign and populate UDFs using Global Change. There are no pre-existing UDFs available in the database.

For detailed information on reports, refer to "Customizing Reports" on page 473.

Viewing UDFs in reports You can view UDFs in reports and display them in columns. In the Report Wizard, you can select any UDF to be included in the report. You can also group, sort, and filter data based on a UDF. After you run the report, any UDFs you selected will appear in columns.

For detailed information on formatting bars, refer to "Formatting Gantt Charts" on page 452.

Formatting UDF date bars You can create bars for user-defined date fields and view them in the Gantt chart. Click View, Bars. In the Bars dialog, click Add. Enter a name in the Name field. In the Timescale field, select User Dates (the User Start Date and User Finish Date fields will become enabled). Select the user-defined start and finish date values in the User Start Date and User Finish Date fields.

You must create user-defined start date and finish date fields in the User Defined Fields dialog before you can create bars for these fields in the Gantt chart. Also, the User Finish Date and User Start Date columns are only editable when you select User Dates in the Timescale column.

Click in the Filter column to open the Filters dialog. Select a filter and click Apply, OK. If desired, click on the Bar Style tab to change the bar's appearance. Click Apply, OK.

If you select a User Finish Date that is earlier than the User Start Date, or if there is no value associated with those fields, the bar will not be displayed.

Select User Dates in the Timescale column.

The User Finish Date and User Start Date fields are automatically enabled when you select User Dates in the Timescale column.

If desired, click the Bar Labels tab and enter information to display UDFs as a label on any bar.

Working with Indicators

Indicators are a special type of user-defined field (UDF) that enable you to select color-coded icons as values for display in columns, group and sort, filters, and reports. Indicator UDFs can be used to highlight Activities, Activity Steps, Activity Resource Assignments, Projects, Resources, WBS, Expenses, Issues, Risks, and Work Products & Documents. For example, you could group activities based on priority or status using Indicator UDFs.

Like all other UDFs, you can perform the following functions using Indicator UDFs:

- display in columns

- group and sort data based on indicators

- filter data based on indicators

- perform global changes

- display as labels on timescale bars

- view indicator data in reports using columns, group and sort, and filters

Defining Indicator UDFs From the Enterprise menu, click User Defined Fields. Click Add, then select the Subject Area to which you want to add the indicator UDF. In the Data Type field, select Indicator. Enter a name (e.g., High Priority) in the Title field and click Close.

Selecting Indicator UDF values Once you create an indicator UDF, you can assign indicator values. You must create columns for indicator UDFs in order to assign values to a particular activity, resource, project, etc.

An indicator UDF can have one of four values: red, yellow, green, or blue. These values, shown in the next figure, are selectable icons in a drop-down list when you click on a UDF field. You must select one of these values whenever you enter a value for an Indicator UDF, whether in columns, group and sort, filters, reports, global change or bars.

Indicator UDF example As an example, assume you want to create an Indicator UDF that signifies status and priority of activities based on the following parameters:

- Red - high priority activities that have not started

- Yellow - high priority activities that have started

- Green - completed activities

- Blue - low priority activities that have started

First, you could create an Indicator UDF in the User Defined Fields dialog called Priority Indicator. Then, in Activities, you would create a column for the Priority Indicator UDF. In the Priority Indicator column, you would identify the activities you want to add an indicator value to, click in the Priority Indicator field, and select the appropriate value. You could then group, sort, and filter data based on the Priority Indicator value. The Activity Table would look similar to the following figure, with Indicators grouped by type.

Indicator UDFs in columns, group and sort, filters, bars, global change, and reports Modifying columns, group and sort, filters, bars, global change, and reports to include Indicator UDF data is functionally the same as other types of UDFs.

The values will display as icons in each of these cases, except reports. In reports, Indicator UDF columns show the text value of the icon (i.e., rather than displaying the icon, the value is red, yellow, green, or blue), as shown in the next figure.

Indicator UDF icon values display as text in reports.

SR-07 Activity Breakdown By WBS

WBS Activity ID	Indicator	Activity Name	Activity Type	Activity Status
ASSET-Q1 Asset Inventory - Q1				
ASSET-Q1.WIRE1 Upgrade Network				
A1700	Green	Phase One	Level of Effort	Completed
A1720	Yellow	Phase Two	Level of Effort	In Progress
A1730	Red	Phase Three	Level of Effort	Not Started
A1740	Red	Analyze Project Costs	Task Dependent	Not Started
A1750	Blue	Allocate Resources	Task Dependent	In Progress
A1760	Yellow	Detail Requirements	Task Dependent	In Progress
A1780	Yellow	Cost Analysis of Proposed Improvements	Task Dependent	In Progress
A1790	Green	Identify Current Design Shortcomings	Task Dependent	Completed
A1800	Red	Analyze Project Success	Task Dependent	Not Started
A1810	Blue	Testing Iterations	Task Dependent	In Progress
A1820	Blue	Quality Assurance Testing	Task Dependent	In Progress
A1840	Blue	Prepare Refined Design	Resource Dependent	In Progress
A1850	Green	Review/Approve Refined Design	Resource Dependent	Completed
A1860	Green	Begin Construction	Start Milestone	Completed
A1870	Red	Ship Product	Start Milestone	Not Started
A1880	Blue	Install Network	Resource Dependent	In Progress

Creating Calendars

You can create and assign calendars to each resource and each activity. These calendars define the number of available workhours in each calendar day. You can also specify national holidays, your organization's holidays, project-specific work/nonworkdays, and resource vacation days. The module uses your calendar assignments for scheduling and tracking activities, and leveling resources. An activity's type determines whether the activity uses the calendar of an assigned resource or its activity calendar.

You can link resource and project calendars to global calendars. Changes to a global calendar apply to all resource and project calendars linked to the global calendar.

Read this chapter to learn how to add and modify calendars.

Adding Calendars

You can establish an unlimited number of calendars to accommodate different work patterns. For example, if some activities require a five-day workweek, while others are performed part-time (such as Monday, Wednesday, and Friday), you can create different calendars and assign the activities and resources in your projects to them.

For information about assigning global or project calendars to activities, see "Working with Activities" on page 211.

There are three calendar pools: global, resource, and project. The global calendar pool contains calendars that apply to all projects in the database. The project calendar pool is a separate pool of calendars for each project in the organization. The resource calendar pool is a separate pool of calendars for each resource. You can assign resource or global calendars to resources, and global or project calendars to activities.

For information about modifying calendars, see "Modifying Calendars" on page 194.

Create a global calendar Choose Enterprise, Calendars. Choose Global, then click Add. Select the calendar you want to copy for the new global calendar, then click the Select button. Type the new calendar's name. To make the new calendar the default global calendar for activities and resources, mark the Default checkbox. To edit the new calendar, click Modify. To view the calendar's assignments before changing it, click Used By.
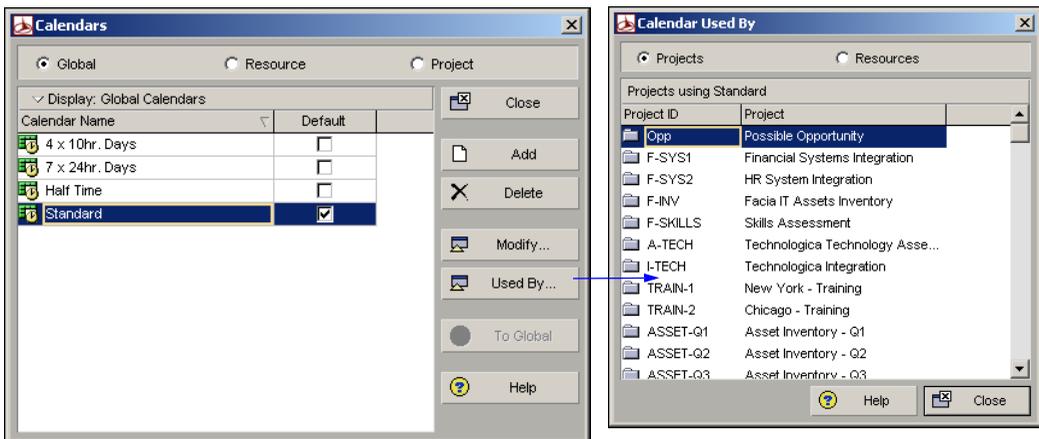
For information about assigning resource calendars to resources, see "Defining Resources and Roles" on page 115.

Create a resource or project calendar Choose Enterprise, Calendars. If you are creating a project calendar, you must first open a project. Choose Resource or Project, then click Add. Select the calendar you want to copy for the new resource or project calendar, then click the Select button. Type the new calendar's name. To edit the new calendar, click Modify. To view the calendar's assignments before changing it, click Used By.

> *Organizations using Primavera ProjectLink cannot create or edit project-specific calendars for Microsoft Project (MSP)-managed projects in the Project Management module. For more information on ProjectLink, click the Help button on any ProjectLink screen to access the help in Microsoft Project (available only if Primavera ProjectLink is installed).*
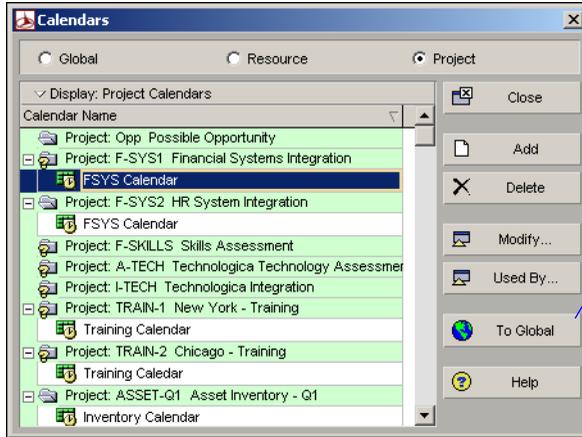
Click to convert a resource or project calendar to a global calendar.

Modifying Calendars

For additional information about modifying calendars, refer to the Help.

Use more than one calendar when your projects contain activities that can occur on different schedules. For example, you can create one calendar that specifies a normal Monday-through-Friday workweek and another calendar that specifies continuous worktime (24 hours/day). If you define multiple project calendars, you must assign each activity to the specific calendar that indicates the worktime available for performing that activity. The module schedules each activity only during the worktimes of the calendar to which it is assigned.

A calendar consists of a standard workweek and a list of exceptions.

You can also create multiple calendars to control the times when work is performed by resources throughout your organization. You can then associate different holidays/exceptions from the global calendar for each work cycle to indicate individual resource availability.

Define the workhours for each day in the regular workweek. Use the Calendar dialog box to view and edit a global, project, or resource calendar.

Modify calendars Choose Enterprise, Calendars; choose the calendar type (Global, Resource, or Project), select the calendar you want to modify, then click Modify.

> *To base a resource or project calendar on another calendar, select a new global calendar in the Inherit Holidays and Exceptions from Global Calendar field.*

Choose the month you want to modify by clicking the appropriate arrow button next to the month-year title. Modify the year by clicking the month/year title, and clicking the appropriate arrow button. To change the number of hours in a specific workday, click the date you want to change.

> *Work hours defined with decimal values other than .0 or .5 will round up or down to .0 or .5.*

Displays a yearly calendar so you can select a specific month to view

Choose to define the total work hours in each day.

Set the number of hours available to work for a specific day.

Click to make the selected day a nonwork day.
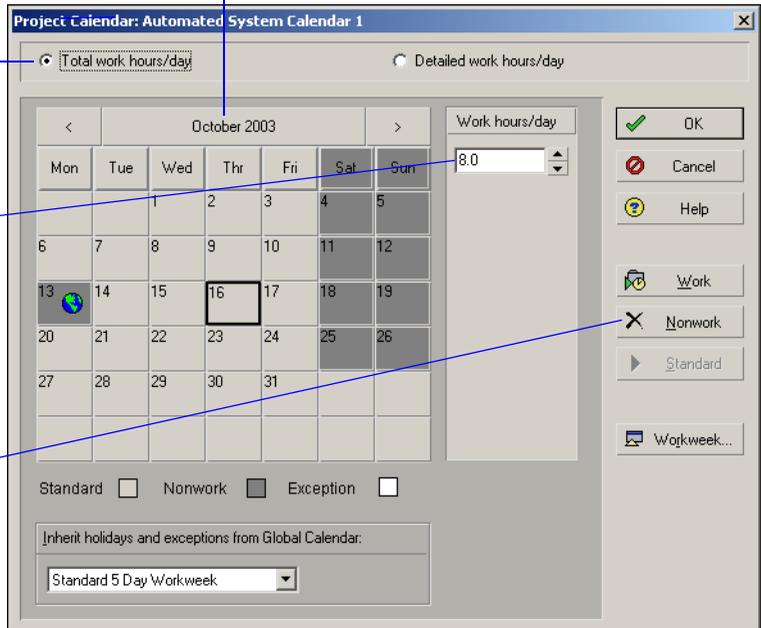
Project Calendar: Automated System Calendar 1

○ Total work hours/day   ○ Detailed work hours/day

Mon	Tue	Wed	Thr	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

< October 2003 >

Work hours/day
8.0

✓ OK
⊘ Cancel
? Help

🕑 Work
✕ Nonwork
▶ Standard

🖼 Workweek...

Standard ☐   Nonwork ☐   Exception ☐

Inherit holidays and exceptions from Global Calendar:
Standard 5 Day Workweek ▼

To apply the same change to all instances of a specific weekday in the displayed month, click the weekday's column label.
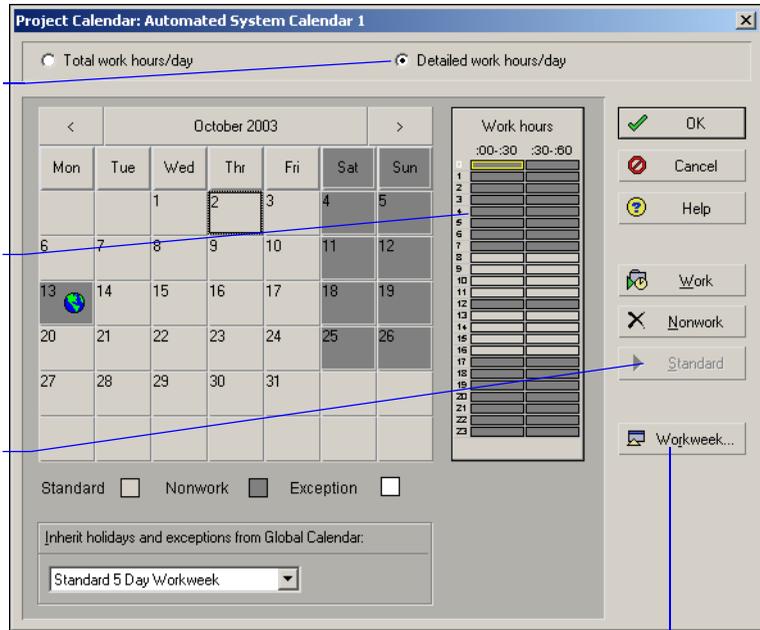
Choose to define which hours of the day are work or nonwork hours.

Select the hours you want to change and click either Work or Nonwork.

To make an exception into a workday and apply the default number of work hours to that day, click the exception you want to change, then click Standard.

Click to specify the number of default work hours for the selected day in the open calendar.

If the date's display color changes to white, the number of hours you entered does not equal the default number of work hours for that weekday.

Each calendar's work/nonworktime is based on its regular workweek. The changes you make to the regular workweek are reflected in the global, resource, or project calendar dialog box. The calendar dialog box shows normal/standard, nonworktime, and exceptions in the colors indicated in the legend.

Apply exceptions directly in the calendar dialog box. To apply the same change to all instances of a specific weekday in the displayed month, click the weekday's column label.

Specify default work hours Use the Calendar Weekly Hours dialog box to specify the number of default work hours for each week day in the open calendar.

Select a day of the week to set its default number of work hours.

Check this display for the default number of work hours for the selected day in the open calendar.

Click to make the selected hour a work hour.

Click to make the selected hour a nonwork hour.

Delete a calendar Choose Enterprise, Calendars. Choose Global, Resource, or Project, depending on the type of calendar you want to delete. Select the calendar you want to delete, then click Delete. If activities or resources are assigned to the calendar, the Calendars in Use dialog box is displayed.

To delete the calendar and link its assignments to a different calendar, choose Select Replacement Calendar, click OK, then select a replacement calendar when prompted. To delete the calendar and link its assignments to the default global calendar, choose Link to Default Global Calendar, then click OK.

Implementing the Schedule

In this part: **Establishing Activity Codes**

Working with Activities

Working with Cost Accounts and Project Expenses

Performing Top-Down Estimation

*R*ead this part to learn how to define and use activity codes to organize and filter project activities, add activities and relationships to projects, and monitor project expenses using cost accounts.

"Establishing Activity Codes" describes how to structure project data using activity codes so you can organize the information in different ways.

"Working with Activities" describes how to create a schedule consisting of activities and resource assignments.

"Working with Cost Accounts and Project Expenses" discusses tracking activity costs and earned value throughout the project life cycle.

"Performing Top-Down Estimation" shows you how to perform and apply top-down estimation to WBS elements and activities.

Establishing Activity Codes

You can define a set of codes to categorize the activities in your projects. You can then sort, filter, and group activities according to the activity codes and values you assign.

This chapter describes how to use global codes to organize project activities across an enterprise project structure (EPS) according to specific categories, such as product and division. You will learn how to use EPS-level activity codes to organize project activities. You will also learn how to establish project activity codes to filter and organize activities based on unique, project-specific features or requirements.

Creating Activity Codes and Values

You can also create activity codes and values in P6 Web Access. For information on creating activity codes and values in P6 Web Access, refer to the P6 Web Access Help.

Activity codes represent broad categories of information, such as design, quality control, or location. For each code, you can define specific values that further describe that category. For example, if your organization has more than one location, you can create a Location code with values such as New York, San Francisco, and Chicago. You can then associate activities with a specific location, such as New York, and define an unlimited number of values for each code.

Create global activity codes Choose Enterprise, Activity Codes. Choose Global, then click Modify. Click Add, then type the name of the global activity code. Specify the maximum number of characters for the activity code's values.

Click the Display Options bar, then Filter By, Current Projects' Values to view only the values assigned to the open projects.
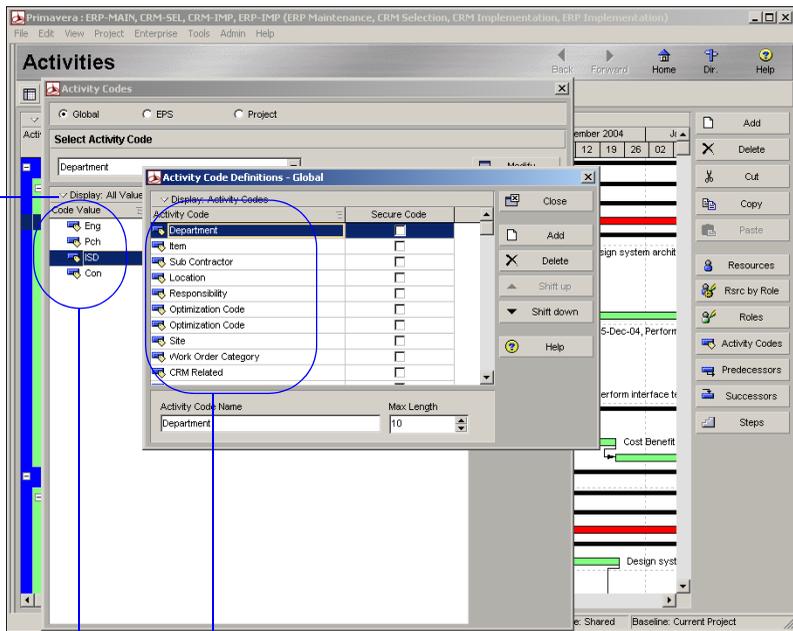
Activity code values   *Activity codes*

Create global activity code values Choose Enterprise, Activity Codes. Choose Global. Select the activity code for which you want to create a value, then click Add. Type the value's name and description. The value cannot exceed the maximum character length specified for the activity code.

Create EPS-level activity codes Choose EPS, then click Modify. Click Add to select the EPS to which you want to apply the activity code. Next, type the name of the EPS activity code. Specify the maximum number of characters for the activity code's values.

Displays the EPS levels that have assigned activity codes, and which you have security access to, based on the user security profiles.

Click to select an EPS level to which you want to add an activity code.
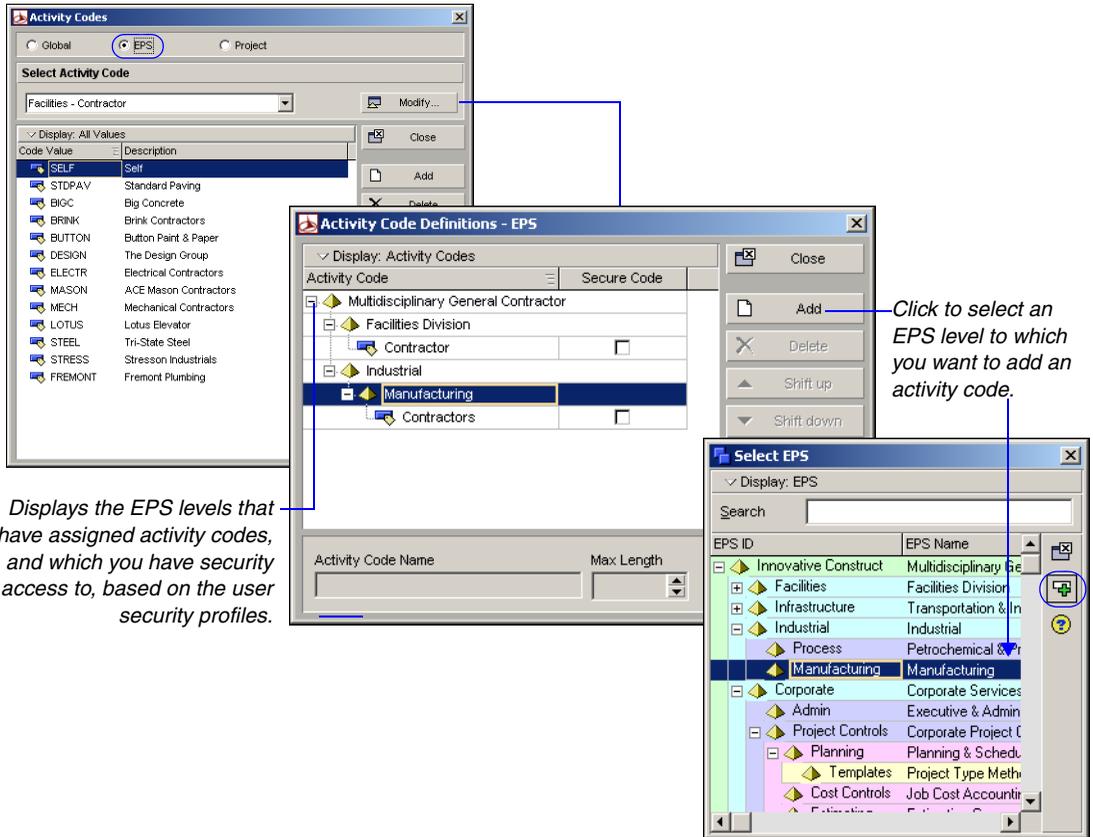
The Project Management module lists EPS-level activity codes that you do not have access rights to, under the "No EPS ID" level. More information about EPS-level activity code security is available in the Project Management Help.

Create EPS-level activity code values Choose Enterprise, Activity Codes. Choose EPS. Select the activity code for which you want to create a value, then click Add. Type the value's name and description. The value cannot exceed the maximum character length specified for the activity code.
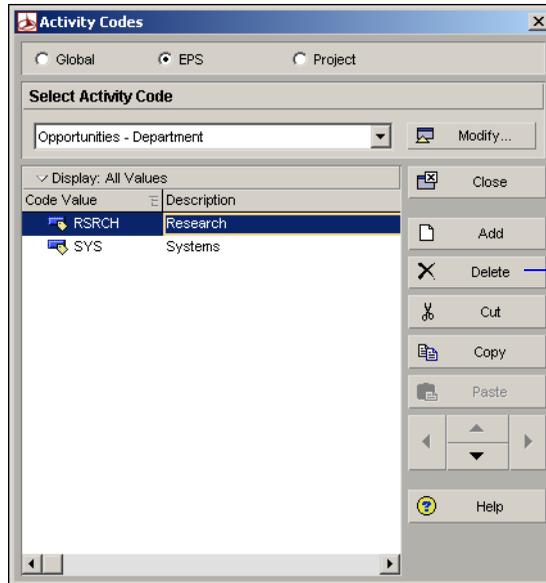
Click to remove the activity code value and its assignments.

Create project-level activity codes Open the project for which
you want to create activity codes, then choose Enterprise, Activity
Codes. Choose Project, then click Modify. Click Add, then type the
name of the project activity code. Specify the maximum number of
characters for the activity code's values.

*Project activity codes are
listed beneath the name of
the open project.*
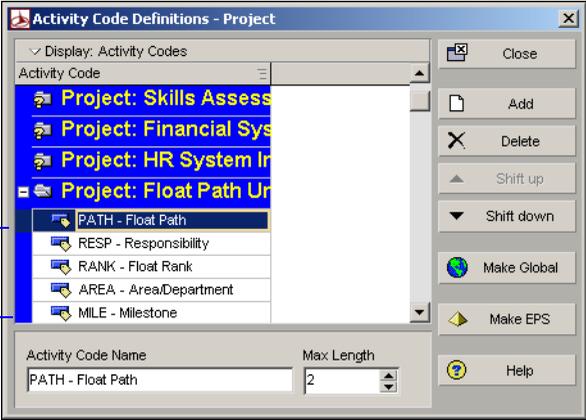
Create project-level activity code values Choose Enterprise,
Activity Codes. Choose Project. Select the activity code for which you
want to create a value, then click Add. Type the value's name and
description. The value cannot exceed the maximum character length
specified for the activity code.

*Type the new value name
and description directly in
these cells; the name's
length cannot exceed the
length specified in the Max
Length field for the code.*
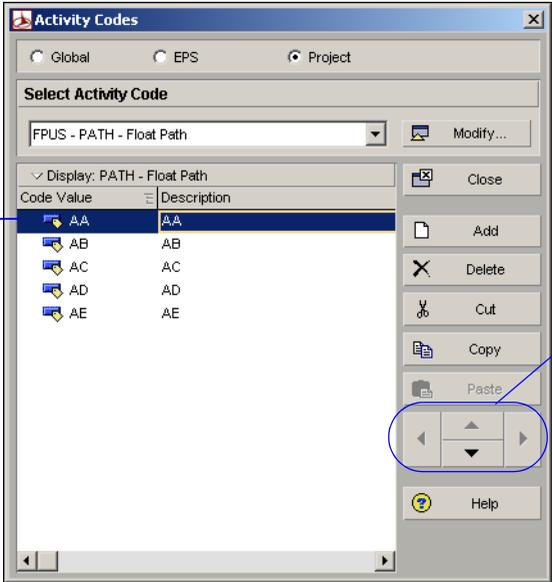
*Use these arrows to
indent/outdent a
value in the activity
code hierarchy, and
to move a selected
value up or down in
the list.*

Convert EPS-level activity codes and values You can convert an EPS-level activity code and its values to a global activity code with global values. Choose Enterprise, Activity Codes. Choose EPS, then click Modify. Select the code you want to convert, then click Make Global. Click Yes to convert the code and its values.

Convert project-level activity codes and values You can convert a project activity code and its values to a global activity code with global values. Choose Enterprise, Activity Codes. Choose Project, then click Modify. Select the code you want to convert, then click Make Global. Click Yes to convert the code and its values.

If you change activity codes or values, the module applies your changes to all activity assignments. In addition, if you convert project activity codes to global activity codes, the module applies these changes to all activity assignments.

Grouping and Summarizing by Codes

Use global, EPS, and project activity codes to group activities and projects in Activity Table, Gantt Chart, and Activity Network layouts. Grouping enables you to focus on specific activities, such as those within a particular phase or department. The following example shows activities grouped by the global activity codes Location and Project Manager.

Group by location and project manager so the layout is easy to read.

When you summarize an activity group, the early date bar begins at the earliest start date of all activities in the code value and extends to the latest early finish date of all activities in the code value.

Summary bar
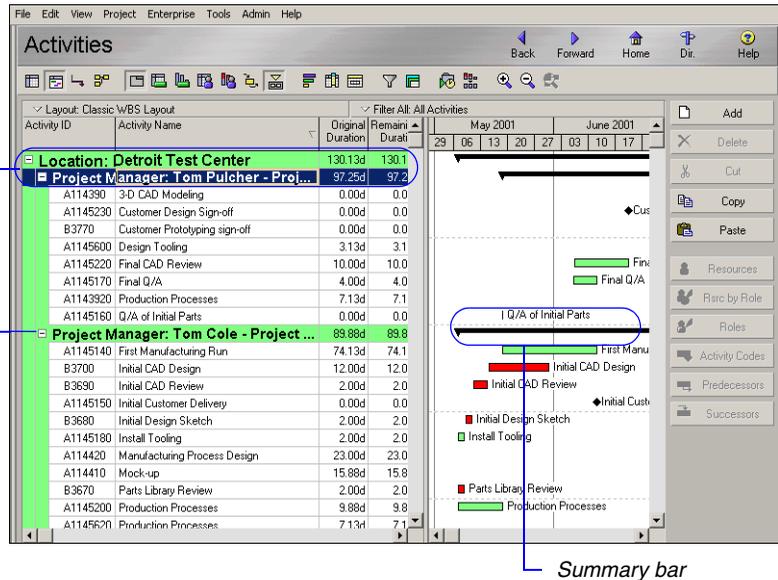
Group by activity code   In the Activities window, click the Layout Options bar, then choose Group and Sort. Under Group By, click the first available line, then select the project, EPS, or global activity code by which you want to group.

If you are grouping by a hierarchical element, you can select the lowest level you want to include in the layout.

Group by as many fields as necessary for your layout.
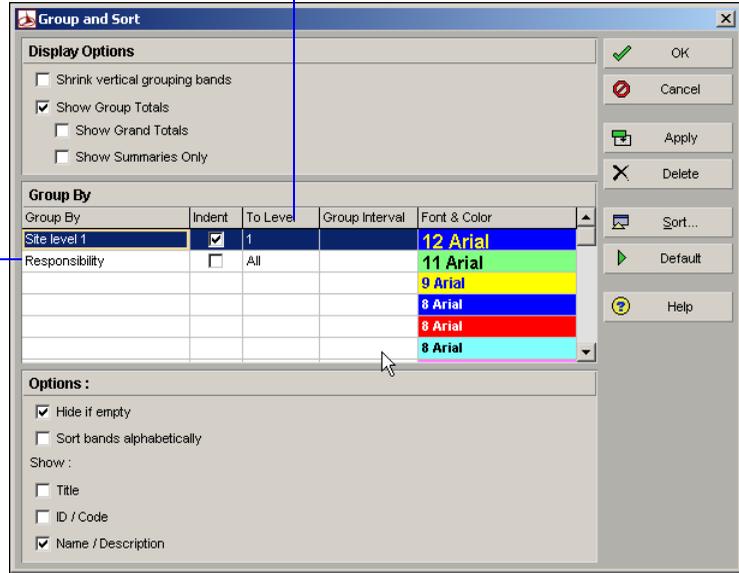
Summarize groups By default, the module summarizes the data included under each group band at the group band level in the layout and shows summary bars in the Gantt Chart. If the Gantt Chart is not displayed, click the Layout Options bar, and choose Show on Top, Gantt Chart. The summary data are current up to the date when data were last summarized.

To display summary bars in the Gantt Chart, click the Layout Options bar, then choose Bars to display the Bars dialog box.

Mark to display a summary bar for each group band in the layout.

To exclude the project details and show only a summarized band, double-click the band. A plus sign (+) displays before the group band name when a group is summarized. To summarize all groups in the layout, click the Layout Options bar and choose Collapse All.

Working with Activities

Activities are the fundamental work elements of a project. They are the lowest level of a work breakdown structure (WBS) and, as such, are the smallest subdivision of a project that directly concerns the module. If you divide activities into steps, an activity's primary resource is typically responsible for managing and tracking the progress of the steps, while the project manager is typically responsible for managing and tracking the progress of the overall activity.

This chapter describes how to add activities and their properties.

Activities Overview

Activities represent work that must take place in a determined amount of time. Use the Activity Table or Activity Network layouts to add activities and build your projects. Within these layouts, you can define the following activity information:

■   Activity ID and name – to uniquely identify and describe the activity

■   Predecessor and successor relationships – to define relationships with other activities in the same project or in different projects in the enterprise project structure (EPS)

■   Activity start and finish dates

■   Activity calendar

■   Activity type, duration type, and percent complete type; whether an activity is a start or finish milestone; how to keep an activity's unit values, duration values, and resource units/time values synchronized; and how to calculate an activity's percent complete

■   WBS element

■   Activity codes and values – to categorize activities

■   Constraints on the activity's scheduled start and finish dates

■   Expenses

■   Work products and documents, standards, and deliverables

■   Resources

■   Roles – to identify skill requirements for staffing the activity

■   Notes and feedback – to communicate with the resource working on an activity

■   Notes about performing the activity

■   Steps – to divide the activity into smaller units

■   Activity Step Templates – to define sets of reusable steps common to many activities in a project or across projects

Adding Activities

Use the Activities window to create, view, and modify activities for the open project. The Activities window can be divided into upper and lower layouts. For example, show an Activity Table, Gantt Chart, Activity Usage Spreadsheet, or Activity Network in the top layout, and/or show Activity Details, an Activity Table, Gantt Chart, Activity or Resource Usage Spreadsheet or Profile, or Trace Logic in the bottom layout. Customize the layouts to suit your requirements.

Choose Project, Activities, to display the Activities window.

To open a layout, click the Layout Options bar and choose Show on Top/ Show on Bottom, then select the layout type.
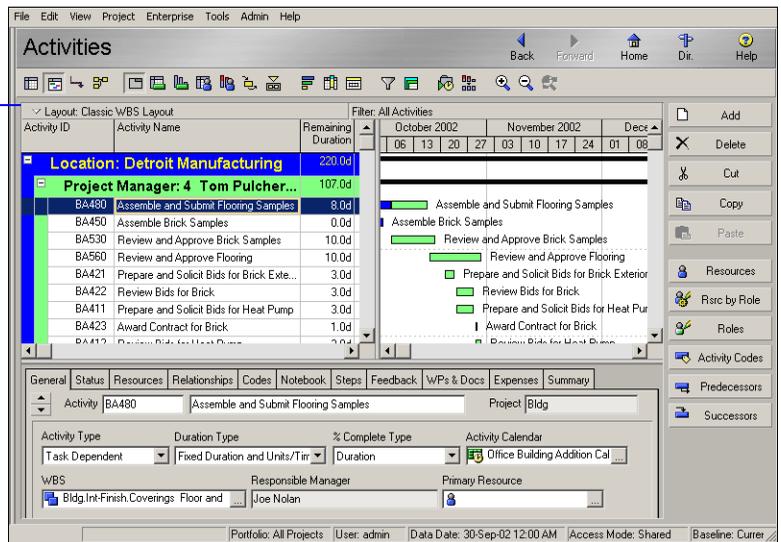
To add an activity to a project, use the Activity Table and Gantt Chart, or Activity Network. Depending on your user preferences, the New Activity wizard may start to help you add an activity.

Add activities in the Activity Table Select an activity within the group to which you want to add a new activity, then click Add. The new activity is placed according to the sorting options selected for the layout.

Include the Gantt Chart to see a timescaled version of your schedule as you add activities.

Type information directly in the column cells for the new activity...

...or use Activity Details to complete activity information.

Add activities in Activity Network In Activity Network, select the group band or an activity box within the group band into which you want to add the new activity, then click Add.

The new activity was added to this second-level WBS group band.

If no groups have been set up in Activity Network, the activity will be added to the bottom of the layout.

Defining General Activity Information

Use the General tab to define general information for the selected activity, including duration type, WBS assignment, primary resource, activity type, and activity calendar.

In the Activities window, select the activity whose general information you want to define. Click the Layout Options bar, then choose Show on Bottom, Activity Details; click the General tab.
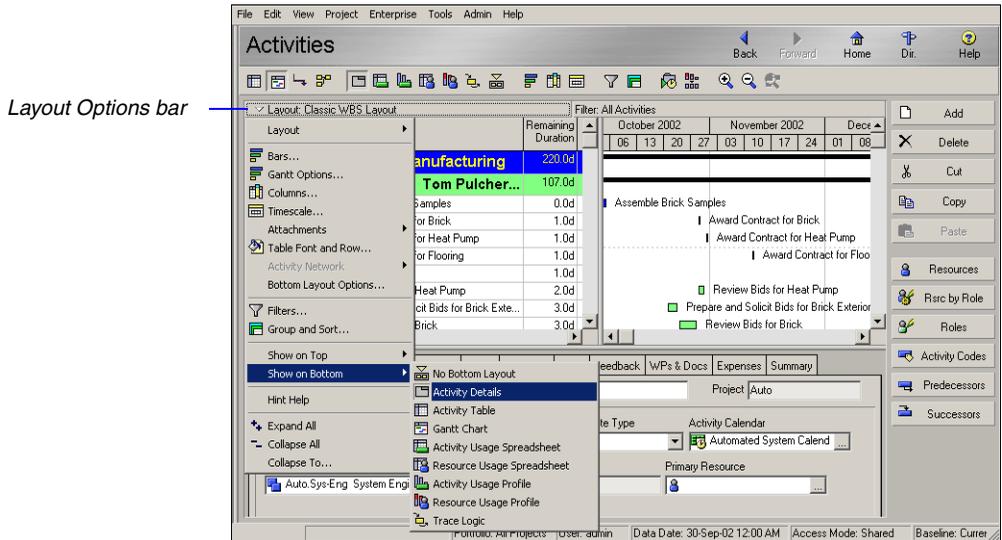
Layout Options bar

To specify which Activity Details tabs you want to display and their order, click the Layout Options bar, then choose Bottom Layout Options.
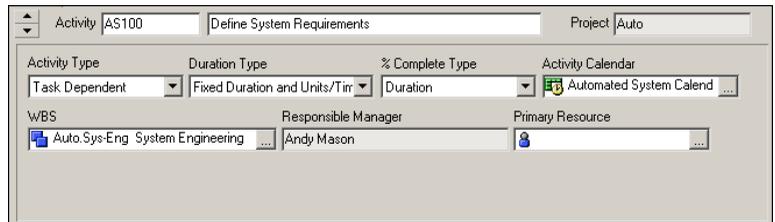
Activity type Select the activity type according to the activity's function in the project and the calendar that should be used for the activity during scheduling.

■   To indicate that the activity's resources are scheduled according to the activity calendar, select Task Dependent.

■   To indicate that each of the activity's resources are scheduled according to the resource's own calendar, select Resource Dependent.

■   To indicate that the activity's duration is dependent on its predecessor and/or successor activities, select Level of Effort (LOE). LOE activities do not have constraints and are considered to be ongoing; examples include project management tasks, reviews, and meetings. The module does not include Level of Effort activities when leveling resources.

All finish to start and start to start predecessors and start to finish and start to start successors drive the start date of the LOE activity; all finish to finish and start to finish predecessors and finish to start and finish to finish successors drive the finish date of the LOE activity.

■   To indicate that the activity marks the beginning of a major stage in the project, select Start Milestone. Milestones do not have time-based costs or resource assignments. However, a primary resource can be specified. Start milestone activities have a zero duration.

■   To indicate that the activity marks the end of a major stage in the project, select Finish Milestone. Milestones do not have time-based costs or resource assignments. However, a primary resource can be specified. Finish milestone activities have a zero duration.

■   To indicate that the activity's duration is dependent on the earliest start date and latest finish date of the activities that share a common WBS level, select WBS Summary.

Driving resources can not be assigned to WBS Summary activities.

Duration type Select the duration type based on whether resources, the schedule, or costs will be most important when activities are updated in a project. The duration type applies only when resources are assigned to the activity. The following equation must hold true regardless of which data are updated:

Remaining Units (resource) = Units/Time x Remaining Duration (activity)

For example, if a resource is assigned to an activity for 8 hours/day for 5 days, the remaining units or work effort is calculated as 40 hours. The duration type enables you to control which variables of this equation are calculated when you change a value.

■   Select Fixed Duration & Units/Time or Fixed Duration & Units to indicate that the schedule is a limiting factor in your project. The activity's duration does not change regardless of the number of resources assigned when you modify or update activities. You usually choose these duration types when you are using task dependent activities.

When you update the remaining duration for the activity, you can choose to calculate either the remaining units or the units per timeperiod. If you want to recalculate the remaining units and keep the units/time for the resource constant, choose Fixed Duration & Units/Time. The module uses the equation:

Remaining Units = Units/Time x Remaining Duration

If you want to keep the remaining units constant instead and recalculate the units/time, choose Fixed Duration & Units. The module uses the equation:

Units/Time = Remaining Units/Remaining Duration

■   Select Fixed Units/Time to indicate that resource availability is the most critical aspect of your project. In this case, the units/time or rate of the resource remains constant, even if the activity's duration or work effort changes. You most often use this duration type when you are planning resource dependent activities.

■   Select Fixed Units to indicate that the budget (units or cost) is a limiting factor; that is, the total amount of work is fixed. When you update activities, the work effort required to complete the activity does not change, even if the activity's duration or the resource rate changes. Typically, you would use this type in conjunction with resource dependent activities. Increasing resources can decrease the activity duration.

Percent complete type   You can choose to calculate an activity's percent complete according to activity duration, activity units, or a physical percent complete that you enter for each activity. You must define a percent complete type for each activity.

■   To indicate that the activity's percent complete will be entered by the user for this activity, select Physical.

■   To specify that the activity's percent complete be calculated from
    the original and remaining duration, select Duration.

■   To specify that the activity's percent complete be calculated from
    the actual and remaining units, select Units.

Activity calendar This field displays the selected activity's calendar.
Click the Browse button to select a new calendar.

WBS Click the Browse button to assign a new WBS element to the
selected activity.

Responsible manager This field displays the name of the
responsible manager (in the OBS) assigned to the selected activity's
WBS element.

Primary resource This field displays the name of the selected
activity's primary resource. The primary resource is the person
responsible for the overall work on the activity and for updating activity
status. Click the Browse button to select a new primary resource.

Defining Schedule Information

Use the Activity Details Status tab to view and edit detailed schedule information for the selected activity, including actual start and finish dates, free float, total float, constraints, and duration. You can also view and edit the activity's labor and nonlabor unit/cost values and material cost values.

The module automatically recalculates the time value and period you enter according to the project's calendar and the standard timeperiod defined by your network/database administrator. To view the available timeperiod abbreviations, choose Admin, Admin Preferences, then click the Time Periods tab. You must have appropriate access rights to edit Admin Preferences.

In the Activities window, select the activity whose schedule information you want to define. Click the Layout Options bar, then choose Show on Bottom, Activity Details; click the Status tab.

Duration Update the Duration fields when you are setting the duration or updating the activity as a whole. (Most likely, the activity type will be Task Dependent.)

For more information on updating the schedule, see Part 4, "Updating and Managing the Schedule" on page 279.

■ To enter the original duration for the activity, in the Original field enter the expected number of workperiods required to complete the selected activity.

■ To enter the remaining duration for the activity, in the Remaining field enter the remaining number of workperiods needed to complete the selected activity. If the selected activity is in progress, type a new number immediately followed by the timeperiod abbreviation.

> *Use the General tab of the Admin Preferences dialog box to specify the default duration for activities in all projects. Choose Admin, Admin Preferences, then click the General tab.*

■   To enter a new at completion estimate, in the At Complete field enter an estimate of the duration at completion time for the selected activity. If the selected activity is in progress, type a new at completion estimate (At Complete Duration = Actual Duration + Remaining Duration).

> *If the 'Link Budgeted and At Completion for not started activities' checkbox is cleared in the Projects Details, Calculations tab in the Project Window, the original budgeted /remaining units and costs, and the durations, will remain constant when you update the At Complete value for activities that have not started.*

Status Once an activity is underway, update its start and finish dates and other status information.

■   To enter the activity's planned start date, click the Browse button in the Started field, then select a date. If the activity has actually started, mark the Started checkbox, then specify the actual start date in the Started field.

■   To enter the activity's planned finish date, click the Browse button in the Finished field, then select a date. If the activity is complete, mark the Finished checkbox, then specify the actual finish date in the Finished field.

> *If the planned date you enter differs from its scheduled date, you are prompted to apply a constraint to hold the activity in place. If you do not constrain the activity, your dates are overwritten when the schedule is calculated.*

■   If the selected activity has started, the Exp Finish field displays the date the activity is expected to end. (Only the primary resource can edit this date in the Timesheets module.) Anyone who has access to the project can edit this date.

The % field name changes depending on the percent complete type set on the Activity Details General tab.

■   If the selected activity's percent complete type is set to Duration, the Duration % is calculated from the original and remaining durations. If the selected activity's percent complete type is set to Units, the Units % is calculated from the actual and remaining units. If the selected activity's percent complete type is set to Physical, you can enter its physical percent complete in the Physical % field.

To edit the Physical % field, the activity must have started.

■   Total float is the amount of time the selected activity can be delayed, without delaying the project's finish date.

■   Free float is the amount of time the selected activity can be delayed, without delaying the immediate successor activities.

Constraints   Use constraints when activities must start or finish on a specific date. Network logic alone cannot reflect all project situations. Sometimes activity must be accomplished according to specific dates rather than on dates determined by other activities in the project. To model dependence on specific dates, assign primary and secondary constraints to activities.

The module uses the date constraints only when they create a tighter schedule. For example, an imposed Start On date of December 1 will not affect a schedule-determined early start date of December 15. Conversely, if an imposed Start On or After date is set to December 30, the module schedules an activity whose early start is December 15 to the imposed start date.

■   Choose the primary constraint for the activity, then click the Browse button in the Date field to select the date to which the primary constraint applies.

■   Choose a secondary constraint if necessary. This list is filtered based on the value you select in the Primary field. Click the Browse button in the Date field to select the date to which the secondary constraint applies.

You can enter a constraint date only after you select a constraint type.

Labor/Nonlabor Units/Cost or Material Cost Click the Options bar and select Labor or Nonlabor units or cost, or Material cost. The amounts in the Status tab total the amounts for all resources assigned in the Resources tab.

■   The budgeted amount is the expected number of labor/nonlabor units or cost, or material cost the selected activity's resources will use.

■   The actual amount is the actual number of labor/nonlabor units or cost, or material cost the selected activity's resources have used. If the selected activity has started, type a new actual value.

■   The remaining amount is the remaining number of labor/nonlabor units or cost, or material cost the selected activity's resources will use. If the selected activity is in progress, type a new remaining value.

■   The at complete amount is an estimate of the labor/ nonlabor units or cost, or material cost at completion time for the selected activity's resources, (At Complete Units/Cost = Actual Units/Cost + Remaining Units/Cost). If the selected activity is in progress, type a new at complete estimate.

If the Link Budget and At Completion for Not Started Activities checkbox is cleared in the Projects Details, Calculations tab on the Project Window, the original budgeted /remaining units and costs and the durations will remain constant when you update the At Complete value for activities that have not started.

Establishing Relationships

Create relationships between activities to indicate whether an activity can begin only after other activities start or finish. Once you assign relationships, schedule the project to calculate early and late dates for each activity.

Establish relationships between activities in the same project, or link projects by creating relationships between activities in different projects within the EPS. You can define relationships to activities in any other project (not including what-if/inactive projects), even if the project is not opened in the current display.

There are several methods for assigning relationships. Use the Activity Network to visualize the flow of logic as you link activities, or use the Gantt Chart to view relationships according to time. You can also use the Relationships tab in Activity Details to assign relationships to activities in the same project or in other projects in the EPS.

Relationship types and lag You can define the following four types of relationships. Typically, you define relationships from the predecessor to the successor activity.
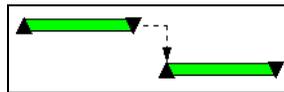
Finish to start. The successor activity can begin only when the predecessor activity completes.
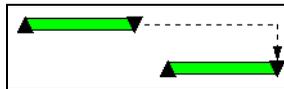
Finish to finish. The finish of the successor activity depends on the finish of the predecessor activity.
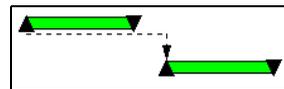
Start to start. The start of the successor activity depends on the start of the predecessor activity.

Start to finish. The successor activity cannot finish until the predecessor activity starts.

When a successor activity cannot start or finish as soon as its predecessor starts or finishes, you can define a lag time for the relationship. Lag is the number of time units from the start or finish of an activity to the start or finish of its successor. Lag can be a positive or negative value. For example, a start to start relationship with a three-day lag indicates that the successor activity can start three days after the start of its predecessor.

You can select a calendar to calculate the lag between predecessors and successors for all activities. If you do not select a calendar, the Successor Activity Calendar is used to calculate lag. You can calculate lag based on the Predecessor Activity Calendar; the 24 Hour Calendar, which uses continuous, 7 days/week, 24 hours/day workperiods; or the Project Default Calendar, which is the calendar selected as Default for New Activities on the Defaults tab of Project Details. To select the calendar for scheduling relationship lag, choose Tools, Schedule. Click Options. In the General tab, select a calendar in the Calendar for Scheduling Relationship Lag field.
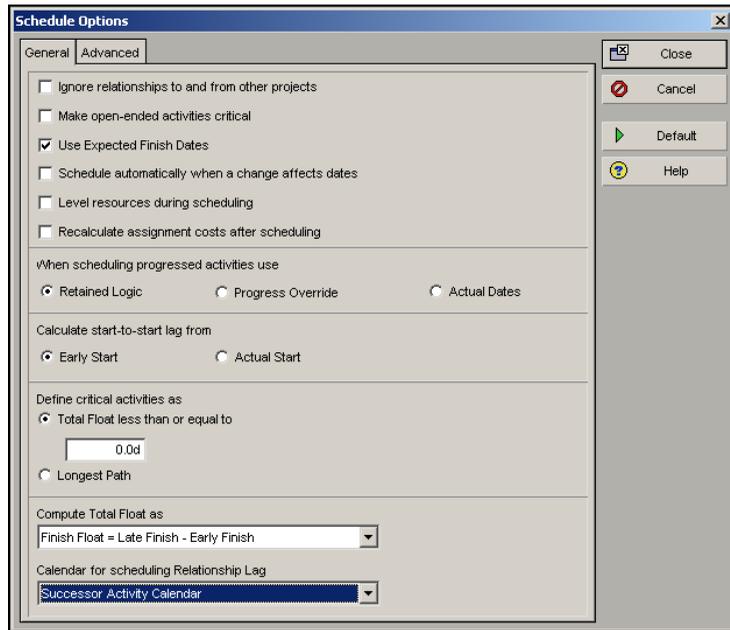
View relationships in the Gantt Chart To assign relationships in the Gantt Chart, make sure relationships are displayed onscreen. Click the Layout Options bar, then choose Bars. Click Options in the Bars dialog box. Click the General tab in the Bar Chart Options dialog box and mark the Show Relationships checkbox, then click OK.

While you are dragging the relationship line between two activities, a hint window displays that indicates the type of relationship that will be created when you release the mouse button.

Create relationships in the Gantt Chart or Activity Network
Drag the mouse between any two activities that you want to connect. Point to the left or right of the predecessor activity and drag the mouse to the left or right of the successor activity. The mouse pointer changes to a ⤷ as you define relationships.

Drag the mouse from the end of activity A114380 to the start of A1143820 to define a finish to start relationship.

A1143810	0.88d
Review of Customer	0.00d
Mark-ups	0.00d
19-Jun-01 08:...	

A1143820	0.88d
Update Design	0.00d
	0.00d
19-Jun-01 08:...	02-Jul-01 17:...
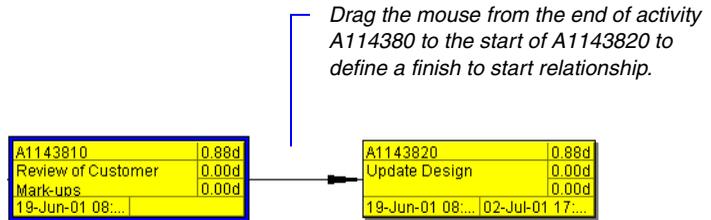
To modify or delete a relationship, double-click the relationship line.

Dissolving Activities

To maintain relationships when deleting activities, choose Edit, Dissolve, in the Activities window. Dissolving deletes an activity and joins its predecessor and successor activities with a finish to start relationship. The selected activity to be dissolved must have a predecessor and successor.
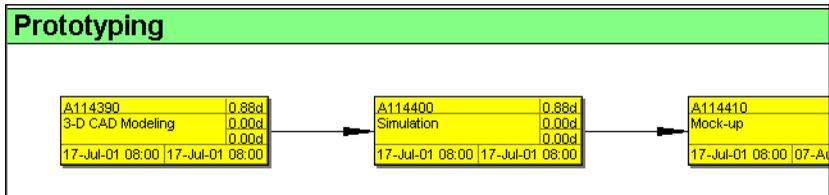
This sequence of activities above can be completed with just two activities. Dissolve activity A114400. Activity A114390 and A114410 automatically join with a finish to start relationship.
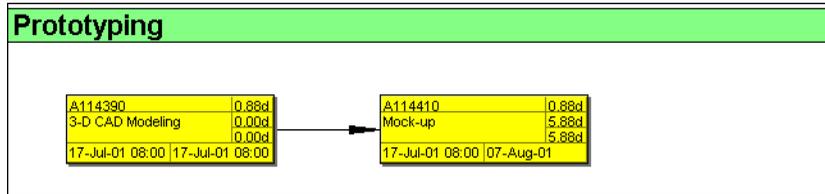
To assign a relationship between projects, click the Display Options bar in the Assign Predecessors/ Assign Successors dialog box, then choose Select Project. Select activities to define relationships the same way as you would from the same project.

Assign relationships using Activity Details In the Activities window, select the activity to which you want to add a predecessor or successor relationship. Display Activity Details by clicking the Layout Options bar and choosing Show on Bottom, Activity Details, then click the Relationships tab. Click Assign in either the Predecessors or Successors section. Select the predecessor or successor activity you want to assign, click the Assign button, then click the Close button. Double-click the Relationship Type field, then select a relationship type. Double-click the Lag field, then type the relationship's lag time value.

Click the arrows to move from one activity to the next activity in the display.

| Activity | AS101 | System Design | | Project | Auto |

Predecessors

Project ID	Activity Name	Relationship Type	Lag
Auto	Define System Requireme...	FS	0.0d

Assign   Remove   GoTo

Successors

Project ID	Activity Name	Relatio...	Lag
Auto	Approve System Design	FS	0.0d
Auto	Prepare Drawings for Temp Control Eq...	FS	-10.0d
Auto	Prepare Drawings for System Controller	FS	-10.0d

Assign   Remove   GoTo

To expand either the Predecessors or Successors area, drag the split bar separating the right and left panes.

> *You can also use the Predecessors or Successors tabs in Activity Details to assign relationships. The Relationships tab combines the predecessor and successor information in a single tab. The data stored in the Relationships tab is synchronized with the information in the Predecessors and Successors tabs.*

Trace Logic   The Trace Logic layout enables you to examine a path while still viewing the entire project. Click the Layout Options bar and choose Show on Bottom, Trace Logic. In the Gantt Chart or Activity Network upper layout, select the activity from which you want to begin tracing logic.

To move through the chain of activities, click a predecessor or successor of the selected activity. To modify the number of predecessor/successor levels, click the Layout Options bar and choose Bottom Layout Options.
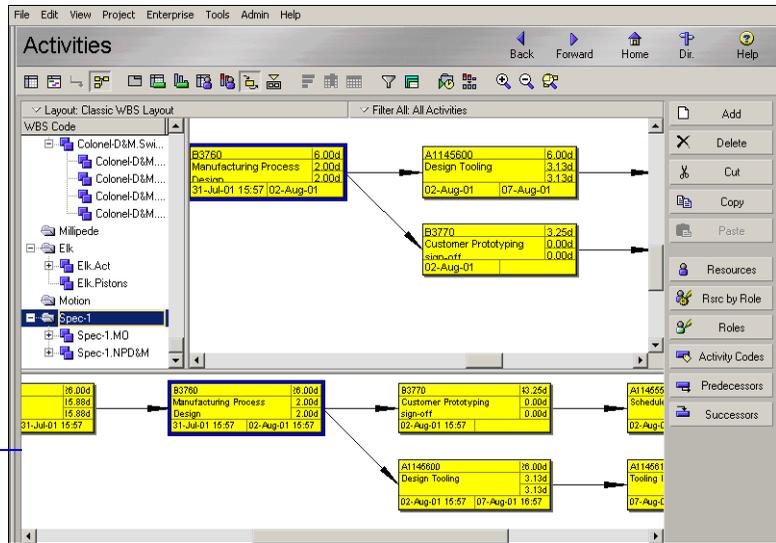
This Trace Logic layout shows three levels for both predecessors and successors.

Displaying Activity Details for Assignments

Display the following Activity Details tabs so you can assign additional project information:

■   **Resources**, which include the personnel and equipment that perform work on activities across all projects. You can also assign and remove project personnel job titles or skills, known as roles.

■   **Codes**, which are used to categorize activities according to your organizational and project needs.

■   **Notebook**, which provide additional information that further describes the activity according to specific categories of information.

■   **Steps**, which divide activities into smaller units. You can apply a weight to each step, which can be linked to the activity's physical percent complete for the completed steps.

■   **Feedback**, which allows you to exchange notes with an activity's primary resource to and from the Timesheets module.

■   **WPs & Docs**, which enable you to catalog and track all project-related work products and documents.

■   **Expenses**, which are one-time expenditures for nonreusable items. You can associate predefined cost accounts with expenses to categorize them.

■   **Summary**, which displays detailed cost and unit information for the selected activity.

■   **Contract Manager Docs**, which enables you to view Contract Manager (Expedition) documents associated with the selected activity. This option is displayed when link data is entered in Admin Preferences.

Modify Activity Details tabs   In the Activities window, click the Layout Options bar, then choose Show on Bottom, Activity Details. Click the Layout Options bar, then choose Bottom Layout Options. In the Available Tabs column, click the tab that you want to display, then click the right arrow button. To shift the tab to the left in the Activity Details display, select the tab name in the Display Tabs column and click the up arrow button; to shift the tab to the right in the display, click the down arrow button.

Assigning Resources and Roles

In the Activities window, select the activity to which you want to assign a resource or role. Click the Resources tab in Activity Details.
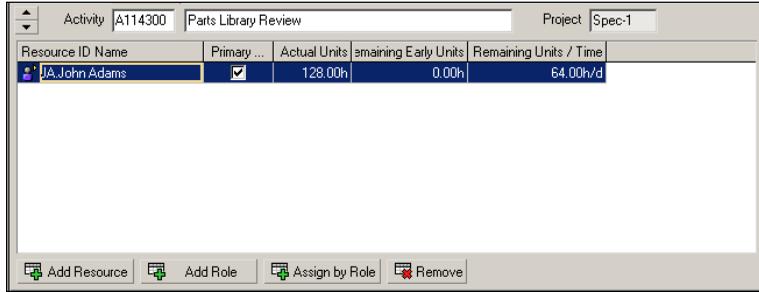
Click Add Resource to assign a resource to the selected activity; click Add Role to assign a role to the selected activity. Select the resource or role you want to assign. To assign multiple resources or roles, hold down the Ctrl key, then click each resource/role you want to assign. Click the Select button, then click the Close button.

Organizations who do not want to assign resources to activities can use the activity Owner attribute to specify one person who is responsible for an activity. P6 Web Access users with the appropriate license can update progress for activities they are associated with as activity Owner. Additionally, to support oversight and approval processes, the activity Owner designation can be combined with the use of the new Reflection project feature, which provides the capability to review changes before updating an active project. For information about activity Owner and Reflection project features, see the Project Management module online Help and the Primavera P6 Administrator's Guide. *Also refer to "Creating and Using Reflections" on page 407.*

You can customize the Resources tab columns to include other information for resources and roles. Right-click in the Columns area of the Resources tab, then choose Customize Resource Columns.

To define detailed information, double-click each appropriate cell and enter the resource's or role's information for the selected activity. To replace a resource or role assigned to the activity, select the resource or role you want to replace, click Add Resource or Add Role, then click the Replace button. Select the new resource or role with which you want to replace the existing resource/role, then click the Close button.

Recalculating Costs/Units for Assignments

If you want to calculate costs from the units indicated or to recalculate units based on actual cost, include the Cost Units Linked column in Activity Details. If you mark the assignment's checkbox for the Cost Units Linked column, the module notifies you that costs will be recalculated. If no progress has occurred for the activity, the Budgeted Cost/Units, Remaining Cost/Units, and At Completion Cost/Units are equal. When you apply an actual start to the activity, and record an actual quantity value or an actual cost value for the resource or role assignment, the Budgeted Cost/Units value is retained and the Remaining and At Complete Costs/Units are recalculated automatically.

Roles with specific skill sets can be assigned resources to enable schedule and cost planning until specific resources are identified. You can later replace the role with the correct resource, based on the proficiency requirements established for the role.

To remove a role assigned to an activity, the activity must have a resource assignment. In the Resources tab of Activity Details, double-click the Role cell for the role you want to remove. (Add the Role column if it is not included in the tab.) Click the Clear button in the Select Role dialog box.

Assign resources to activities by role   At least one role must be assigned to activities to assign resources by role. Click Assign by Role; the Assign Resources by Role dialog box lists the roles assigned to the selected activity. The resources who can fulfill each role are listed below it. Select the resources you want to assign. Click the Select button, then click the Close button.

Once you assign a resource or role and specify the budgeted units anticipated for its use on activities, you can use Activity or Resource Usage Spreadsheets and Profiles to track its use as the project progresses.

To analyze role use per time-period or by selected role, include a Role Usage Profile in the bottom portion of your layout.
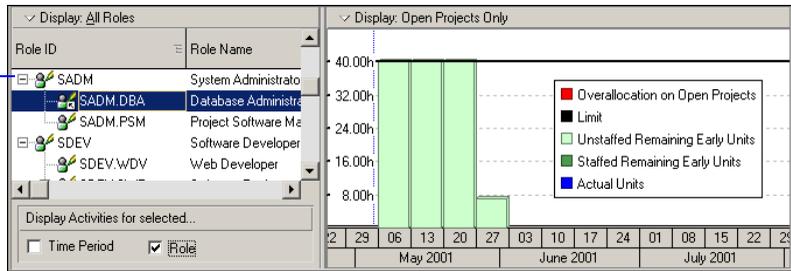
This Activity Usage Spreadsheet is organized by resource, so you can see the weekly spread of resource use each month over the course of each activity's duration.

Choosing the Rate Source and Rate Type for an Assignment

Up to five price/unit rates may be defined for each resource and role in the database. When both a resource and a role share an assignment on the same activity, you can choose to use the rate of the resource or role to calculate costs, or enter a custom rate. If you choose to use the rate of the resource or role, you can select which price/unit rate associated with the resource or role you want to use to calculate costs for the assignment.

Choose Project, Activities. Select the activity that contains the resource and role assignment. Display Activity Details, then click the Resources tab. Customize the tab to display the Rate Source, Rate Type, and Price/Unit columns. Double-click in the Rate Source field and choose Resource, Role, or Override.

When a resource and role share an assignment on the same activity, you can choose to always use the rate of the resource or the rate of the role in the Calculations tab of User Preferences.

Choose Resource to calculate costs for the assignment based on the resource's price/unit value. Choose Role to calculate costs for the assignment based on the role's price/unit value. Choose Override if you want to enter a custom rate in the Price/Unit column. If you choose Resource or Role, select the rate type you want to use to calculate costs for the assignment in the Rate Type field. (If rates have been defined for the resource or role, some or all of the rate types have an associated price/unit value.) When you select the rate type, the Price/Unit field displays the price/unit value defined for the resource or role.

If only a resource is assigned to an activity, the rate source must be Resource or Override. If only a role is assigned to an activity, the rate source must be Role or Override.

Assigning Resource Curves to Resource or Role Assignments

For information on creating custom resource curves, refer to "Defining Custom Resource Curves" on page 135.

You can assign a resource distribution curve to any resource or role assignment on activities with a duration type of Fixed Duration and Units/Time or Fixed Duration & Units. Resource usage and costs are distributed evenly during an activity unless you specify nonlinear distribution using custom curves (or manually enter future period values as described in the next section).

> *You can also assign a resource curve in the Resources tab in Activity Details.*

To learn how to manually plan future period resource/role distribution, refer to the next section, "Manually Planning Future Period Assignments" on page 235."

Choose Project, Resource Assignments. Select the resource/role assignment to which you want to assign a resource curve. To display the Curve column, click the Display Options bar, then choose Columns, Customize. Select Curve from the General group and add it to the Selected Options list.

Double-click in the Curve column, select the curve you want to assign to the resource/role assignment, then click Select.
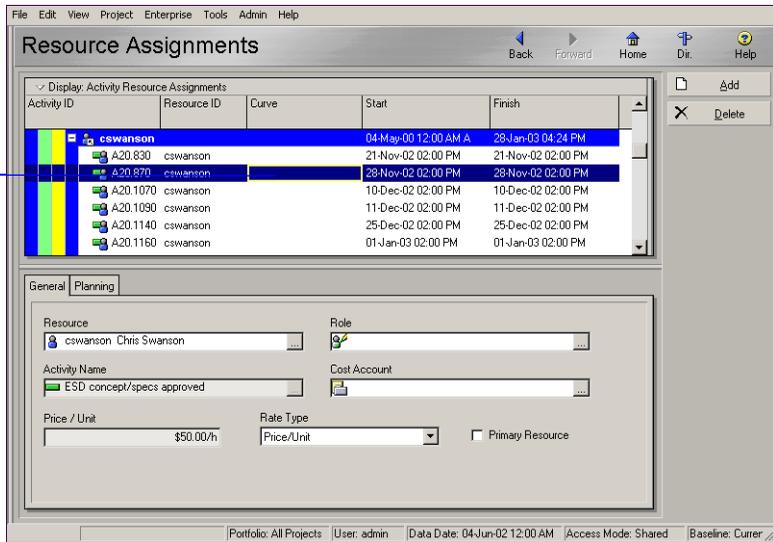
Remove a resource curve from a resource or role assignment Choose Project, Resource Assignments. Select the resource/role assignment from which you want to remove the resource curve. Click in the Curve column, then click Clear in the Select Curve dialog box. You can also remove curves from the Resources tab in Activity Details.

Manually Planning Future Period Assignments

Your project's may contain activities for which you know work will be performed sporadically and at varying levels of effort. For these activities, it is difficult to budget a resource/role assignment's work on an activity using pre-defined or custom resource curves because the work you plan to perform per period on an activity may not be fully reflected by the curve. As a result, performance against the project plan cannot be accurately measured.

For example, assume an activity has an original duration of 28 days and budgeted units of 80 hours. For this activity, you know that the actual work will not be spread evenly across the duration of the activity; rather, the budgeted units will be spread as follows:

Week 1	Week 2	Week 3	Week 4
10h	30h	15h	25h

After planning future period resource allocation, you can create a baseline from the project plan. As the current project schedule progresses and you apply actuals, you can track how the project is performing against plan by comparing the current project's budgeted future periods to the current project's actuals.

Assigning a pre-defined or custom resource curve to the resource/role assignment may not reflect the actual work being performed on the activity at any given time. To achieve the most precise resource/role distribution plan, you can manually enter the budgeted resource/role allocation per assignment in the timescale unit you choose (days, weeks, months, quarters, years, or financial periods).

As the project progresses, if work on an assignment is not proceeding according to plan, you can manually update the remaining units for an assignment's future periods, enabling you to measure the remaining work for an assignment without changing the original plan. You can manually modify an assignment's budgeted past and future periods at any time, even if the activity associated with the assignment is in progress.

When you manually enter future period bucket values for an assignment, the module automatically identifies the future period values as a MANUAL resource curve.

There are many factors to consider when manually planning future period resource distribution. For a more detailed list of guidelines and considerations, refer to the "Future Period Bucket Planning FAQ" topic in the Project Management module Help.

Guidelines When manually planning future period assignment buckets, adhere to the following guidelines:

You CAN enter future period values for . . .	You CANNOT enter future period values for . . .
. . . assignments in the Resource Usage Spreadsheet of the Resource Assignments and Activities windows.	
. . . all resource/role assignments.	
. . . Budgeted Units and Remaining (Early) Units.	. . . any other field.
. . . assignments to Task Dependent, Resource Dependent, Level of Effort, and WBS Summary activities.	. . . assignments to milestone activities.
. . . assignments to activities with duration types of Fixed Duration & Units and Fixed Duration & Units/Time.	. . . assignments to activities with duration types of Fixed Units and Fixed Units/Time.

Additionally, if the project-level setting 'Link Budget and At Completion for not started activities' is marked (Project Details, Calculations tab), the total planned values of the Budgeted Units and Remaining (Early) Units for the assignment will always be equal for not started activities. For example, when you enter a value for a future period in the Budgeted Units field, the Remaining (Early) Units field is automatically populated with the same value; the reverse is also true. If this setting is not marked, you can enter different values for the same future period in the Budgeted Units and Remaining (Early) Units fields; in this case, the total values for each field are calculated independently for the assignment.

Once an activity is in progress, the Budgeted Units and Remaining (Early) Units fields are automatically unlinked.

When choosing the spreadsheet fields to display, you can also display Actual Units to compare the completed work against the budgeted and remaining work.

Display spreadsheet fields for future period bucket planning in the Resource Usage Spreadsheet Display the Resource Usage Spreadsheet in either the Activities window or the Resource Assignments window. To display the Budgeted Units and Remaining (Early) Units fields in the Resource Usage Spreadsheet, click the Display Options bar and choose Spreadsheet Fields, Customize. Move the Budgeted Units and Remaining (Early) Units fields to the Selected Options list and, if desired, remove all other fields from the Selected Options list. Click Apply, OK.

To sort the display in an alphabetical list, click the Available Options bar and choose Group and Sort By, List.
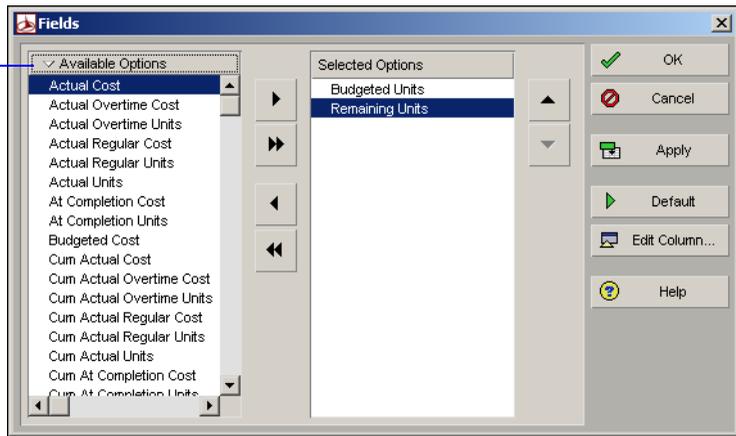
Create a future period bucket planning layout You can budget future period resource/role assignments in any type of layout in the Resource Assignments and Activities windows. Here are some helpful hints to consider before you begin:

For detailed information on creating layouts, modifying columns, and adjusting the timescale, refer to "Customizing Layouts" on page 445.

■   Create or open a layout that enables you to easily identify resources, the activities to which they are assigned, and the activities' associated projects (because the same activity name may appear in different projects). Refer to the following image for sample layouts.

■   Click the Layout Options bar and choose Columns, Customize. Move the Curve, Budgeted Units, and Remaining (Early) Units columns to the Selected Options list, then modify the remaining columns as desired. Click Apply, OK. By displaying the Curve column, you can determine which assignments already have an assigned pre-defined or custom curve, or a defined manual curve. When you manually enter or edit a value in a future period bucket for an assignment, the module automatically enters a value of Manual in the assignment's associated Curve column.

For assignments that do not have a defined total Budgeted Units or Remaining (Early) Units value, it is useful to display the Budgeted Units and Remaining (Early) Units columns. When you display these columns, you can enter or edit an assignment's total budgeted or remaining units to spread the units evenly over the duration of the assignment, then manually modify the future period distribution as necessary.

■   Adjust the timescale in the Resource Usage Spreadsheet to reflect the planning periods in which you typically plan future resource distribution. For example, if you plan your work in daily buckets, adjust the timescale to Week/Day and enter hourly planning unit values.

If you track past period actuals per financial period and plan to report performance against manual future period values, you should enter future period planning values in financial period timescale intervals. You can adjust the timescale to reflect your predefined financial periods.

For detailed information on displaying the desired data, refer to "Grouping, Sorting, and Filtering Data" **on page 435.**

■   If you are planning future period resource distribution for a project that has already started, you may want to apply a filter to display only the activities you want to plan, such as activities that don't have an actual duration or that have a planned start after the current date or data date. Alternatively, if a project has already started and you want to update the remaining units for activities that are in progress, you could apply a filter to display only activities that have an Actual Start date and do not have an Actual Finish date.

If you use the Resource Usage Spreadsheet in the Activities window to plan future period resource distribution, you can only enter values for open projects.

Spreadsheet fields displayed for Budgeted Units and Remaining Early Units.

Change the timescale intervals to reflect your planning, updating, and reporting periods.

Layout grouped and sorted by project and by resource.

List layout displaying columns for Project, Resource Name, Curve, Planned Start, and Planned Finish. Use a list layout to sort the list in ascending or descending order for a specific column by clicking on a column heading.

When you edit a future period value for an assignment, the Curve column automatically displays a value of Manual, even if a pre-defined or custom curve was previously

Editable future period assignment values are displayed in white cells; non-editable values are displayed in gray cells.

Manually enter future period values You can manually enter future period assignment values per bucket for labor, non-labor, and material resource assignments, as well as for role assignments. After you display the Resource Usage Spreadsheet, create a suitable future period bucket planning layout, and display editable spreadsheet fields, enter or edit the Budgeted Units and/or the Remaining (Early) Units for each assignment bucket for the original or remaining duration of the activity.

If desired, you can apply a resource curve to an assignment before you manually enter future period values for the assignment. For example, if the assignment you want to manually plan has a planned resource distribution that is similar to a defined resource curve's distribution, you can apply the resource curve to the assignment. When you apply the resource curve, future period values are spread across the duration of the activity according to the resource curve distribution; you can then manually modify the future period values as necessary. Once you manually modify future period values, the resource curve you assigned is automatically removed from the assignment.

> *Once an activity is in progress and changes occur to the project plan, you can manually edit the activity assignment's past and future period Budgeted Units and future period Remaining (Early) Units to reflect changes to the original plan.*

Before entering values in future periods, consider the following:

■ The values you should enter in future period buckets are dependent on the duration of your planning periods (buckets), the timescale you choose, and user preference settings.

■ The values you enter in the Budgeted Units and Remaining Units fields are converted to the Unit/Time specified in the User Preferences, Time Units tab. For example, if the Unit/Time user preference is set to Hour and you enter 1d, the value is converted to 8h. To avoid planning mistakes, you should set the Unit/Time user preference to the same time unit you use to plan your work. For example, if you plan your work in hours, set the Unit/Time to Hours.

■ You must have the 'Edit Future Periods' project privilege to manually enter future period data.

Assigning Activity Codes and Adding Expenses

In the Activities window, select the activity to which you want to assign a code and value. Click the Codes tab in Activity Details.

For information about establishing activity codes and values, see **"Establishing Activity Codes" on page 201.**
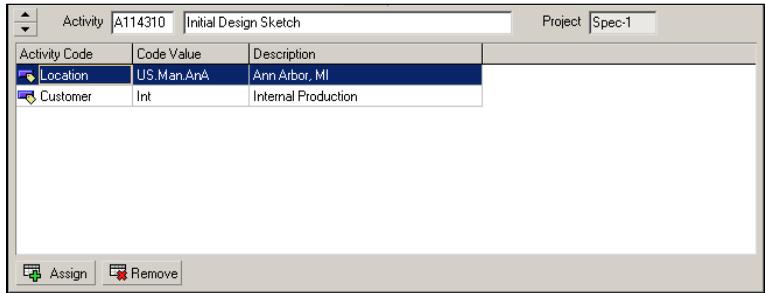
Click Assign. Select the activity code value you want to assign. To assign multiple codes and values, hold down the Ctrl key, then click each code value you want to assign. Click the Select button, then click the Close button.

Add expenses to activities In the Activities window, select the activity to which you want to add an expense. Click the Expenses tab in Activity Details.

You can customize the columns to include other information for the expense assignments. Right-click in the Columns area of the Expenses tab and choose Customize Expense Columns.
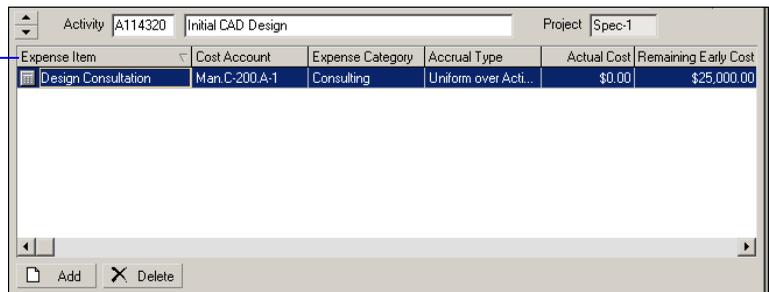
For information about setting up expenses for your projects, see **"Working with Cost Accounts and Project Expenses" on page 257.**

Click Add, then type the expense's name. Double-click the item's expense category listing, click the category you want to assign, then click the Select button. Double-click the Accrual Type cell, then select the expense's accrual type. Type the number of budgeted units you expect the selected activity to use. Type the cost of each unit. The module calculates and displays the expense's budgeted cost (budgeted units * price/unit) in the Budgeted Cost field.

To automatically calculate an expense's actual cost based on the activity's planned completion percentage, mark the Auto Compute Actuals checkbox.

To enter actual expense costs already incurred by the activity, type the cost in the Actual Cost field. Type the name of the vendor business or organization to which the expense is payable.

Viewing Activity Feedback and Posting Resource Notes

In the Activities window, select the activity whose comments you want to view. These comments are added in the Timesheets module by the primary resource for the activity. Click the Feedback tab in Activity Details. Review the notes in the Feedback from Primary Resource area.
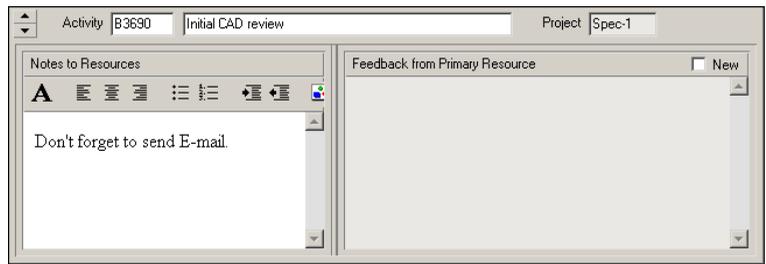
In the Notes to Resources area, type any comments to the resources who are working on the activity. The notes are then posted with the activity in the Timesheets module for the resources to read.

Assign notes to activities In the Activities window, select the activity to which you want to assign a note. Click the Notebook tab in Activity Details.
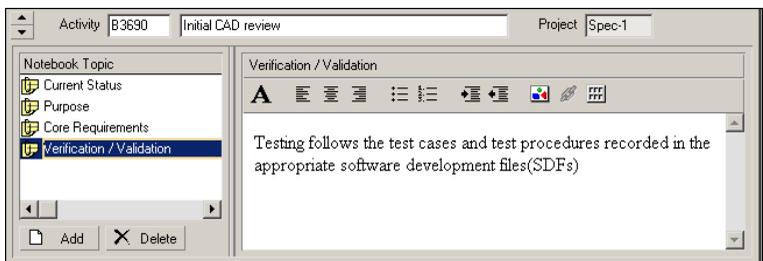
Click Add. Select the notebook topics you want to assign. These topics are predefined in the Notebook Topics tab of the Admin Categories dialog box. To make the topics accessible for assignment to projects, EPS nodes, WBS elements, and/or activities, mark the appropriate checkboxes in the Admin Categories dialog box. To assign multiple topics, hold down the Ctrl key, then click each notebook topic you want to assign. Click the Assign button.

In the Description section of the Notebook tab, type a brief description for the selected notebook topic. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other information fields (while retaining formatting), and adding hyperlinks.

Assigning Work Products and Documents

Work products and documents enable you to catalog and track all project-related documents and deliverables. This includes guidelines, procedures, standards, plans, design templates, worksheets, and all types of project deliverables. Choose Project, Work Products and Documents, to set up the documents.

For more information about work products and documents, see "Maintaining a Project's Document Library" on page 375.

Set up the categories for work products and documents by choosing Admin, Admin Categories, then clicking the Document Categories tab. Click the Document Status tab to establish the different status codes you want to use for the documents. Categories and status codes are then assigned to documents in the Work Products and Documents window.

In the Activities window, select the activity to which you want to assign a document. Click the WPs & Docs tab in Activity Details.
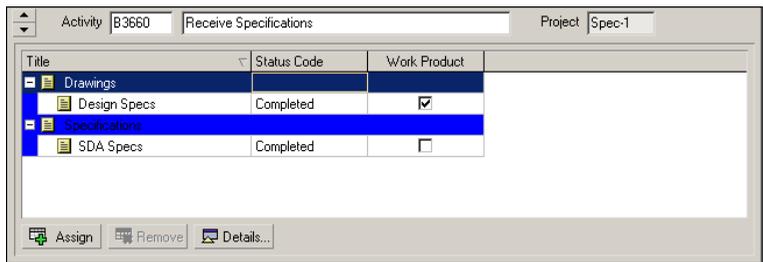
Click Assign and select the document you want to assign. To assign multiple documents, hold down the Ctrl key, then click each item. Click the Assign button, then click the Close button. Mark the checkbox for the selected document to indicate that it is a work product.

To view detailed information about and/or open a document, select the item, then click Details in the WPs & Docs tab.

Adding Steps

You can divide an activity into smaller task increments called steps and then assign weights to the steps to calculate the activity's percent complete. Weighted steps enable you to track the progress of an activity based on the number of steps completed.

The percentage value is shown, relative to the weights of the other steps. For example, three steps are assigned to an activity; the first step has a weight of 2, and the second and third steps each have a weight of 1. When you mark the first step (weight of 2) complete, the percent complete is 50. When you mark the first and second steps complete, the percent complete is 75. When all three steps are marked complete, the percent complete is 100.

For more information on creating Activity Step Templates and assigning them to activities, refer to the next section, "Creating and Assigning Activity Step Templates."

You can add steps unique to each activity. You can also create Activity Step Templates that capture a group of steps common to multiple activities, then assign the step group to activities. This section describes how to add unique steps to activities; the next section describes how to create and assign Activity Step Templates.

Add steps In the Activities window, select the activity to which you want to add a step. Click the Steps tab in Activity Details.

You may want to use weighted steps to status activities when a project consists of large activities that encompass distinct tasks.
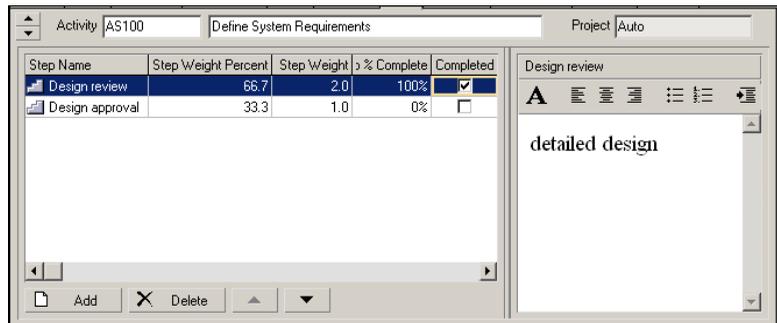
Click Add. Type the name of the new step. Type a brief description of the step for the selected activity. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other information fields (while retaining formatting), and adding hyperlinks. To move the step to an earlier stage of the activity, click the up arrow. To move the step to a later stage of the activity, click the down arrow.

To indicate that the step is complete, mark the Completed checkbox. To add columns for percent complete, weight, weight percent, and user-defined fields, right-click over the columns in the Steps tab, and choose Customize Steps Columns.

■ **Step % Complete –** Percent complete indicates progress on the step and can be used to calculate percent complete for the activity.

■ **Step Weight –** The weight of the step indicates the step's importance. The higher the value, the greater the importance. The weight can be any number between 0.0 and 999999.0 and is relative to the other steps listed for the activity.

To change the weight of a step, double-click the Step Weight column and type a new weight for the step.

■ **Step Weight Percent –** The step weight percent value is calculated based on the step weights assigned to the activity. This column is 0 percent for nonweighted steps.

■ **User-defined fields –** You can change the title of user-defined fields and use them to enter values such as finish date, start date, cost, or number of hours worked for a step. Choose Enterprise, User Defined Fields to assign and edit these titles.

Setting Options for Using Weighted Steps

You must select Physical as the percent complete type in the General tab in Activity Details to use weighted steps to calculate an activity's percent complete. The Physical % field in the Status tab of Activity Details then becomes a calculated field, which displays the percent complete based on the relative weights of the completed steps versus the incomplete steps.

In addition, you must mark the Activity Percent Complete Based on Activity Steps checkbox in the Project Details Calculations tab in the Projects window to base percent complete on weighted activity steps.

If you do not set these options, you can still edit the Step Weight and Completed fields in the Steps tab, but they will not be used in any calculations. You will also be able to edit the Physical % field in the Status tab of Activity Details.

Creating and Assigning Activity Step Templates

Your organization may have several activities that repeat within a project or across projects. For example, every time you construct a building, several specifications must be written and approved. Developing a specification is a multi-step process that never changes.

For example, the "Write Specifications" or "System Design" activity could have the following steps:

■ Submit initial spec

■ Review initial spec

■ Revise initial spec

■ Final review

■ Final revision

These steps may apply to many or all "Write Specifications" activities in a project or across all projects. Rather than manually inputting these steps into each "Write Specifications" activity, you can create an activity step template containing these steps and assign the template to each applicable activity at once. You can create activity step templates manually or convert existing step(s) into a template.

For more information on weighted steps, refer to the previous section, "Adding Steps."

Creating activity step templates manually Choose Enterprise, Activity Step Templates. In the top grid of the Activity Step Templates dialog, click Add. Type a name in the Step Template Name field (e.g., Specification steps). To add steps to the template, click Add in the bottom grid. Type a Step Name and a Step Weight. The Step Weight is used to calculate the progress of an activity; the greater the weight of the step, the more progress has been made on the activity when you mark a step complete. You can add an unlimited number steps to a template.

You can customize the bottom grid to display user-defined field columns in which you can add step data such as dates and costs. Any user-defined field data you enter in an activity step template is saved as part of the template.

You can customize these columns to display user-defined fields.
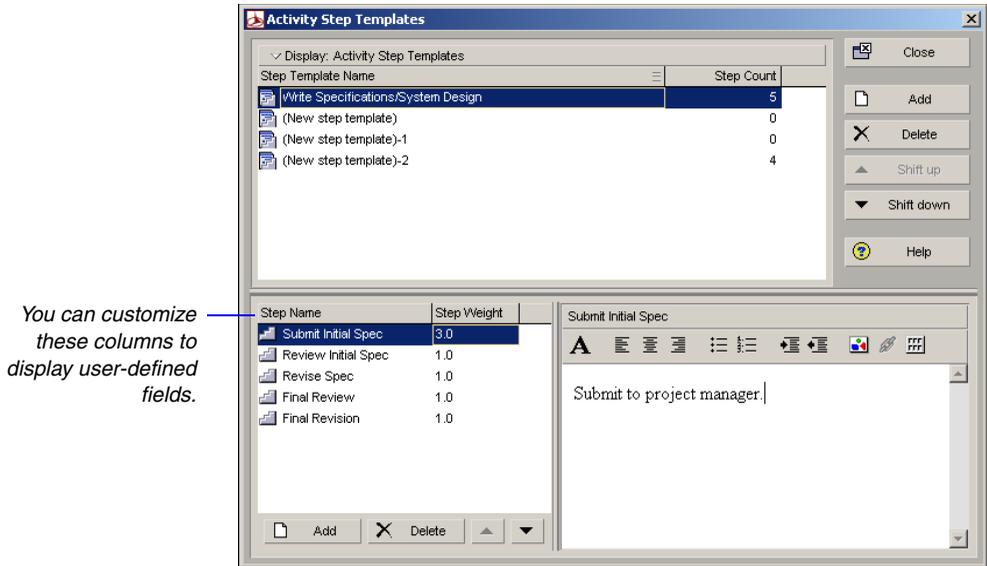
Converting existing step(s) into an activity step template In the Activity Table, select the activity that contains the step(s) you want to convert to a template. In the Steps tab of Activity Details, ctrl-click to select the desired step(s), then right-click on the selected step(s) and choose Create Template. Enter a name for the template when prompted. The step(s) and their associated name, description, and weight are added to the new template. You can also choose to add the steps' UDFs to the template.

Highlight the steps to include in the template, then right-click and choose Create Template.

Mark to add UDFs assigned to the step(s) to the step template.
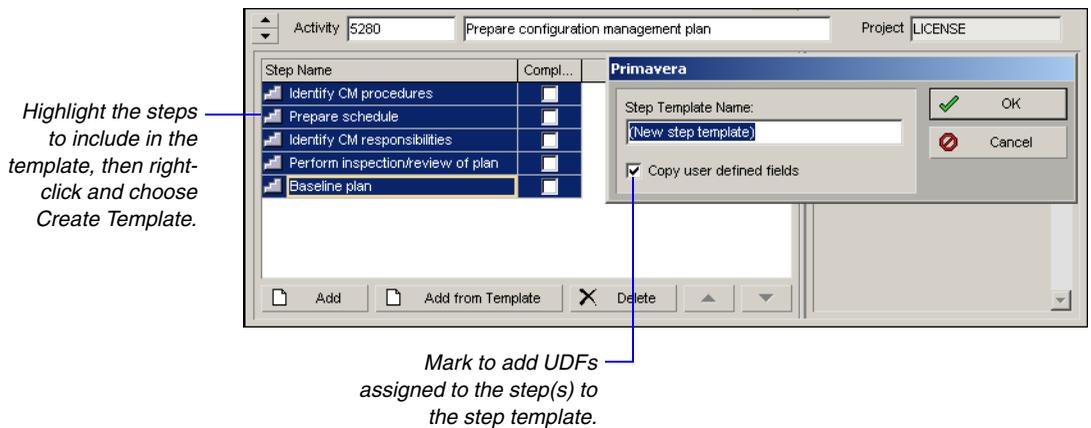
The module automatically updates step UDF data in activity step templates when a step UDF is added, deleted, or modified in the User Defined Fields dialog box.

Assigning activity step templates to activities You can assign an activity step template to activities separately or to several activities at once. To assign a template to one activity, select the activity in the Activity Table. Click the Layout Options bar and choose Show on Bottom, Activity Details. In the Steps tab, click Add From Template. In the Assign Activity Step Templates dialog, select the template you want to add and click the Select icon (+ symbol). The Steps tab is automatically populated with the steps listed in the template.
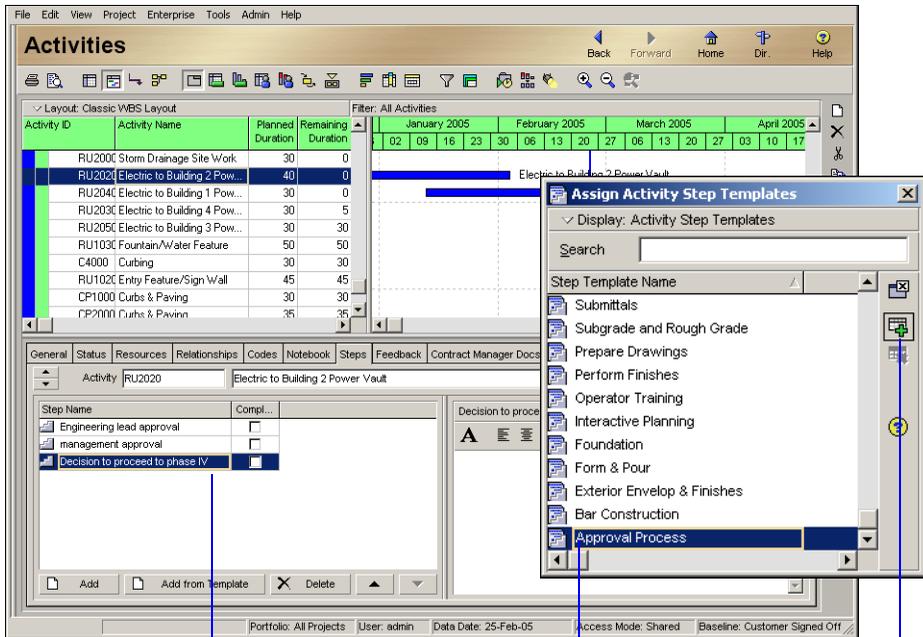
Click to add steps from an activity step template, then select the template.

Click to add a template to more than one activity (the activities must be selected in the Activity Table).

You can also assign an activity step template to multiple activities at once. In the Activity Table, Ctrl-click each activity to which you want to assign a template. From the Command Bar, click Steps to launch the Assign Activity Step Templates dialog. Choose the template you want to add to the selected activities, then click Assign.

Viewing Activity Summaries

In the Activities window, select the activity whose summary information you want to view. Click the Summary tab in Activity Details.

	Actual	Remaining Early	% Complete	At Completion	Complete Variance
Labor Units	40.00h	90.00h	30.77%	130.00h	-40.00h
Nonlabor Units	0.00h	0.00h	0%	0.00h	0.00h
Duration	114.00d	5.00d	50%	119.00d	-109.00d

Activity B3680 — Initial Design Sketch — Project Spec-1

○ Display units   ○ Display cost   ○ Display dates

To view summary information about the activity's units, choose Display Units. To view summary information about the activity's costs, choose Display Cost. To view all of the activity's start and finish dates, choose Display Dates.

Viewing Contract Manager Documents

Contract Manager documents are documents from the Contract
Manager module (formerly known as Expedition) that are associated
with project activities. In the Activities window, select an activity that
has a Contract Manager document associated with it. Click the Contract
Manager Docs tab in Activity Details.
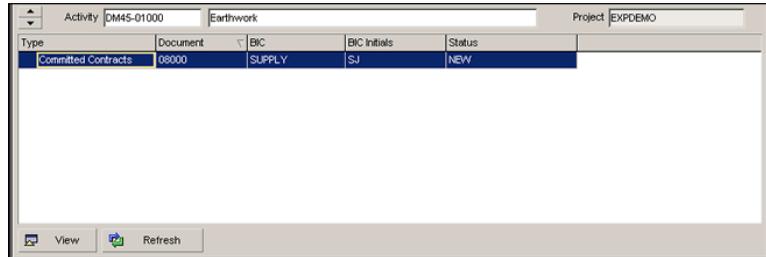
To view a document, select the document, then click View. For Contract
Manager version 8.5 (Expedition), the document displays in Contract
Manager Print Preview. For Contract Manager version 9.0 and higher,
the document displays in your default Web browser.

*You can view Contract Manager documents only if your
project is linked to a project in the Contract Manager
module. Refer to "Linking the Project Management and
Contract Manager Modules" on page 529 for more
information. You must access the Contract Manager module
to associate a document with a project activity.*

Using Global Change

The Global Change feature enables you to make changes to all activities, or a selected group of activities, at one time. You can use Global Change to edit existing values, assign new values, or delete a group of activities from your project.

You can create global change specifications at varying levels, for activities, activity resource assignments, or project expenses. For example, create a statement to assign resource assignments to a group of activities. In addition, you can save global change definitions you define.

When you run Global Change, data exclusively locked by another user does not change. To obtain exclusive access, before opening the project, choose Exclusive in the Access Mode section of the Open Project dialog box. Choose File, Open.

You must have access to the activities to which you want to make global changes. If your security profile does not enable you to access these activities, you will not be able to save your changes.

Change data globally Use the Global Change dialog box to create, edit, delete, or run global change specifications. Choose Project, Activities, then choose Tools, Global Change. Select a global change and click Apply Change. You can view the data changes in the Global Change Report window. To accept the changes displayed in the Global Change Report window, click Commit Changes; to cancel the global change and return the data to its original state, click Cancel Changes.

*Click and select a user name to make the
specification available to that user.*

*Choose to make the
selected global
change specification
available globally or
only to specified
users.*
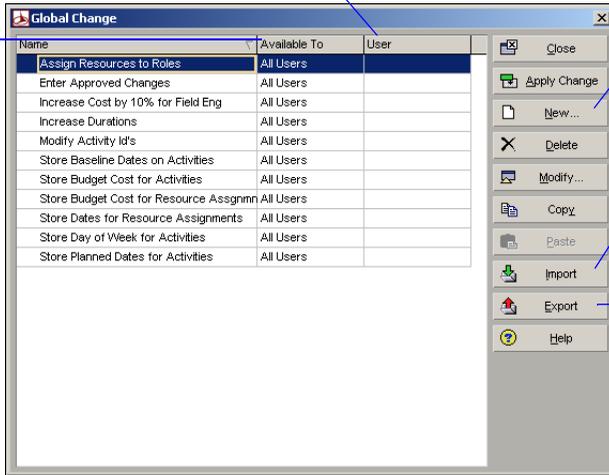
*Click New to globally
change activities,
activity resource
assignments, or
project expenses.*

*Click Import to select
a PCF file to import
into another project.*

*Click Export to save
a PCF file to
another location.*

Add or modify a global change statement Choose Tools, Global
Change. Select the subject area for the global change statement. To
select parameters for expressions that can affect all activity information,
choose Activities. To select parameters for expressions that can affect an
activity's resource information, choose Activity Resource Assignments.
Choose Project Expenses to select parameters for expressions that can
affect an activity's expense information.

Define If, Then, and Else statements to specify the data you want to
change. *If* statements control which project data changes. *Then* and *Else*
statements specify the changes to be made. You can define an unlimited
number of If, Then, or Else statements. All global change specifications
require at least one Then statement. If statements are optional. The
module applies a Then statement with no If statement to all activities in
the current filter. Click the If, Then, or Else section to select it, then
click Add to add a statement.

*Changing some parameters of an If, Then, or Else
statement may affect the operators and criteria available in
the statement.*

*You can create
user-defined
parameters.*

*Click to
define
additional
If, Then,
and Else
statements.*
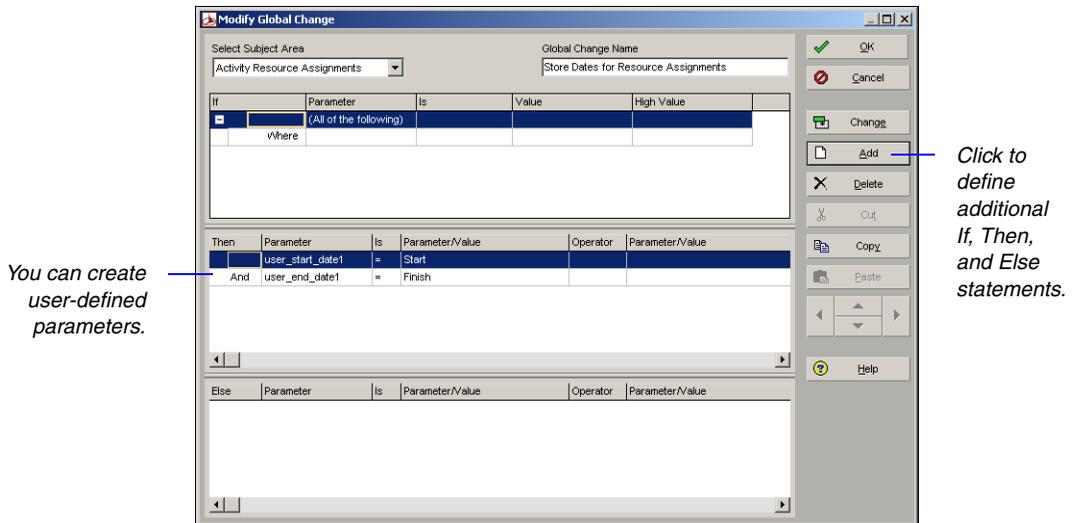
Copy and paste a specification Choose Tools, Global Change.
Select the specification you want to copy, then click Copy. Click Paste.
The new specification is placed at the bottom of the list of
specifications.

Cut, copy, or paste a statement Choose Tools, Global Change.
Select the global change specification you want to edit, then click
Modify. Select the statement you want to cut or copy, then click either
Cut or Copy. Click the section into which you want to paste the
statement, and click Paste. The new statement is placed at the bottom of
the list of statements.

> *You cannot paste statements from the If section of the
> Global Change dialog box into the Then or Else sections;
> however, you can cut or copy and paste between the Then
> and Else sections.*

Store new values in user-defined fields To define user fields,
choose Enterprise, User Defined Fields. In the Modify Global Change
dialog box, use the custom user fields in a global change statement to
store custom values in a project database. For example, you can create a
Then statement assigning a value of COMPLETE to the text-type user
field defined for the Activities subject area called Production for
Development activities. You can display Production as a column in the
Activity Table to view the new values.

Changing the subject area of a specification will clear all existing If, Then, and Else statements.
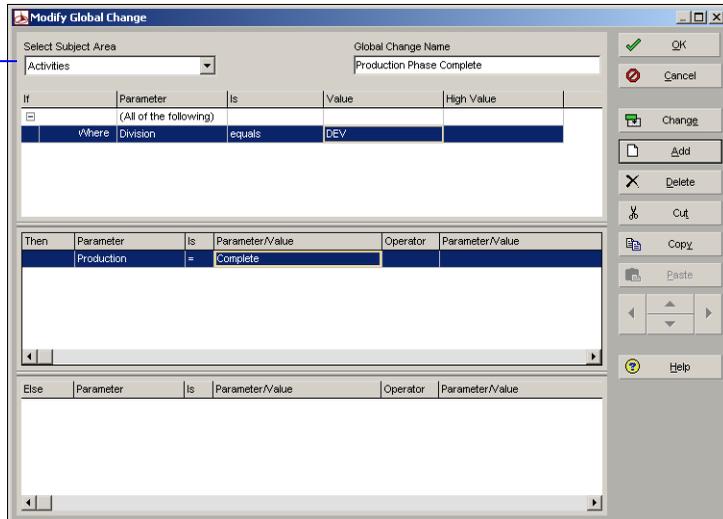
Combine text fields You can use Global Change to modify text data items such as activity IDs and names, and activity codes, by linking two text fields using the ampersand (&) operator. This is called concatenation. The following statement adds the location activity code value to the Activity ID field, if there is a value assigned to the activity:

   Then: Activity ID = Activity ID & Location

Use a dash (-) or underscore (_) to represent spaces when concatenating data.

For more information on the valid arithmetic operators and calculations available in Global Change, along with examples of date arithmetic, see the Help.

Use arithmetic with Global Change You can use arithmetic equations to change numeric data such as quantities, costs, and durations. Use addition, subtraction, multiplication, and division to calculate new values. Click the Operator column to list the various operator symbols. Join text strings with an ampersand symbol (&).

Arithmetic operators can link two data items, a data item and a number, or two numbers that you enter. Use arithmetic operators in Then and Else statements to calculate new values for a data item. The module does not use arithmetic operations in If statements, only comparisons.

Working with Cost Accounts and Project Expenses

Cost accounts enable you to track activity costs and earned value throughout the project life cycle. Set the default cost account at the project level so that it is automatically assigned to the project's activities. Cost accounts are established in a hierarchy available to all projects in the enterprise project structure (EPS).

Expenses are nonresource costs associated with a project and assigned to a project's activities. They are typically one-time expenditures for nonreusable items. Examples of expenses include facilities, travel, consulting, and training.

Read this chapter to learn how to set up cost accounts and add expenses.

Cost Account and Expense Overview

You can create cost accounts that you can assign to activities in any project. Cost accounts are hierarchical and they enable you to track activity costs and earned value according to your organization's specific cost account codes.

You can assign a default parent cost account for each project in the Projects window, then assign the child cost accounts when associating expenses with activities.
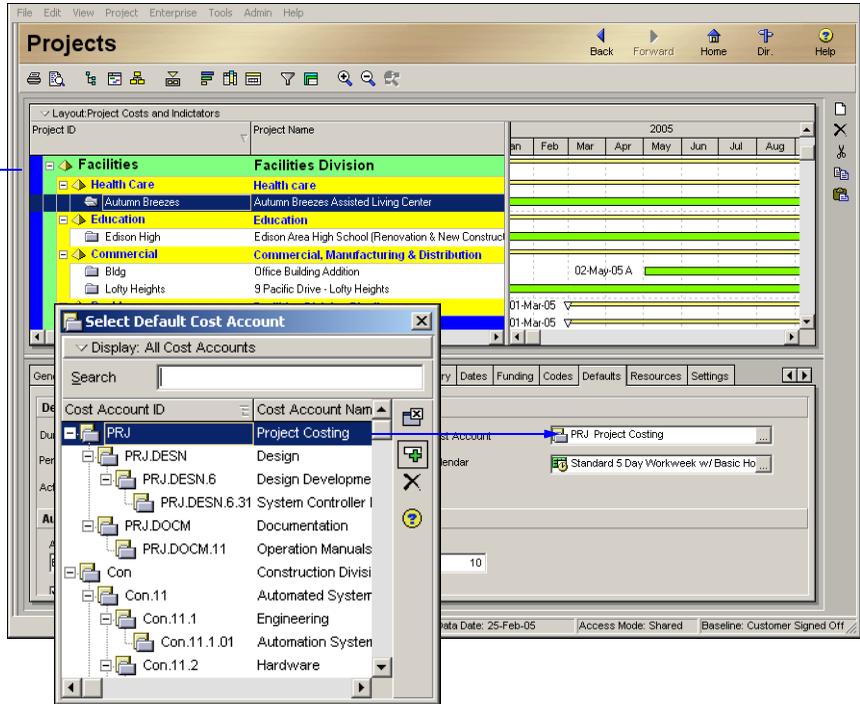
You can also add expenses, assign expense categories to them, and specify whether an expense accrues at the start or end of an activity or uniformly over its duration. Each expense has a budgeted actual, remaining, and at completion value for both cost and units.

Expenses are not the same as resources. Resources can be time-based and generally extend across multiple activities and/or multiple projects. Examples of resources are personnel and equipment. Unlike resources, expenses are project-specific and they are not time-based. The module does not include expenses when leveling resources.

Setting Up a Cost Account Structure

Set up a cost account structure and assign codes to activities and/or resources. Use the cost account structure to track the amount of work accomplished against the amount of money spent.

Create a cost account hierarchy   Choose Enterprise, Cost Accounts. Click the Cost Account ID column label to display the cost accounts hierarchy. An outline symbol in the Cost Account ID column label indicates a hierarchy display.

Select the cost account immediately above and at the same level as the cost account you want to add, then click Add. Type the cost account's ID and name. The cost account ID and name should identify a project component, such as engineering, hardware, or research. Create cost accounts beneath each main component to delineate the component's parts, such as coding and installation for hardware.

In the Cost Account Description area provide an optional, brief summary of the cost account. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

When you indent, or create a lower-level cost account, the module automatically prefixes the new account with the higher level's ID.
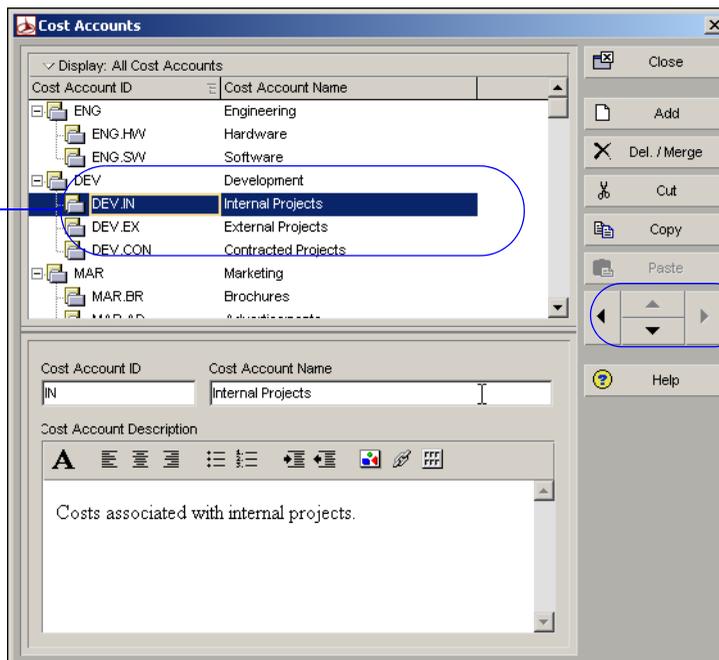
Use these arrows to indent/ outdent a value in the cost account hierarchy and to move a selected value up or down in the list.

Set the project default cost account Specify a default cost account that will be used for resources assigned to activities and project expenses in the selected project. Choose Enterprise, Projects, to open the Projects window. Display Project Details by clicking the Display Options bar and choosing Show on Bottom, Project Details. Click the Defaults tab, select a project in the upper layout, then click the Browse button in the Cost Account field. Select the default cost account, then click the Select button.
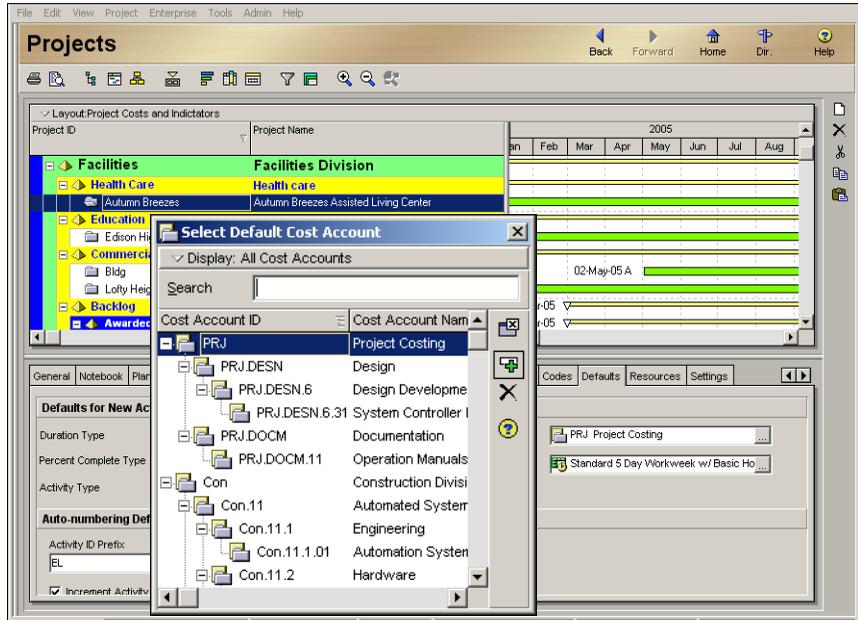
> *The module only uses your default cost account for new resource assignments to activities and new project expenses. Changing this setting does not affect existing resource assignments to activities or existing project expenses.*

Edit a cost account Choose Enterprise, Cost Accounts. Make sure the cost accounts hierarchy is displayed; an outline symbol in the Cost Account ID column label indicates a hierarchy display. Select the cost account you want to edit. Type a new cost account ID and name. To change the cost account's position in the cost accounts hierarchy, click the appropriate arrow buttons.

> *If you change a cost account's ID or name, the change applies to all activity assignments.*

Delete a cost account Choose Enterprise, Cost Accounts. Select the cost account you want to delete, then click Del./Merge. If the cost account is assigned to activities or projects, the Cost Account in Use dialog box is displayed.
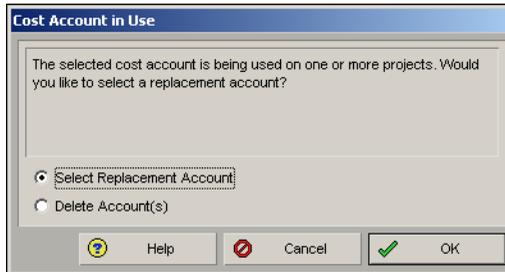
To delete the cost account and specify a replacement cost account, choose Select Replacement Account, click OK, then select a replacement account. To delete the cost account without specifying a replacement cost account, choose Delete Account(s), then click OK.

Copy and paste cost accounts Choose Enterprise, Cost Accounts. Make sure the cost accounts hierarchy is displayed; an outline symbol in the Cost Account ID column label indicates a hierarchy display. Select the cost account you want to copy, then click Copy. Select the cost account to which you want to paste the copied account, then click Paste.

The copied cost account displays below the selected cost account in the hierarchy, and includes any lower-level cost accounts in the copied cost account.
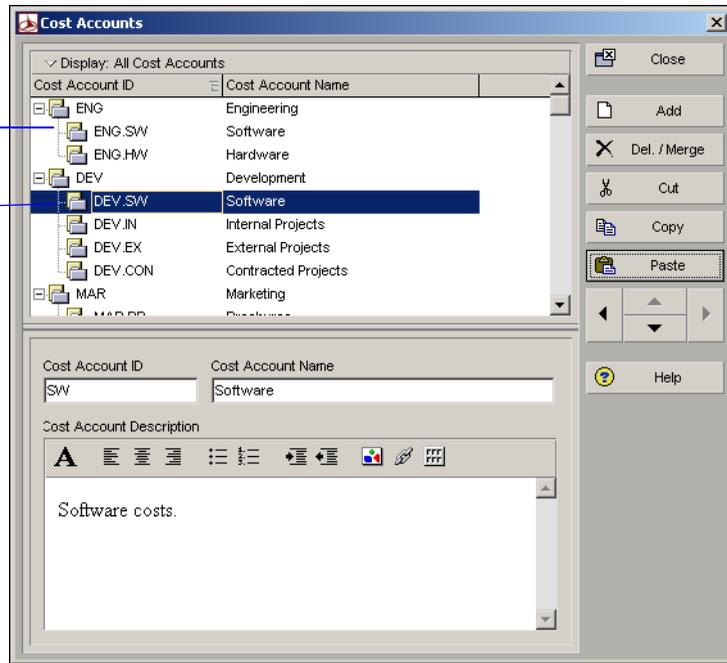
> You cannot copy a cost account's activity and project assignments.

Cut and paste cost accounts Choose Enterprise, Cost Accounts. Make sure the cost accounts hierarchy is displayed; an outline symbol in the Cost Account ID column label indicates a hierarchy display. Select the cost account you want to cut and paste, then click Cut. Select the cost account to which you want to move the cut account, then click Paste.

> When you cut and paste a cost account, the module maintains the account's activity and project assignments.

Adding Expenses and Entering Cost Information

Use the Project Expenses window to create, view, and edit expenses and related cost information for the open project. You can assign a cost account and corresponding work breakdown structure (WBS) code so you can identify the project component associated with the expense, and the area of work with which it is associated. The Project Expenses window is displayed when you choose Project, Expenses. To include Project Expense Details at the bottom of the Project Expenses window, click the Display Options bar and choose Expense Details. (The box next to Expense Details should be marked.)
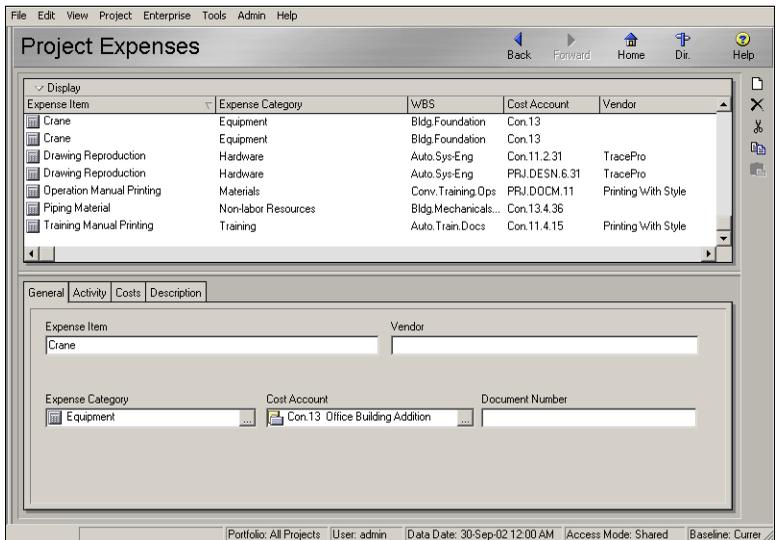
Add expenses   Choose Project, Expenses. Click Add. Select the activity that incurs the expense, then click the Select button. Group the activities in the Select Activity dialog box so you can easily find the activity.

Click the General, Activity, Costs, and Description tabs, and enter the expense's information. For an explanation of the fields on these tabs, refer to "Defining Expense Details" on page 266.

Enter cost information for expenses Choose Project, Expenses. Select the expense whose cost information you want to enter, then click the Costs tab. Type the number of units you expect the expense's assigned activity to use, then supply the price for each unit. The module calculates and displays the budgeted cost of the selected expense (budgeted units ∗ price/unit) in the Budgeted Cost field.

To automatically calculate an expense's actual cost based on the activity's completion percentage, mark the Auto Compute Actuals checkbox. The module automatically updates the actual/remaining units when project actuals are applied. This setting assumes that all work for the activity proceeds according to plan.

Enter an expense accrual type Choose Project, Expenses. Select the expense whose accrual type you want to enter, then click the Activity tab.

Select one of the following accrual types:

■ **Start of Activity**, to accrue the entire expense on the date the activity begins

■ **End of Activity**, to accrue the entire expense on the date the activity ends

■ **Uniform Over Activity**, to evenly distribute the expense over the course of the activity's duration

To set up expense categories, choose Admin, Admin Categories, then click the Expense Categories tab.

Assign an expense category Choose Project, Expenses. Select the expense to which you want to assign an expense category. Expense categories enable you to classify the type of cost and can be used to group, sort, filter, and report the expense and cost information for your projects. Click the General tab, then click the Browse button in the Expense Category field. Select the category you want to assign, then click the Select button.
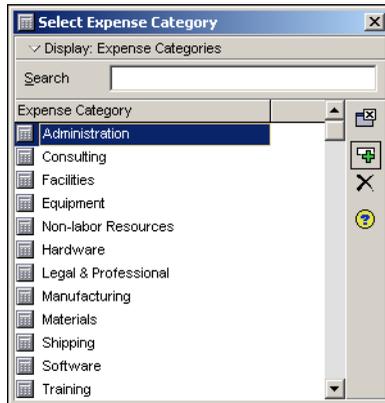
Change an expense assignment Choose Project, Expenses. Select the expense you want to reassign, then click the Activity tab. Click the Browse button in the Activity Name field. Select the activity to which you want to reassign the expense, then click the Select button.
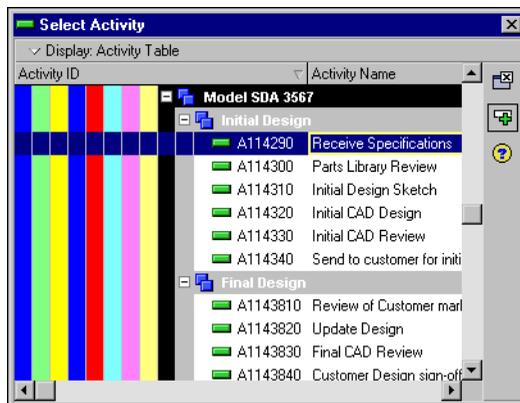
Defining Expense Details

Use Expense Details to view and edit detailed information about the selected expense item. Expense Details appear in the Project Expenses window when you choose Expense Details from the Display Options bar.

General information Use the General tab to define general information for the selected expense item, such as the item name and category. You can also specify the item's vendor, cost account, and document number.

The cost account assigned to the activity that incurs the selected expense

The name of the business or organization to which the selected expense is payable

The project administrator defines expense categories in the Admin Categories dialog box.

Expense Item	Vendor
Design Consultation	

Expense Category	Cost Account	Document Number
Consulting	Man.C-200.A-1 Design Consult	5652-3348

The purchase order or invoice number for the selected expense

Activity information Use the Activity tab to change the selected expense item's activity assignment and specify the expense item's accrual type. You can also view the item's activity assignment according to WBS element, activity status, activity start and finish dates, and primary resource.

The ID and name of the activity that incurs the selected expense

The code for the WBS element that contains the selected expense's assigned activity

Activity Name
B3690 Initial CAD review

WBS	Accrual Type	Activity Status
Spec-1.NPD&M.PT.FSGD.102.ID	Uniform over Activity	Completed

Activity Start	Activity Finish	Primary Resource
09-Feb-00	10-Feb-00	Andy Jackson

The rate at which the selected expense accrues

Costs   Use the Costs tab to specify cost amounts for the selected expense item, including price/unit, budgeted cost, actual cost, and remaining cost. You can also indicate if you want to calculate an expense item's actual cost according to activity completion percentage.

Type a value to quantify the expense. For example, type "lbs" for pounds.

Budgeted Units	Actual Units	Remaining Units	At Completion Units
1.00	1.00	0.00	1.00

Price/Unit	Unit of Measure
$50,000.00	

Budgeted Cost	Actual Cost	Remaining Cost	At Completion Cost
$50,000.00	$50,000.00	$0.00	$50,000.00

Expense % Complete	
100%	☐ Auto Compute Actuals

Mark to indicate whether the actual and remaining units for the expense are computed automatically using the budgeted cost and the activity's schedule percent complete.

Description   Use the Description tab to enter a description of the selected expense item. You can type a new description. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

Expense Description

A ▤ ▤ ▤   ☰ ☰   ⬛ ⬛   🖼 ⬚ ▦

Final consultation before production.

Analyzing Costs

Comparing actual costs to budgets is a simplistic approach to cost control. Determining performance using earned value is more effective. Measuring earned value involves three key indicators: planned value, earned value, and actual cost. If you track these values over time, you can see the past spending and schedule trends for the project, together with a forecast of future costs.

The variance between the planned budget and earned value amounts indicates an unfavorable schedule variance.

Customize columns in the Projects window to report earned value for all projects in the organization.
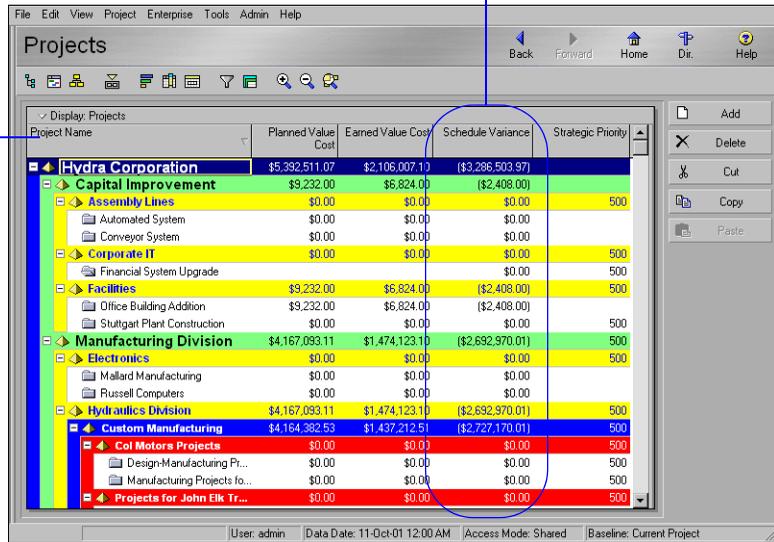
Use cost spreadsheets, profiles, and cost control reports to monitor spending. For example, the following summary report lists the expenses associated with each project and provides the total budgeted, actual, and remaining costs for each expense.

EX-01 Expense Summary By Project

Expense Item	Activity ID	Budgeted Cost	Actual Cost	Remaining Cost
Computer Equipment	A20.190	$10,000.00	$0.00	$10,000.00
Meeting Lunch	A10.10	$100.00	$200.00	$0.00
Trip expenses	A10.20	$10,000.00	$15,000.00	$0.00
Meeting Lunches	A10.40	$300.00	$500.00	$0.00
Auto Milage	A10.30	$200.00	$150.00	$0.00
Printing	A10.50	$500.00	$1,000.00	$0.00
Binding	A10.50	$100.00	$0.00	$0.00
Shipping (FedEx)	A10.60	$500.00	$0.00	$500.00
Subtotal		$21,700.00	$16,850.00	$10,500.00

Project Name   Russell Computers

Expense Item	Activity ID	Budgeted Cost	Actual Cost	Remaining Cost
Computer Equipment	A20.190	$10,000.00	$0.00	$10,000.00
Meeting Lunch	A10.10	$100.00	$200.00	$100.00
Trip expenses	A10.20	$10,000.00	$15,000.00	$0.00

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The following Activity Usage Spreadsheet pairs activity duration columns on the left with the corresponding cumulative cost information on the right. You can see the cumulative remaining expense cost for each activity per month, along with the totals for the WBS elements.

Activity ID	Original Duration	Remaining Duration	Cum Remaining Expense Cost	Nov	Dec	Jan	Feb
RC	881.92d	186.80d		$100.00	$100.00	$100.00	$100.00
PS	726.13d	31.00d		$100.00	$100.00	$100.00	$100.00
PSE	10.13d	0.00d		$100.00	$100.00	$100.00	$100.00
A10.20	9.13d	0.00d					
A10.10	1.00d	0.00d		$100.00	$100.00	$100.00	$100.00
PG	715.13d	31.00d					
A10.70	0.00d	0.00d					
A10.60	4.00d	4.00d					
A10.50	20.00d	27.00d					
A10.40	9.13d	0.00d					
A10.30	11.13d	0.00d					

Produce activity profiles to see a graphical representation of cost flow for all or selected activities in the Activities window. The histogram bars in the following example indicate quarterly expenses for multiple selected activities. Using a time-based graphic helps you gauge when and where costs are expended, and enables you to see if spending is staying within budget.
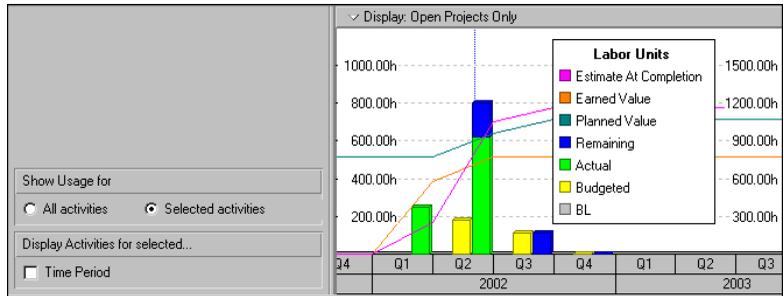
Performing Top-Down Estimation

Top-Down Estimation enables you to apply labor, nonlabor, and/or material resource units to activities in a top-down manner using assigned estimation weights.

Read this chapter to learn how to perform and apply top-down estimation to WBS elements and activities.

Performing Top-down Estimation

To perform top-down estimation, you must first assign estimation weights to work breakdown structure (WBS) elements and activities. You can assign estimation weights directly in the Project Management module or import them from the Methodology Management module using Project Architect.

For information on assigning weights to WBS elements and activities, see "Reviewing Work Breakdown Structures" on page 139.

You can limit the scope of your estimate according to work breakdown structure (WBS) element and resource. After you develop a top-down estimate, save the estimate for later reference or use, or apply the estimate to the project. If you apply an estimate, the module updates planned labor/nonlabor units for all activities and activity resource assignments that fall within the estimation scope you specify. Top-down estimations do not affect project expenses.

When performing a top-down estimation, you should first determine the total number of labor or nonlabor resource units you want to apply. You can determine this number using either prior experience on similar projects, or you can use the module's Function Point option, if you are estimating an information technology project.

Unlike labor and nonlabor resources, a top down estimate can not be applied to all material resources at once, because their units of measure differ. You must select the material resources individually.

For organizations using Primavera ProjectLink, top-down estimation is disabled for Microsoft Project (MSP)-managed projects. For more information on ProjectLink, click the Help button on any ProjectLink screen to access the help in Microsoft Project (available only if ProjectLink is installed).

Perform top-down estimations using prior experience
Choose Tools, Top Down Estimation. Choose to estimate labor or nonlabor resource units. Click the Browse button in the WBS field to select the WBS element whose activities you want to estimate, then click the Select button. To estimate activities assigned to a specific resource within the specified WBS element, such as a material type resource, click the Browse button in the Resource field, select the resource, then click the Select button.

The Total Activities field reflects the number of activities included under the specified WBS element.

To estimate the entire project, select the root WBS element.

Select an individual resource whose assigned activities you want to estimate for the selected WBS element.

Click to view detailed information about and/or apply a previously saved top-down estimate.

Choose Prior Experience. Using the value displayed in the Current Units field as a guide, type the estimate in the Estimated Units field. To apply an adjustment percentage to the estimate, mark the Apply Adjustment checkbox, then type the adjustment percentage you want to use. For example, if the estimated units are 400 and you apply an adjustment of 50%, the module will add 200 (50% of 400) to the estimated units. The Adjusted Units field will display 600 units.

To save the estimate without applying it, click Save As. Type a name and any assumptions and notes about the estimate, then click Save.

Develop top-down estimations using function points Choose Tools, Top Down Estimation. Choose to estimate labor or nonlabor resource units, or select a material resource in the Resource field. Click the Browse button in the WBS field to select the WBS element whose activities you want to estimate, then click the Select button. Choose Function Point, then click Function Points.
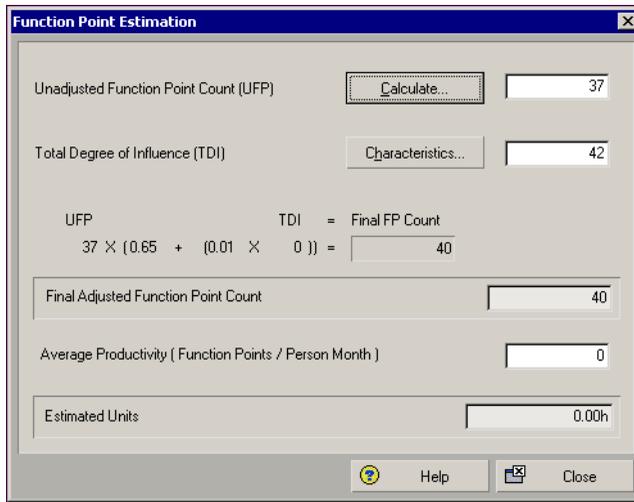
Type the Unadjusted Function Point Count (UFP) value you want to use, or click Calculate to calculate the UFP.

If you choose to calculate the UFP, in the applicable boxes type the number of low, average, and high complexity files and transactions to be developed under the WBS element and resource, if any, you are estimating.
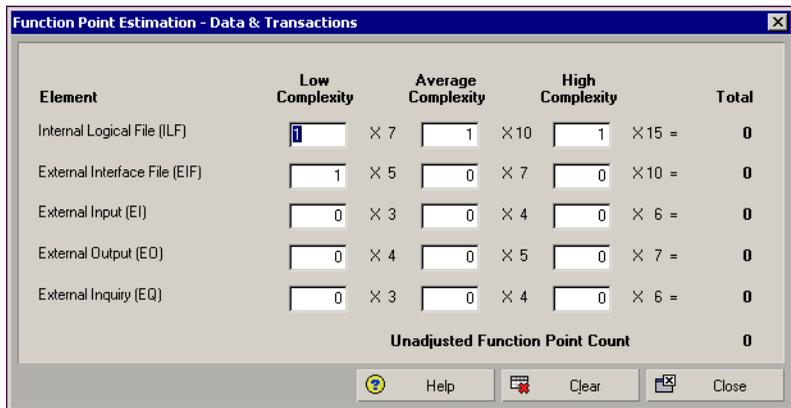
Click Close. The Function Point Estimation dialog box reappears. Your UFP value is listed in the Unadjusted Function Point Count (UFP) box.

Type the Total Degree of Influence (TDI) value you want to use, or click Characteristics to calculate the TDI. If you choose to specify characteristics, select a system characteristic, then choose the numeric value that indicates the characteristic's degree of influence on the WBS element you are estimating. A 0 indicates no influence and 5 indicates the strongest influence. When you select a value, the Value Description box displays text describing the value for the selected characteristic. Select a value for all system characteristics, then click Close.
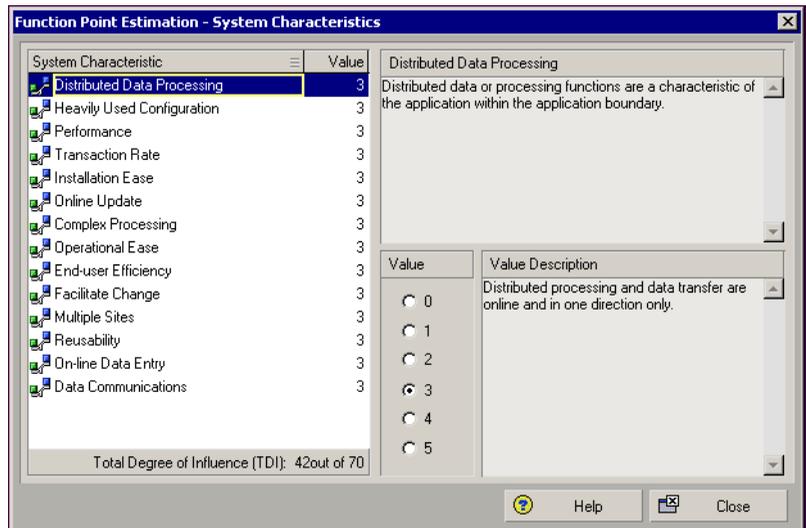
The Function Point Estimation dialog box reappears. The TDI value is listed in the Total Degree of Influence (TDI) box.

Type the average productivity value, then click Close.

To apply an adjustment percentage to the estimate, mark the Apply Adjustment checkbox, then type the percentage you want to use. For example, if the estimated units are 400 and you apply an adjustment of 50%, the module will add 200 (50% of 400) to the estimated units. The Adjusted Units field will display 600 units.

To save the estimate without applying it, click Save As. Type a name and any assumptions and notes about the estimate, then click Save.

Apply top-down estimations Click Apply to perform the top-down estimation. Click Yes when prompted to confirm that you want to apply a top-down estimate to the project. Click OK.

Applying Saved Top-Down Estimates To a Project

After you specify the number of units you want to apply, the module distributes the total units to the selected activities, using the estimated weights assigned to the project's WBS elements and activities. The module uses these weights to calculate the proportion of resource units that each WBS element and activity should receive in relation to other WBS elements. The module also maintains a history of saved top-down estimations.

Apply saved top-down estimations Choose Tools, Top Down Estimation. Click History. Select the estimate you want to apply. Click Apply.
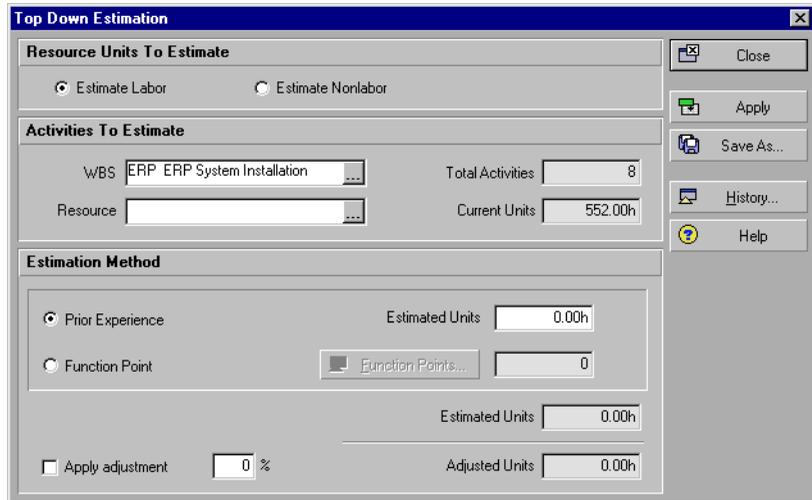
View a project's top-down estimations Choose Tools, Top Down Estimation. Click History.

The Applied column indicates which estimates were applied to the open project from the Estimation History dialog box.

Estimation History

WBS Code	Applied	Estimate Name	Labor	Adjusted Units
ERP	No	Prior experience method for ERP S...	Yes	0.00h
ERP.2	No	Function Point for Test Rollout	Yes	0.00h
ERP.2	Yes	Prior experience for test rollout	Yes	440.00h

Close

Apply

Delete

Help

To view an estimate's details, select the estimate, then click these tabs.

| General | Detail | Assumptions and Notes |

Estimate Name
Prior experience for test rollout

Method

WBS
ERP.2

Resource

Total Activities
4

Date
07-Sep-00

To delete an estimate, select it, then click Delete.

Part 4

Updating and Managing the Schedule

In this part:

*S*uccessful project management doesn't end after you develop a project plan. You need to track daily events and update the schedule with accurate data.

"Managing Baselines" describes how to create a copy of a project that can be compared to the current schedule to gauge progress, and "Updating, Scheduling, and Leveling" explains how to update the schedule and level resources. "Summarizing Projects" provides steps for summarizing project data as needed or at regularly scheduled intervals. Read "Project Issues and Thresholds" and "Managing Risks" to learn how these features help you monitor project schedules to identify potential problems early in the process. "Maintaining a Project's Document Library" describes how to track project-related documents and work products, while "Tracking Projects" shows you how to create layouts that enable you to view summary data for individual projects, as well as the entire enterprise project structure (EPS). Read the "Creating and Using Reflections" chapter to learn how to merge selected changes from a reflection project into the original project while keeping active project data intact. Read the "Checking Projects In and Out" chapter to learn how to keep track of projects that are used outside of the database.

Managing Baselines

A baseline is a complete copy of a project plan that you can compare to the current schedule to evaluate progress.

This chapter describes how to create baselines and assign them to projects. You will also learn how to modify a baseline, update a baseline with new data, and compare a project's current schedule to its baseline.

Creating and Maintaining Baselines

Before you update a schedule for the first time, you should create a baseline plan. The simplest baseline plan is a complete copy or "snapshot" of the original schedule. This snapshot provides a target against which you can track a project's cost, schedule, and performance.

Each baseline can be assigned a type that categorizes its purpose, for example, initial planning baseline, what-if project plan baseline, or mid-project status baseline. Baseline types are defined by the administrator in the Admin Categories dialog box.

You can compare up to three baselines at one time. For example, you might want to create a baseline of the original project schedule, and then create two additional baselines at different stages of the project. You can compare these to the current schedule to see how the project is progressing according to the project plan. You can also create a project baseline to use for summarization.

You must have at least one project open to access project baselines in the Maintain Baselines or Assign Baselines dialog boxes.

Designate any existing project, or a copy of the current project, as a baseline. The maximum number of baselines allowed is defined by the administrator in the Admin Preferences dialog box.

Baseline projects do not exist as separate projects that you can access. To copy or modify a baseline project manually, you must first unlink it from its current project. The "restored" baseline project then acts as any other project in the enterprise project structure (EPS). You can also update a baseline project with new or modified project data from the current project. The module only updates the data types you select when you update a baseline.

Create project baselines Open the projects for which you want to create a baseline or view assigned baseline projects. Choose Project, Maintain Baselines. The Maintain Baselines dialog box groups the currently open projects into individual bands, with any existing baseline projects beneath its current project.

After creating a baseline, you can set a baseline as the project, primary, secondary, or tertiary baseline in the Assign Baselines dialog box.

Click to delete the currently selected baseline project.

You can rename each baseline to make it unique.

Assign a type to baselines to help categorize them across multiple projects.

Click to update the selected baseline project with new/modified data from the current project.
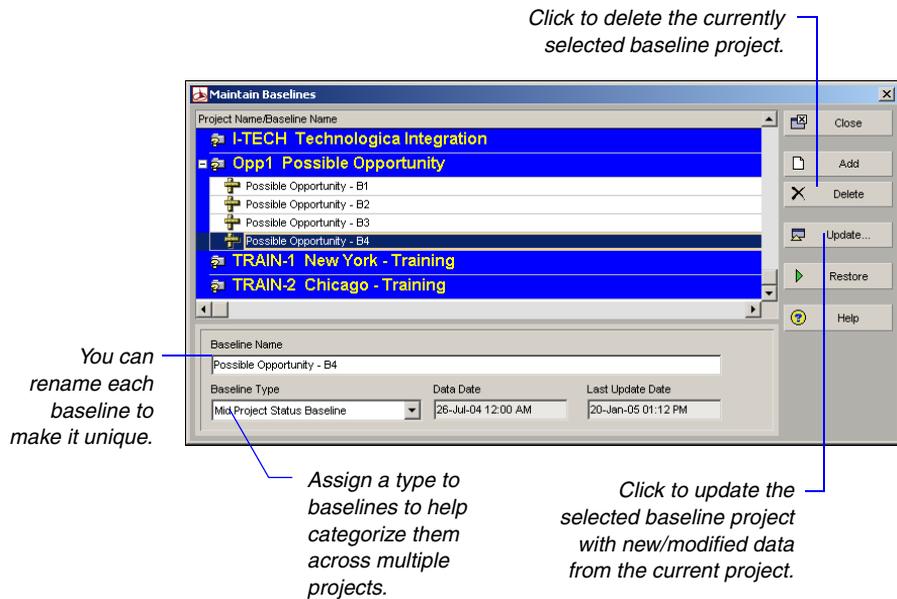
To create a baseline project, select the desired project and click Add. If multiple projects are open, you can create a baseline for the selected projects. (To select a project Ctrl-click on its band.) Choose to save a copy of the current project as a new baseline or convert another project to a new baseline.

If you choose to save the current project as a baseline, the module creates a baseline project with the same name and data date as the current project. To distinguish the baseline project, the module appends the name with – B1 and increments each new baseline added. For example, if Acme Project is saved with 3 baselines the new baselines should be saved as:

ID	Name
ACME – B1	Acme Project – B1
ACME – B2	Acme Project – B2
ACME – B3	Acme Project – B3

Before you convert a project as a baseline, you should copy it; it will no longer be available in the project hierarchy.

If you choose to convert another project as a baseline of the current project, you are prompted to select the project to designate as the baseline from the project hierarchy. You cannot select a project that is currently open, nor can you select a project that already has its own assigned baseline. The module creates a baseline project with the same name and data date as the selected project. (To distinguish the baseline project, the module appends the name with – B1.) This new baseline project is then removed from the project hierarchy and is no longer available as an individual project.

> *You can only convert one project at a time as a baseline. If multiple projects are open, you must select one project before you can create the baseline project.*

After you create a baseline, you can change its name and assign a baseline type to it.

Delete a baseline You can delete a baseline from the project database. Select the project that contains the baseline you want to delete. Choose Project, Maintain Baselines. Select the baseline, then click Delete.

> *You cannot delete an active baseline. An active baseline is any baseline designated as the primary, secondary, or tertiary baseline in the Assign Baselines dialog box.*

Modify a baseline manually As a project progresses and changes occur, you may want to modify a baseline project. You can restore a baseline project, making it available again as a separate project in the project hierarchy. Open the project that contains the baseline you want to restore. Choose Project, Maintain Baselines. Select the baseline you want to restore, then click Restore. Click Yes. The restored project is placed in the same node as the project to which it was linked as a baseline.

> *Restoring a project to modify a baseline manually is different from updating a baseline. When you update a baseline using the Update Baseline tool, the module updates every instance of every data type you select. If you want some, but not all, changes to the current project for a specific data type (such as resource assignments) reflected in the baseline, restore the baseline and edit the data. If you want all changes to a data type reflected in the baseline, update the baseline.*

The restored baseline project can be accessed in the project hierarchy along with its current project.

Current project
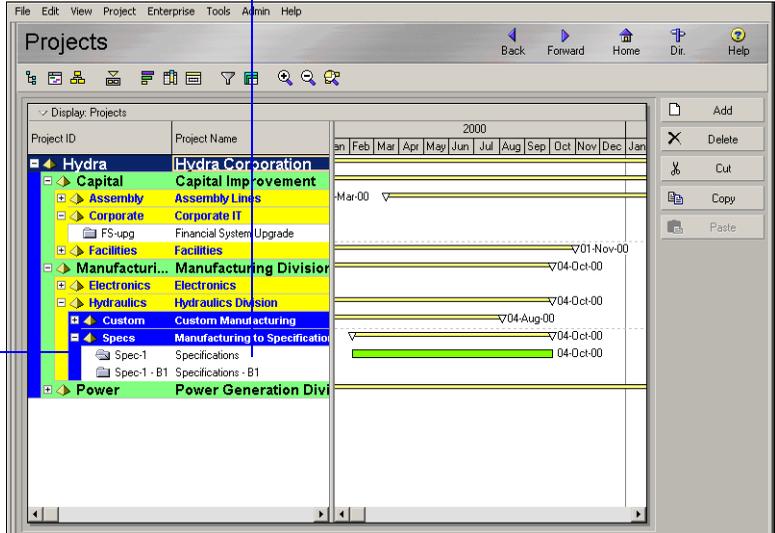
After you make changes to a restored baseline project, you can return it as a baseline to retain the changes for comparison against the current project. For example, you may want to revise the baseline to indicate scope changes once the current project is underway.

Assigning Baselines to Projects

Use the Assign Baselines dialog box to designate the current project or an existing baseline as the project, primary, secondary, or tertiary baseline. The project baseline is always used to summarize a project. The project baseline or primary baseline can be designated as the project to use when calculating earned value (based on a setting in the Settings tab of Project Details). The primary, secondary, and tertiary baselines are user-defined baselines used to compare projects.

Assign the baseline to use for summarization or earned value To choose which baseline to use for summarizing a project, open the project for which you want to select a project baseline. Choose Project, Assign Baselines. In the Project field, select the project to which you want to assign a project baseline. In the Project Baseline field, select the desired baseline or the current project. If no baseline is designated as active, the current project is used as the baseline project.

> *You can assign only one project baseline to a project. You must have the appropriate security privileges to select the project baseline.*

Assign the baselines to use for the current project Use the Assign Baselines dialog box to choose the primary baseline for a project. Open the projects for which you want to select a baseline. Choose Project, Assign Baselines. In the Project field, select the project to which you want to assign a primary baseline.

Each baseline field in the Assign Baselines dialog lists the current project and all existing baselines for the selected project. To use an existing baseline as the primary baseline, select an existing baseline in the Primary field. If you do not select a value for the primary baseline, the current project is used as the primary baseline.

Assign baselines for comparison To assign an existing baseline as the secondary or tertiary baseline, choose Project, Assign Baselines. In the Project field, select the project to which you want to assign baselines. In the Secondary and Tertiary fields, select an existing baseline or the current project. You can assign the same project as secondary and tertiary baselines.

> *You can assign only one primary, secondary, and tertiary baseline to a project. Secondary and tertiary baselines are not required.*

Select a project from the list
of open projects.

Select the baseline to use
for summarization or
earned value.

Assign Baselines

Project	Telecast Cellular Phone Model 310
Project Baseline	«Current Project»

User Baselines

Primary	Telecast Cellular Phone Model 310 - B1
Secondary	Telecast Cellular Phone Model 310 - B2
Tertiary	Telecast Cellular Phone Model 310 - B4

OK   Cancel   Help
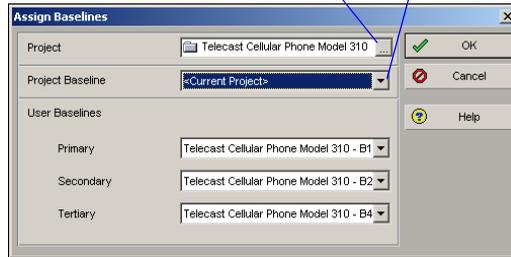
Baseline assignments are user-specific, meaning that each user can choose a different version for his/her active baseline to the current project.

Comparing Current and Baseline Schedules

For more information about updating the schedule, see **"Updating, Scheduling, and Leveling"** on page 295.

After a project is updated, you can quickly evaluate progress and performance onscreen. Use a layout that shows current and baseline bars to identify tasks that start or finish later than planned. In the list of activities, include columns for the planned value, actual costs to date, and earned value to identify tasks that are behind schedule or over budget. For detailed reporting, create schedule and activity matrix reports and resource and cost graphics. Run the Earned Value report to analyze cost and schedule variance using the project or primary baseline. Displaying baseline and current bars in the Gantt Chart indicates how the schedule is progressing according to the original plan.

BL appears before any data item that is available from a baseline project.

A target comparison makes it easy to see variances between the current and baseline dates. Add columns in the Activity Table for almost any data item from the baseline project. Display activity bars that represent baseline dates. You can also display target and variance data on the activity bars.

> When the current project is open, you can view, but not change, baseline data. To modify the baseline, you must first restore it as a separate project. You can also update baseline project data using the Update Baseline utility.

This layout includes current and baseline columns for start and finish dates.

Setting preferences for baseline values Choose to calculate the earned value from the Budgeted or At Completion values of the project or primary baseline. For example, based on the settings chosen, you can add original duration to the BL Start date to calculate the BL Finish date, or you can use the duration at completion to calculate the actual baseline finish date.

To choose the type of baseline you want to use to calculate earned value, in the Projects window, select a project. On the Project Details, Settings tab, choose to calculate earned value using the project baseline or the baseline you have defined as your primary baseline.

To specify how earned value is calculated, choose Admin, Admin Preferences. On the Earned Value tab, in the Earned Value Calculation section, choose to calculate earned value using At Completion values with current dates, Original values with current dates, or Original values with planned dates.

Updating Baselines

As a project progresses, certain types of project data are likely to change. When a project is in progress and data changes, the original baseline you created for the project may not accurately measure performance against the current project. Likewise, creating a new baseline may not yield accurate results for measuring performance because some data will change during the life of the project that should be measured against the original project data.

For example, changes to any of the following data types can affect results when comparing a project to its baseline:

- Added/dropped activities

- Modified activity data including dates, costs, resources, steps, documents, notebooks, relationships, codes, expenses, and user-defined fields

- Modified project-level data including details, documents, risks, issues, thresholds, calendars, and codes

Using Primavera's Update Baseline utility, you can update the original baseline plan with new activity, resource/role assignment, and project data. When updating a baseline, you can choose to update all activities or you can apply a filter to update activities that meet the filter's criteria. You can also specify the types of data to update, including specific data related to activities, resources, costs, thresholds, and issues.

When updating a baseline, you can select to update specific User Defined Fields (UDFs) related to projects, the WBS, activities, steps, and expenses. Selecting to update specific UDFs provides greater flexibility and control about what to update, while enhancing system performance.

You can only update one baseline at a time. You must have the Update Project Baselines project privilege to update a baseline.

Update a project baseline To update a baseline, open the project that contains the data you want to add to the baseline. Choose Project, Maintain Baselines. Select the baseline you want to update. Click Update.

Select the project-level data you want to update. Choose to update all activities or select a filter to only update activities that meet the filter's criteria. Choose to add new activities from the current project, delete activities no longer in the current project, and/or update existing activities. If you choose to update existing activities, click Update Options to select the types of activity and resource/role assignment data you want to update. To save the results of the baseline update to a file (including errors and warnings), enter a path or select a file. After selecting options, click Update. When the update is complete, click View Log to view the results of the update.

Select any of these options to update the baseline with data related to activities, including relationships, code assignments, constraints, and UDFs.
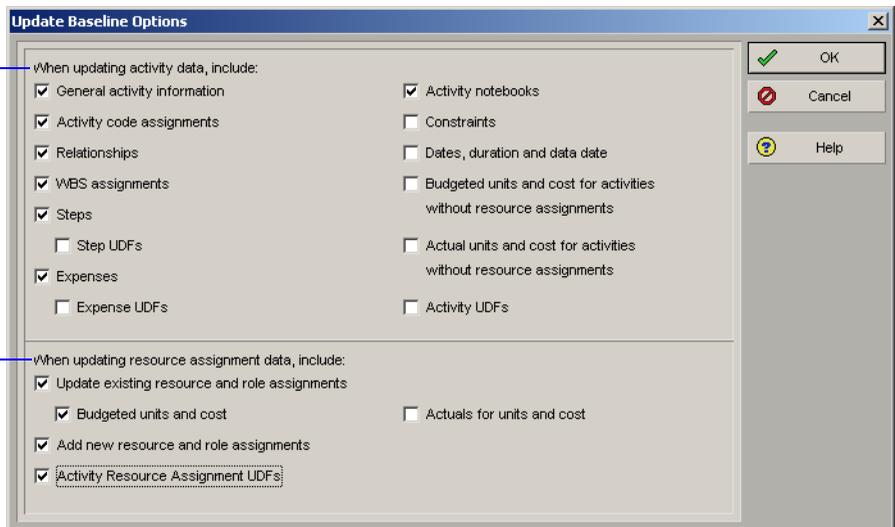
Select to update resource and role assignment data, budgeted and actual units and costs, newly added resource and role assignments, and UDFs for activity resource assignments.

You must select at least one of these options to update activity data.

Choose this option to run the baseline update faster. If you choose this option, errors are not logged during the baseline update (see the following note).

When you choose this option, the module does not consider the date on which the baseline was last updated. Choose this option to update all selected data types regardless of the last baseline update date.
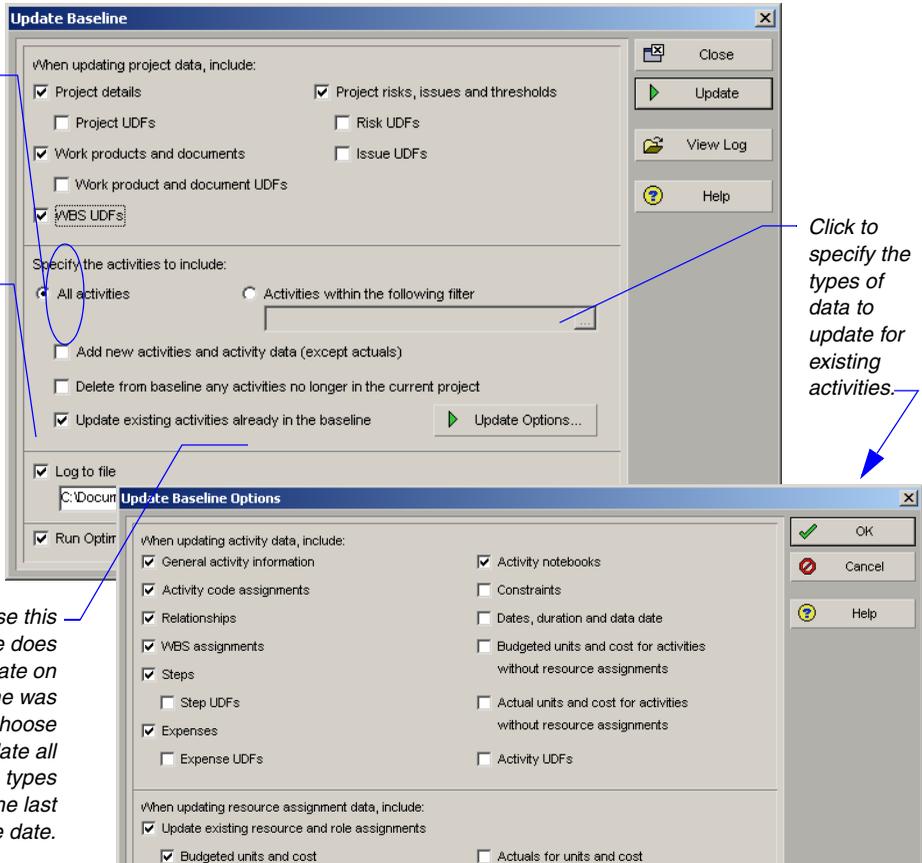
Click to specify the types of data to update for existing activities.

Click Help on both of the dialog boxes displayed above to view important information to consider when selecting update baseline options.

If errors occur when updating a baseline in optimized mode, you will not be able to determine the data item that is causing the update to fail. To determine the data item causing the failure, turn off the Run Optimized option and rerun the baseline update. After the update is complete, refer to the log file to determine which data item is causing the update to fail.

Baseline update performance is further optimized when you log in to Primavera as an Admin Superuser.

Ensuring Baseline Data Is Updated

When you update a baseline, the module stores the date on which the baseline was last updated. You can view this date in the Last Update Date field of the Maintain Baselines dialog box. The module does not consider the last update date when you choose the Ignore Last Update Date option in the Update Baseline dialog box.

Primavera recommends that you select the Ignore Last Update Date option if you plan to update different data types at different times (for example, you will not update all baseline data each time). If you do not select this option, some data types may not be updated from the correct date when you run the baseline update.
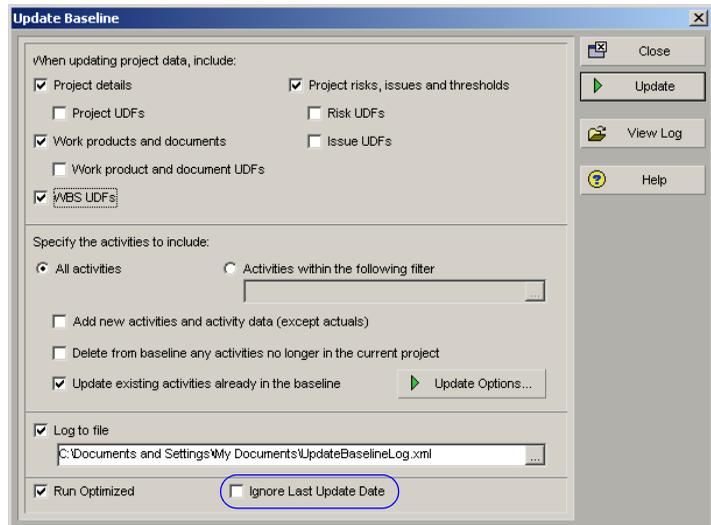
For example:

■ On June 1st, you run a baseline update that includes activity steps.

■ On June 8th, you run a baseline update that does NOT include activity steps.

■ On June 15th, you run a baseline update that includes activity steps. You do not select the Ignore Last Update Date option.

Given this scenario, when you run the baseline update on June 15th, activity steps are only updated from June 8th because the baseline is updated from the last update date. If you select the Ignore Last Update Date option, all changes to activity steps are updated regardless of the date the baseline was last updated.

Updating, Scheduling, and Leveling

A good project schedule can serve as a key management tool for making decisions and predicting whether the project will finish on time and within budget. Update your project regularly so you can record progress and identify potential problems.

You can update project progress by applying actual data to activities directly in a project or by using timesheet updates from the Timesheets module.

After you update the project, schedule it to calculate the earliest start and finish dates as well as the latest start and finish dates for each activity and for the entire project. Level resources in your project schedule to ensure that resource demand does not exceed resource availability. When you level resources, each activity is delayed until sufficient resources are available.

Read this chapter to learn how to update and schedule projects, and level resources.

The Update Process

Once a project is underway, it is important to keep the schedule up to date. Actual durations will probably vary from your original estimates, and the sequence of activities may change once the work begins. In addition, you may need to add new activities and delete unnecessary ones. Regularly updating schedules and comparing them with baseline schedules ensures that you are using resources effectively, monitoring project costs against budget, and keeping abreast of actual durations and costs so you can initiate your contingency plan if necessary.

The project controls coordinator, along with the project managers, establishes company procedures and communicates them to all participants. Usually, several projects at various levels of progress occur simultaneously. Project portfolio management can be complicated further when project managers, key resources, or other employees involved in the process are geographically dispersed. You must consider these factors as you establish updating guidelines.

To help develop procedures, ask questions such as these:

■   What data need to be assembled for the update and what methods will be used to collect the data?

■   How often should projects be updated?

■   Are resources local or offsite?

■   On which project teams are resources participating?

■   Who on each team will be gathering the information used for the project update?

■   Who needs to see the results of the update and when do they need to see them?

■   What types of information need to be generated after each update to communicate progress before the next update?

The answers to these questions help determine how you will use the module to update projects.

Identify the types of data to collect The data to collect may depend on whether you are updating activities or individual resource assignments. You can update activities by simply recording actual dates and a remaining duration. For resource assignments, enter the actual hours to date and the hours remaining. The module can also estimate progress automatically.

Determine how data will be collected Will you automatically collect timesheet entry data for each employee from the Timesheets module? Does your organization need to collect status from project team members who are not assigned resources or Timesheets users? Will you import data from other systems supported by your company, such as an accounting system? Or will updates be handwritten on printouts of the schedule distributed to project participants, collected weekly by the project manager or team leader, and entered in the module?

If you answered Yes to one or more of these questions, your update process will probably involve more than one procedure—all handled equally well by the module.

Determine how often data should be updated Depending on how quickly your projects change, you may want to update monthly, weekly, or even daily. Although no rules exist for update frequency, consider these general guidelines: if your projects never seem to be accurate, you are not updating often enough, or the scope of your activities is too broad—you should divide activities into smaller ones. If you spend too much time updating, you're updating too often, or the scope of your activities is too narrow.

Analyze and communicate data Recording progress in the module is only the beginning of the update process; after you produce an updated schedule, you need to analyze the results.

Examine updated project schedules using the many display and print options available. You can first view onscreen layouts to see immediate results, then look at project data in more detail by generating reports. Pinpoint potential problems by comparing the current schedule to the target plan in the Bar Chart or by displaying a Resource Usage Profile for a graphical representation of resource use. If problems exist, you may want to perform "what-if" analyses before modifying the network. Use existing report templates, create new template specifications by modifying existing ones, or add your own template to produce the data you need to see.

Effective communication to all project participants is also essential to the success of every project. Use easily understood reports and layouts to show the project team and management what is happening. Focus on critical activities, resource and cost overloads, and slippages, and identify actual and required future progress.

Choosing a Method of Updating

You can update project schedules in several different ways. Update progress for all activities and resources as a whole, update activities and resources individually, update progress from timesheets, or use a combination of these methods.

More than likely, your projects do not progress as planned—many activities start out-of-sequence, activities take more or less time to complete than originally planned, or actual resource use exceeds planned use. In these cases, update activities and resources individually to help you forecast the effects of unforeseen progress or lack of progress and take appropriate corrective actions. You can update activities and/or resources manually in the Project Management module, collect timesheet data from the Timesheets module, or use P6 Web Access to collect activity progress from project team members who are designated as activity Owners.

Sometimes, you may only need to estimate progress. You can choose to "auto compute actuals," then simply specify the data date and apply actual data. Before the first update, the data date is the project start date; once the project begins, the data date is the date up to which you are reporting progress. The module uses the data date to determine which activities have progressed and how much, and to calculate the remaining durations of activities that have started. The module also notes which activities are complete and sets their remaining durations to zero.

Most projects progress somewhere between these two situations: some activities occur as planned and some do not. If this is the case, you can combine the two updating methods. Allow the module to calculate a project schedule as if the project progresses exactly as planned and then individually update those activities and resources that have deviated from the plan.

Regardless of the method you choose, the update process should proceed in the following order:

1 Establish a standard update procedure that includes which method you will use to record progress.

Depending on the method you choose, set calculation variables for percent complete type and duration type.

2 Create a baseline plan, as discussed in "Managing Baselines" on page 281.

3 Record progress on activities automatically or manually in the Project Management module and from Timesheets module data. Use P6 Web Access to collect progress from designated activity Owners.

Recording progress includes entering actual start and/or finish dates (see "Types of Activity Dates" on page 300), updating actual resource use/cost to date, and estimating remaining work to complete.

If collecting timesheet data from the Timesheets module, review and approve timesheets in the Timesheet Approval application, which is accessible from within the Project Management module and P6 Web Access, or as a stand-alone application (if properly configured).

If collecting progress from activity owners, use Reflection project features to implement a review and approval process that enables you to examine updates to activity status and specify which, if any, you want to merge into the active source project.

4 Apply project actuals.

5 Calculate the schedule and level resources.

6 Compare the current schedule to the baseline plan and identify variances.

7 Analyze data through layouts and reports.

8 Make adjustments and communicate the schedule updates.

Types of Activity Dates

Date Field	Definition
Start	The current start date of the activity. Set to the remaining start date until the activity is started, then set to the actual start date. An 'A' after the Start value indicates that it is the Actual Start; an '*' indicates that a Start constraint is applied to the activity.
Finish	The current finish date of the activity. Set to the activity planned finish date while the activity is not started, the remaining finish date while the activity is in progress, and the actual finish date once the activity is completed. An 'A' after the Finish value indicates that it is the Actual Finish; an '*' indicates that a Finish constraint is applied to the activity.
Actual Start	The date on which the activity actually started.
Actual Finish	The date on which the activity actually finished.
Early Start	The earliest possible date the remaining work for the activity can begin. This date is calculated by the project scheduler based on activity relationships, schedule constraints, and resource availability.
Early Finish	The earliest possible date the activity can finish. This date is calculated by the project scheduler based on activity relationships, schedule constraints, and resource availability.
Late Start	The latest possible date the remaining work for the activity must begin without delaying the project finish date. This date is calculated by the project scheduler based on activity relationships, schedule constraints, and resource availability.
Late Finish	The latest possible date the activity must finish without delaying the project finish date. This date is calculated by the project scheduler based on activity relationships, schedule constraints, and resource availability.
Planned Start	The date the activity is scheduled to begin. This date is set equal to the early start date by the project scheduler but can be updated manually by the project manager. This date is not changed by the project scheduler once you apply an Actual Start date.
Planned Finish	The date the activity is scheduled to finish. This date is set equal to the early finish date by the project scheduler but can be updated manually by the user. This date is not changed by the project scheduler once you apply an Actual Finish date.
Remaining Start	The date the remaining work for the activity is scheduled to begin. This date is calculated by the project scheduler but can be updated manually by the user. Before the activity is started, the Remaining Start is the same as the Planned Start. This is the start date that Timesheets users follow.
Remaining Finish	The date the remaining work for the activity is scheduled to finish. This date is calculated by the project scheduler but can be updated manually by the user. Before the activity is started, the Remaining Finish is the same as the Planned Finish. This is the finish date that Timesheets users follow.

Date Field	Definition
Expected Finish	The date the activity is expected to finish. Typically, this date is entered in the Timesheets module by the primary resource. When scheduling your projects, you may choose to use or ignore the Expected Finish dates.
Constraint Date	The date for which the activity's constraint applies. Depending on the constraint type, this date could be a start or finish date. For example, for a Finish On constraint, the constraint date is the date on which the activity must finish. If the activity does not have a constraint, this field will be empty.
External Early Start	For an activity with an external relationship, the date the external relationship was scheduled to finish. This date may be used to calculate the start date of the current activity during scheduling. This field is populated on import when an external relationship is lost.
External Late Finish	For an activity with an external relationship, the late start date of the lost external relationship. This date may be used to calculate the finish date of the current activity during scheduling. This field is populated on import when a successor relationship is lost.
Suspend Date	The date on which an activity's progress was, or is planned to be, suspended.
Resume Date	The date on which an activity's progress was, or is planned to be, resumed.

Highlighting Activities for Updating

The Progress Spotlight feature highlights the activities that should have been worked on during a specified timeperiod. You can also drag the data date line to a specific date to highlight the activities that fall between the last data date and the new data date. Once you spotlight activities, you can automatically status them, manually update them.

Unlike selected activities, when Progress Spotlight is active, activities remain spotlighted even when you click in another area of the workspace.

Use the Progress Spotlight feature Choose View, Progress Spotlight, or click the Progress Spotlight icon to highlight a timeperiod equal to the smallest increment of the displayed timescale from the previous data date. To increase/decrease the highlighted area between the previous data date and the new date by one or more timescale increments, drag the data date line to the right or the left.

Update activities as described later in this chapter, or reschedule the project immediately according to the new data date by pressing F9.

Drag the data date line Click the data-date line; when it changes to an arrow, drag the line to the right until you reach the new data date. The Project Management module spotlights the activities between the last data date and the new data date. Update activities as described later in this chapter, or reschedule the project immediately according to the new data date by pressing F9.

Depending on the density of the timescale above the activity bars, you may not be able to position the data date line on the exact date and time you want to use. In this case, enter the data date in the Update Progress dialog box and have the Project Management module estimate progress as of that date before you update individual activities.
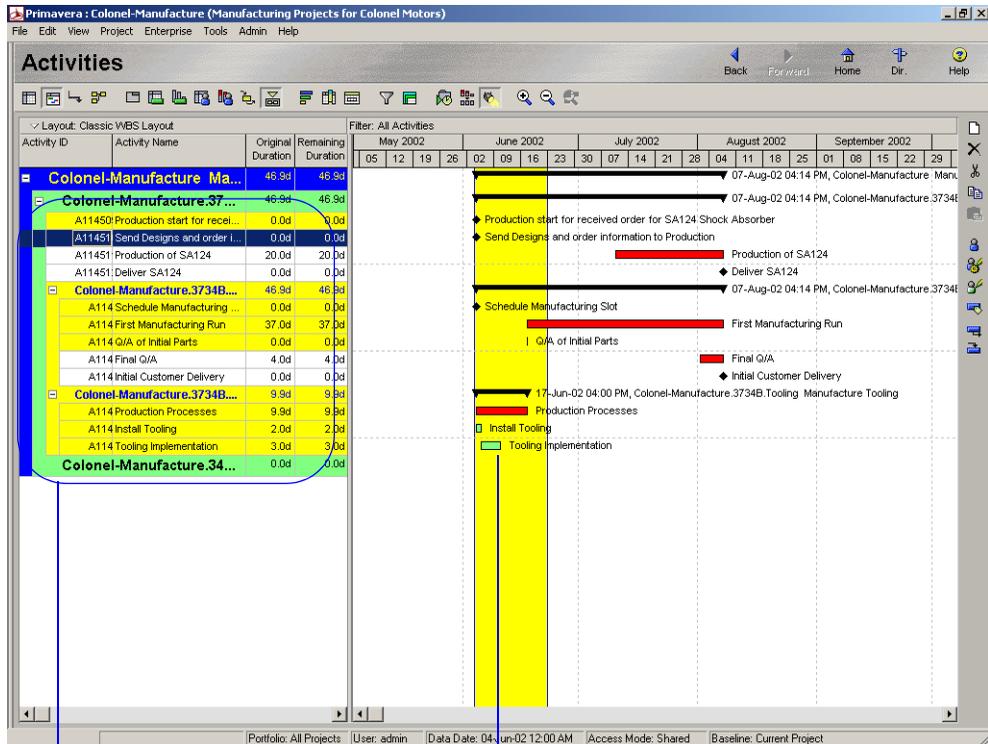
The Project Management module spotlights activities that should have started, progressed, or finished between the previous data date and the new data date in the Gantt Chart.

Updating Progress for Spotlighted Activities

If activities are progressing on schedule, you may want to estimate progress for all activities as of the new data date you specify. The Project Management module can quickly estimate activity dates, percent complete amounts, and remaining durations when you use the Update Progress dialog box to update a project.

Estimating activity progress is a quick and convenient way to update your project. The Project Management module estimates progress only for those activities that were supposed to take place. Since progress can occur out of sequence, you may need to update additional activities—especially if you selected activities by dragging the data date line or by using the Progress Spotlight feature. You should also review all incomplete activities to make sure their remaining durations, actual dates, and percent complete amounts are realistic. Once you spotlight activities, you can quickly update the project as "on time."

You can update projects automatically, update each activity manually, or use both methods.

Estimate progress for all spotlighted activities Spotlight the activities for which you want to estimate progress by dragging the data date line or by using the Progress Spotlight feature. Choose Tools, Update Progress. Select a new data date if the one shown is not accurate.

You can not drag the new data date line to a date that is before the old data date line.

Choose to update all activities scheduled to work during the current update period or only selected activities.
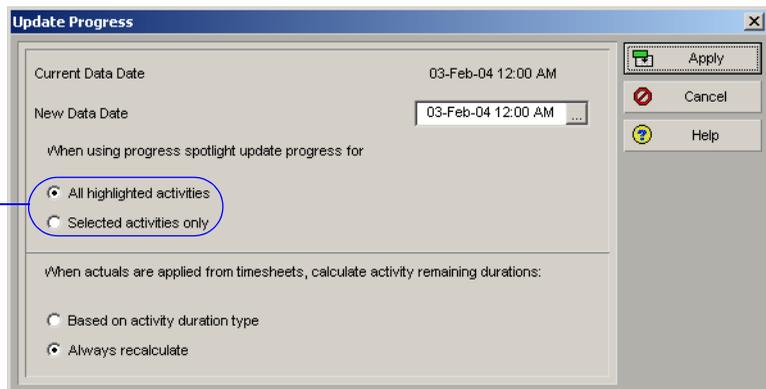
Click Apply. For each activity in the update, Project Management module estimates percent complete amounts as of the data date, sets dates to actual dates if they fall before the new data date, and estimates remaining durations for activities that are not finished as of the data date. The Project Management module also updates resource assignments based on each activity's revised percent complete and remaining duration while adhering to Autocost Rules. In addition, the Project Management module takes into account only the first price per unit in the Resource Dictionary, if more than one price per unit for varying through dates exists, when updating resource assignments.

If you estimate progress for selected activities that do not fall within the update period, those activities will show no progress. When spotlighting activities, you can only estimate progress—percent complete, remaining duration, and so on—for activities that are within the update period. If you manually update a spotlighted activity then run Update Progress, the module will overwrite your manual changes.

Estimating Progress Automatically

If you want to estimate progress as if activities are proceeding on schedule, you can automatically calculate actual data based on activity, resource, and/or expense data.

Estimating activity progress is a quick and convenient way to update your project. The module estimates progress only for those activities that were supposed to take place. Since progress can occur out of sequence, you may need to update additional activities.

Set Auto Compute Actuals by activity If you set the Auto Compute Actuals option by activity, the module determines actual dates, percent complete amounts, remaining durations, and actual and remaining units for all assigned resources. Choose, Project, Activities, and open a layout that contains the activities you want to automatically update. Add a column for the Auto Compute Actuals option and mark the checkbox next to each activity.

You should not automatically compute actuals for those activities from which you are collecting timesheet data from the Timesheets module; otherwise, your timesheet data are overwritten when you apply actuals.

Mark the Auto Compute Actuals checkbox for each activity you want to update automatically.

The Auto Compute Actuals option is listed in the General section of Available Options in the Columns dialog box.
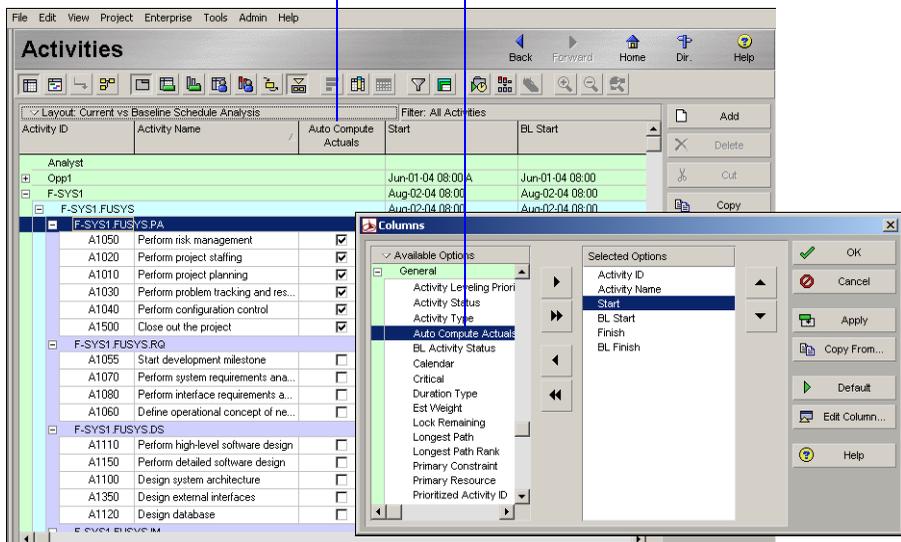
Set Auto Compute Actuals by resource If you set the Auto Compute Actuals option by individual resource, the module automatically updates actual units and remaining units using the budgeted units and the activity's percent complete. Choose Enterprise, Resources, and select the resource that you want to automatically update when actuals are applied. Click the Details tab and mark the Auto Compute Actuals checkbox.

To set Auto Compute Actuals for expenses, choose Project, Expenses, then click the Costs tab and mark the Auto Compute Actuals checkbox. Actual and remaining costs and units are updated.
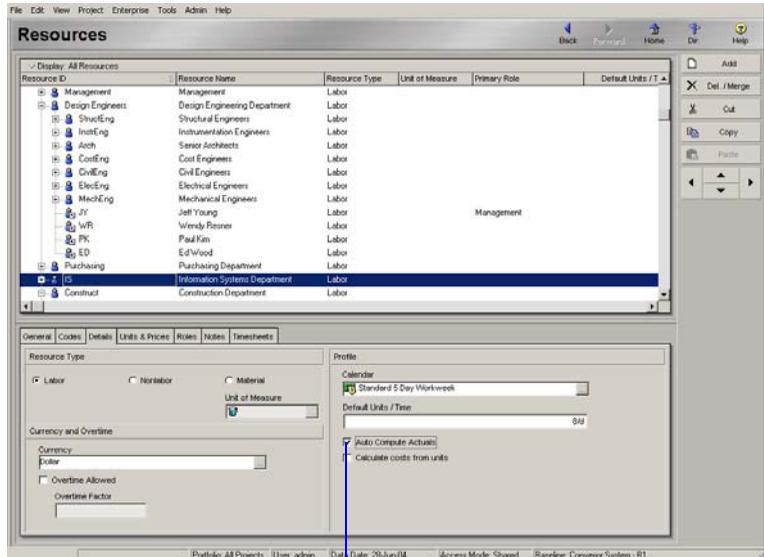
Mark to automatically calculate actuals for the selected resource.

You can not automatically compute actuals for those resources from which you are collecting timesheet data from the Timesheets module. If you choose to disable the timesheet usage, your timesheet data are overwritten when you apply actuals.

Setting Auto Compute Actuals

Setting the Auto Compute Actuals option to ON for an activity automatically updates actual and remaining units/costs for all resources/ expenses assigned to the activity, regardless of whether the individual resources/expenses have the Auto Compute Actuals option set to ON. If you don't want to update all assignments, turn OFF the activity's Auto Compute Actuals option and turn it ON only for those resources/ expenses you want updated automatically. For example, you may be collecting actual data from some, but not all, resources through the Timesheets module. For those resources from which you are collecting actual data, turn OFF the activity- and resource-level Auto Compute Actuals option, and turn it ON for those resources not reporting data through the Timesheets module.

For more information on applying actuals, see "Interrupting Activity Progress" on page 320.

Update progress automatically Once you set the appropriate Auto Compute Actuals options, you can update progress automatically. Choose Tools, Apply Actuals.

Updating Using Timesheets

For details on using the Timesheet Approval application, click Help in the Timesheet Approval window.

If employees are entering timesheet data using the Timesheets module, you can update activities in the Project Management module (and P6 Web Access) based on their timesheet entries. Use the Timesheet Approval application to process timesheets submitted by Timesheets users.

To access Timesheet Approval, you must have one of the required security privileges to approve timesheets and the Timesheet Approval application must be properly configured. When enabled, you can access Timesheet Approval from within the Project Management module and P6 Web Access, or as a stand-alone application. For more information on configuring access to Timesheet Approval, refer to the Primavera P6 Administrator's Guide *or to the Project Management Help.*

For information on configuring resources to use timesheets, see the *Primavera P6 Administrator's Guide*. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ \<language\> folder of the P6 physical media or download.

Approve timesheets Choose Tools, Time Approval. From the Approving As drop-down list, if necessary, choose your designated time approval role, which is determined by your security profile.

If you have privileges to approve timesheets as a Project Manager or a Resource Manager, but not both, the Approving As field is read only and displays your current timesheet approval privilege. If a timesheet approval manager has designated timesheet approval rights to you, this field displays, for example, Project Manager Delegate for \<project manager's personal name\>.

A notification message appears at the top right of the window when you have resubmitted timesheets to review.

Select the timesheet period you want to review. In the top half of the window, select the timesheet you want to review; the window refreshes to display the timesheet details in the bottom half of the window. Right-click the selected timesheet and select Approve to update the project with activity progress, or select Reject to return a timesheet to a Timesheets user.

If you choose to reject a timesheet, you are prompted to confirm the rejection, and to send a rejection e-mail to the associated timesheet resource(s). Mark the checkbox to send a rejection e-mail, then click OK. You can edit the contents of the e-mail as necessary.

If a resource's timesheet is unavailable, you can enter progress for assigned activities.

Select a timesheet period.

Click to filter timesheets by status, such as Action Required, Approved, Rejected, or Not Submitted.

Lists each resource with a timesheet for the selected period, based on your timesheet filter selection.

Displays activity information for the selected timesheet.

Using Timesheet Approval

As a timesheet approval manager, you can approve or reject timesheets, notify resources about timesheet status, add timesheet notes, and run timesheet reports. You can also determine if a resource has not started or not submitted a particular timesheet, and assign a delegate approval manager to process your timesheets when you can not process them yourself (for example, while you are on vacation).

Administrative settings in the Project Management module specify whether Resource Managers or Project Managers (or both) must review and approve timesheets.

- **If you are a Resource Manager**, you can review timesheets for resources to whom you have been assigned as timesheet approval manager.

- **If you are a Project Manager**, you can review timesheets for resources who are assigned to activities within projects for which you are responsible.

- **If you are a timesheet approval delegate for a Resource Manager**, you can review timesheets for resources to whom the Resource Manager has been assigned as timesheet approval manager.

- **If you are a timesheet approval delegate for a Project Manager**, you can review timesheets for resources who are assigned to activities within the project(s) for which you have been granted approval rights. A Project Manager can delegate approval rights to different users for each project.

Timesheet Approval (as shown on the previous page) displays a Timesheet table (top) and Activity table (bottom). The Timesheet table lists all timesheets you are responsible for processing during the selected timesheet period, based on filter criteria you select (Action Required, Submitted, Not Submitted, etc.).

The Activity table displays a breakdown of the number of regular, overhead, and total hours the resources associated with the selected timesheets have allocated to project activities.

In both the Timesheet table and Activity table, you can group and sort based on predefined criteria, customize the columns that display, search for timesheets or activities, and print the contents of the table.

The following table displays some of the icons available in Timesheet Approval and describes the purpose of each icon.

Icon	Description
	Click to assign a delegate user to process your timesheets when you are not able to process them yourself. After selecting a delegate for your resources or projects, you can activate and disable the delegate's approval rights at any time. You can assign any Primavera user as a delegate, with limited restrictions; when you activate a delegate's approval rights, the delegate is granted the same approval rights and access to timesheets as you.
	Click to approve the selected timesheet. You can approve any timesheet with a status of Submitted, Resubmitted, PM Approved, or RM Approved. The PM Approved and RM Approved status types are only valid when two timesheet approval levels are required based on administrative settings.
	Click to reject the selected timesheet. You can reject any timesheet with a status of Submitted, Approved, Resubmitted, PM Approved, or RM Approved. The PM Approved and RM Approved status types are only valid when two timesheet approval levels are required based on administrative settings.
	In the Timesheet Table, click to filter timesheets by one of the following status types: Action Required, Submitted, Resubmitted, Not Submitted, Approved, Rejected, or All. The Action Required filter, which is selected by default, displays all timesheets that currently require your approval. The Resubmitted filter displays all resubmitted timesheets that require your approval, regardless of the selected timesheet period. The Approved filter displays only timesheets that you have personally approved. **In the Activity Table**, click to filter activities by All Activities, Regular Activities, or Overhead Activities. Regular Activities are activities related to project work, while Overhead Activities are activities not related to project work, such as vacation time.
	In the Timesheet Table, click to group timesheets by None, Status, Last Reviewer, Reviewed Date, or Timesheet Period. The Timesheet Period grouping option is only available when you also select either the Action Required or Resubmitted timesheet filter. **In the Activity Table**, click to group activities by None, WBS, Project, Role, or Status.
	Above the appropriate table, click to customize the columns you want to display.

Icon	Description
	Click to send an e-mail reminder to the resource(s) associated with the selected timesheet(s). When you choose to send an e-mail, the subject and body of the e-mail are automatically populated based your timesheet filter selection; you can edit the subject and body of any e-mail.
	Click to run a standard or custom timesheet report. Standard reports are pre-defined reports and can not be edited. Custom reports are defined by a timesheet administrator in the Project Management module and customized for your organization. When you run a report as a resource manager, the report displays data for all resources whose timesheets you are responsible for processing. When you run a report as a project manager, the report displays data for those projects to which you have OBS access.
	Next to the appropriate timesheet, click to add or view notes for the timesheet. To quickly view the last note added for a timesheet, hover over the icon. This icon does not appear for Not Started timesheets.

To sort the list of timesheets or activities in ascending order, click in the heading row of the column you want to sort by. Click the column heading again to sort in descending order.

Updating Activities Manually

You can also manually update future period unit values for assignments to activities. For more information, refer to **"Managing Resource Assignments" on page 339**.

In addition to updating activities automatically or using timesheets, you can manually update data for each activity. Record actual dates, actual resource use, and costs incurred up to the data date or "time now." There are different activity types, percent complete types, and duration types to accommodate your scheduling requirements. You should set these variables at the start of the project when you establish your update procedures.

For more information on defining activity and duration types, see **"Working with Activities" on page 211**.

Set percent complete type An activity's percent complete can be calculated according to activity duration, activity units, or a physical percent complete that you enter for each activity. Choose Project, Activities, and display the Activity Details General tab or add a column for Percent Complete Type in the Activity Table.

You can add a column to review or modify the percent complete type.
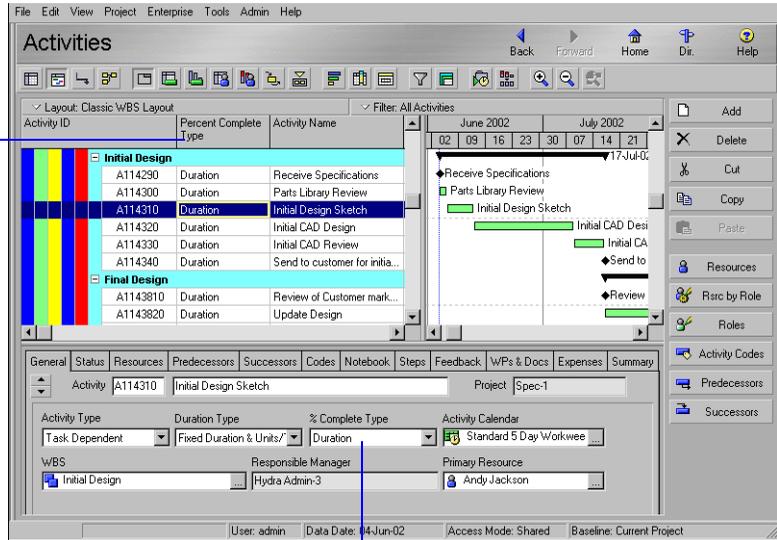
Select the percent complete type for the activity.

Select the percent complete type based on how you report progress for the activity.

■ Select Physical Percent Complete when activity progress can most easily be reported based on personal judgment. Enter the activity percent complete.

■ Select Duration when activity progress can be easily reported in terms of actual calendar days of work remaining.

   Duration% Cmp = [(Original Duration – Rem Duration) / Original Duration] x 100

■ Select Units when progress is best reported based on the work effort that has been accomplished and how much effort remains. Enter the actual and remaining units.

   Units % Cmp = [Actual Units / At Completion Units] x 100

Update actual dates   Once an activity is underway, update its start and finish dates and other status information. Choose Project, Activities and display the Activity Details Status tab. If the activity has actually started, mark the Started checkbox, then specify the actual start date in the Started field. If the activity is complete, mark the Finished checkbox, then specify the actual finish date in the Finished field.

To update any other activity data, such as remaining duration or actual units, you must first enter an actual start date for the activity.

Update activities with Duration percent complete type   In the Activities window, select the activity to update and display the Activity Details Status tab. In the Remaining field, type the remaining number of workperiods needed to complete the selected activity. When you schedule or apply actuals, the actual duration is calculated as the total working time from the actual start date to the current data date (for in-progress activities) or to the actual finish date (for completed activities), using the activity's calendar.

If resources are assigned to the activity, each resource's remaining units are calculated as the activity's remaining duration multiplied by its remaining units per time.

Type a new remaining duration for the activity.

Update activities with Physical percent complete type In the Activities window, select the activity to update and display the Activity Details Status tab. Enter the physical percent complete and the remaining duration for the activity. If resources are assigned, you must also update each resource's actual regular units.

Type the percent complete for the activity when the percent complete type is Physical.

The module calculates the actual duration for the activity when you apply actuals or schedule the project.   *Type a new remaining duration for the activity.*

Update activities with Units percent complete type If you are updating activities with the Units percent complete type, most likely your focus is on resource planning and scheduling. (You may also have specified the activity type as Resource Dependent and the Duration type as Fixed Units/Time.) You should update the labor units (and/or nonlabor units) for the activity, rather than the duration. If multiple resources are assigned to an activity, you should update each resource individually in the Resources tab. In the Activities window, select the activity to update and display the Activity Details Resources tab.

Actual Regular Units for a resource indicate the actual amounts without considering overtime units. Actual Units include Actual Regular Units plus Actual Overtime Units.

When you update activities manually, you should turn off Auto Compute Actuals settings; otherwise, your changes are overwritten when you apply actuals or calculate the schedule.

Update the actual regular units and the remaining units for each resource.

Activity	A1790	Cost Benefit Analysis		Project	Spec-1

Resource ID Name	Actual Units	Actual Regular Units	Remaining Units / Time	At Completion Units
GSCH.Gretchen Scha...	20.00h	20.00h	2.00h/d	30.00h

Add Resource   Add Role   Assign by Role   Remove

When you update units in the Resources tab, the Started checkbox in the Status tab is automatically marked.

The Labor Units amounts in the Status tab total the amounts for all resources assigned in the Resources tab.

Activity	BA560	Review and Approve Flooring	Project	Bldg

Duration

Original	10.0d
Actual	8.0d
Remaining	2.0d
At Complete	10.0d
Total Float	105.0d
Free Float	0.0d

Status

☑ Started	16-Jun-04 08:0	Units %	88.89%
☐ Finished	29-Jun-04 05:0	Suspend	
Exp Finish		Resume	

Constraints

Primary		Secondary	
Date		Date	

Labor Units

Budgeted	10d
Actual	8d
Remaining	1d
At Complete	9d

The units % complete is calculated from

How Activity Duration, Units, and Resource Units/Time Are Synchronized

The module automatically synchronizes the duration, labor/nonlabor units, and resource units/time for activities so that the following equation is always true for each activity: Duration = Units / (Resource Units/Time). Since three variables are involved (duration, units, and units/time), when you change the value of one variable, the module must alter the value of a second to balance the equation.

The Duration Type setting for an activity allows you to control how the module synchronizes these variables when any one of the equation's variables are changed.

The following table lists the value that is automatically changed to synchronize these variables whenever the value of one of the duration type variables is changed.

Activity duration type	When you change units, this value changes...	When you change the duration, this value changes...	When you change units/ time, this value changes...	When you add the first resource, this value changes...	When you add additional resources, this value changes...
Fixed Units/ Time	Duration	Units	Duration	Units	Duration
Fixed Duration & Units/Time	Units/Time	Units	Units	Units	Units
Fixed Units	Duration	Units/Time	Duration	Units	Duration
Fixed Duration & Units	Units/Time	Units/Time	Units	Units	Units/Time of each resource

Removing Progress from Activities

You can remove progress from an activity by removing the Actual Start and/or Actual Finish from the activity. When the actual start or actual finish is removed from an activity, the activity's budgeted units and its durations are recalculated. How the module calculates these changes is based on the project setting in the Project Details, Calculations Tab. Depending on the option selected, the module will either redistribute the remaining work on the activity by setting the original duration equal to the remaining duration, and setting the budgeted units equal to the remaining units; or, the module can distribute the original work by setting the remaining duration equal to the original duration, and setting the remaining units equal to the budgeted units.

For more information on the Project Details, Calculations tab, refer to the Help.

If the Link Budget and At Completion for Not Started Activities checkbox is cleared in the Resource Assignments section in the Projects window, Calculations tab, only activity and assignment dates will be adjusted when progress is removed from an activity.

Activities	Resource Assignments
Default Price / Unit for activities without resource or role Price / Units $12.00/h	When updating Actual Units or Cost
	⊙ Add Actual to Remaining
	○ Subtract Actual from At Completion
☐ Activity percent complete based on activity steps	
	☐ Recalculate Actual Units and Cost when duration % complete
☑ Link Planned and At Completion for not started activities	☑ Update units when costs change on resource assignments
⊙ Reset Planned Duration and Units to Remaining	☑ Link Actual and Actual This Period Units and Cost
○ Reset Remaining Duration and Units to Planned	

Choose to re-distribute the remaining work or the original work for activities, when progress is removed.

Interrupting Activity Progress

At some point in the project, you may need to stop work on an activity for a period of time. Indicate this interruption by specifying suspend and resume dates in the Status tab of Activity Details.

Suspend an activity's progress Display the Activity Details, Status tab. In the Activity Table, select the activity you want to suspend, then enter a Suspend date. When the activity resumes, enter a Resume date. The activity must have an actual start date before you can enter a suspend date.
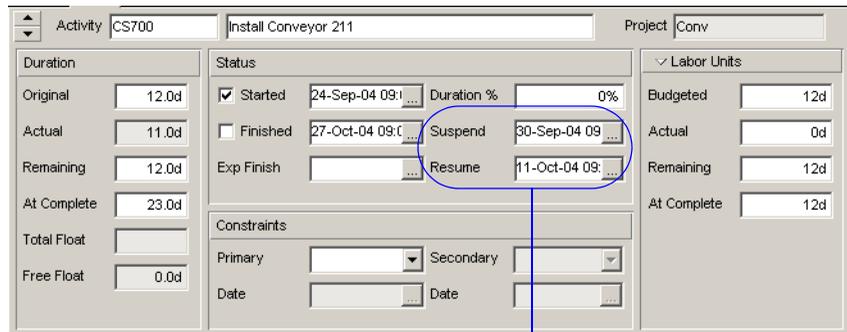
Record the Suspend date as the end of the last day on which work occurred for the activity. When work begins again, record the Resume date.

The module calculates an actual duration for all activities based on the amount of time actually worked. The amount of time an activity's progress is suspended is considered nonworktime based on activity and resource calendar definitions. You can use bar necking to graphically display the suspended activity's nonworktime. In the Bars dialog, Bar Settings tab, select the Calendar nonwork time option under Bar Necking Settings. You can also show suspend and resume dates as columns.

You can only enter suspend and resume dates on Task Dependent and Resource Dependent activities. When you enter a suspend or resume date, the activity is suspended or resumed at the beginning of the specified day.

If you manually plan future period allocation for assignments to activities, the Budgeted Units values you enter for an assignment are not affected when you enter a suspend and resume date for an activity; the values remain in the same future period buckets in which you originally entered them. However, an assignment's manually-planned future period Remaining (Early) Units are pushed out to the resume date once you schedule the project.

Applying Actuals

Once progress is recorded by approving timesheets, entering actual data, and/or setting Auto Compute Actuals options, you must apply actuals. Applying actuals schedules activities with progress and/or that have the Auto Compute Actuals option set. When you apply actuals, you move the data date or "time now." The module schedules activities only within the specified timescale (between the current data date and new data date) and calculates progress for those activities that are set to automatically calculate actuals.

Apply actuals Open the project or EPS node that contains the projects to schedule. Choose Tools, Apply Actuals. If you opened an EPS node that contains multiple projects, you can choose to use the same data date for all projects and then specify the date, or you can choose to use a different data date for each project and then select the dates.

Double-click to select a new data date for the corresponding project.

Click to update the schedule.

Choose to use a different data date for each project.

If you choose to always recalculate, all activities are treated as Fixed Units and Fixed Units/Time.

Apply actuals as a service You can use Job Services to automatically apply actuals to selected projects/EPS nodes at regularly scheduled intervals. Choose Tools, Job Services, then click Add. Select Apply Actuals in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed, if more than one service is listed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the apply actuals service. You can suspend a service at any time by selecting Disabled in the Status field. In the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify.

Click the Job Options tab to select the projects/EPS nodes to which the job service will apply actuals.

Mark the checkbox for the project you want to use as the Default Project. The value of the activity remaining duration setting for each project is taken from that of the Default Project.

Select the date up to which you want to apply the open project's/EPS node's actuals.

> You must have the appropriate access rights to set up job services. The Job Service does not interact with the module client when running jobs. All jobs are run on the server(s) on which the Job Service is installed.

Storing Period Performance (Past Period Actuals)

Using the Store Period Performance feature, you can track actual to date units and costs. For example, if you increase the actual this period by 50, the Project Management module increases the actual to date by the same amount. At the end of each financial period, reset the actual this period values of all activities and assignments to zero by choosing Tools, Store Period Performance. Resetting the actual this period values does not affect actual to date values; rather, it prepares you to begin tracking new use for the current period.

Storing period performance records actuals for the selected financial period along with earned value and planned value, so you can track previous periods and compare current and future trends. If past period data changes after you store period performance, you can edit the data in financial period columns of the Activity Table, Resource Assignments window, and the Resources tab of Activity Details.

Your projects may be scheduled to update every two weeks, monthly, or even quarterly. To track actual costs and progress recorded, update your schedule at the times established in the Financial Periods dictionary, then store period performance at the end of the update period and before the start of the next schedule update.

> *To run Store Period Performance, you must be assigned the Store Period Performance and Add/Edit Project Activities Except Relationships project privileges.*

> *Organizations using Primavera ProjectLink cannot run Store Period Performance on Microsoft Project (MSP)-managed projects in the Project Management module. For more information on Primavera ProjectLink, click the Help button on any ProjectLink screen to access the help in Microsoft Project (available only if Primavera ProjectLink is installed).*

Link actual and actual this period units and cost To store period performance on a project, the actual and actual this period units and cost must be linked. Choose Enterprise, Projects. Click the Layout Options bar and choose Show On Bottom, Project Details. In the Project Details, Calculations tab, mark the Link Actual and Actual This Period Units and Cost option.

Post actual amounts for the period Choose Tools, Store Period Performance. The Store Period Performance dialog box lists all open projects. For each project you want to store period performance for, double-click in the Financial Period column to select a financial period. The Select Financial Period dialog box lists all financial periods predefined in the Financial Periods dictionary. If you do not want to store period performance for a project, remove the mark from the corresponding checkbox in the Selected column.

If any open project is read-only or checked out, the Store Period Performance menu option is disabled.

Click to run Store Period Performance for the selected periods.

Double-click in the Financial Period column to select a financial period.

Unmark the checkbox if you do not want to store period performance for that project.

Click Store Now. The Project Management module stores the actual this period values in the selected financial period for each project (regardless of the data date or actual start dates), then sets actual this period values to zero in anticipation of the next schedule update period.

> *You can store period performance for the same financial period in a project more than once. When you store period performance after it has already been stored for a period, the module appends any new values to the period and does not overwrite existing values (except for earned value and planned value data which is calculated as usual; the new earned value and planned value data overwrites the existing period data). Also, you do not have to store period performance sequentially (i.e., you can skip periods).*

View or edit past period actual data   You can view and edit past period actual data for each financial period. To choose the range of financial periods that are available for display as columns choose Edit, User Preferences. In the Application tab, Columns section, select a range of financial periods.

> *You must select a financial period range to display as columns, as described above. If you do not select a range, financial period columns are not available.*

> *If your resources use the Timesheets module to enter time, you should not edit past period actuals in the Project Management module.*

In the Activity Table, you can display columns for actual this period labor and nonlabor units; labor, nonlabor, material, expense, earned value, and planned value cost; and, earned value and planned value labor units. In the Resource Assignments window and the Activity Details, Resources tab, you can display columns for actual units and cost. The available financial period columns are listed in the Financial Period Value section. Once you display a financial period column, you can edit the data in any field of that column.

Available financial period columns in the Activity Table
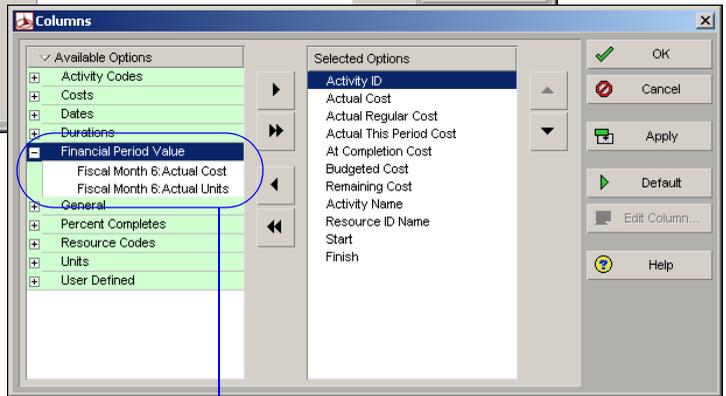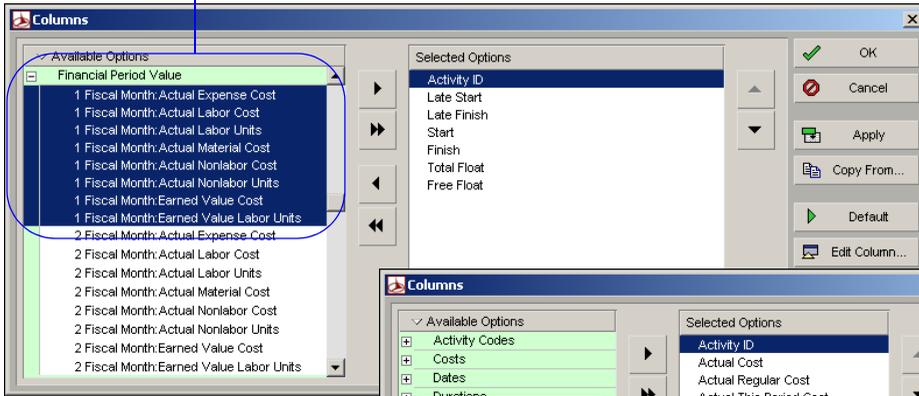
Available financial period columns in the Resource Assignments window and the Resources tab of Activity Details

When you create a financial period, the default name is YYYY-MM-DD (e.g., 2004-04-01). The Columns dialog box lists financial period columns alphanumerically rather than in the order listed in the Financial Periods dictionary. To ensure the proper order, you should use the default name or add a letter or number to the beginning of the name (e.g., 1 Fiscal Month, 2 Fiscal Month, etc.)

You cannot edit past period actual data for activities that do not have an actual start date. You can edit past period actual data for activities that have resource assignments in the Resource Assignments window or in the Resources tab of Activity Details.

You can also view past period actual spreads in the Activity Usage Profile/Spreadsheet, Resource Usage Profile/Spreadsheet, Tracking window (in the Project Gantt/Profile and Resource Analysis layouts), time-distributed reports, and P6 Web Access.

Scheduling Projects

The module employs the Critical Path Method (CPM) scheduling technique to calculate project schedules. CPM uses activity durations and relationships between activities to calculate project dates. This process is performed in two phases or "passes" over the activities in a project.

The first pass or "forward pass" calculates the early start and finish dates for each activity, based on the start or finish dates of predecessor activities as well as the duration of the activity.

The second pass or "backward pass" calculates the late start and finish dates for each activity, based on the start or finish dates of successor activities as well as the duration of the activity. The free float and total float for each activity are recalculated.

You can schedule one project or all projects in a particular EPS node.

To display and/or use the default scheduling settings, click Default in the Schedule Options dialog box.

Schedule a project Open an individual project or the node that contains the projects you want to schedule. Choose Tools, Schedule. The Schedule dialog box lists the number of projects to be scheduled, along with the earliest data date of all open projects. You can change the data dates for individual projects directly in the Projects window, or when you apply actuals (choose Tools, Apply Actuals).

For more information on additional scheduling options, refer to the Help.

A forecast start date is shown if you manually changed the start date of a project by dragging the project bar to a new timeframe in the Portfolios section of P6 Web Access or in Tracking layouts. You can choose to use this new date instead of the project's planned date and current data date when you schedule the project. Mark the Set Data Date and Planned Start to Project Forecast Start During Scheduling option. If multiple projects are open, each with a project forecast start date, the forecasted start date is used from each project during scheduling.

Organizations using Primavera ProjectLink cannot schedule Microsoft Project (MSP)-managed projects in the Project Management module. For more information on Primavera ProjectLink, refer to the Primavera ProjectLink Help in Microsoft Project (available only if Primavera ProjectLink is installed).You can access the help by clicking the Help button on any ProjectLink screen.

If more than one project is open, this changes to Earliest Data Date.

Mark to record your scheduling results in a log file, then click the Browse button to specify a filename and location.

Schedule

Project(s) to schedule	1
Current Data Date	02-Aug-04
Project Forecast Start Date	

☐ Set Data Date and Planned Start to Project Forecast Start during scheduling

☑ Log to file

C:\Program Files\Primavera\Project Management\SchedLo

- Cancel
- Schedule
- View Log
- Help
- Options...
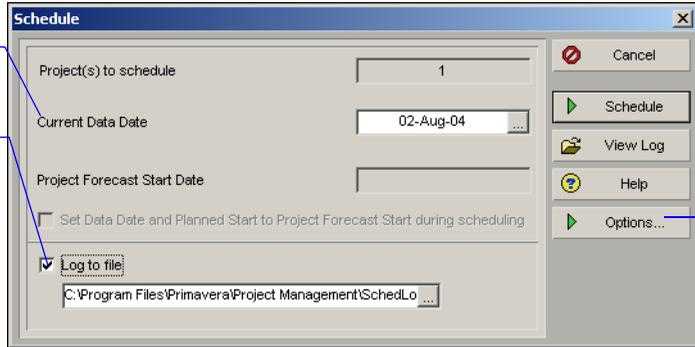
When the option to ignore external relationships is selected, mark this option if all open-ended activities with no successors, or with successors to external projects are to be made critical. Otherwise, the total float of the activities is computed using the Schedule Finish of the project.

Leave this option cleared to preserve activity dates dependent on external relationships to projects that are not included in the opened projects.

Mark to level resources while scheduling the open projects.

Mark to recalculate resource and role assignment costs after you schedule the project(s).

Select to define critical activities either by total float or by activities that constitute the longest path.

Choose to calculate float using the finish date of each project for open-ended activities. Selecting Each Project uses the Schedule Finish date of each project as the latest finish date of all activities in the project.

Selecting Opened Projects ignores each project's finish date and uses the latest finish date of all projects to calculate late dates for all activities. The Schedule Finish date for each project is the same and equal to the latest finish date.

Schedule Options

General | Advanced

☐ Ignore relationships to and from other projects
☐ Make open-ended activities critical
☑ Use Expected Finish Dates
☐ Schedule automatically when a change affects dates
☐ Level resources during scheduling
☐ Recalculate assignment costs after scheduling

When scheduling progressed activities use
◉ Retained Logic   ○ Progress Override   ○ Actual Dates

Calculate start-to-start lag from
◉ Early Start   ○ Actual Start

Define critical activities as
◉ Total Float less than or equal to
   0d
○ Longest Path

Calculate float based on finish date of
◉ Each project   ○ Opened projects

Compute Total Float as
Finish Float = Late Finish - Early Finish

Calendar for scheduling Relationship Lag
Predecessor Activity Calendar

- Close
- Cancel
- Default
- Help

Select the method for calculating total float for all activities. Start Float is the difference between the early and late start dates (Start Float = Late Start   Early Start); Finish Float is the difference between the early and late finish dates (Finish Float = Late Finish   Early Finish); and Smallest of Start Float and Finish Float use the most critical float value.

Calculates critical float path and sub-paths based on total float. Normally, the path with Float path of 1 will be the path made of activities that drive the activity with the least total float.

Click the Advanced tab to specify additional options for determining critical activities based on multiple float paths.

Calculates the critical float path and sub-paths based on free float. In this case, the most critical path is the longest path, or the path the drives the Schedule Finish of the project back to the project start date.

Calculates critical float path and sub-paths based on total float. In this case, the float path assigned the number 1 is comprised of activities that drive the activity with the least total float.

Enter the number of float paths to calculate; more float paths will take longer to calculate.

Select the WBS activity to represent the end of the float paths. If this option is left blank, then the entire project is (or multiple, selected projects are) considered in determining all float paths.
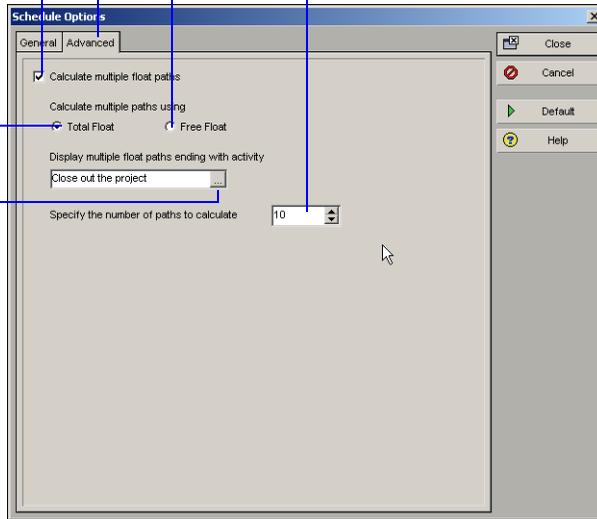
Setting Float Paths for Multiple Projects In the Advanced tab of the Scheduling Options dialog box, you can calculate multiple float paths for one or more projects. Mark the Calculate multiple float paths check box, then choose Total Float to calculate the critical float path, or Free Float, to identify the critical path as the longest float path based on the sequence and start and end dates of activities in the projects. In the Display multiple float paths ending with an activity field, click the Browse button to choose an activity or milestone to be the end of the critical float paths. In the Specify the number of paths to calculate field, choose the number of float paths to calculate from the total number of activities across all projects. Enter a low number (10 or less) to optimize performance. When you are finished, click Close.

Automatic scheduling and leveling You can also choose to calculate the schedule each time activity data change, rescheduling activities that have changed significantly and rescheduling any activities affected by the change to the first activity. Mark the Schedule Automatically When a Change Affects Dates checkbox in the General tab of the Schedule Options dialog box to recalculate the schedule each time a significant change is made to an activity, relationship, or resource. If you turn off automatic scheduling, changes to activities will not be reflected in the schedule until you calculate the schedule again. You can also choose to level resources during automatic scheduling. To enable leveling of resources, mark the Level Resources During Scheduling checkbox in the General tab of the Schedule Options dialog box.

After the forward pass, if a Must Finish by Date is specified in the Project Details Dates tab, the backward pass is calculated using the must finish by date rather than the schedule end date.

Schedule project data as a service Choose Tools, Job Services, then click Add. Select Schedule in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed, if more than one service is listed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the scheduling service. You can suspend a service at any time by selecting Disabled in the Status field. In the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify.
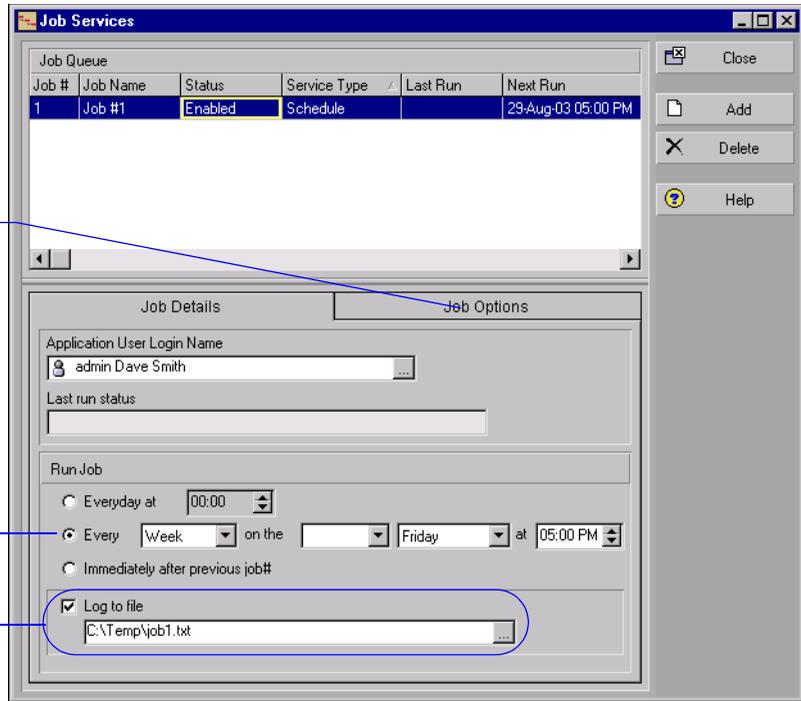
Click the Job Options tab to select the projects/EPS nodes the job service will schedule.

In this example, projects are scheduled each week on Friday.

Mark to log information about the service to a file you specify.

> You must have the appropriate access rights to set up job services. The Job Service does not interact with the module client when running jobs. All jobs are run on the server(s) on which the Job Service is installed.

Leveling Resources

Level resources in your projects to ensure that resource demand does not exceed resource availability. Resource leveling is an automated process that changes the start of certain activities. During leveling, the resource requirements of all scheduled activities are compared to the maximum quantity available at the time of leveling. An activity is delayed if too few resources are available at any time during the activity's duration.

Expenses are not included when leveling resources.

You can select the resources to be leveled, and you can add leveling priorities that specify which project or activity is leveled first when a conflict occurs.

> *The maximum amount of work that a resource is capable of performing for a given timeperiod is defined by the resource's Max Units/Time in the Units & Prices tab in the Resources window.*

> *Organizations using Primavera ProjectLink cannot level resources for Microsoft Project (MSP)-managed projects in the Project Management module. For more information on Primavera ProjectLink, refer to the Primavera ProjectLink Help in Microsoft Project (available only if Primavera ProjectLink is installed). You can access the help by clicking the Help button on any ProjectLink screen.*

Level resources Open the projects that contain the resources you want to level. Choose Tools, Level Resources. You can set several resource leveling options to meet your requirements. Click Level after you make your selections.

Mark to recalculate all resource and role assignment costs after you level resources.

Mark to automatically level resources each time you schedule a project.

Mark to level all resources, or clear and click Select Resources to specify the resources to be leveled.

Mark to delay activities with resource conflicts only up to their late finish dates, then type the minimum amount of total float and specify the maximum percentage by which the resource availability can be increased.

Level Resources

☐ Automatically level resources when scheduling

☐ Consider assignments in other projects with priority equal/higher than   5

☑ Preserve scheduled early and late dates

☐ Recalculate assignment costs after leveling

☑ Level all resources   Select Resources...

☐ Level resources only within activity Total Float

Preserve minimum float when leveling   0.0d

Max percent to over-allocate resources   25

Leveling priorities

Field Name	Sort Order
Activity Leveling Priority	Ascending

Add   Remove

☐ Log to file

C:\Program Files\Primavera5.0\Project Management\Sc

Close

Level

Default

View Log

Help

For example, if resources are assigned across multiple projects, you can determine whether to consider the resource assignments in other projects when leveling. A leveling priority number is assigned to each project when you add the project (in the Projects Details General tab.) In the Level Resources dialog box, mark the checkbox to consider assignments in other projects and specify the priority value you want to consider.

For more information on leveling options, refer to the Help.

If you mark the Preserve Scheduled Early and Late Dates checkbox, the project's current early dates are retained before leveling. To review the leveled early dates, choose to show the Remaining Start/Finish dates or the Start and Finish dates. In addition, when you preserve these dates, the module only forward-levels the schedule, which means that the early dates of activities from the start to the finish of the project are scheduled.

When preserving early and late dates, shows early dates before leveling

Shows leveled dates

Shows leveled dates

If you clear the Preserve Scheduled Early and Late Dates checkbox, the module also performs backward leveling. Backward leveling schedules activities to occur as late as possible without delaying the project finish. The module reverses the leveling process, beginning at the project's late finish and working towards the beginning of the project. If insufficient resources are available to schedule an activity on its late dates, the activity is advanced to an earlier date. When the schedule is leveled forward and backward (by clearing the checkbox to preserve scheduled early and late dates), the project's early and late start/finish dates are updated.

Prioritize activities during leveling To handle scheduling conflicts that may occur during leveling, you can add priorities that specify which project or activity is leveled first. In the Leveling Priorities section of the Level Resources dialog box, click Add to add a blank leveling priority to the list of leveling priorities. Select the type of priority, then select the order in which the item specified in the priority will be leveled. Add priorities in the order in which you want the module to consider them.

To remove a priority, select it, then click Remove. To change the information specified for a priority, double-click the Field Name column, then select a new field name and/or double-click the Sort Order column, then select Ascending or Descending.

Leveling priority definitions The following table defines several of the priority and order options you can specify for leveling resources.

Priority	Ascending (Lower)	Descending (Higher)
Activity Leveling Priority	Levels higher priority activities first	Levels lower priority activities first
Project Leveling Priority	Levels higher priority projects first	Levels lower priority projects first
Planned Start	Levels activities with earlier planned start dates first	Levels activities with later planned start dates first
Planned Finish	Levels activities with earlier planned finish dates first	Levels activities with later planned finish dates first
Original Duration	Levels activities with shorter original durations first	Levels activities with longer original durations first
Remaining Duration	Levels activities with shorter remaining durations first	Levels activities with longer remaining durations first
Total Float *	Levels activities with less total float or more critical activities first	Levels activities with more total float or less critical activities first
Early Start	Levels activities with earlier, early start dates first	Levels activities with later, early start dates first
Early Finish	Levels activities with earlier, early finish dates first	Levels activities with later, early finish dates first
Late Start	Levels activities with earlier, late start dates first	Levels activities with later, late start dates first
Late Finish	Levels activities with earlier, late finish dates first	Levels activities with later, late finish dates first

* Indicates that the priority is available only if you mark the Level Resources Only Within Activity Total Float checkbox in the Level Resources dialog box.

Recalculating Resource and Role Assignment Costs

When changes are made to resource or role cost information, you are prompted to recalculate costs, so that the correct values display for activity costs in all open projects. The Recalculate Assignment Costs command ensures that project costs reflect any updated price per time values on activities.

For example, you should recalculate costs if you change a resource's price/time and the resource is assigned to activities, or if a resource/role has multiple prices and the activity dates change, because the activity cost calculation is based upon the activity start date.

In some cases, you will be prompted to recalculate costs. You can also run this command from the Tools menu, if you have access rights to View Resource and Role Costs.

> *Recalculate Assignment Costs is disabled if you do not have the View Resource and Role Costs global privilege.*

Recalculate assignment costs To update assignment costs for activities in an open project, choose Tools, Recalculate Assignment Costs. Click Recalculate.

> *Choosing this command recalculates activity costs in all open projects.*

Mark this to synchronize overtime factors.
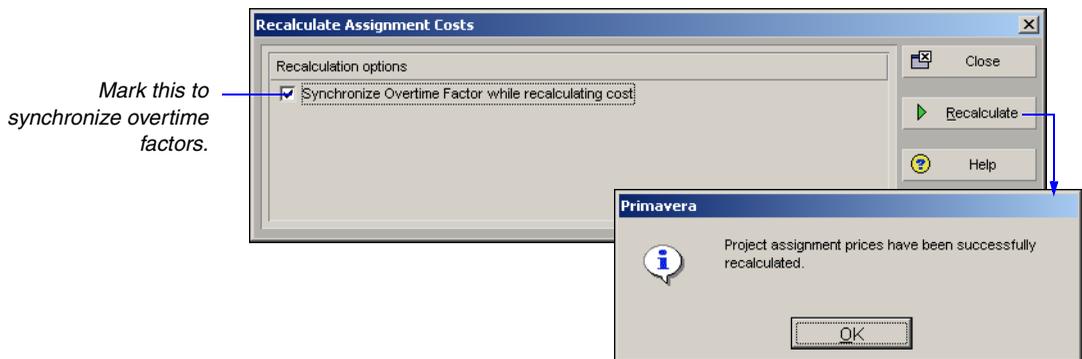
> *The recalculate utility ignores any assignment with a Rate Type set to Custom. The customized, manually entered price is not overwritten when you synchronize prices.*

In the Resources window, Details tab, you must mark the setting to Calculate Costs from Units to recalculate assignment costs. In the Resources window, choose View, Details, then click the Details tab.
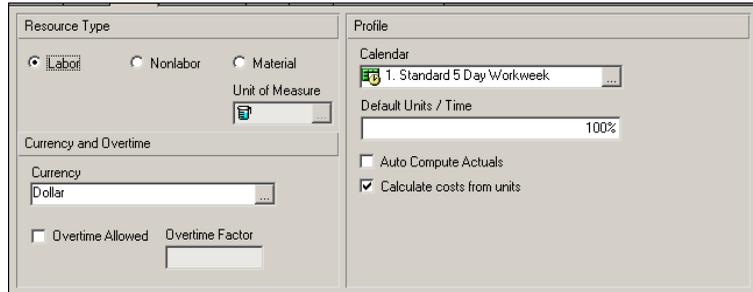
Calculate cost when using multiple resource rates The total cost for a resource assignment considers any changes in the price/unit over the course of the activity. Enter a price/unit for each rate type (defined in Admin Preferences, Rate Types tab) in the Units & Prices tab in the Resources window. Select the rate type you want this assignment to use in the Resources tab in Activity Details. The cost of the resource assignment is based on the rate type assigned to the resource assignment.

For more information on using multiple resource rates and rate types, see the Help.

For example, a three-day activity has a resource that works 8 hours a day. The price/unit for the resource for the first two days is $10/hour, and the price/unit for the third day is $30/hour. The cost of the first 16 hours of the resource assignment is $160 (16 hours x $10.00/hour). The cost for the last 8 hours of the resource assignment is $240 (8 hours x $30.00/hour). The total cost for the resource is $400.00 ($160.00 + $240.00).

If you have resources with shifts that use timesheets, costs are calculated using the price of the first shift for the resource.

Managing Resource Assignments

Use the Resource Assignments window to add and view all resource assignments, grouped by resource, for the currently opened project. In the Resource Usage spreadsheet, you can display resource cost and quantity information and manually update future period assignment data.

Display the Resource Usage Spreadsheet Choose Project, Resource Assignments, or from the Activities view, click the Options display bar, select Show on Bottom, then choose Resource Usage Spreadsheet. This following image is from the Resource Assignments view:

When grouped by Resource, click to assign an activity to the resource.

Use the details tabs to view or assign resource assignment properties such as cost account, price/unit, rate type, and planning information.

Group and sort resource assignments Click the Display Options bar and choose Group and Sort. Choose one of the predefined group and sort options, or choose Customize.

You can manually plan future period resource allocation for an assignment before or after progress has started on the assignment. For detailed instructions on manually planning/updating future period assignment buckets, refer to "Manually Planning Future Period Assignments" on page 235, then refer to the Help for detailed guidelines to consider.

Manually update assignment data In the Resource Usage Spreadsheet (in both the Activities and Resource Assignments windows), you can manually update values for an assignment's Budgeted Units and Remaining (Early) Units. For example, if work on an activity is not proceeding according to plan, and the future work planned to be performed on an activity cannot be accurately captured by using linearly spread units, you can manually update the assignment's Budgeted Units and/or Remaining (Early) Units to reflect the new plan.

Summarizing Projects

You can summarize and save resource quantity, cost, and/or custom user field information from an enterprise project structure (EPS) node or a project's work breakdown structure (WBS). You can then view summary data such as original budget and other cost values at various levels of the EPS in the Project Management module, as well as in P6 Web Access.

This chapter explains how to summarize data "on-the-fly" or at a regularly scheduled interval you specify.

Setting Summarization Options

Before you can summarize information, you need to specify which projects should be summarized and the work breakdown structure (WBS) level to which data should be summarized. For example, you may want to analyze only specific projects in the enterprise project structure (EPS) or concentrate on information that resides at a particular WBS level or below.

Administrators can further define summarization options by editing registry settings and administrative preferences. Refer to the *Primavera P6 Administrator's Guide* **for more information.**

Set summarization options Choose Enterprise, Projects. Select the project you want to summarize. Click the Settings tab in Project Details. In the Summarize to WBS Level field, specify the maximum WBS level to which the project can be summarized.

This number indicates the level to which others will be able to display within P6 Web Access.

Summarized Data	Project Settings	
☐ Contains Summarized Data Only	Character for separating code fields for the WBS tree	.
Last Summarized On	Fiscal year begins on the 1st day of	January ▼
Nov-12-04 15:26	Baseline for earned value calculations	
Summarize to WBS Level	○ Project baseline ● User's primary baseline	
2 ⬍	**Define Critical Activities**	
Summarize project based on	● Total Float less than or equal to	0.00d
○ High level resource planning	○ Longest Path	
● Detail activity resource assignments		

The Last Summarized On field displays the date when data were last summarized for the project.

> 📝 *Mark the Contains Summarized Data Only checkbox if you plan to link to project data in other applications.*

> 📝 *On the Options tab of Admin Preferences, your administrator can choose to summarize resource and role assignment data by calendar intervals, financial period intervals, or both. These settings determine how summarized assignment data is displayed in charts and spreadsheets in P6 Web Access. For example, if assignment data is not summarized by financial period, financial period timescale intervals are not available in P6 Web Access. For more information on these options, refer to the* Primavera P6 Administrator's Guide*.*

Summarizing Project Data

You can summarize data at any time, using the Tools, Summarize command, or you can use the Job Services option to schedule a time when data are regularly summarized. For example, set the module to summarize every Monday at 8:00 a.m. In each case, project data are summarized according to the settings you specify and the new summary values are saved to the project database, overwriting any previously calculated summary data.

You can view and report on summarized data in the Project Management module and in P6 Web Access.

You can also summarize a single project or a specific group of projects. Select the projects you want to summarize in the EPS, then right-click and choose Summarize Project. Click Yes.

Summarize project data manually Choose Enterprise, Projects. Choose Tools, Summarize, then select to summarize the open projects in the current view, all projects in the EPS (includes both open and closed projects but excludes summary only projects), or summary-only projects (those projects for which the Contains Summarized Data Only checkbox is marked in the Project Details Settings tab).

If you choose to summarize all projects, data are also summarized for each EPS node after the project summaries are saved to the database.

Summarize project data as a non-distributed job service
Choose Tools, Job Services, then click Add. Select Summarize in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed, if more than one service is listed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the summary service. You can suspend a service at any time by selecting Disabled in the Status field. In the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify.

In this example, projects are scheduled and then summarized at the end of each two-week period.

Mark to summarize projects immediately after they are scheduled.

Mark to log information about the service to a file you specify.
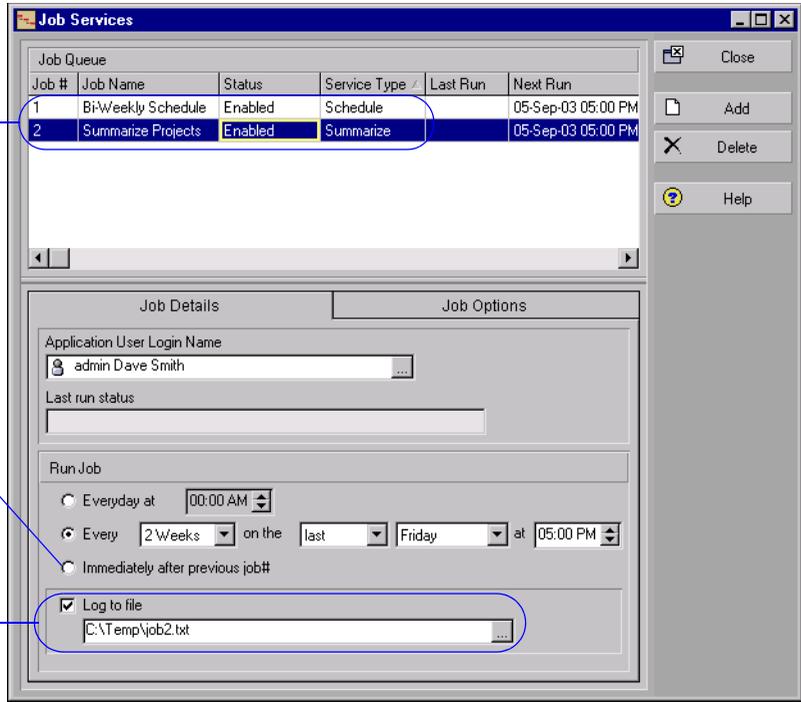
You must have the appropriate access rights to set up job services. The Job Service does not interact with the module client when running jobs. All jobs are run on the server(s) on which the Job Service is installed.

For more information on the Primavera Distributed Job Service, refer to the *Primavera P6 Administrator's Guide*. **This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.**

Summarize project data as a distributed job service

Primavera distributed job services (PDJS) enable large summarization jobs to be separated into smaller jobs by running the services concurrently on multiple servers. For example, you can summarize an EPS with four EPS nodes (projects) in two, three, or four separate summarization jobs.

Refer to the following two figures. The first figure shows that Job #1 is summarizing 2 EPS nodes (Custom and Specs). The second figure shows that Job #2 is summarizing two different EPS nodes (Assembly and Facilities). These EPS nodes are all part of the same EPS.

Job 1 is summarizing the data in two EPS nodes of a single project, Custom and Specs.
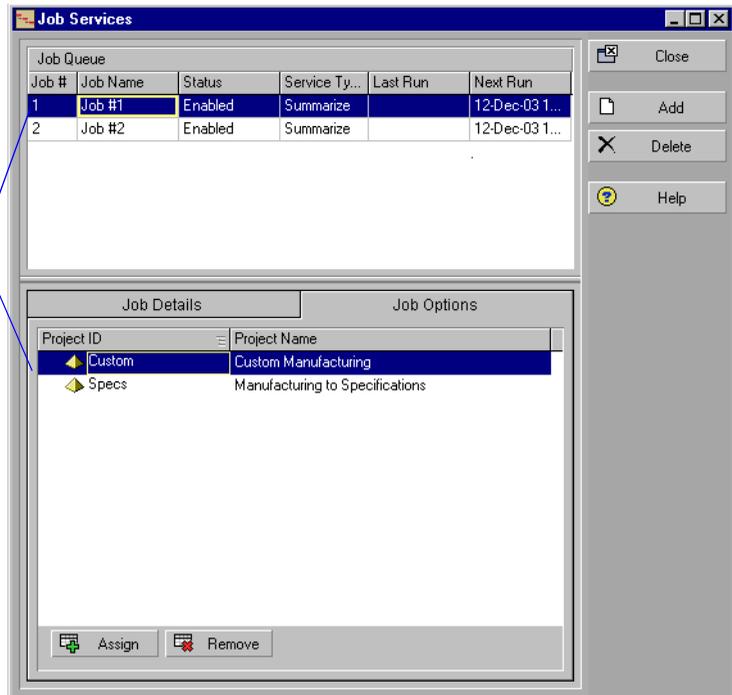
Job 2 is also summarizing the data in two EPS nodes of a single project, Assembly and Facilities.
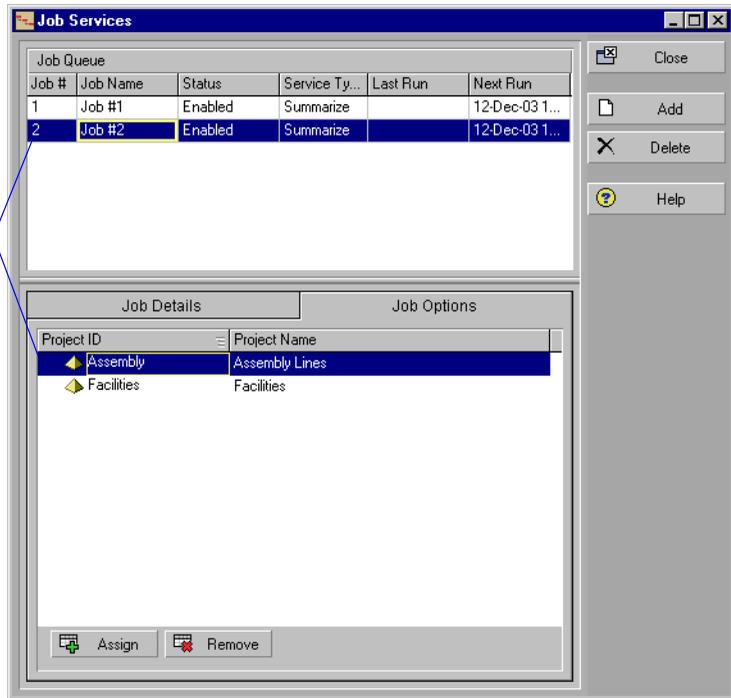
The PDJS will run Job #1 and Job #2 concurrently on different PDJS servers. When Job #2 is complete, the PDJS will summarize the enterprise-level data as a separate job.

> *Before running the PDJS, consult your administrator to confirm that the PDJS has been installed and configured on your network.*

> *When running concurrent jobs, do not mix Summary jobs with non-Summary jobs. If you mix different job types with Summary jobs, the PDJS will run the jobs in sequence (not concurrently). As a result, the enterprise-level data will not be summarized.*

To set up a PDJS summarization job, choose Tools, Job Services, then click Add. Select Summarize in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the summary service. You can suspend a service at any time by selecting Disabled in the Status field. For Job 1, in the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify. For each subsequent job, in the Run Job area on the Job Details tab, select the option to run the job Immediately after previous job# (as shown in the following figure). For each job, in the Job Options tab, assign the EPS nodes you want to include in the job (as shown in the previous figures).

Ideally, the number of concurrent jobs running at any one time should not exceed the number of machines configured to run the PDJS (Controller and PDJS servers). There is no restriction on the maximum number of concurrent jobs allowed to run, however there may be performance issues if the number of concurrent jobs exceeds the number of machines.

How Data Is Summarized

You can summarize data for all projects in the EPS. Summary information is calculated and displayed for costs and quantities, custom user fields, dates, durations, float, progress, baselines, variances, and special cases for activity, resource, and cost data. The following paragraphs explain how the module summarizes specific data.

Costs and quantities Cost and quantity data items, such as budgeted cost and budgeted quantity, are totaled by adding the values for each activity in the summary.

User-defined fields User-defined fields are summarized according to type. For example, items representing start dates show the earliest start date, and items for finish dates show the latest finish dates. A numeric user-defined field is totaled for the summarized activities. A text-based user-defined field displays a blank unless values for all activities are the same.

Dates If you display early dates, the earliest early (or actual) start date and the latest early (or actual) finish date are shown. The same rules apply for late dates and baseline early and late dates.

Durations Original and remaining duration values are summarized. For activities with no progress, the original and remaining durations are the number of workperiods between the earliest early start and the latest early finish dates.

If the summary activity has an actual start date, original duration is calculated from the actual start date to the latest early finish date; the remaining duration is calculated from the "internal" early start date to the latest early finish date.

(The module keeps track of the early start date for each activity, even when you assign an actual start date; this is referred to as the "internal" early start date of the remaining duration.)

If the summary activity is 100 percent complete, original duration is calculated as the difference between the actual start date and the actual finish date; the remaining duration is zero.

Float   You can base total float of the summarized data on the start dates, finish dates, or most critical dates. To set this option, choose Tools, Schedule, Options. On the General tab, select how you want to calculate total float in the Compute Total Float As field. On the Advanced tab, choose how you want to calculate multiple float paths.

Progress   The simplest measure of percent complete uses duration to compare the amount of time remaining to complete the activities to their original duration. In this case, the following ratio is used for each group:

[(Summary Current Original **Duration – Summary Remaining Duration)** / **Summary Current** Original **Duration] x 100**

Baseline data, comparison data, and variances   You classify each baseline, comparison, or variance data item as either a date or a duration data item. See the "Dates" and "Durations" sections on the previous page.

Project Issues and Thresholds

Issues are known problems within a project plan that require attention or corrective action. You can manually create issues and you can generate issues automatically by defining project thresholds. You can associate these issues with work breakdown structure (WBS) elements, activities, or resources.

Create a threshold by selecting a parameter, such as start date variance; setting a lower threshold value for the threshold, such as –2 days; and applying the threshold to a specific WBS element, or area, of your project plan. After you define a threshold, the module monitors and generates the threshold's issues for you.

This chapter describes how to add issues and thresholds and use them to help you manage your projects.

Adding Issues

Issues identify problems within a schedule that must be addressed before the project can be completed. Issues can be added manually to projects, or you can use thresholds to generate them automatically. (See "Adding Thresholds" on page 358.) Once you create an issue, you can assign a priority level, tracking layout, and responsible manager to it. You can also e-mail the issue's details, along with your comments, to any member of the project's staff. Use the Issue Navigator feature to quickly view all the information associated with an issue.

Add an issue   Choose Project, Issues. If Issue Details are not displayed, click the Display Options bar, then choose Issue Details (the box next to the command should be marked). Click Add, then click the General tab. Type the issue's name. Select the manager responsible for addressing the issue. Responsible managers are defined in the organizational breakdown structure (OBS). Click the Browse button in the Tracking Layout field to select the layout that best displays the issue. The system date is automatically entered in the Date Identified field. Click the Browse button if you need to select a different date. Your user name is automatically entered in the Identified By field. You can type another user name of the individual who identified the issue. If the issue was generated by running the threshold monitor, Monitor is displayed.

You can group and sort issues by various detail items, such as project, EPS, or WBS. Click the Display Options bar, then choose Group and Sort By.
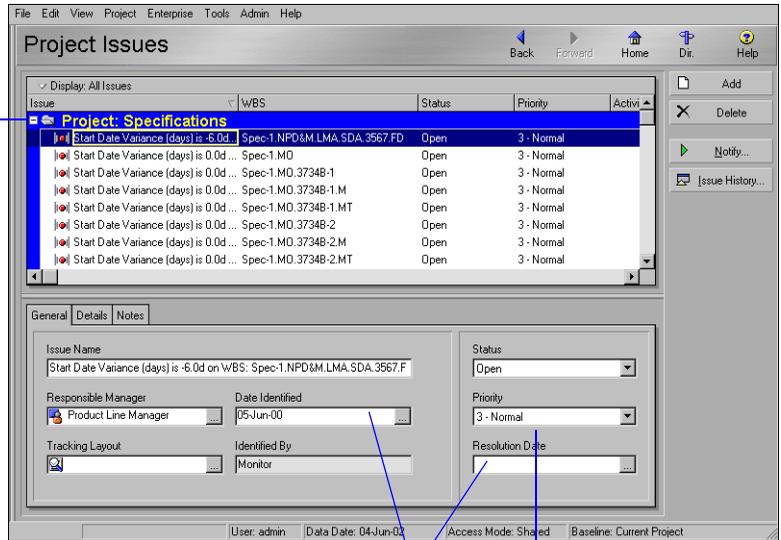
Use the Date Identified and Resolution Date fields to track how long an issue is open and how long it took to resolve closed issues.

The issue status is automatically set to Open; the priority is set to Normal. Change these fields as required.

You can only modify fields in the Details tab for issues you have added; these fields are Read-Only if the issues are generated by a monitoring threshold.

Define an issue's details and add notes Choose Project, Issues. Click the Details tab, then type the issue's actual (numeric) value in the Actual Value field. To associate the issue with a WBS element other than the root WBS element, click the Browse button in the Applies to WBS field and select the element. You can also associate the issue with a resource or activity.

To enter additional information about the issue, click the Notes tab, then type your notes. You can use HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

If the threshold monitor generated the selected issue, the parameter name is listed in the Threshold Parameter field in the Details tab.

Send e-mail about an issue In the Project Issues window or the Issue Navigator dialog box (choose Tools, Issue Navigator), select the issue about which you want to send e-mail, then click Notify. To specify the individuals to whom you want to send e-mail, click Add. Choose Select Recipient from a Dialog to select a recipient from a list of resources or users, click OK, then select a recipient from the Assign Recipients dialog box. Click the Assign button. To remove a recipient from the recipient list, select the recipient, then click Remove.
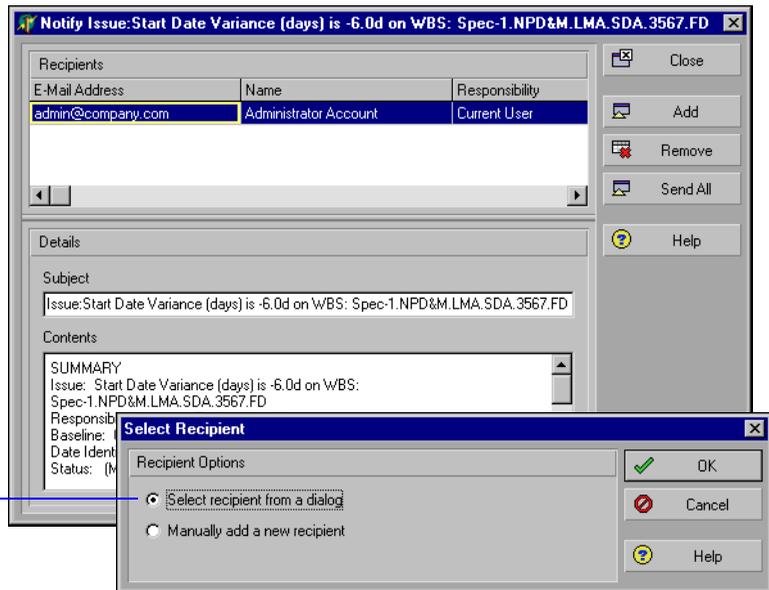
Click to add recipients to the e-mail, then choose how you want to select recipients.

To type a recipient's e-mail address directly, choose Manually Add a New Recipient, click OK, then type the recipient's information.

Type a subject for the e-mail, then type any additional comments about the issue in the Contents area. Click Send All.

View and add to an issue's history Choose Project, Issues. Select
an issue, then click Issue History.

*Type any additional
comments about the
issue, then click Add.*
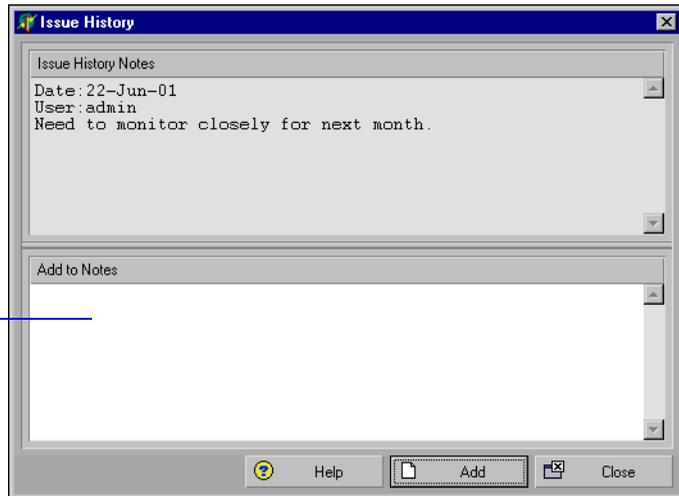
Assigning Tracking Layouts to Issues

Assign a tracking layout to an issue to graphically display the information surrounding the issue, then use the Issue Navigator (choose Tools, Issue Navigator) to open this layout in the Tracking window.

Assign a tracking layout to an issue Choose Project, Issues. If Issue Details are not displayed, click the Display Options bar, then choose Issue Details (the box next to the command should be marked). Select the issue to which you want to assign a tracking layout. Click the General tab, then click the Browse button in the Tracking Layout field. Select the tracking layout you want to assign, then click the Select button.

This tracking layout shows total costs over time.
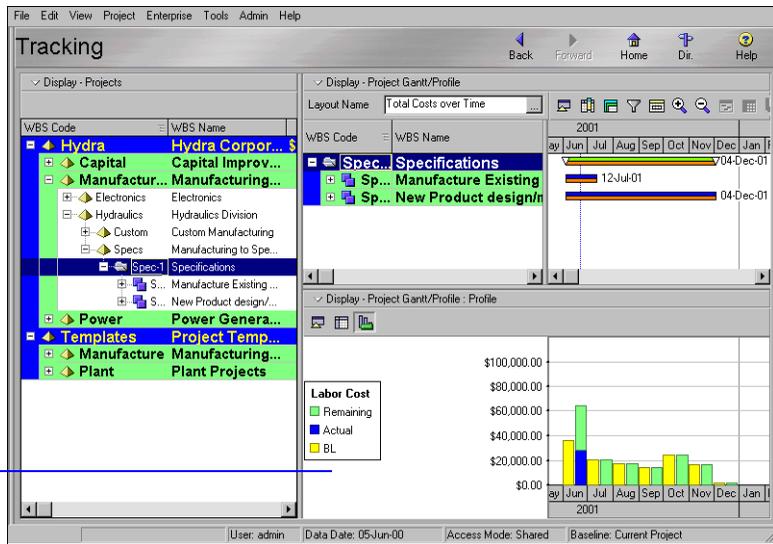
Using the Issue Navigator

The Issue Navigator helps to provide you with the information you need regarding a particular issue so you can quickly resolve it. Select an issue that you added or was generated automatically and choose to jump to its associated tracking layout; activity, WBS, or resource assignment; or more details. You can also send an e-mail to notify other users about the issue.

Use the Issue Navigator Choose Tools, Issue Navigator. Select the issue whose details you want to view, click the appropriate button to display the information you want to view about the issue. For example, click Tracking to immediately display the Tracking window already open to the issue's associated tracking layout. The associated tracking layout, activity, WBS, and/or resource for an issue are specified in the Project Issues window (if manually entered), or in the Project Thresholds window (if generated automatically).

If a button is unavailable, it means the issue is not associated with that topic.
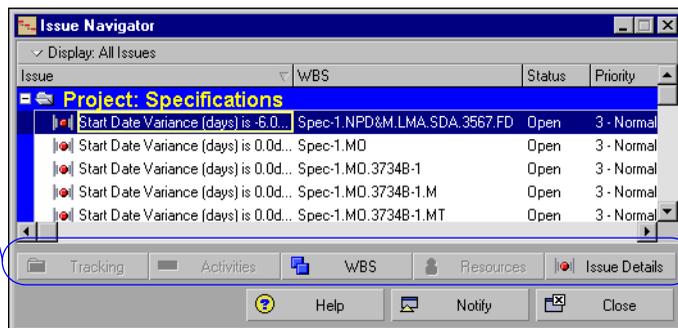
You can automatically display the Issue Navigator each time you open the module. Choose Edit, User Preferences, then click the Application tab. Mark the Show the Issue Navigator Dialog at Startup checkbox.

Adding Thresholds

Project thresholds consist of parameters assigned to WBS elements; they are used to monitor projects and generate issues. For example, you may set a threshold with the Cost % of Budget parameter and an upper threshold value of 100 percent. When the actual cost of the specified WBS element reaches 100 percent of the budgeted cost, the module generates an issue.

You can assign thresholds to WBS elements at the activity or WBS level. If you monitor a project at the WBS activity level, the module reviews and reports issues for each activity that violates the threshold. If you monitor a project at the WBS level, the module reviews and reports the WBS summary level data rather than at the activity level. For example, if an activity within a particular WBS level has a start date variance of –1, but the start date variance at the WBS level is 0, an issue is not generated even though you may be monitoring for a lower threshold of –1.

For more information about each parameter, see "Threshold Parameter Definitions" on page 361.

Add a threshold   Choose Project, Thresholds. Click Add, then click the General tab. Select a threshold parameter. If you enter a lower and upper threshold limit, an issue is generated for any WBS element/activity that falls outside the specified range. For example, enter –2 days as the lower limit and 10 days as the upper limit for a total float threshold. You are notified when any WBS element/activity has a total float less than or equal to –2 days and greater than or equal to 10 days. The module automatically enters the type of value that corresponds to the selected threshold.

Select the WBS element you want the threshold to monitor, then select whether to monitor it at the WBS or activity level. If you select activity, the threshold will review activities in the specified WBS and in lower-level elements of that WBS.

The manager responsible for addressing the issues generated by the threshold is automatically assigned when you select a WBS element. Responsible managers are defined in the OBS. Click the Browse button in the Tracking Layout field to select the layout that best displays the threshold problem area.
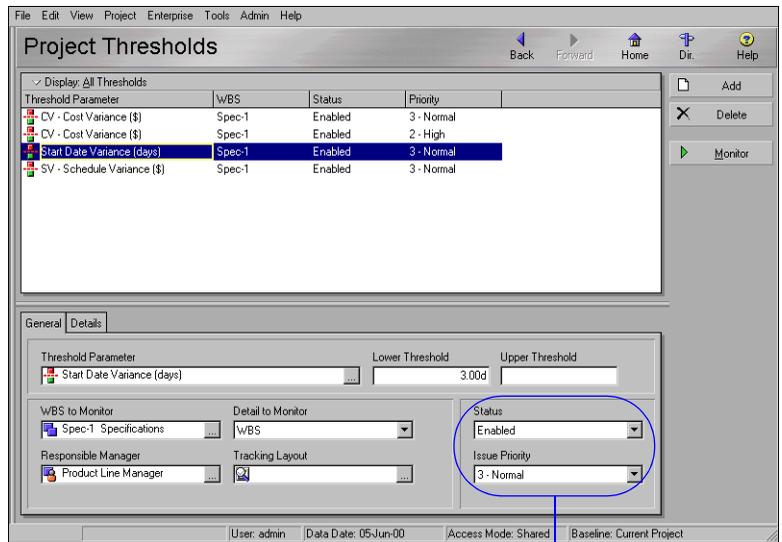
The threshold status is automatically set to Enabled. If you do not want to use it to monitor the project, select Disabled. You can also change the threshold's issue priority.

Specify the timespan to monitor Choose Project, Thresholds. Select the threshold whose details you want to define, then click the Details tab. Click the Browse button in the From Date and To Date fields and select the dates for which the threshold should monitor WBS elements or activities. The module checks only those WBS elements or activities whose start dates are after the From Date and whose finish dates are before the To Date.

To monitor all defined thresholds, choose Tools, Monitor Thresholds.

Monitor the threshold Once you define a threshold parameter, you need to monitor it to generate any applicable issues. In the Project Thresholds window, select the threshold you want to monitor, then click Monitor. A list of any issues generated are displayed in the Details tab.

View threshold issues You can quickly view the issues generated by a particular threshold. Select the threshold whose issues you want to review, then click the Details tab. Select the issue whose details you want to view, then click Go To.
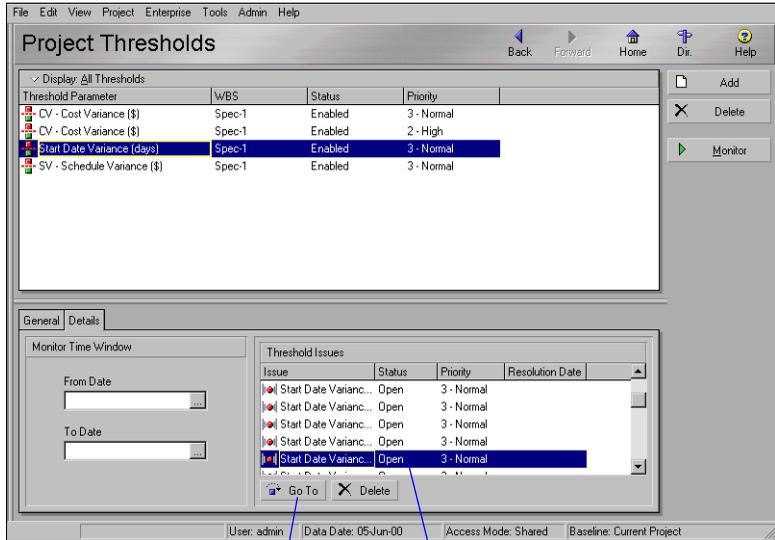
Click to jump to the Issues window for the selected issue.

View a list of issues for the selected threshold.

Group, sort, and filter thresholds From the Project Thresholds window, click the Display Options bar, then choose Filter By or Group and Sort By and the option that describes how you want to view thresholds.

Threshold Parameter Definitions

A threshold consists of a parameter, or type, and a lower and/or upper threshold value. The module generates an issue automatically when a threshold parameter is below or equal to the lower threshold or equal to or above the upper threshold value.

The following paragraphs define the available threshold parameters.

Accounting Variance (AV) An Accounting Variance (AV) threshold value is expressed as a monetary value. An issue is generated if the Accounting Variance (the difference between the activity's budgeted cost according to the schedule and the actual cost of performing the activity) falls beyond the threshold values.

Accounting Variance is computed as AV = Planned Value Cost – Actual Cost.

A negative value indicates that actual costs have exceeded the scheduled costs. A positive value indicates that actuals costs have not reached the scheduled costs.

If the lower threshold value is zero, an issue is generated as soon as actual costs are greater than scheduled costs.

Cost % of Budget Cost % of Budget threshold values are expressed as a percentage. An issue is generated if the ratio of the activity's actual cost to its budgeted cost (actual cost / budgeted cost * 100) falls beyond the threshold values.

Actual cost is the same as Actual Cost, and budgeted cost is the same as Budget at Completion (BAC).

The Cost % of Budget will reach 100 percent when the actual cost reaches the budgeted cost. The Cost % of Budget may be greater than 100 percent.

CPI – Cost Performance Index A Cost Performance Index (CPI) threshold value is expressed as a ratio. An issue is generated if the CPI falls beyond the threshold values.

The Cost Performance Index is computed as CPI = Earned Value Cost / Actual Cost. A value less than one indicates that actual costs have exceeded the value of work performed.

If the lower threshold value is one, an issue is generated whenever the actual costs exceed the value of the work performed.

Cost Variance (CV) A Cost Variance (CV) threshold value is expressed as a monetary value. An issue is generated if the CV (the difference between the activity's earned value and the actual cost of performing the activity) falls beyond the threshold values.

Cost Variance is computed as CV = Earned Value Cost – Actual Cost. A negative value indicates that actual costs have exceeded the value of work performed, which may be considered a cost overrun.

If the lower threshold value is zero, an issue is generated as soon as actual cost of the work is greater than the value of the work. A larger negative value for the threshold indicates that a certain amount of cost overrun may be tolerated before an issue is generated.

Cost Variance Index (CVI) A Cost Variance Index (CVI) threshold value is expressed as a ratio. An issue is generated if the CVI (the ratio of the cost variance to the earned value of work performed) falls beyond the threshold values.

The Cost Variance Index is computed as CVI = Cost Variance (CV) / Earned Value Cost.

A value less than zero indicates that actual costs have exceeded the value of work performed.

If the lower threshold value is zero, an issue is generated whenever the actual costs exceed the value of the work performed.

Duration % of Original A Duration % of original threshold value is expressed as a percentage. An issue is generated if the ratio of the activity's actual duration to its original duration (actual duration / original duration * 100) falls beyond the threshold values.

The ratio of actual duration to original duration may be greater than 100.

Finish Date Variance A Finish Date Variance threshold value is a specified number of days. An issue is generated if the difference between the activity's planned and current finish date (calculated as Planned Finish Date – Finish Date) falls beyond the threshold values.

If an activity's status is Not Started or Active, then the Finish date will be the Planned Finish date, and the finish date variance is always zero. If an activity's status is Completed, then Finish date is the actual finish date.

A negative value for Finish Date Variance indicates that the current finish date is later than the planned finish date.

Free Float A Free Float threshold value is a specified number of days. An issue is generated if an activity's free float (the amount of time the activity can be delayed without delaying the Early Start of any successor activity) falls beyond the threshold values.

Free Float threshold monitoring can only be applied at the activity level, not at the WBS level.

Schedule Performance Index (SPI) A Schedule Performance Index (SPI) threshold value is expressed as a ratio. An issue is generated if the Schedule Performance Index (the ratio of the earned value of work performed to the budgeted cost of work that was scheduled) falls beyond the threshold values.

The Schedule Performance Index is computed as SPI = Earned Value Cost / Planned Value Cost. A value less than one indicates that less work was actually performed than was scheduled.

If the threshold value is one, an issue is generated whenever the value of the work performed falls below the expected cost of performing that work, according to the schedule.

Start Date Variance A Start Date Variance threshold value is a specified number of days. An issue is generated if the difference between the activity's planned and current start dates (calculated as Planned Start Date – Start Date) falls beyond the threshold values.

If an activity's status is Not Started, then the Start date will be the Planned Start date, and the start date variance is always zero. If an activity's status is Started or Completed, then Start date is the actual start date.

Schedule Variance (SV) A Schedule Variance (SV) threshold value is expressed as a monetary value. An issue is generated if the Schedule Variance (the difference between the activity's earned value and the planned value) falls beyond the threshold values.

Schedule Variance is computed as SV = Earned Value Cost – Planned Value Cost. A negative value indicates that less work was actually performed than was scheduled. The activity may be considered behind schedule.

If the threshold value is zero, an issue is generated as soon as the earned value of the work performed falls below the amount of work that was supposed to be performed, according to the schedule. A larger negative value for a Schedule Variance threshold indicates that an activity may be behind schedule by that amount before an issue is generated.

Schedule Variance Index (SVI) A Schedule Variance Index (SVI) threshold value is expressed as a ratio. An issue is generated if the Schedule Variance Index (the ratio of the schedule variance to the planned value) falls beyond the threshold values.

The Schedule Variance Index is computed as SVI = Schedule Variance (SV) / Planned Value Cost. A value less than zero indicates that the value of the work performed is less than what was scheduled.

If the threshold value is zero, an issue is generated whenever the value of the work performed falls below the expected cost of performing that work, according to the schedule.

Total Float A Total Float threshold value is a specified number of days. An issue is generated if an activity's total float (the amount of time the activity can be delayed without delaying the project finish date) falls beyond the threshold values.

Variance at Completion (VAC) A Variance at Completion (VAC) threshold value is expressed as a monetary value. An issue is generated if the Variance At Completion (the budgeted total cost – latest total cost estimate) falls beyond the threshold values.

Variance At Completion may also be expressed as VAC = Budget at Completion (BAC) – Estimate At Completion (EAC).

A negative value indicates an estimated total cost overrun. If the threshold value is zero, an issue is generated as soon as the latest estimate for total cost exceeds the planned total cost. A larger negative value for a Variance At Completion threshold indicates that a certain amount of estimated total cost overrun may be tolerated before an issue is generated.

Monitoring Thresholds

You can run all the thresholds assigned to a project at one time, or you can run only individual thresholds as needed.

Monitor all thresholds at once When the project is open, choose Tools, Monitor Thresholds. To use the timeperiod specified for each threshold, choose Use Original Threshold Monitor Windows. To specify a new timeperiod that will apply to all thresholds, choose Use New Threshold Monitor Window, then click the Browse buttons in the From Date and To Date fields to select a new set of dates. Click Monitor.
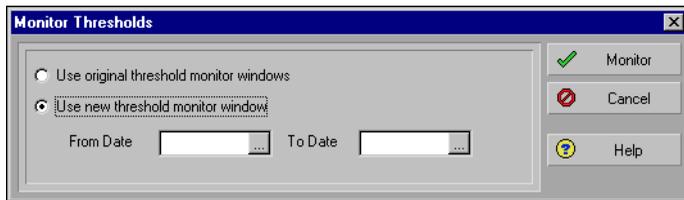
Monitor a specific threshold Choose Project, Thresholds. Select the threshold you want to monitor. Click Monitor.

You cannot monitor a threshold whose status is Disabled. To change a threshold's status, double-click the status you want to change in the Project Thresholds window.

Assigning Tracking Layouts to Thresholds

Assign a tracking layout to a threshold to graphically display the information surrounding the threshold and the issues it generates, then use the Issue Navigator (choose Tools, Issue Navigator) to open this layout in the Tracking window.

Assign a tracking layout to a threshold Choose Project, Thresholds. Select the threshold to which you want to assign a tracking layout. Click the General tab, then click the Browse button in the Tracking Layout field. Select the tracking layout you want to assign, then click the Select button.

Select the tracking layout to associate with the threshold when an issue is generated. Any issues that are generated display using this tracking layout.
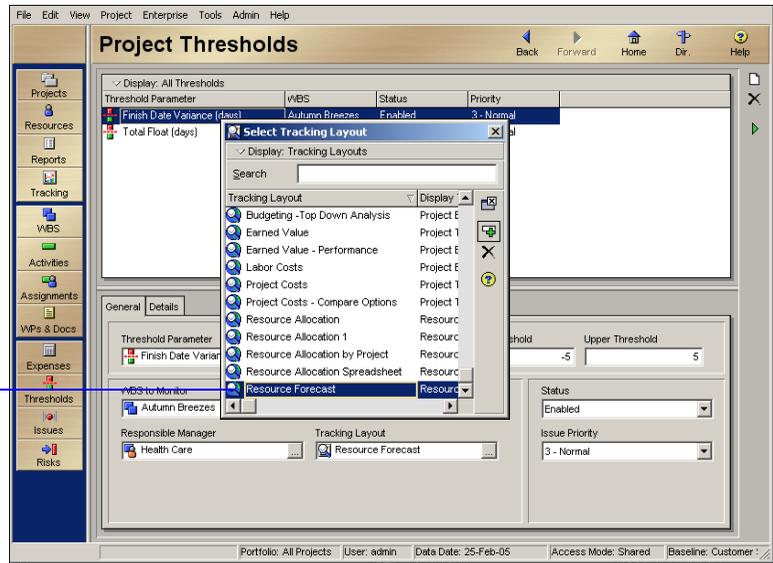
Managing Risks

The integrated risk management feature enables you to identify, categorize, and prioritize potential risks associated with specific work breakdown structure (WBS) elements and resources. You can also create risk control plans and assign a probability of occurrence and an organizational breakdown structure (OBS) element to each risk. A risk's assigned OBS element is the person or project manager responsible for managing the risk.

This chapter describes how to add risks and risk types, calculate a risk's impact, and customize how you view risks.

Adding Risks

Identify a risk by entering its name, status, risk type, priority level, and date it was identified. You can also specify which WBS element and resources the risk will affect and the OBS element responsible for controlling the risk.

Add a risk Choose Project, Risks. Click the Display Options bar, then click Risk Details (the checkmark next to the command should be marked). Click Add, then click the General tab. Type the risk's name, then select the WBS element and the resource that the risk will affect. If you do not specify a resource, the module considers all resources in the selected WBS.

Select the manager responsible for controlling the risk. Responsible managers are defined in the organizational breakdown structure (OBS). Select the type of risk you are creating, and specify the priority level to assign to the risk.
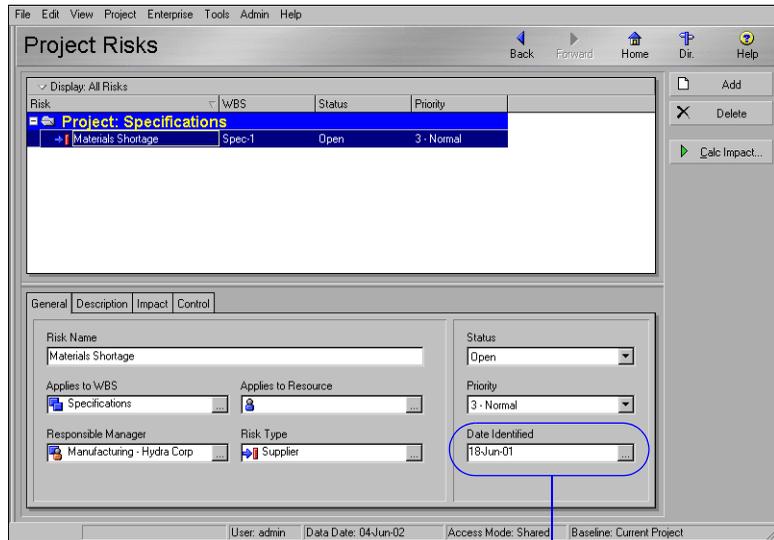
To specify a risk identification date other than the current date, click the Browse button and select a new date.

Add a risk description and control plan Click the Description
tab, then type a description of the risk. To enter a description of the
risk's control plan, click the Control tab, then type the description in the
Risk Control Plan field. You can use HTML editing features in both
tabs; these features include formatting text, inserting pictures, copying
and pasting information from other document files (while retaining
formatting), and adding hyperlinks.

Calculating Exposure Values

The module uses a risk's probability of occurrence, date of potential impact, and resource unit and expense estimates to calculate a risk's net exposure values. These exposure values are then used to determine the risk's impact on the project's cost, float, and finish date. The current project data are not changed.

Calculate a risk's exposure values Choose Project, Risks. Click the Display Options bar, then click Risk Details (the checkmark next to the command should be marked). Select the risk whose exposure values you want to calculate, then click the Impact tab. In the Impact area, specify the "as-of" impact date. The module considers only those activities for the selected WBS/resource that are scheduled to start on or after the impact date. Type the estimated number of labor and nonlabor, or material, time units and the estimated total cost of expenses the risk will incur, if the risk occurs. Type or select a percent estimate of the probability that the risk will occur. The module calculates and displays the risk's exposure values as Exposure = Impact x Probability.

This number is calculated using the

The Current fields contain the remaining number of labor and nonlabor, or material, time units and the current remaining expenses, for the WBS and resource assigned to the currently selected risk.

Calculating a Risk's Impact

The module uses the top-down estimation method to apply a risk's exposure values and calculate impact on a project's schedule, cost, and duration. The module applies these values to activities that finish on or after the risk's impact date. This does not include completed, locked, or milestone activities.

When applying exposure values, the module uses any WBS elements and activities the WBS contains, along with resource assignments and information (such as price and availability), then schedules the project according to your current scheduling preferences.

> *You must first determine a risk's exposure values on the Impact tab before calculating a risk's impact.*

Calculate a risk's impact Schedule the project whose risk impact you want to calculate, then choose Project, Risks. Select the risk whose impact you want to calculate. Click Calc Impact in the command bar. The module applies any resource units, then schedules the project using the current scheduling options.

Use this dialog box to view the selected risk's effect on the project's schedule cost and duration.

The number of activities the risk will affect. This is not the total number of activities contained in the WBS element.

Risk Impact: Construction Workers

WBS	Resource	Impact Date	Impacted Activities
Bldg		15-Jun-99 12:00 AM	67

Cost Impact

	Current	Impact	Current + Impact	Impact %
Labor Cost	$132,834.00	$0.00	$132,834.00	0%
Nonlabor Cost	$402.00	$0.00	$402.00	0%
Material Cost	$0.00	$0.00	$0.00	0%
Expense Cost	$21,640.00	$0.00	$21,640.00	0%
Total Cost	$154,876.00	$0.00	$154,876.00	0%

Schedule Impact

	Current	Current + Impact
WBS Total Float	0.0d	0.0d
WBS Finish Date	11-Aug-03 08:00 AM	11-Aug-03 08:00 AM
Project Total Float	0.0d	0.0d
Project Finish Date	07-Jan-04 04:32 PM	07-Jan-04 04:32 PM

Close
Print...
Help

Creating and Deleting Risk Types

You can create risk types, or categories of possible risks, that you can assign to risks in any project. You can use risk types to classify and standardize risks for all projects.

Add a new risk type Choose Admin, Admin Categories. Click the Risk Types tab, then click Add. Type the name of the new risk type.

To move a risk type up or down in the list, select it, then click Shift Up or Shift Down.

Risk Types

Display: Risk Types		
Risk Type		
Financial	□	Add
Government/Regulatory Compliance	✕	Delete
New Requirements	▲	Shift up
Project Facilities	▼	Shift down
Requirement Changes		
Schedule		
Staffing		
Supplier		
Project Staff		
Support & Funding		
Schedule Constraints		
System Performance		
Technology Integration		
Weather / Environmental Hazards		
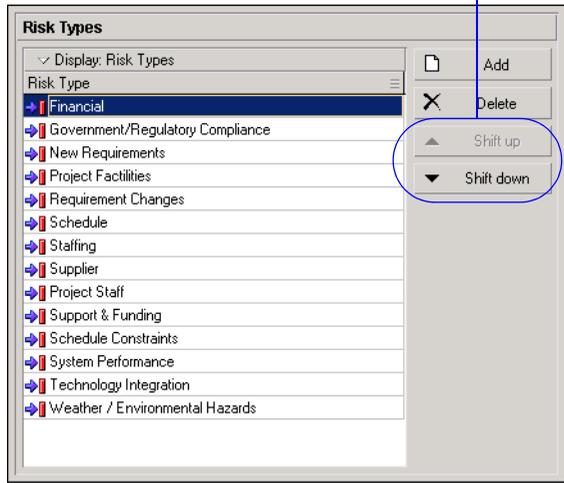
Delete a risk type Choose Admin, Admin Categories. Click the Risk Types tab, then select a risk. Click Delete. Click Yes to delete it.

Customizing Risk Layouts

Use the Columns dialog box to specify which columns you want to display in the current risk spreadsheet layout.

Customize risk layout columns In the Project Risks window, click the Display Options bar and choose Columns, Customize.
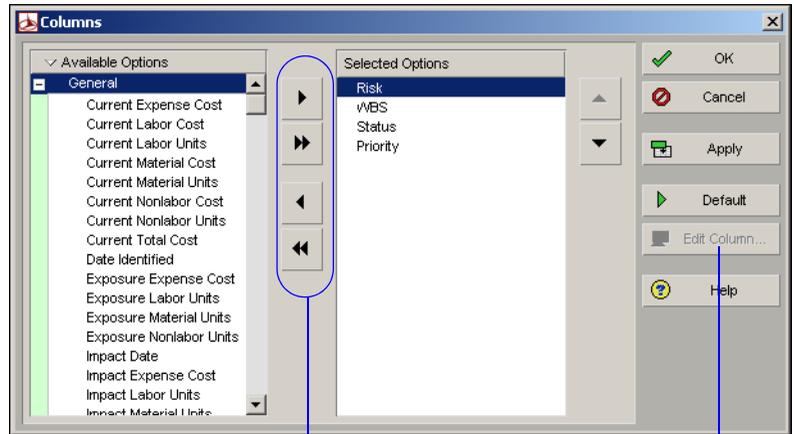
Double-arrow buttons add/remove all available columns in the current layout; single-arrow buttons add/remove selected items in the current layout.

Click to change the column title of a selected item.

Modify the columns shown in the risk layout by clicking the right/left arrow buttons to move data items between the Available Options and Selected Options columns.

Items listed in the Selected Options column will appear in the current layout when you click OK. Click Apply to see your changes without closing the dialog box.

Filter, group, and sort risk layouts You can select the risks you want to view and specify how you want to display them, and you can restrict which risks you view. In the Project Risks window, click the Display Options bar. Choose Filter By or Group and Sort By and the option that best describes how you want to view risks.

This risk layout is grouped by WBS element and filtered by open risks for quick analysis.

Maintaining a Project's Document Library

Use the Work Products and Documents feature to catalog and track all project-related documents and deliverables. This includes guidelines, procedures, standards, plans, design templates, worksheets, and all types of project deliverables.

This chapter describes how to maintain your project's library of work products and documents.
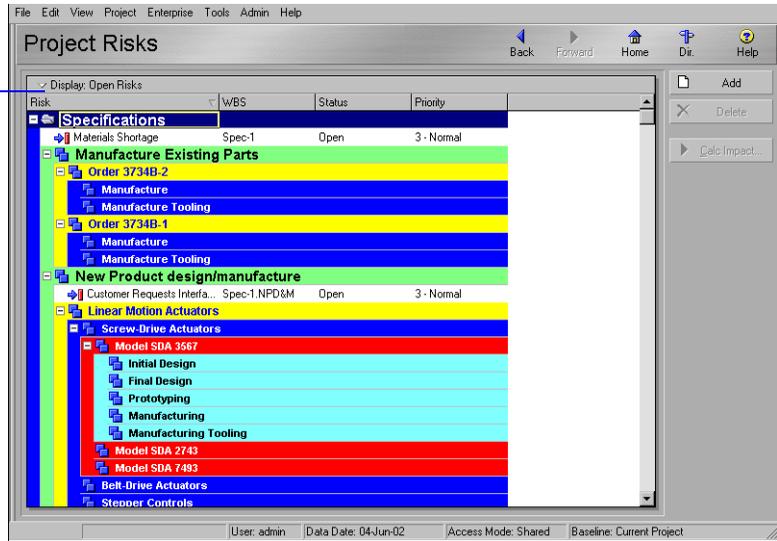
Viewing a Document Library and Adding/Deleting Work Products and Documents

A document can be a reference document for an activity, by providing standards and guidelines for performing an activity's work, or it can be formally identified as a project standard. A document can also be a work product or activity output, such as testing plans and blueprints. You can also identify project deliverables, or documents that will be delivered to the end user or customer at the end of the project.

Use the Work Products and Documents feature to maintain general information about project documents, such as revision date, location, and author. Store the document files on a network file server, configuration management system, or Web site, depending on your project requirements.

You can assign work products and documents from WBS Details (and assign them to specific WBS elements to track work) or from Work Products and Documents Details. You can also indicate whether the documents are public or private.

View a project's document library Choose Project, Work Products and Documents. Click the Display Options bar and choose WP & Doc Details. (The checkbox next to the command should be marked.)

Add a work product or document Open the project to which you want to add a work product or document. Choose Project, Work Products and Documents. Click the Title column label to display the documents hierarchy. (An outline symbol in the Title column label indicates a hierarchy display.) Select the document immediately above and at the same level as the document you want to add, then click Add. Click the General tab in Work Products and Document Details. Type a name for the document, then add general information about the document.

Enter the selected document's reference or catalog number.

Track the document's version by entering the corresponding number and last update date.

Set up document categories by choosing Admin, Admin Categories; use categories to organize different types of documents.

Mark to indicate the document is a project deliverable.

Set up a document status by choosing Admin, Admin Categories.

Enter a document description Click the Description tab and type a description for the document. You can use the HTML editing features, which include formatting text, inserting pictures, copying and pasting information from other document files (while retaining formatting), and adding hyperlinks.

Delete document records Choose Project, Work Products and Documents. Select the document or group of documents you want to delete, then click Delete. Click Yes when prompted.

> Deleting a document deletes only the document's link, not the document's actual, physical file.

Specifying Document Location References

You can specify two types of document location references, private location and public location. Private location references can be viewed only by Project Management module users. Public location references can be viewed by all project participants, including Timesheets users. For this reason, public location references typically refer to files stored in a widely accessible network location, an intranet, or the Internet.

Enter document location references In the Work Products and Documents window, select the document record for which you want to enter a location reference. Click the Display Options bar and choose WP & Doc Details. (The checkbox next to the command should be marked.) Click the Files tab.

*If you want to define the document as **private**, type the file location in this field, or click the Browse button to select the location.*

*If you want to define the document as **public**, type the file location in this field, or click the Browse button to select the location.*

Private Location
D:\Project Management\Documents\workproducts.doc ... Launch...

Public Location
K:\Project Management\Documents\workproducts.doc ... Launch...
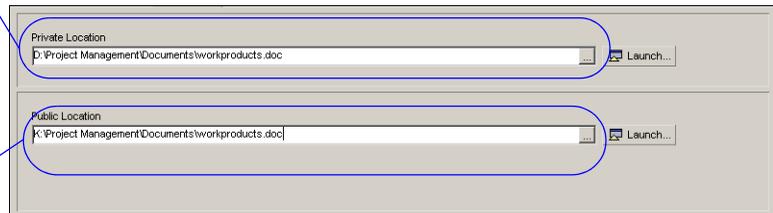
Open a work product or document Choose Project, Work Products and Documents. Select the document you want to open. Click the Files tab. To view a document's private file, click Launch next to the Private Location field. Only Project Management module users can view this file. To view a document's public file, click Launch next to the Public Location field. All project participants can view this file.

Assigning Work Products and Documents

You can assign work products and documents to both activities and WBS elements. For example, during a project's early planning stages, you may assign a document to a WBS element. Later, you can assign the same document to one or more activities as your project's activity details develop.

For instructions on assigning documents from the Activities and Work Breakdown Structure windows, see "Working with Activities" on page 211 and "Reviewing Work Breakdown Structures" on page 139.

Assign documents from the Work Products and Documents window Select the document you want to assign. To assign multiple documents, hold down the Ctrl key, then click each document. Click the Display Options bar and choose WP & Doc Details. (The box next to WP & Doc Details should be marked.) Click the Assignments tab.

Click Assign. From the pop-up dialog box, select the activity or WBS element to which you want to assign the selected document. Click the Assign button. To remove a document assignment from an activity or WBS element, select the item in the Assignments tab, then click Remove.

To change the sort order of any column, click the column labels.

Mark this checkbox to indicate that the assigned document is a work product.

Tracking Projects

The Tracking feature enables you to access, display, and manipulate summarized or live project data in a variety of formats to perform schedule, cost, and resource analyses.

This chapter describes how to create and maintain tracking layouts. You will also learn how to customize the format and level of information that each tracking layout displays.

Creating Tracking Layouts

The Tracking window is divided into two or more panes, depending on the type of layout displayed. The upper left pane, or Project Explorer window, shows the enterprise project structure (EPS) and contains information about the available projects. The upper right pane, or Top Layout window, always displays the current layout and layout options. Depending on the type of layout you open, the left and right panes may be split horizontally to display additional panes on the lower half of the window. These include the Resource Explorer window on the lower left and the Bottom Layout window on the lower right.

Top Layout window

Project Explorer window
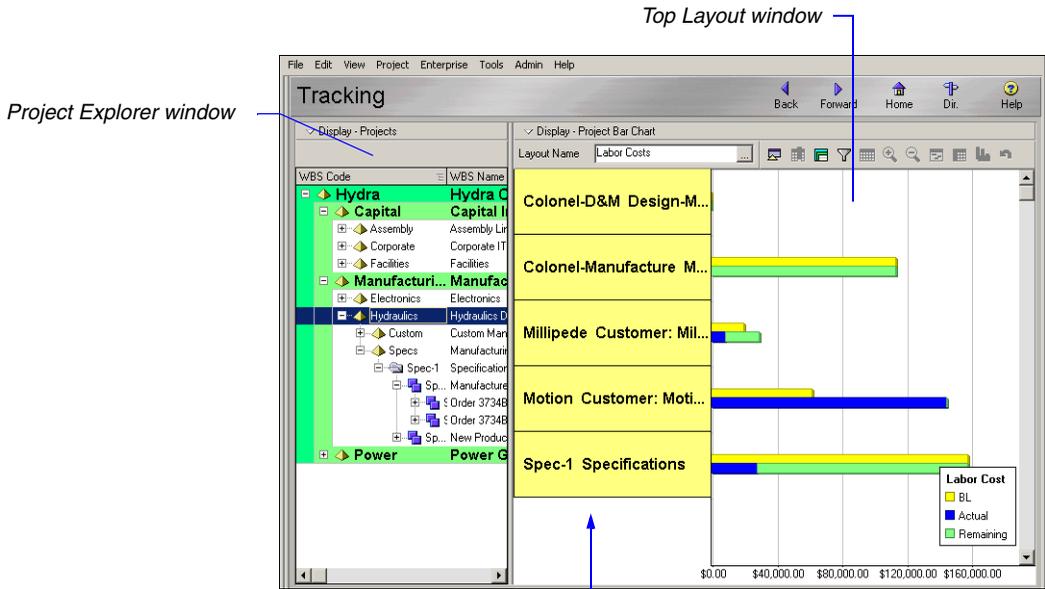
*Hide this column by choosing
View, Hide Left Columns, or
by dragging the split bar.*

Tracking layouts display summarized data when you select closed projects in the Project Explorer window and when you choose to open only global data when you first start the module. (Summarized data are available when projects have been summarized in the module.) If you select open projects in the Project Explorer window, tracking layouts display live data. You can change this setting to display summarized data by choosing one of the closed projects options in the Resource Analysis tab of the User Preferences dialog box (Edit, User Preferences).

View project details Right-click a project in the Project Explorer
window and choose Project Details to review additional information
about the project. For example, the Summary tab displays the date the
summarizer was last run for the selected project. This will give you an
idea of how current your summary data is. The summary tab also
displays information about the WBS level to which the project was
summarized. For example, a project may use four WBS levels, but may
have been summarized to WBS level 2. As a result, Tracking window
data shows rolled up values to the second WBS level for that project,
when viewed in Summary mode. You can also review general
information, such as the project's status and responsible manager,
project codes, and project dates.

Tracking layout types You can create four types of tracking layouts:

- **Project Tables** display project data in a table format. (Top Layout
  window only)

- **Project Bar Charts** display project data in a horizontal Bar Chart
  format. (Top Layout window only)

- **Project Gantt/Profiles** display project information in columns and
  Gantt Chart format (in the Top Layout window) and time-
  distributed project data in either spreadsheet or profile format (in
  the Bottom Layout window).

- **Resource Analysis** layouts display resource/project usage
  information in columns and Gantt Chart format (in the Top Layout
  window) and time-distributed total resource allocation data in either
  spreadsheet or profile format (in the Bottom Layout window).

All tracking layouts enable you to survey projects—first at a comprehensive level, then at more detailed levels according to EPS, project, work breakdown structure (WBS), organizational breakdown structure (OBS), phase, or specific WBS data elements. You can also use features such as filtering and grouping to customize the format and level of information you want to include in a tracking layout.

Tracking layouts can be accessible to all users (global) or to a specific user only. You can assign tracking layouts to thresholds and issues to help monitor a project's problem areas.

For step-by-step instructions on creating each type of tracking layout, see *Tracking Projects* in the Help.

Create a tracking layout Choose Enterprise, Tracking. In the Project Explorer window, choose the project or EPS node for which you want to create a layout. Click the Display Options bar in the Top Layout window (on the right side), then choose Layout, New. In the New Layout dialog box, type the new layout's name. In the Available To field, choose to make the layout available to you (Current User) or to everyone (All Users).

Choose the type of layout you want to create...
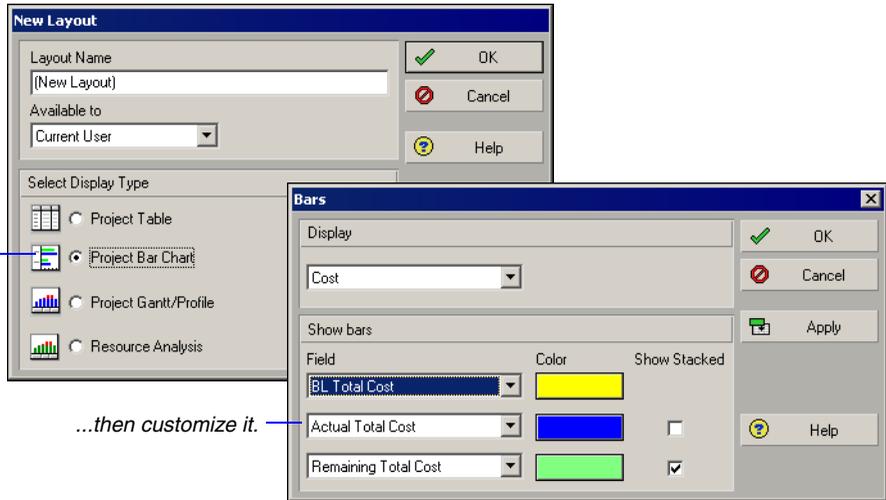
...then customize it.

Working with Tracking Layouts

Open a tracking layout by choosing Enterprise, Tracking. In the Project Explorer window, choose the project or EPS node for which you want to open a layout. Click the Browse button in the Layout Name field in the Top Layout window. Select the layout you want to open and click OK. You can also click the Display Options bar in the Top Layout window, then choose Layout, Open.

When you create and save a layout, only the presentation options are saved, not the data. This enables you to use the layout with different projects.

Save a layout In the Top Layout window, click the Display Options bar, then choose Layout, Save or Save As. If you choose Save As, type a new name for the layout and indicate whether the layout should be available to All Users, the Current User, or Another User. If you select Another User, click the Browse button in the User field, then select the user.

Share a layout You can share a layout with other users in several different ways:

■   When you first create the layout, you can specify that it be available to All Users.

■   You can save an existing layout using a different name and then specify that it be available to All Users or Another User. If you specify Another User, you can then select a specific user.

■   You can export the layout to a file and then e-mail the file or its location to other users.

For information on publishing tracking layouts to a Web site, see "Publishing a Project On the Web" on page 519.

■   You can publish the layout to a Web site.

Delete a layout In the Top Layout window, click the Display Options bar, then choose Layout, Open. Select the layout you want to delete, then click Delete. Click Yes.

Export a layout In the Top Layout window, click the Display Options bar, then choose Layout, Open. Select the layout you want to export, then click Export. Specify the drive and folder to which you want to export the layout, type a name for the layout, then click Save. The layout is saved in .PLF format.

Import a layout In the Top Layout window, click the Display Options bar, then choose Layout, Open. Click Import. Locate the layout (*.PLF) you want to import and select it, then click Open.

Customizing Tracking Layouts

Depending on the type of tracking layout displayed, you can customize various aspects of the Tracking window. For example, you can display only the top or bottom window in a layout, and you can select the columns of information displayed in layouts that contain tables and spreadsheets.

For step-by-step instructions on customizing each type of tracking layout, see *Tracking Projects* in the Help.

Customize a Project Table   You can customize the columns that display in a Project Table. Click the Display Options bar in the Top Layout window and choose Columns. See "Customizing Layouts" on page 445 for more information on customizing columns.

Customize a Project Bar Chart   You can customize the bar options that appear in a Project Bar Chart. Click the Display Options bar in the Top Layout window and choose Top Layout Options, Bars.
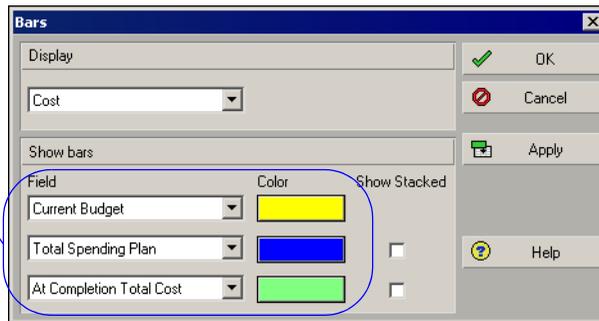
Show up to three bars. Choose the data you want the bar to represent and its color.

To change the timeperiod for the layout, move the mouse over a year in the timescale until the mouse pointer changes to a hand. Drag to the right to move backward in time and to the right to move forward in time.

Customize a Project Gantt/Profile   You can customize the columns that appear in the Project Gantt Chart (Top Layout window), and the data/timescale that appears in the profile (Bottom Layout window). To customize columns, click the Display Options bar in the Top Layout window and choose Columns. To customize profile options, click the Display Options bar in the Bottom Layout window and choose Bottom Layout Options, Profile Settings or Timescale. See "Customizing Layouts" on page 445 for more information.

Customize a Resource Analysis layout You can customize the columns and bars that appear in the Top Layout window, and the data/timescale that appears in the profile (Bottom Layout window). To customize the Top Layout window, click the Display Options bar in the Top Layout window. Choose Top Layout Options, then the item you want to customize. To customize profile options, click the Display Options bar in the Bottom Layout window and choose Bottom Layout Options, Profile Settings or Timescale. See "Customizing Layouts" on page 445 for more information.

Grouping, Sorting, and Filtering Data in Tracking Layouts

Grouping data allows you to organize information into bands, based on a common attribute such as a hierarchy, code value, or resource. You can choose to group data using the standard data groupings provided in the module, or you can create a customized grouping. Sorting enables you to determine the sequence of data in the layout.
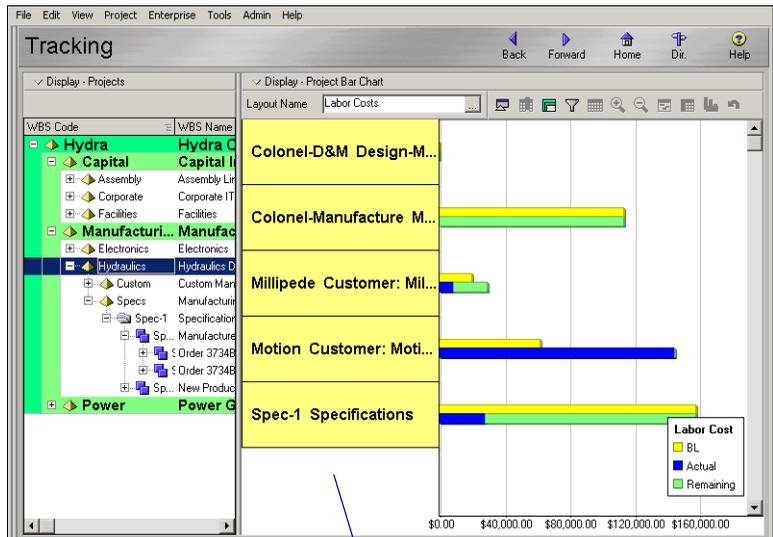
This Project Bar Chart is grouped by Project. You can group and sort by other default groupings, or customize your own.

For more information on customized grouping, sorting, and filtering data, see "Grouping, Sorting, and Filtering Data" on page 435.

Group and sort data in tracking layouts In the Top Layout window, click the Display Options bar, then choose Top Layout Options, Group and Sort By. Select the data grouping you want to apply to your layout, or customize the grouping. If you choose Customize, double-click the Group By field and select the field by which you want to group data. Click Sort to select a sort order for the grouping, then click Apply to preview your selections or OK to save them.

Filter data in tracking layouts Use filters to display only the data you'd like to see. A filter contains a formula that restricts your view to only the data you require. Click the Display Options bar in the Project Explorer window and choose Filters. Click Add. In the new row, click the Parameter field and select a value. Double-click the Is cell and select a filter criteria. Type a value and click OK.

Click to add another row and enter additional filter criteria.

Click to preview changes.

Click to delete a selected row in the filter.
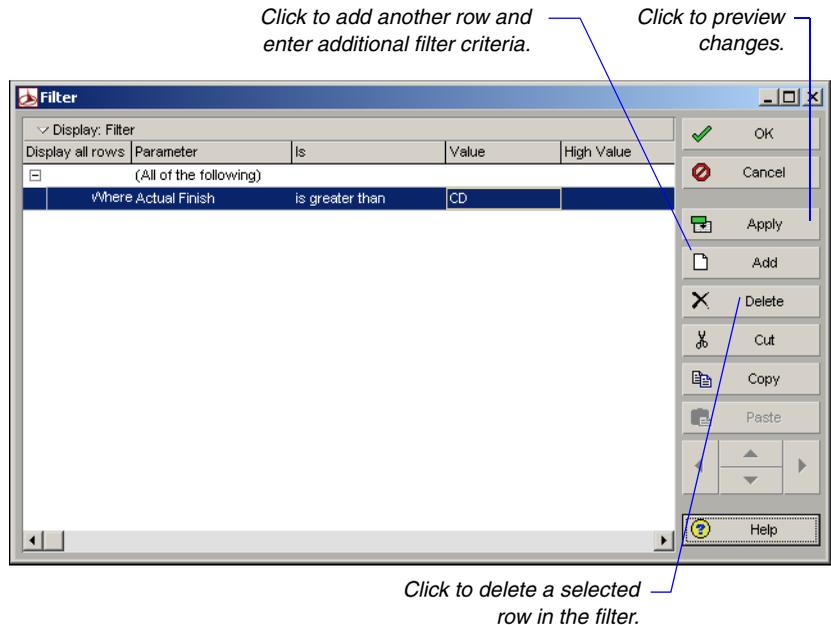
The filter term "Any of the following" is the same as OR. "All of the following" is the same as AND.

Comparing Projects with Claim Digger

Claim Digger provides the capability to compare two projects, or a project and an associated baseline, to determine what data has been added, deleted, or modified from the schedules. Based on the data fields you select for comparison, this feature creates a project plan comparison report in one of three file formats.

Claim Digger Overview

You can use Claim Digger to generate a comparison report between revised and original projects you have access to, or between revised projects you have access to and their associated baselines. You can select up to five project or project/baseline comparisons to include in a report. For each comparison report, you can specify the project and activity data fields you want to compare, choose the format of the report output file, and specify whether you want to group activity data by activity, rather than by data type.

Comparing Projects/Baselines

Claim Digger is available from the Tools menu of the Project Management module. If Claim Digger is configured to use the same database instance as the Project Management module, log in is automatic. If Claim Digger is configured to use a different database instance, or configured to use multiple database instances, you will be prompted to log in.

Start Claim Digger Choose Tools, Claim Digger. If login is required, type your login name and password. If applicable, choose the database you want to connect to, then click OK.

If more than one database instance is configured, a drop-down list displays beneath the password field, so you can select the database you want to use.

After a successful login, the Claim Digger main window displays and you can select the projects/baselines and specific data fields you want to compare.

Select projects/baselines to compare To compare a project to its baseline or to another project, in the Claim Digger main window, select the revised project, then select the project or baseline to which you want to compare it. Choose a format, name, and destination for the comparison report output file and specify Advanced options to select the data fields you want to compare.

Click to select the revised project.

Click to select the original project or baseline.

Select output format and report location.

Select project and activity data fields to compare.
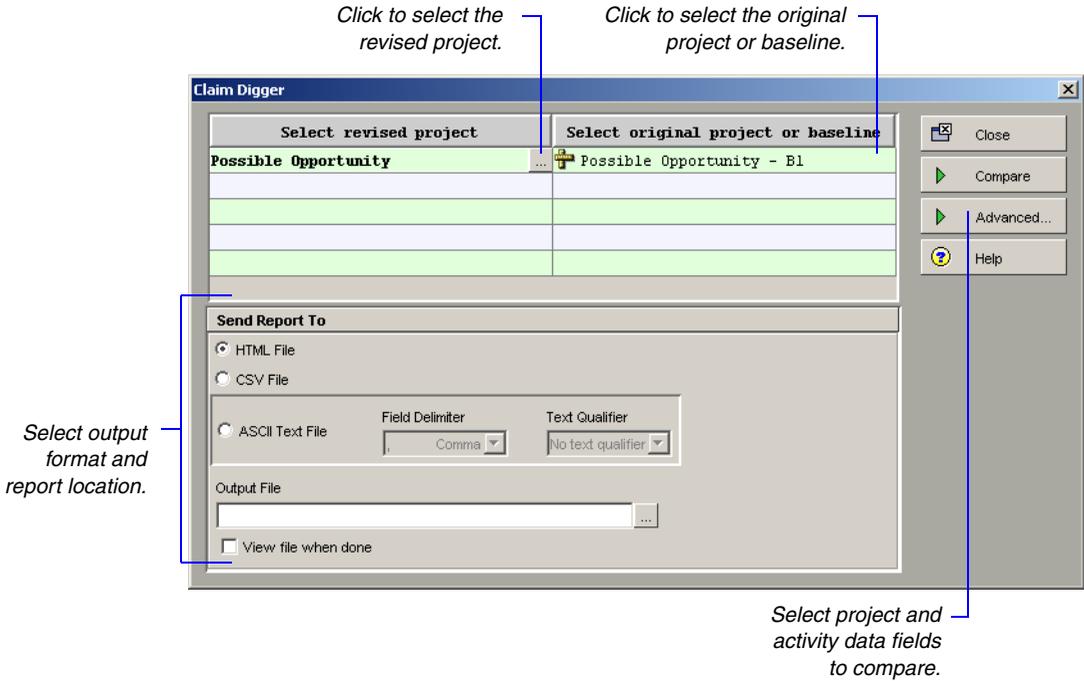
To remove a project or baseline from the list of items to compare, click inside the corresponding row, then press Delete.

Select a revised project To select a revised project, click in a row, then click the Browse button that displays.
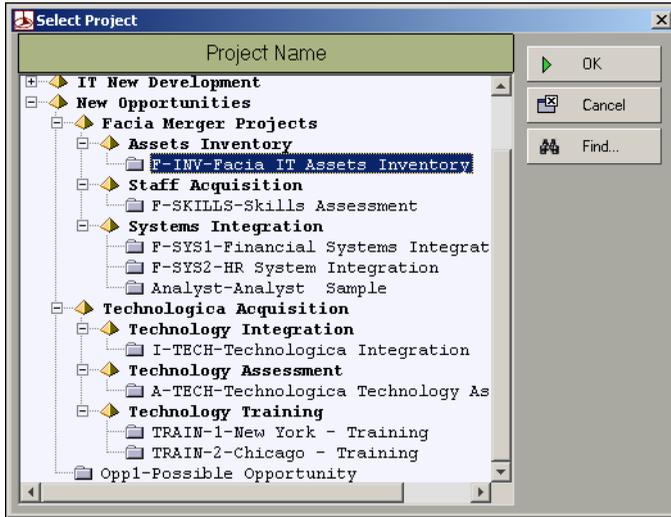
The Select Project dialog box shows all projects to which you have access, grouped by EPS. A + symbol indicates that more nodes or projects are rolled up beneath the selected node. Click + or double-click the node to display additional levels in the hierarchy. Select the desired project, then click OK.

> *Click the Find button to search for a project by name. The found projects are displayed in a flat list, not according to the EPS. To return to the original EPS tree, click the Clear button.*
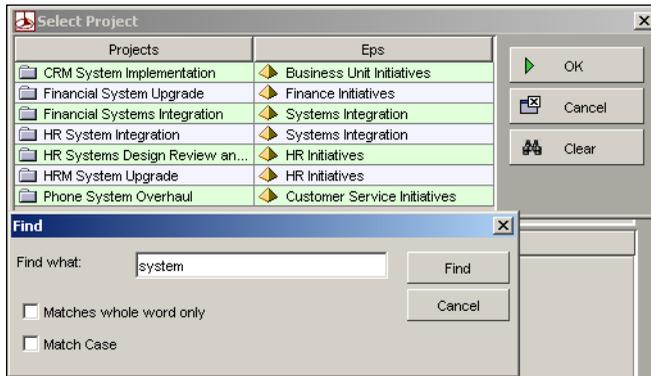
> 📝 *The Find function always searches through all of the projects and not only those currently displayed.*

Select an original project or baseline To select an original project or baseline, click in a row, then click the Browse button that displays. Choose the option to display projects or baselines. The Projects option displays all of the projects you have access to, grouped by EPS. The Baselines option displays all baselines associated with the revised project you selected. After locating the desired project or baseline, select it and click OK.

Select whether to display projects or baselines.
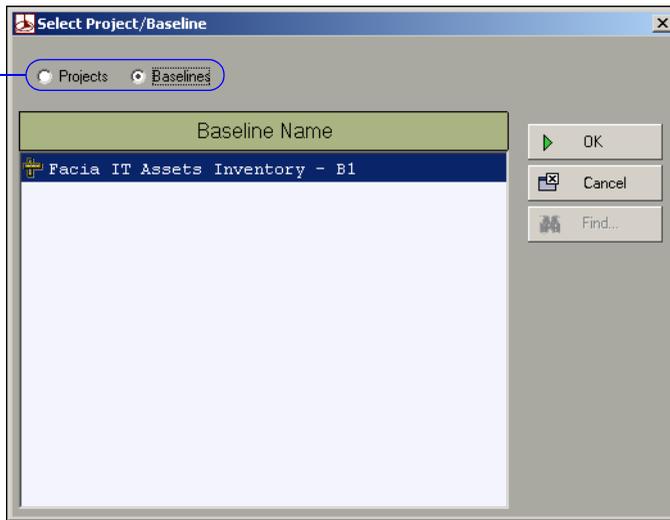
> 📝 *When the* Baselines *option is selected, project baselines are displayed in a flat list, not according to the EPS.*

> 📝 *Click the Find button to search for a project or baseline by name. See for details.*

Set advanced options Click the Advanced... button to select the project and activity data fields you want to include in the report.

Project data
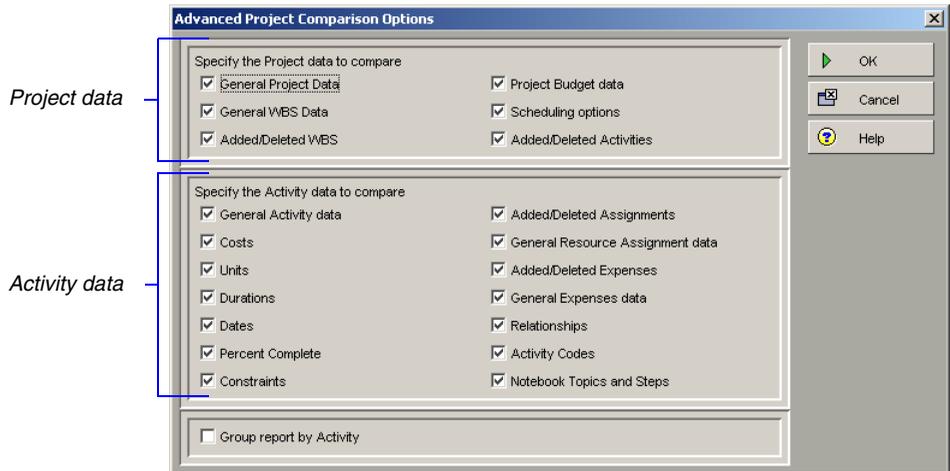
Activity data

All project and activity options are selected by default. To exclude an option, unmark the corresponding checkbox.To include an option in the comparison report, mark the checkbox next to the item name.

To group the comparison report activity data by activity, instead of by data field type, mark the Group report by activity checkbox. When this option is enabled, the items you select in the Activity data section are grouped by activity in the report. Project items display at the top of the report and not grouped by activity.

Click OK to save your selected options.

Set the output format In the Send Report To section, choose one of the available formats:

■   HTML (default)

■   CSV

■   ASCII text

When the output format is ASCII text, select a field delimiter and text qualifier from the drop-down list.

■   Available field delimiters

    •   comma (,)

- • pipe (|)

- • dot (.)

■   Available text qualifiers:

- • none

- • double quotes (")

- • single quote (')

- • dollar sign ($)

Set the output file location To set the filename and location to save the comparison report, use one of the following options:

■   In the Output File field, type the full path and filename.

> *Ensure that you enter the proper file extension, based on the output format you selected. If the wrong file extension is specified, the report will not display properly when opened for viewing.*

> *If you specify only a filename and do not specify a location, the report is saved to the module installation directory.*

■   Click the Browse button next to the Output File field. Browse to the desired output destination, type a filename (no file extension is needed), and click Save.

View reports automatically To view reports automatically after they are generated, mark the checkbox next to View the file when done. When this option is selected, reports are automatically opened in the default module that is associated with the report's output format (e.g., HTML reports are opened by the system's default browser).

Generate the comparison report When you have finished setting all of the report and output options, click Compare to generate the report.

> *If any of the revised projects listed for comparison do not have an associated original project/baseline selected, an error message is displayed. Ensure that an original project/ baseline is selected for each revised project that is listed.*

If the output file already exists, a warning is displayed. To overwrite the existing file, click Yes. To cancel the comparison and select a different filename, click No.

While Claim Digger is working, a dialog is displayed that shows the progress of the comparison. To stop the comparison before it is completed, click Cancel.

When the comparison is complete, a confirmation dialog listing the location of the report is displayed. Click OK to continue.

Comparison Data

The following table lists the business objects, and the fields within those business objects, that are compared by Claim Digger.

Some fields are for reporting or uniqueness verification only and are not compared. These are identified by an asterisk.

Option	Business Object	Fields
General Project Data	**Project**	DataDate
		FinishDate
		MustFinishByDate
		OBSName
		PlannedStartDate
		StartDate
		Status
General WBS Data	**WBS**	AnticipatedFinishDate
		AnticipatedStartDate
		OBSName
		Status
Added/Deleted WBS	**WBS**	Code
		Name
Project Budget Data	**Project**	CurrentBudget
		CurrentVariance
		DistributedCurrentBudget
		TotalBenefitPlan
		TotalBenefitPlanTally
		TotalSpendingPlan
		TotalSpendingPlanTally
		UnallocatedBudget
		UndistributedCurrentVariance

Option	Business Object	Fields
Scheduling Options	**ScheduleOptions**	ComputeTotalFloatType
		CriticalActivityFloatThreshold
		CriticalActivityPathType
		IgnoreOtherProjectRelationships
		LevelResourcesDuringScheduling
		MakeOpenEndedActivitiesCritical
		OutOfSequenceScheduleType
		RecalculateAssignmentCosts
		RelationshipLagCalendar
		StartToStartLagCalculationType
		UseExpectedFinishDates
Added/Deleted Activities	**Activity**	ID
		Name
General Activity Data	**Activity**	CalendarName
		FreeFloat
		IsCritical
		TotalFloat
		WBSCode
		WBSName

Option	Business Object	Fields
Costs	Activity	ActualExpenseCost
		ActualLaborCost
		ActualMaterialCost
		ActualNonLaborCost
		AtCompletionExpenseCost
		AtCompletionLaborCost
		AtCompletionMaterialCost
		AtCompletionNonLaborCost
		PlannedExpenseCost
		PlannedLaborCost
		PlannedMaterial Cost
		PlannedNonLaborCost
		RemainingExpenseCost
		RemainingLaborCost
		RemainingMaterialCost
		RemainingNonLaborCost

Option	Business Object	Fields
Units	**Activity**	ActualLaborUnits
		ActualNonLaborUnits
		AtCompletionLaborUnits
		AtCompletionNonLaborUnits
		PlannedLaborUnits
		PlannedNonLaborUnits
		RemainingLaborUnits
		RemainingNonLaborUnits
Durations	**Activity**	ActualDuration
		AtCompletionDuration
		PlannedDuration
		RemainingDuration
Dates	**Activity**	ActualFinishDate
		ActualStartDate
		EarlyFinishDate
		EarlyStartDate
		LateFinishDate
		LateStartDate
		PlannedFinishDate
		PlannedStartDate
Percent Complete	**Activity**	DurationPercentComplete
		PhysicalPercentComplete
		UnitsPercentComplete
Constraints		PrimaryConstraintDate
		PrimaryConstraintType
		SecondaryConstraintDate
		SecondaryConstraintType

Option	Business Object	Fields
Added/Deleted Assignments	**ResourceAssignment**	ActivityID
		ActivityName
		ResourceID
		ResourceName
General Resource Assignment	**ResourceAssignment**	ActivityID*
		ActivityName*
		ActualCost
		ActualUnits
		AtCompletionCost
		AtCompletionUnits
		CostAccountName
		IsPrimaryResource
		PlannedCost
		PlannedDuration
		PlannedUnits
		PricePerUnit
		RemainingCost
		RemainingDuration
		RemainingUnits
		RemainingUnitsPerTime
		ResourceID
		ResourceName
		RoleID
		RoleName
Added/Deleted Expenses	**ActivityExpense**	ActivityID
		ActivityName
		ExpenseItem

Option	Business Object	Fields
General Expenses	**ActivityExpense**	ActivityID*
		ActivityName*
		ActualCost
		AtCompletionCost
		CostAccountName
		ExpenseItem*
		ExpensePercentComplete
		PlannedCost
		PricePerUnit
		RemainingCost
Relationships	**Relationships**	Lag
		PredecessorActivityID
		PredecessorActivityName*
		SuccessorActivityID
		SuccessorActivityName*
		Type*
Activity Codes		CodeValue
		Description
Notebook Topics	**ActivityNote**	NotebookTopicName
Steps	**ActivityStep**	ActivityID*
		ActivityName*
		Name*
		PercentComplete
		Weight
		WeightPercent

Creating and Using Reflections

A reflection is a copy of an active project that contains a link to the original project. This allows you to make changes to the reflection and then merge selected changes back into to the original project, keeping active project data such as timesheet information intact.

Reflection Overview

A reflection is a copy of a project that has the following characteristics:

■   Has the same name as the original source project with reflection appended to it.

■   Internally, contains a link to the source project that allows the application to merge changes to the reflection into the source project.

■   Has a what-if status.

After creating a reflection, you can make changes to it. If desired, you can then merge selected changes back into the source project keeping active data in the source project intact. Creating a reflection facilitates the following work flows and processes:

■   Creating a sandbox area to test different project scenarios.

■   Reviewing changes made by team members to activities they own in a reflection. Using the reflection as an intermediary project lets you review and accept changes before merging the reflection back into the source project.

■   Reviewing changes to a project by exporting a reflection as an .XER file. You can send the .XER file to outside users who can import the file into their database. After making changes to the project, the outside users can export the file and send the resulting .XER file back to you. By importing the .XER file back into your reflection, you can decide which changes to keep when you merge the reflection back into the source project.

Creating and Using Reflections

Creating and using reflections involves the following process: Create a reflection. Make changes to the reflection. Preview the changes to the project. If desired, print a report of the changes to the project. Then merge selected changes into the source project.

Create a reflection

In the Projects view, right click on the project for which you want to create a reflection.

In the context menu, click Create Reflection.

If the project does not contain any baselines, the system responds by creating a reflection.
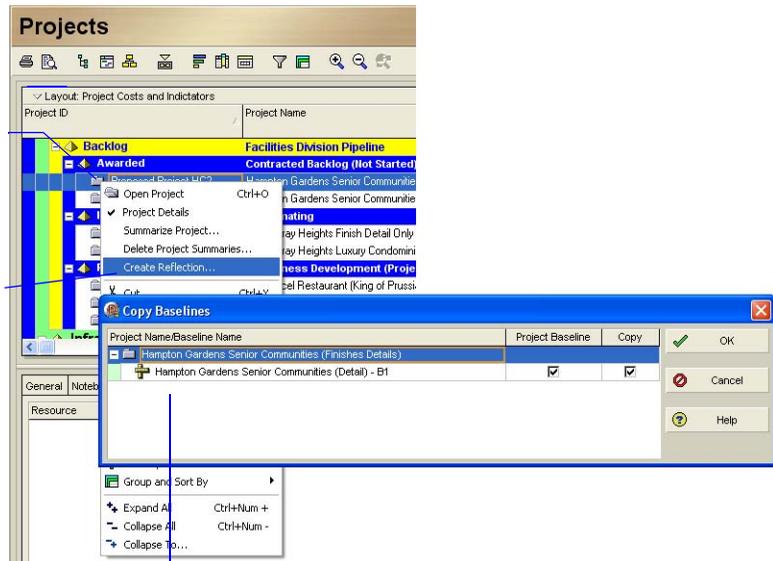
If the project does not contain any baselines, the system responds by creating a reflection. Otherwise, the system responds by displaying the Copy Baselines dialog box. For any baselines you want to copy, mark the checkbox(es) in the Copy column of the Copy Baselines dialog box and click OK. The system responds by creating a reflection.

Make changes in the Reflection

Once a reflection has been created, you can make changes to the reflection as needed to explore alternative project scenarios.

> *Changes you make to the following fields in a reflection project will result in new entries being added to the source project when you merge a reflection into the source project: Project ID, Activity ID, Resource ID, Role ID, Cost Account, and Price/Unit. For example, assume that the source project contains an activity with an Activity ID of A1000. After creating a reflection, you change the Activity ID from A1000 to A1005 in the reflection project. Then, when you merge the reflection project into the source project, the source project now contains two activities, A1000 and A1005, which are identical except for the Activity ID.*

Preview changes to be merged

In the Projects view, right click on the reflection that you want to merge with the source project.

In the context menu, click Merge Reflection into Source Project. If there are any changes to merge, the system responds by displaying the Preview Changes to Project dialog box.
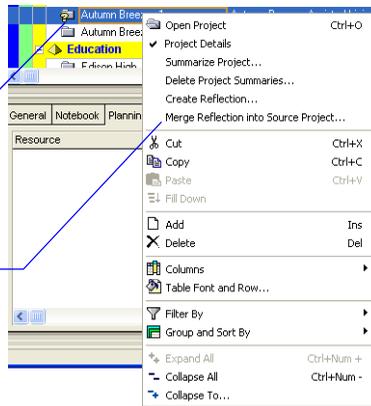
Choose changes to merge

Next, choose changes from the reflection to merge into the source project.

There are two ways the changes can be viewed, or grouped, in the Preview Changes to Project dialog box: by subject area or by activity.

When you view the changes by activity, check boxes appear in the Merge column for activity rows. This allows you to select which activities to merge into the source project.
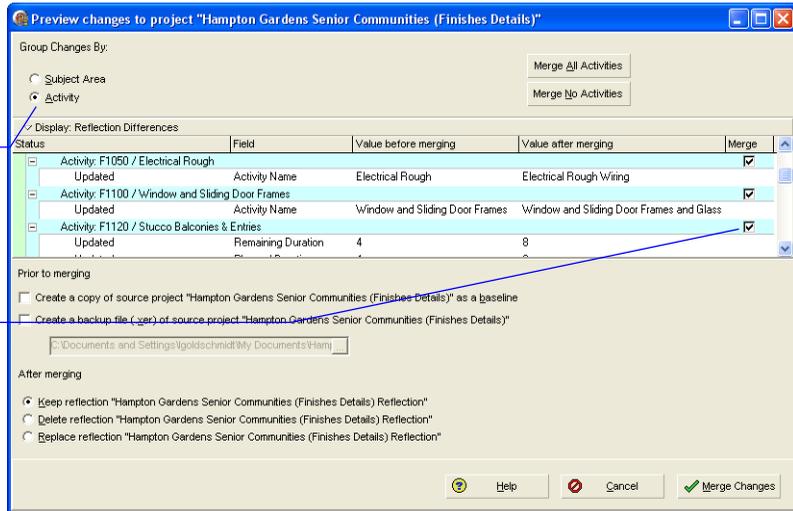
Merge the Changes
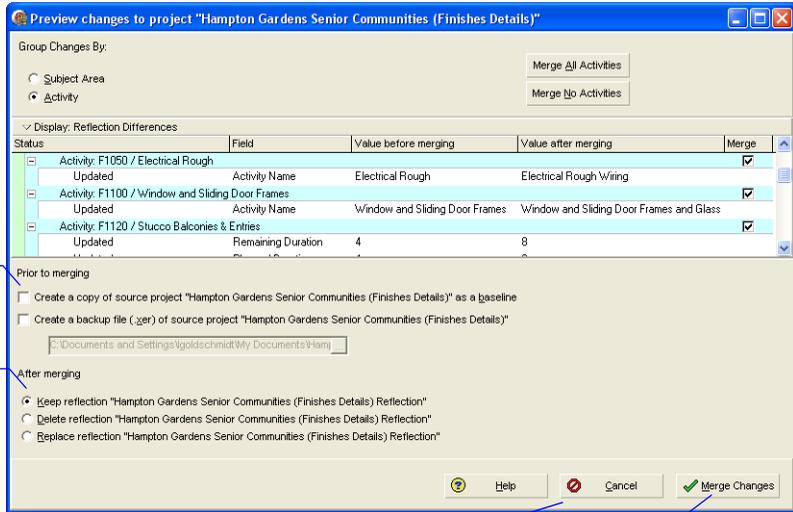
Determine any actions the application should take prior to merging

Determine any actions the application should take after merging

If for whatever reason, you decide not to merge the changes in the Reflection into the Source project, click Cancel and no changes will be made to the source project.

Otherwise, click Merge Changes to merge the changes into the source project.

Reflection Guidelines

Several factors determine whether you can create or merge reflections of particular projects:

Guidelines for creating reflections You use the Create Reflection right click option to create a reflection of a project. This option is disabled when you do not have access to create projects within the EPS node. Additionally, the right click option is hidden when any of the following is true:

■   A group band node is selected

■   More than one project is selected

■   A summary-only project is selected

■   An MSP-managed project is selected

Guidelines for merging reflections You use the Merge Reflection into Source Project right-click option to merge changes. This option is disabled when any of the following is true:

■   The source project has been checked out

■   The source project and/or the reflection has been opened exclusively by another user

■   You do not have super user privileges to both the source project and the reflection

Additionally, the right-click option is disabled when any of the following is true:

■   A group band node is selected

■   More than one project is selected

■   A non-reflection project is selected (i.e. the project does not contain a source project field value)

■   The selected project contains a source project field value, but it does not have a what-if status

■   The selected project has a what-if status but it does not contain a source project field value

Checking Projects In and Out

The Project Check In/Check Out feature enables you to keep track of projects that are used outside of the database. For example, a project manager may check out a project and take it along to a project site, updating or modifying the project while at that site. When the project manager returns to the office, the project is checked back in, updating the database.

This chapter describes the XER file format in which you can check projects in and out of the module; it also explains how to check in and check out projects using the XER format.

Managing Remote Projects

You can check projects out to work on them at remote locations. When a project is checked out, it cannot be modified in the module until it is checked back in.

You can check projects out in the Primavera proprietary format (XER). This format enables you to use activity, cost, resource, and other types of project information with other installations of the Project Management module, regardless of the database being used (Oracle, Microsoft SQL Server, or SQL Server Express).

Track check out status   You can easily determine whether a project has been checked out. Choose Enterprise, Projects, click the Display Options bar, then choose Show on Bottom, Project Details.

The checkmark on the project symbol indicates that this project is checked out.

Click the General tab to check or change the status of the project.

The name of the user that checked out the project. This field is blank when the Check Out Status is Checked In.

The date and time the user checked out the project. This field is blank when the Check Out Status is Checked In.
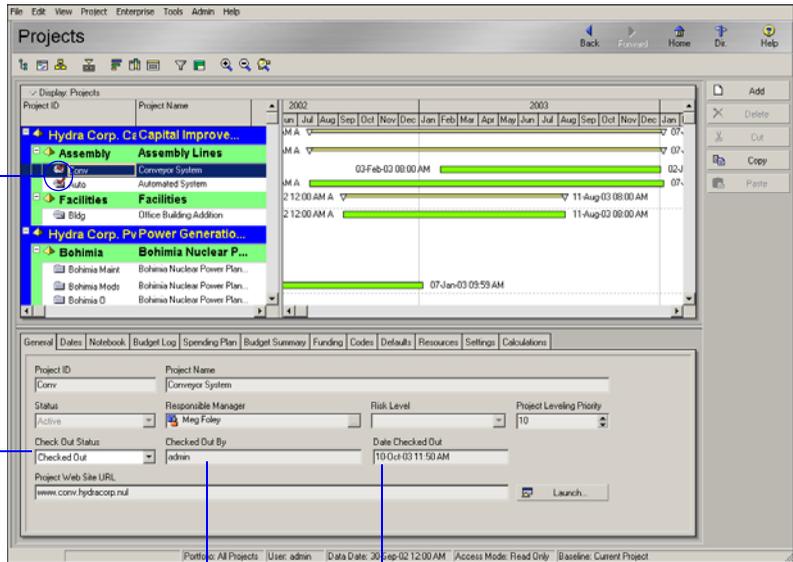
Checking Out Projects

The Check Out wizard guides you through the steps for checking out projects. Before you start the wizard, open the projects that you want to check out.

Check out projects Choose File, Check Out.

You can check out multiple projects to the XER format.
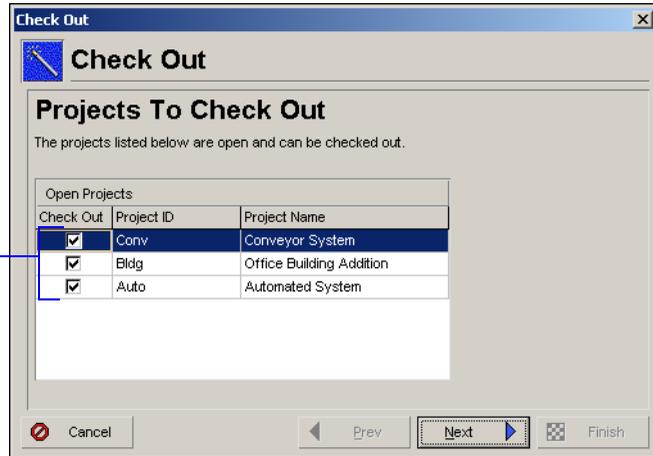
Select the projects that you want to check out. For projects that you do not want to check out, clear the Check Out checkbox.

If the project you want to check out is not on the list, click Cancel, open the project, and restart the wizard.

For organizations using Primavera ProjectLink, Microsoft Project (MSP)-managed projects are not available for check out in the Project Management module. MSP-managed projects must be checked out in Microsoft Project using ProjectLink. For more information on Primavera ProjectLink, refer to the Primavera ProjectLink Help in Microsoft Project (available only if Primavera ProjectLink is installed). You can access the help by clicking the Help button on any ProjectLink screen.

Specify the name of the file and the location where the file will be saved, then click Finish.
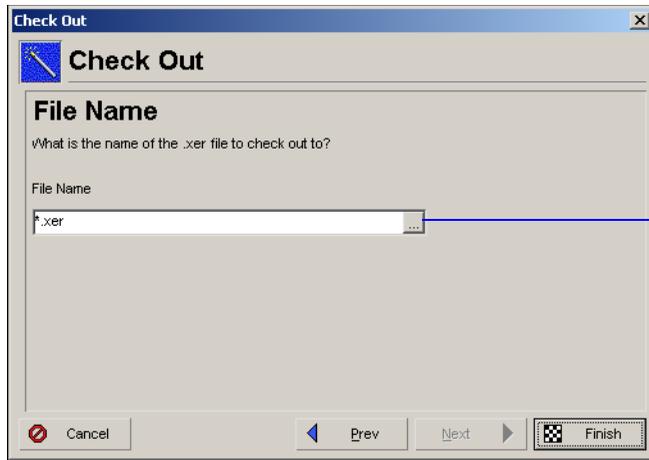
Click the Browse button to select the file location.

> If you check out multiple projects to a single .XER file, the interproject relationships between activities in all the projects included in the file are preserved.

Checking In Projects

Projects previously checked out of the Project Management database can be checked back in to any Project Management module installation.

Check in projects Choose File, Check In. Click the Browse button to select the file that you want to check in, then click Next.
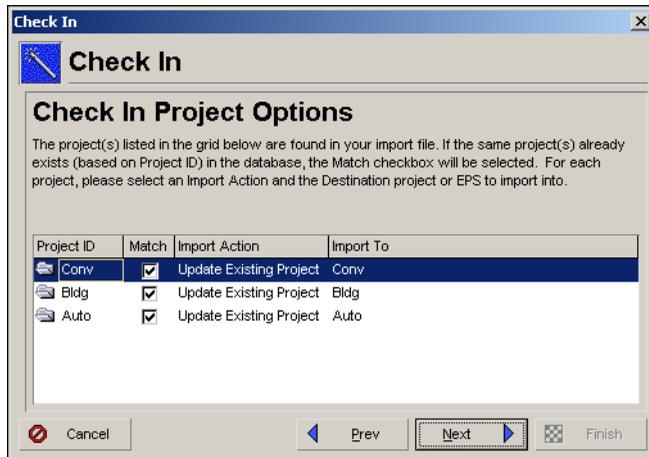
The relationships between all of the projects in the XER file are preserved.

Specify check in project options An XER file can contain data from several projects. The first column in the Check In Project Options dialog box lists all the projects included in the XER file. If a project with the same name already exists in the current module installation, the Match checkbox next to it is marked. To prevent data in the module database from being overwritten when you check in the XER file, double-click the Import Action field next to each project, then select one of the following options:

■　**Update Existing Project** The existing project is updated with any new/modified data in the XER file; adds new data if the record does not exist. Select the project to update in the Import To field. You can further define how data should be updated when matches occur. Refer to "Choose update project options" on the next page for more information.

■　**Replace Existing Project** The existing project is deleted and then replaced with the project checked in from the XER file. Select the project to be replaced in the Import To field.

■   **Ignore this Project** The project is not checked in.

Choose update project options Click Next to select a layout configuration to use when checking in project data. The options specified in the layout configuration determine how the module handles data in the file that match data in the database. You can create and save several different configurations; however, only one configuration can be used to check in the file. Select Yes in the Use field next to the configuration you want to use.
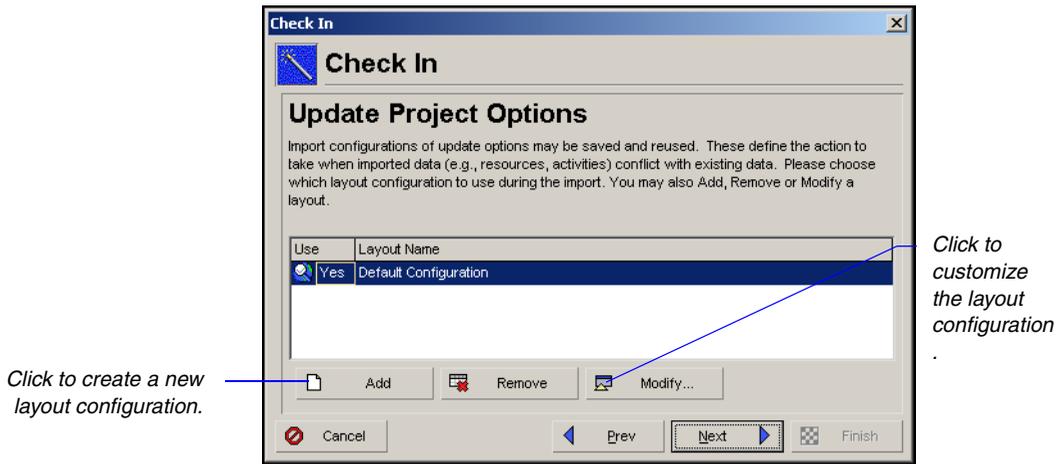
Click to customize the layout configuration.

Click to create a new layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data are updated when projects are checked in. To modify these options, select the layout configuration in the Update Project Options dialog box, then click Modify.

Mark to delete risks, relationships to external projects, thresholds, activities, activity relationships, and activity resource assignments that are in the project being updated, but that are not included in the file. To keep the data, clear the checkbox.
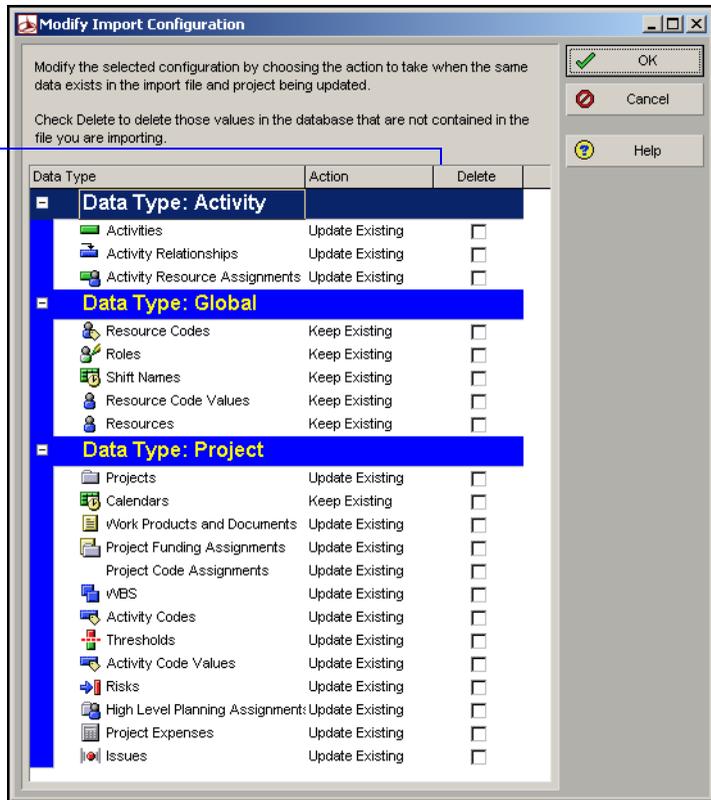
The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data type to remove data that exist in the project you are updating but that are not included in the file you are checking in. For example, if several thresholds are defined in the project that you are updating, but they are not included in the file you are checking in, mark the checkbox in the Delete column to remove the thresholds from the project being updated.

> *The Delete field applies only to risks, relationships to external projects, thresholds, activities, activity relationships, and activity resource assignments. Global data types are not affected by this setting.*

Select one of the following in the Action field to indicate how the data type is updated:

■   **Keep Existing** Retains data in the existing project and does not overwrite them with the updated data; adds new data if the record does not exist.

■   **Update Existing** Overwrites data in the existing project with updated data; adds new data if the record does not exist.

■   **Insert New** Retains data in the existing project and adds any new data items. For example, if a new role was added to the data, but you don't want to change the existing roles, choose Insert New to add the new role to the existing project.

■   **Do Not Import** Retains data in the existing project and does not import the updated data.

Click OK to save changes to the modified layout configuration. Click Next. Click Finish to complete check in.

Customizing Projects

In this part:

*R*ead this part to learn how to customize your desktop and create layouts that help you see the data you need to manage your projects. "Working with Layouts" describes the types of layouts you can create and explains how to add, open, and save layouts. It also describes how to import and export layouts to share with other users. Read "Grouping, Sorting, and Filtering Data" to learn how to display only the data you need to see in a layout. "Customizing Layouts" shows you how to change the look and content of layouts by modifying columns, formatting Gantt Charts, adjusting the timescale, and editing fonts and colors. "Customizing Reports" discusses how to create reports and assign them to report groups and batches. "Printing Layouts and Reports" describes the printing options, and "Publishing a Project On the Web" explains how to create a project Web site.

Working with Layouts

You can create layouts that display the data you need to see, in the format you need to see them. Customize the top and bottom areas of the layout to include tables, graphs, charts, Activity or Project Details, and more. Once you are satisfied with your layout, you can save it so you or other team members can use it again.

This chapter describes the different layout types and explains how to create, open, save, export, and import layouts. It also describes how to copy and paste spreadsheet data to Microsoft Excel.

Layout Types

You can open WBS, projects, and resource assignment layouts, and the following types of activity layouts: Activity Tables, Activity and Resource Usage Spreadsheets and Profiles, Gantt Charts, Activity Networks, Activity Details, and Trace Logic. Split the Activities window into top and bottom panes to display different types of layouts at the same time. For example, show an Activity Table in the top pane and a Resource Usage Profile in the bottom pane.

Click the Layout Options bar to display a menu of options that you can use to customize the top and bottom panes of the Activities window.

Click Show on Top and Show on Bottom to select the layout type displayed in each area of the Activities window.
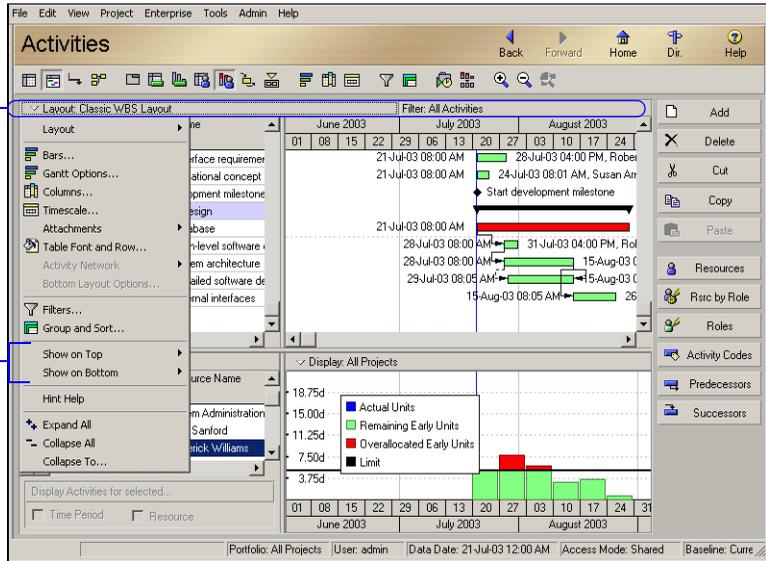
For additional information about layout types and examples of sample layouts, see *"Quick Tour"* **on page 31.**

Refer to the following examples:

*Click the **Show/Hide Bottom Layout** button to display the top layout in an expanded view.*
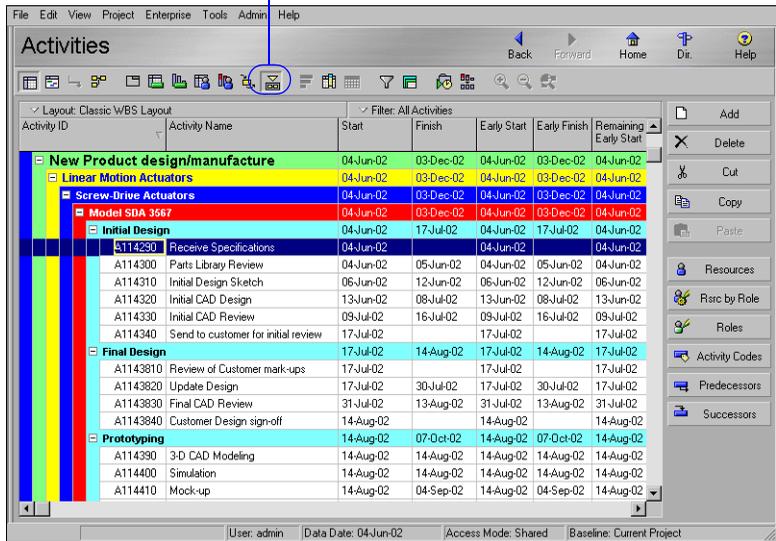
Activity Table
Displays activity information in spreadsheet format. Use this type of layout to quickly update a project.

You can use filters and data grouping to see only those activities that occur in your current status cycle.

Activity Usage Spreadsheet
Displays units, costs, or earned value data by activity over time. Use this type of layout to review per period and rolled up activity resource/cost data.
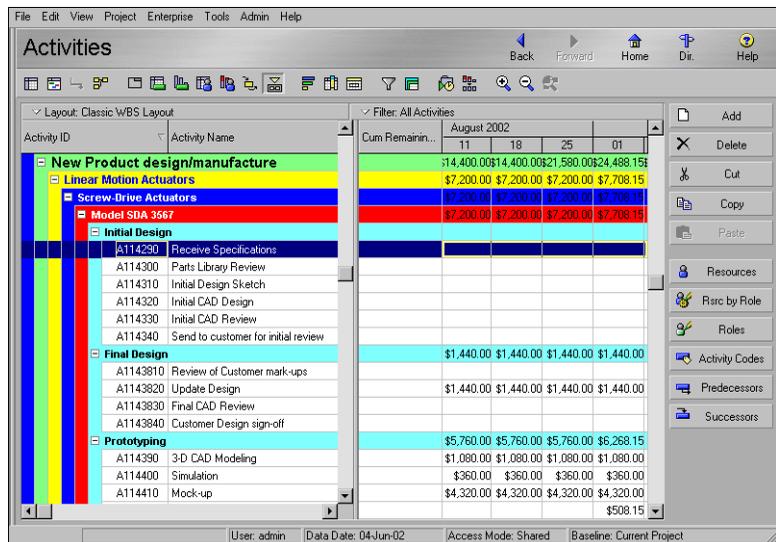
*Click the **Relationship Lines**
button to view relationships in the
Gantt Chart.*
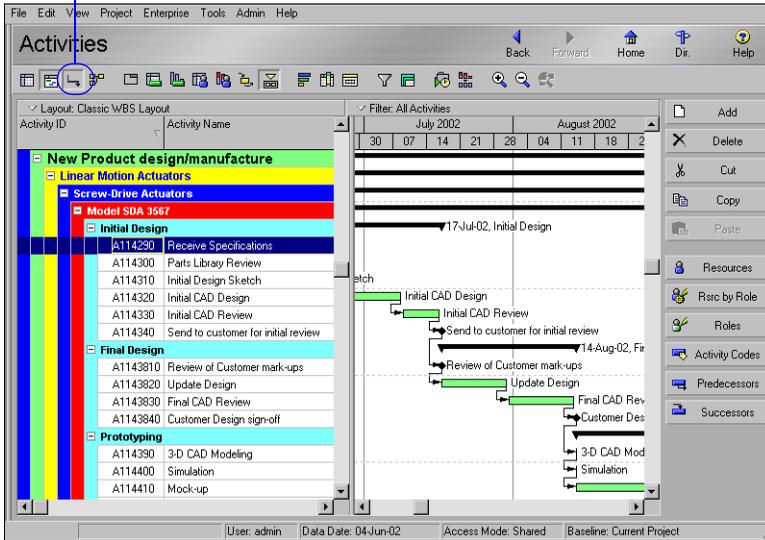
Gantt Chart
Provides a graphical
display of activity
progress over the
course of the project.
Use this layout to
review or analyze the
schedule.

Activity Network
Provides a graphical
display of activities,
including logical
relationships. Activity
Network can be
displayed in the top
layout only. The left
side of this example
displays the WBS
hierarchy, while the
right side shows the
activity flow in
graphical format. Use
this layout to change
the sequence of
activities as your
project evolves.
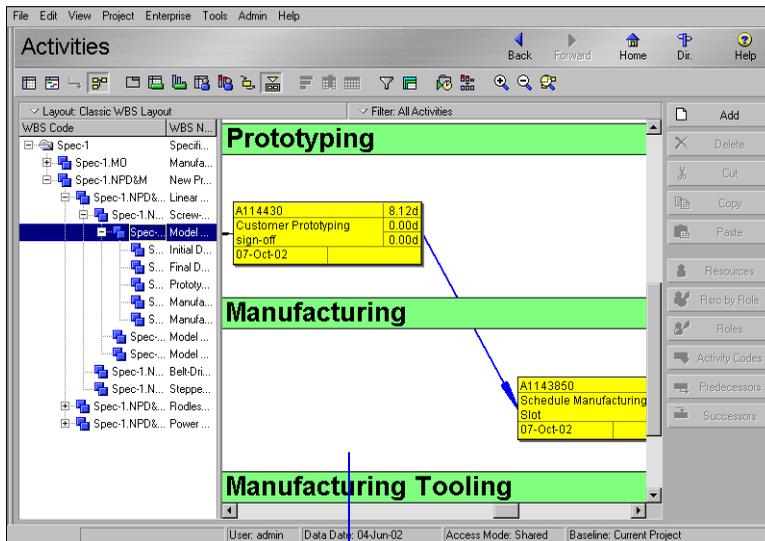
*To quickly zoom in on an Activity
Network box, hold down the Alt key,
then click and drag your mouse in the
Activity Network section.*

Activity Details

Displays and enables you to modify detailed information for an activity you select in either the Activity Table or Activity Network. This type of layout can be displayed in the bottom layout only. Use this layout type to add and update activities.

To show or hide any of the Detail tabs, right-click on a tab title and choose Customize Activity Details.
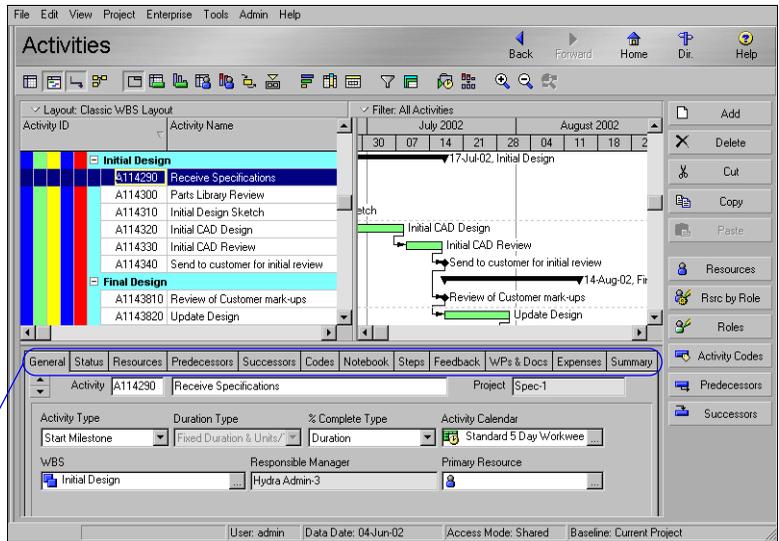
Activity Usage Profile

Displays a time distribution of activity units and costs in a Bar Chart format. This profile can be displayed in the bottom layout only. Use this layout type to review the labor use for activities in a specific timeperiod.

You can display usage for all activities, or choose Selected Activities to display usage for only the highlighted activities.
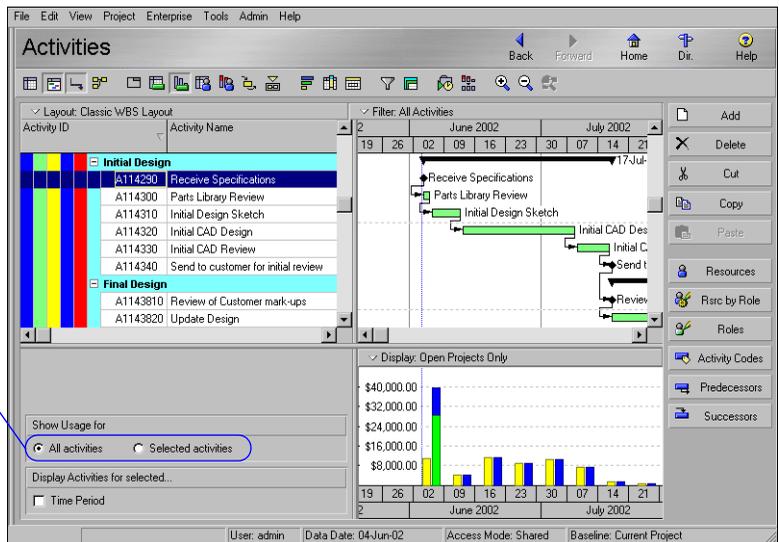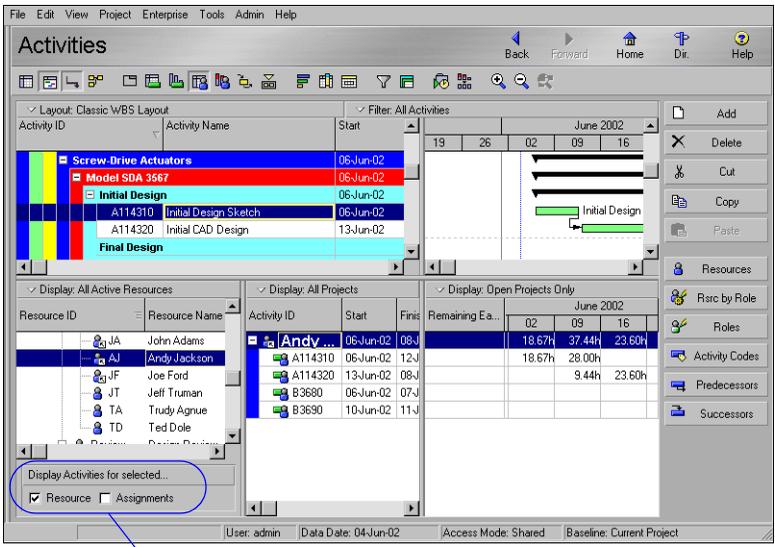
You can display activities by selected resource or assignment.

Resource Usage Spreadsheet

Displays resource data in spreadsheet format. This spreadsheet can be displayed in the bottom layout only. Use this layout type to view resource allocation over time, according to a timescale you specify.
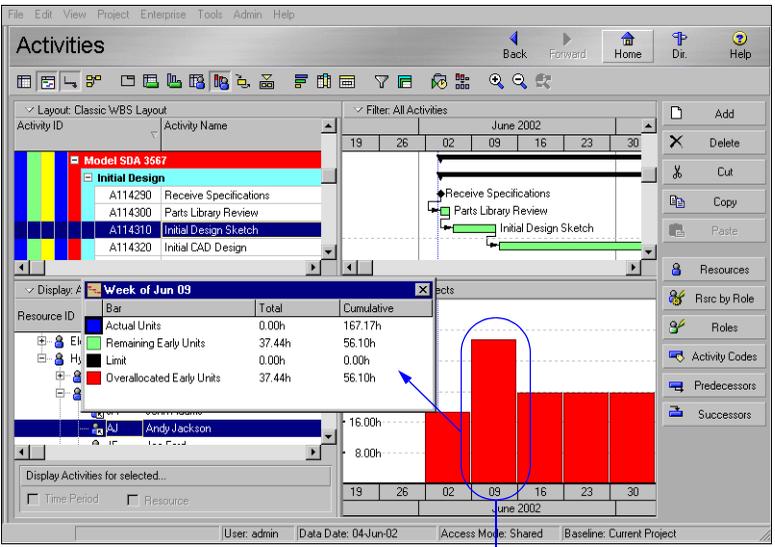
To display a pop-up box containing totals for a specific month, double-click that month's bar in the graph.

Resource Usage Profile

Displays a time distribution of resource units and costs in relation to activities in a Bar Chart format. This profile can be displayed in the bottom layout only. Use this layout type to analyze resource levels with the schedule.

You can also display the profile as a histogram using different colors and patterns for multiple resources. Click the Display Options Bar and choose Stacked Histogram.

Trace Logic
Provides a graphical display of dependency relationships for an activity you select in either the Activity Table or Activity Network. Trace Logic can be displayed in the bottom layout only. Use this layout type to easily move forward and backward through the plan to view the critical path.
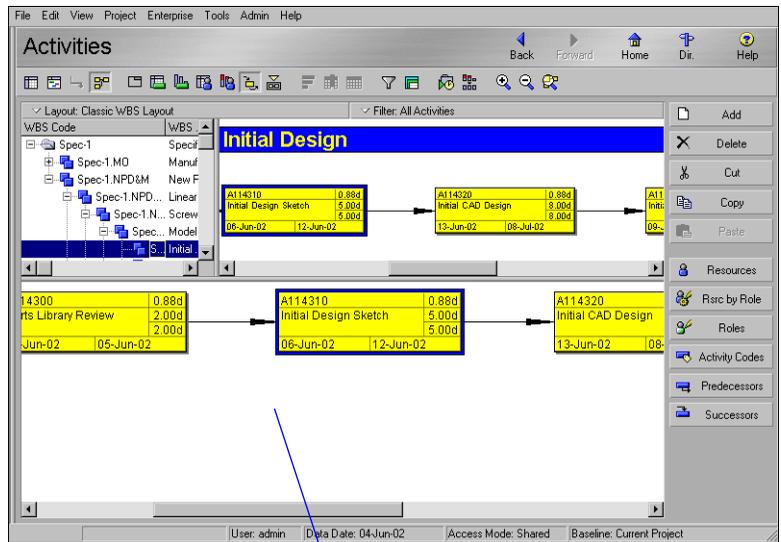
To quickly zoom in on a box, hold down the Alt key, then click and drag your mouse in the Trace Logic layout.

Creating, Opening, and Saving Layouts

Once you create a layout, you can save it and use it again at other stages of the project or with different projects. Make layouts available to all users (global) or to a specific user only.
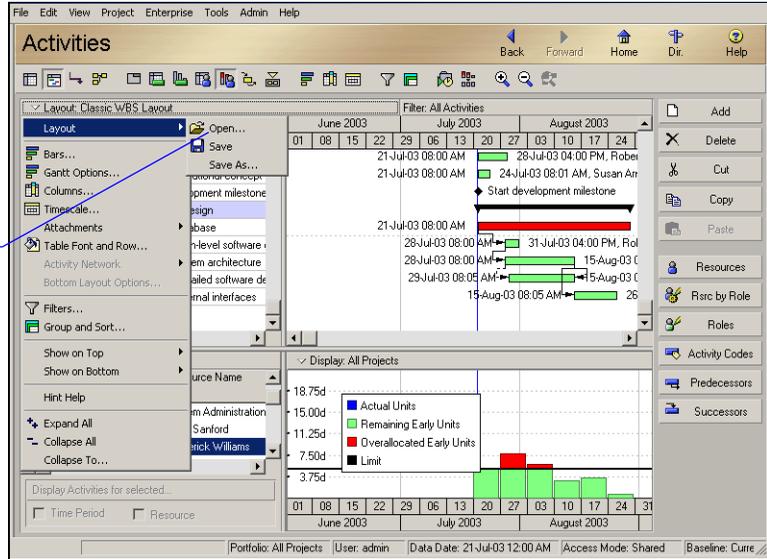
Choose Layout, Open, to apply an existing layout to the current project or projects.

For detailed instructions on customizing the top and bottom layouts, see "Customizing Layouts" on page 445.

Add a new layout Customize the top and bottom layouts to create a new layout, then save the layout using a name you specify. Click the Layout Options bar, then choose Layout, Save As. Type the layout name, then select who will be able to use this layout: All Users, the Current User, Another User, or Project. If you select Another User, click the Browse button in the User field, then select the user's name. (If you save a layout and specify a user other than yourself, you will no longer be able to access the layout.) If you select Project, click the Browse button and specify a project in the Select Project dialog box.

Once you have selected who will be able to use the layout, click Save.

Open a layout Click the Layout Options bar, then choose Layout, Open. Select the layout you want to open, then click Open. To preview the layout without closing the Open Layout dialog box, click Apply.

Save changes to a layout Click the Layout Options bar, then choose Layout, Save. To save a copy of the layout using a different name, choose Layout, Save As. Type a name for the layout copy, then click Save.

Exporting and Importing Layouts

If you want to share a layout with other users, export it to a central location from which they can then import the layout to use with their own projects.

Export a layout Click the Layout Options bar, then choose Layout, Open. Click the name of the layout you want to export, then click Export. Specify a name and location for the export file, then click Save.
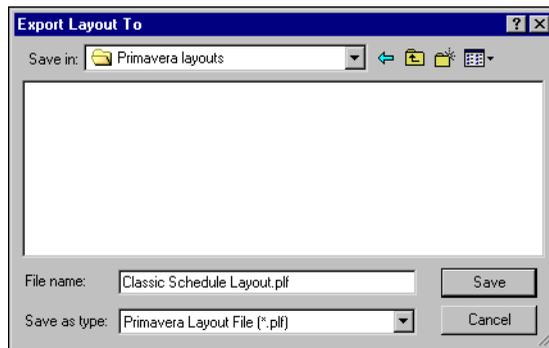
Import a layout Click the Layout Options bar, then choose Layout, Open. Click Import, then select the location of the layout file you want to import. (Primavera layout files have a .PLF extension.) Click Open. If you want to make the layout available to all users, click Yes when prompted.
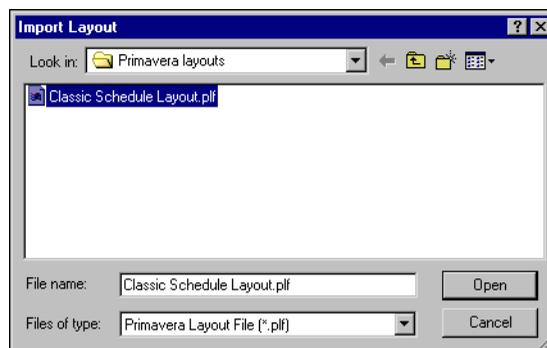
To overwrite the current layout with your changes, click the Layout Options bar and choose Layout, Save.

Copying and Pasting Resource Spreadsheet Data to Microsoft Excel

You can copy resource spreadsheet data from the Project Management module and paste it in Microsoft Excel. Choose Project, Resource Assignments. Select a row, then choose Edit, Copy. You can also select multiple rows. All associated data, as well as row and column headers and values, is copied to the clipboard.

> *You may need to expand column widths to display all the project information.*
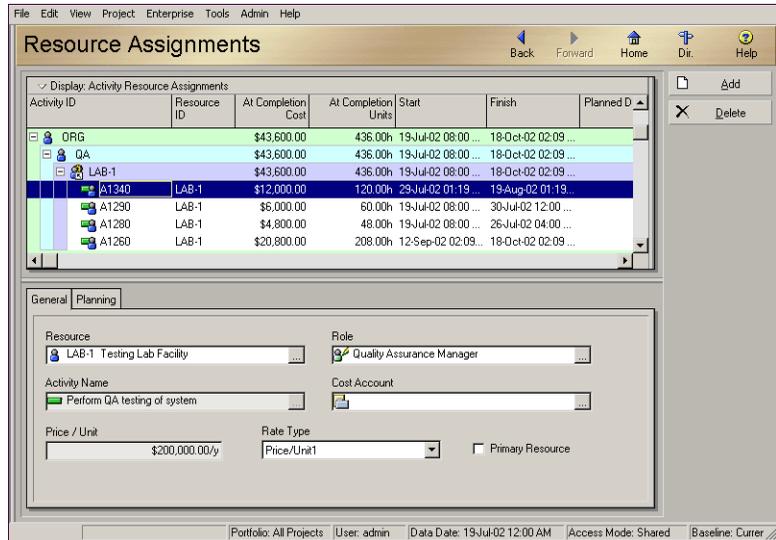
In Excel, right-click in the spreadsheet, then choose Paste. Any edits made in Excel cannot be returned to your Project Management module project. Use this feature for reporting only.

> *Excel may reformat data pasted into a spreadsheet. To prevent this, reformat the cells as text before pasting the data, or paste the data into a different spreadsheet application.*

Grouping, Sorting, and Filtering Data

Grouping organizes activities or projects into categories that share a common attribute. For example, focus on activities by resource, responsibility, or dates. Sorting arranges activities, resources, or projects in any order you select, such as by start date.

Filters enable you to narrow your selection to a specific data group. Use the standard filters provided or add new filters.

Read this chapter to learn how to group, sort, and filter data in your projects.

Grouping Data

Group to organize information in categories that share a common attribute, such as enterprise project structure (EPS), work breakdown structure (WBS), code value, or resource. Use predefined grouping options; for example, when displaying the Expenses window, group by vendor, WBS, or category.

Use these predefined grouping and sorting options for the WBS, expenses, work products and documents, thresholds, and risks windows.
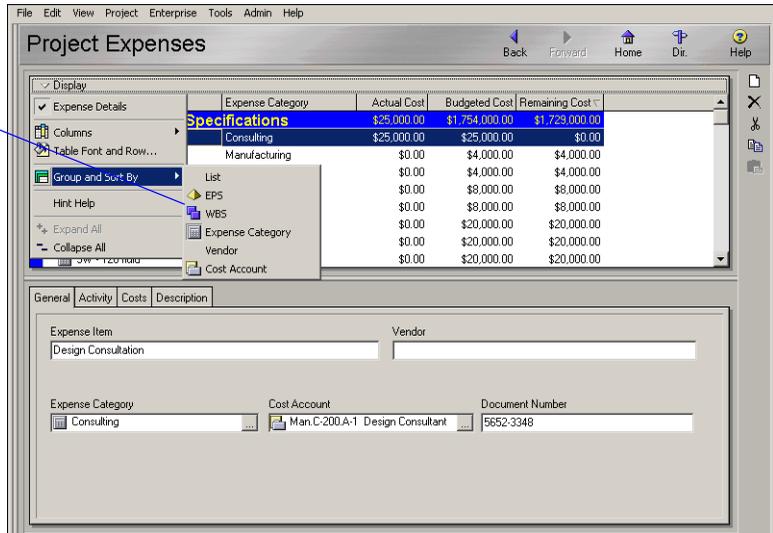
You can also customize group criteria when you are working with projects, activities, and resources. Group by simple, one-level lists of information, such as dates, durations, costs, and other numeric data. You can also group by multiple data items in the same layout. For example, group by project, then total float. Each group band can have a unique color and font.

Group criteria can also be arranged in hierarchies of data at multiple levels (up to 20). These items include projects, WBS, project codes, and activity codes. Choose whether to indent each level in the hierarchy, and specify up to which level to show. If you limit the number of levels, you can group by additional data items.

This layout is grouped by multiple levels of the WBS.

You can also specify customized grouping and sorting criteria when a Resource Usage Spreadsheet is shown as a bottom layout in the Activities window.
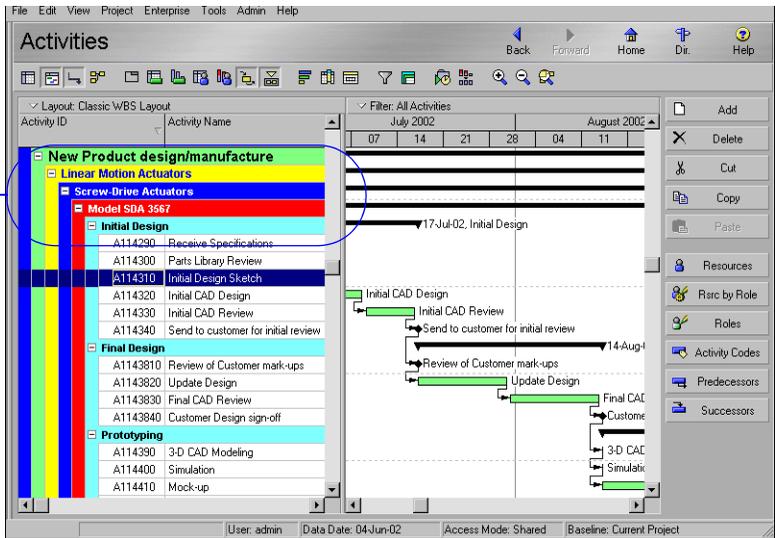
Customize grouping In the Activities window, click the Layout Options bar, then choose Group and Sort. You can also click the Display Options bar from the Projects or Resources window and then choose Group and Sort By, Customize.

In the Group By field, select the data item by which you want to group data. Mark the Show Group Totals checkbox if you want to display total rolled up values for each item you select in the Group By field. For example, if you choose to group by WBS, each WBS band displays the sum of the values for the activities included in that WBS item.

Mark the Show Group Totals to display totals in the grouping bands. Clear the checkbox to hide any totals in the grouping bands

When grouping by a hierarchical item, such as WBS, mark the Indent checkbox to indent each level, and specify how many levels to show.

Mark Show Grand Totals to display a grand total band at the top of the window. Mark Show Summaries Only if you only want to display bands for the data items you select in the Group By field (for example, if you want to display WBS bands and hide the WBS's activities).

Mark to decrease the space taken by indenting levels on the hierarchy and allow for the display of additional data.

To select the data item by which you want to group data, click the Group By field and select a value from the drop-down list.
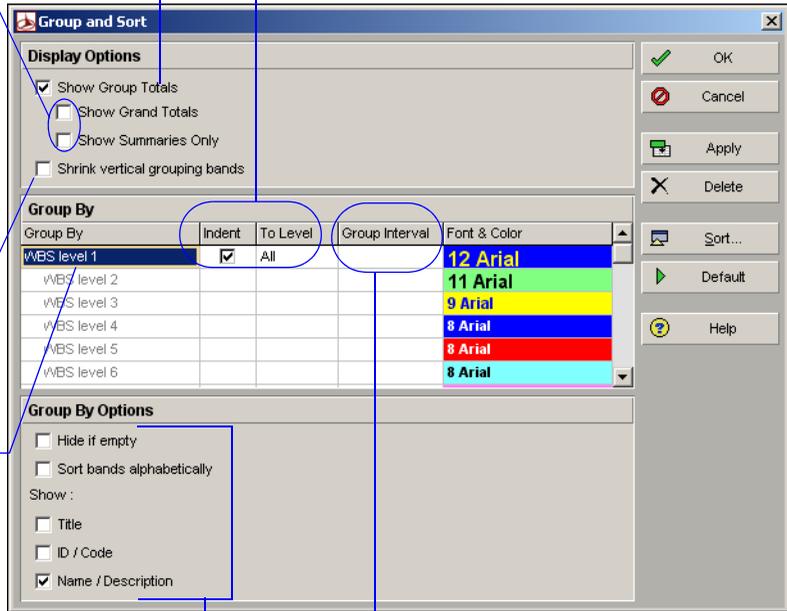
These settings apply to the Group By field selected above.

When grouping by numbers, dates, or durations, choose an interval for each group. For example, group activities by actual costs in increments of $3000.

Mark or clear the checkboxes to choose the text to display on the grouping bands. To display the field name on the grouping band, mark the Show Title checkbox. To display the ID or Code value on the grouping band, mark the Show ID/Code checkbox. To display the Name or Description on the grouping band, mark the Show Name/Description checkbox. To sort the grouping bands alphabetically rather than their order in their respective hierarchy, mark the Sort Grouping Bandings Alphabetically checkbox. To hide group title bands that do not contain activities within the group, mark the Hide If Empty checkbox.

You must select either Show ID/Code or Show Name/ Description.

Set as a user preference To display a label on grouping bands for windows/dialog boxes where you cannot access a Group and Sort dialog box, choose Edit, User Preferences. Click the Application tab. In the Group and Sorting section, mark Show ID/Code, Show Name/Description, or both.

Mark to immediately rearrange updated activity data to reflect the group and sort criteria.
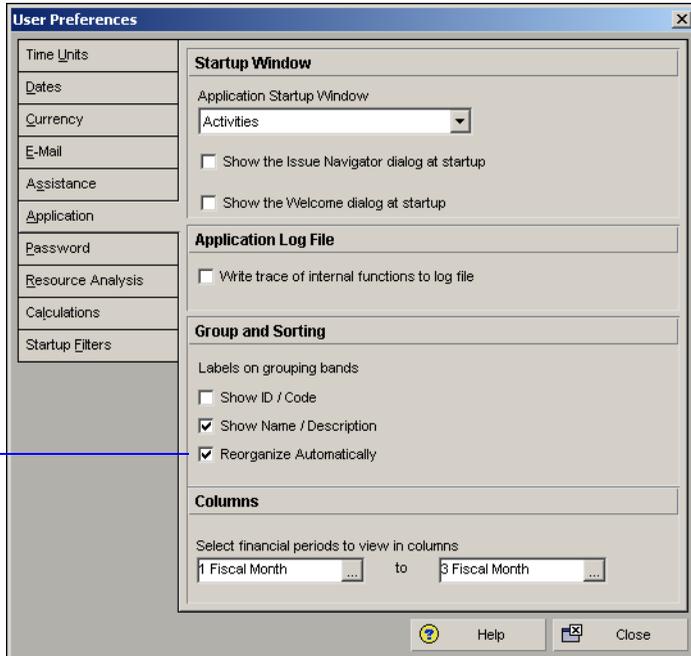
Sorting Data

Sorting determines the sequence in which projects, activities, or resources are listed in the current window. You can sort alphabetically, numerically, or chronologically based on the data item you choose. For example, sort by total float to see critical activities first, or sort by percent complete in descending order to see completed or in progress activities at the top of the layout.

Specify sort order In the Activities window, click the Layout Options bar, then choose Group and Sort. Click Sort. You can also click the Display Options bar from the Projects or Resources window and choose Group and Sort By, Customize, Sort.

To select a data item to use as the sort method, double-click the Field Name cell and select the field.

To select a sort order, double-click the Sort Order cell and choose Ascending or Descending.
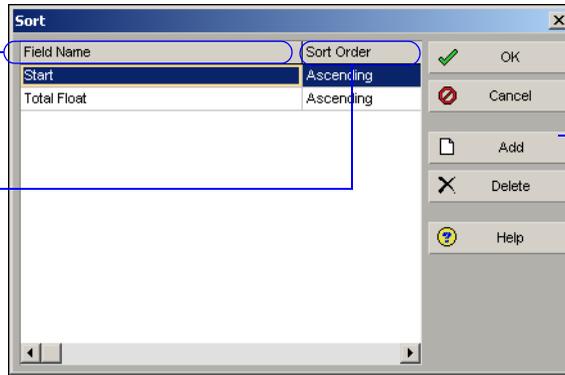
Click Add to specify additional sort criteria.

Reorganizing Data

You can mark the Reorganize Automatically checkbox on the Applications tab of User Preferences to immediately reorganize the current view or layout each time you add an activity or change activity data. However, if you have many changes to make and you choose not to mark the setting in User Preferences, you can select Tools, Reorganize Now to organize the project. When you change views, apply a filter, cut, copy, paste, or refresh data, the module will reorganize the data, regardless of whether the Reorganize Automatically checkbox is marked or cleared.

Filtering Data

Use filters to focus on specific data. A filter is a set of instructions that determines which data display in the current window. You can create one set of filters for activities and one set for projects, or use predefined filters. Filters can be user-defined, global or layout. User-defined filters are filters that you define. They are available only to you for all projects to which you have access. Global filters are available to all users for all projects. Layout Filters are only available to the currently open layout.

Select a filter To select activities for the project currently open, in the Activities window click the Layout Options bar, then choose Filters. To filter the projects in the Projects window, click the Display Options bar, then choose Filter By. Mark the checkbox beside each filter you want to apply. You can also customize individual filters when creating tracking layouts or reports using the Report Wizard.

Click to view all activities (and remove all filters).

Choose All or Any to combine multiple filters. Combining filters further narrows the selected data.

Click to see how a filter works before you commit to it.

These predefined filters are available when you select activities in the Activities window. A different set of predefined filters is provided when you filter by projects in the Projects window.

To convert a user-defined or layout filter into a global filter, select it, then click Make Global.

Choose to replace the activities that appear in the layout or highlight a subset of the activities in the layout.

Click to create a layout filter from a default or global filter.

To view a user-defined, layout, or global filter's settings before applying it, select it, then click Modify. To view the criteria for a predefined filter, first copy and paste it. The filter is copied to the user-defined list, which you can then modify.

Create a user-defined filter In the Activities window, click the Layout Options bar, then choose Filters. You can also click the Display Options bar from the Projects window and choose Filter By, Customize. Click New. Type a filter name. Click the Parameter cell and select a data item. Double-click the Is cell to select a filtering criteria. Specify a value in the Value field. If the values require a specific entry, you can select from a drop-down list. For example, if filtering by activity type, you must select from a list of the available types.

Click Add to define multiple selection criteria. Specify whether all criteria must be met or at least one criterion.

If you specify that all criteria must be met, each statement is joined with an "And." If any criteria can be met, an "Or" is used.
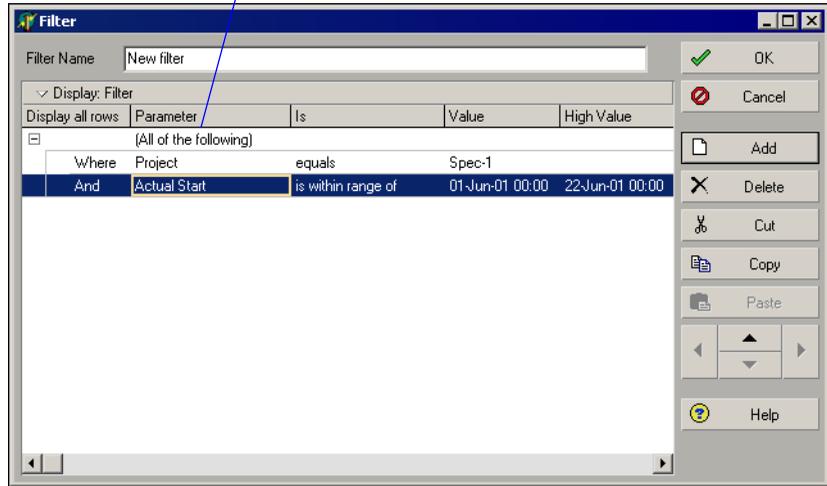
You can "nest" criteria to create multiple levels of selections. If you specify the topmost parameter as All of the Following, each successive level selects from only the activities/projects that meet the criteria of previous levels. If you specify Any of the Following as the highest parameter, each group of criteria is separated by an "Or."

A second set of criteria is joined by an And because All of the Following is specified as the highest parameter. This filter selects all activities with negative float that belong to the Specifications project and *have either a testing or marketing resource assigned.*
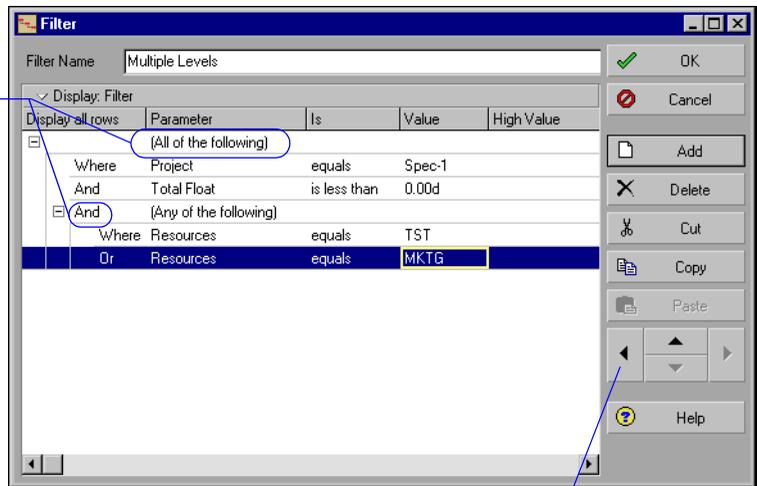
To "nest" a set of criteria within another set, select the line of criteria, then use the arrow keys to indent it.

Create a layout filter In the Activities window, click the Layout Options bar, then choose Filters. Select a default or global filter, then click the Copy As Layout button. Modify the copied filter, as needed.

Remove filters Click the Layout Options bar, then choose Filter. To remove a specific filter, clear the Select checkbox for the filter you want to remove. To remove all filters, mark the All Activities or All Projects checkbox. To preview your changes, click Apply.

Delete user-defined activity filters Click the Layout Options bar, then choose Filter. Select the filter you want to delete, then click Delete. You can delete only global and layout filters.

Combining Filters

To create a filter that selects any activity from one selection criteria *and* any activity from another selection criteria, you must define two separate filters and then combine them when you run the filters. For example, to select any activity belonging to the Corporate IT group that is not complete, you might create one filter that selects any activity that falls under various WBS levels (specific to the Corporate IT group), and another filter that selects any activity with remaining labor units greater than zero. To run the filters, choose All Selected Filters and mark the checkboxes for the two filters on the Filters dialog box.
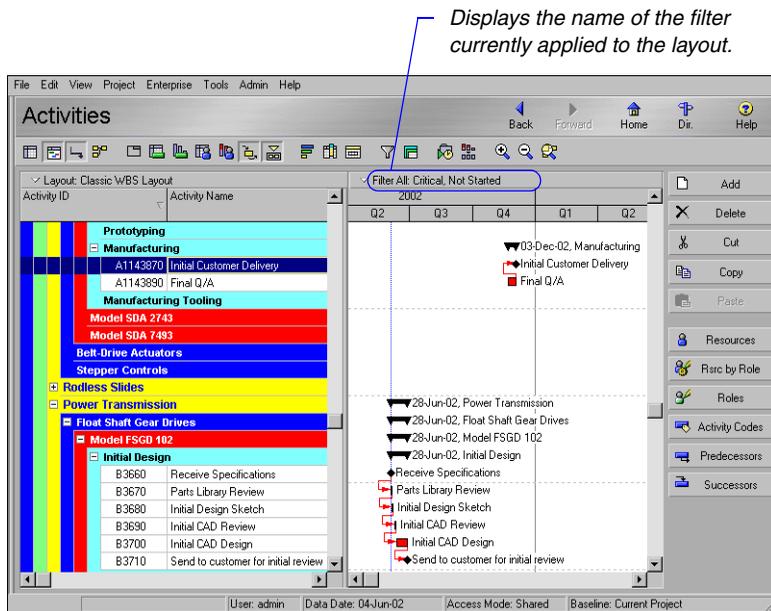
*Displays the name of the filter
currently applied to the layout.*

Customizing Layouts

This chapter describes how to customize layout rows and columns, set the timescale, modify Gantt Chart bars, specify the look of Activity Network boxes, and modify Resource and Activity Usage Profile settings to help you monitor project performance.

Refer to "Printing Layouts and Reports" on page 509 for instructions on setting page and print options, previewing and printing layouts and reports, and publishing layouts and reports in HTML format.

Modifying Columns

You can customize the look and content of the columns included in tables and spreadsheets in the Activities window. Choose which columns you want to include; change the column widths, the order in which columns are displayed, and the row height; specify column fonts and colors; edit column titles; and copy column formats from other layouts.

To move a column, click and drag it to a new location.

Click a column title to toggle the sort order from ascending to descending. The down arrow indicates that the data are sorted in descending order.

You can also customize the columns displayed in most windows, such as Projects, Resources, WBS, and Issues.

To view more columns, click and drag the divider bar.
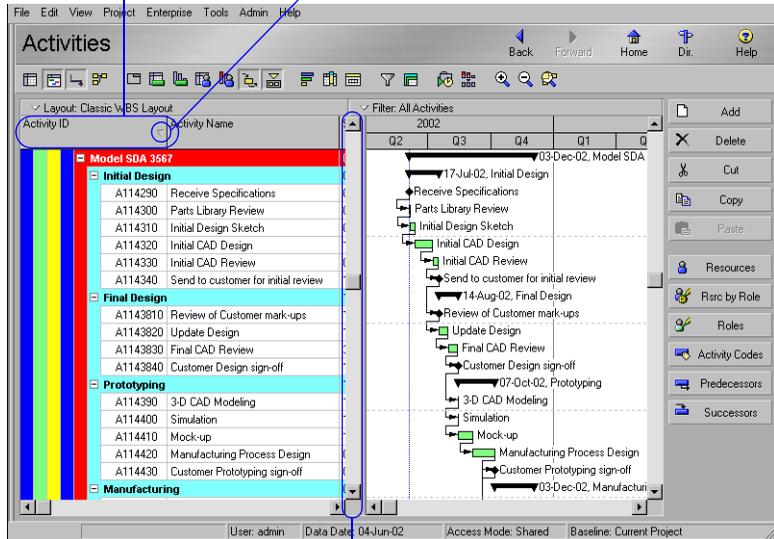
Add or remove columns In the Activities window, click the Layout Options bar, then choose Columns.

To include a column in the layout, select it in the Available Options list, then click the right arrow. To remove a column from a layout, select it in the Selected Options list, then click the left arrow. Click the double-arrows to add or remove all columns at once.

The sequence of columns in the layout will be the same as their order in this list. Click the up and down arrows to move columns higher or lower in the list.
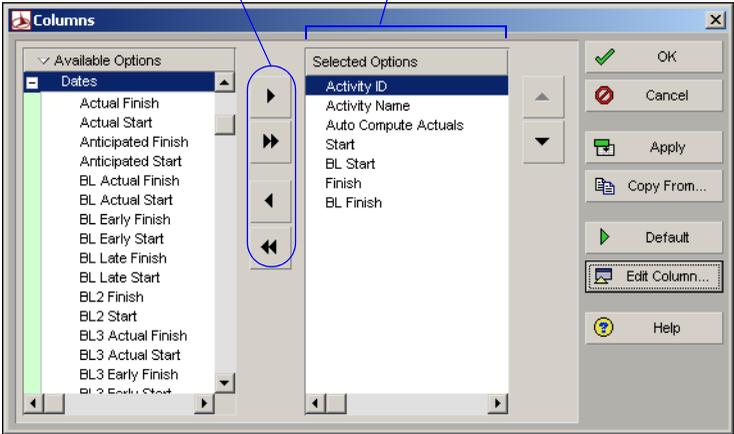
Copy column format from another layout In the Columns dialog box, click the Copy From button. Select the layout and click Open.

Edit column titles, widths, and alignments In the Available Options or Selected Options area of the Columns dialog box, select the column name you want to change. Click Edit Column. Type the new name, then specify the maximum number of characters for the column width. Choose how the title will be aligned in the column header.
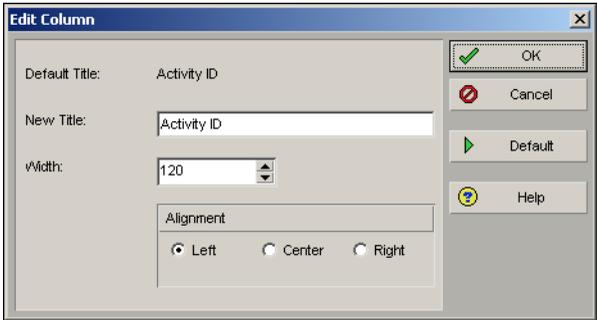
Change column fonts, colors, and row height From the
Activities window, click the Layout Options bar, then choose Table Font
and Row. To change a font, click the Font button, then select a new font.
To change a color, click the Color button, then select a new color.

*Click these fields to
customize the font and
color of your table.*

*Click to restore
the standard
table fonts and
colors.*

*Mark to show the symbols that identify the different
levels of information included in columns.*
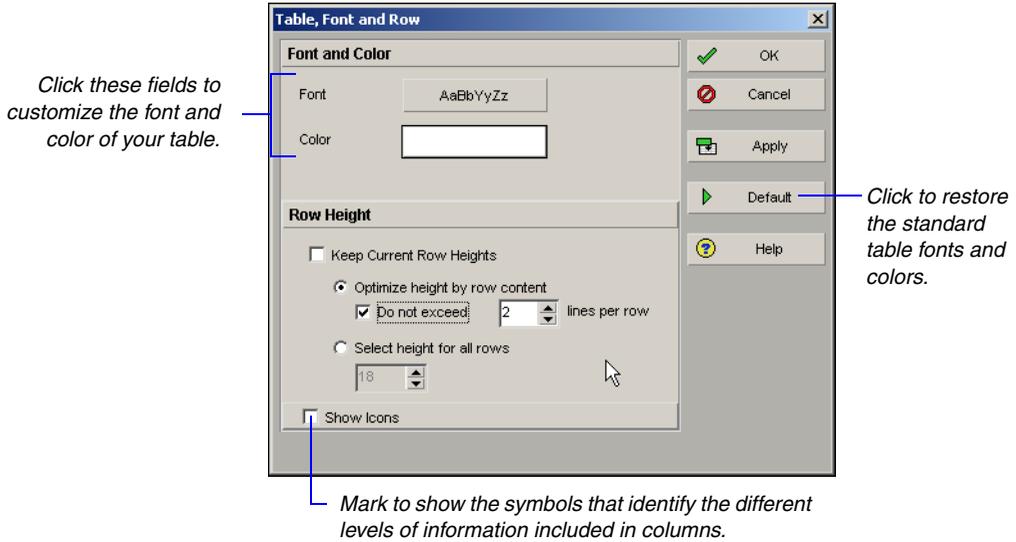
You can also specify the height for rows:

■   The Keep Current Row Heights option enables you to retain all
custom row heights manually set in the layout during your current
user session.

■   Clear the Keep Current Row Heights checkbox to automatically
size each row based on cell content, font size, and column width or
to specify a height for all rows in the layout. If you choose to
Optimize Height by Row Content, you can set a value to limit the
amount of lines per row that are automatically adjusted during text
wrapping.

Adjusting the Timescale

Your timescale settings significantly affect your ability to manually plan future period resource distribution in the Resource Usage Spreadsheet. For details, refer to the "Future Period Bucket Planning FAQ" topic in the Help.

Gantt Charts, Activity and Resource Usage Spreadsheets, and Activity and Resource Usage Profiles display a timescale that starts just before your project begins and extends until your finish date. This timescale can be shown in different time units, such as years, quarters, and days. You can expand or condense the timescale view to control the size of the bars or columns that appear in the layout.

To show data for different months in the layout, click and drag a month's column.
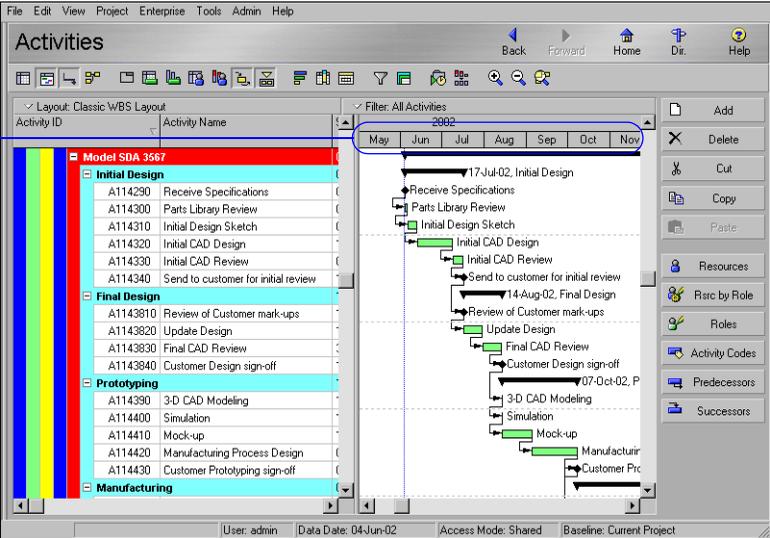
To manually expand or condense the timescale, click and drag the date in a month. You can also right-click in the Bar area and choose Timescale to change the timescale settings.

Change the timescale of a profile, spreadsheet, or Gantt Chart   In the Activities window, open a profile, spreadsheet, or Gantt Chart. Click the Layout Options bar and choose Timescale. In the Projects window, right-click in the bar area of a Gantt Chart and choose Timescale.

To select the date from which the timescale should start for the profile, spreadsheet, or Gantt Chart, in the Timescale Start field click the Browse button. Select the date intervals at which data are displayed. If you choose Day/Shift as the date interval, click the Browse button to select the corresponding shift in the Shift Calendar field. To change the font and color settings, click the font button to specify the font style, size, and color for the timescale and column headings. Click the Default Font button to change the timescale font and color to the default settings. Choose to display Primary or Ordinal Dates. If showing Primary Dates, choose the format in which to display date intervals: Calendar, Fiscal, or Week of Year. If the profile or spreadsheet is displaying past period actual values, choose a financial period Date Interval.

Choose to show two or three time units on the timescale.

The Date Interval options differ depending on the Type you choose. If the profile or spreadsheet is displaying past period actual data (rather than actual to date values), choose Calendar or Fiscal as the Type. In the Date Interval field, select a financial period timescale to view past period actual data per financial period. If the profile or spreadsheet is not displaying past period actual values, choose any Type and Date Interval.
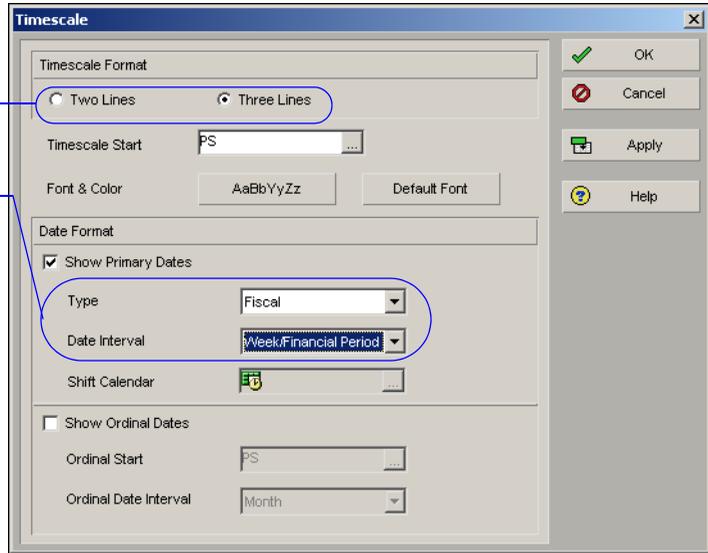
Timescale settings apply to both the top and bottom layouts.

For more information on summarizing assignment data by financial period, refer to the *Primavera P6 Administrator's Guide* or the Help. For more information on storing period performance, refer to *"Storing Period Performance (Past Period Actuals)"* on page 324.

If assignment data is summarized by financial period (which is controlled by an administrative preference), Financial Period timescale intervals display all summarized assignment data (past period actual and actual to date) in profiles and spreadsheets. For periods with stored performance, financial period intervals display summarized past period actuals; for periods without stored performance, financial period intervals display summarized actual to date values.

**Average the timescale for Activity and Resource Spread-
sheets** You can display the timescale in the Activity and Resource
Spreadsheet based on a calculated average. Mark the Base On Hours Per
Timeperiod checkbox to divide the timescale interval totals by
automatic increments, based on the date interval selected. When you
choose this option, the Divide Interval Totals By field displays the
division increment based on the division increment specified in User
Preferences for the corresponding date interval: 1h for Hour date
interval, 2h for Shift date interval, 8h for Day date interval, 40h for
week date interval, and so on.

*Mark to specify the values
you want to use to divide
the timescale interval totals
in the Divide Interval Totals
By field.*

*Specify the unit of measure
for the timescale intervals.*
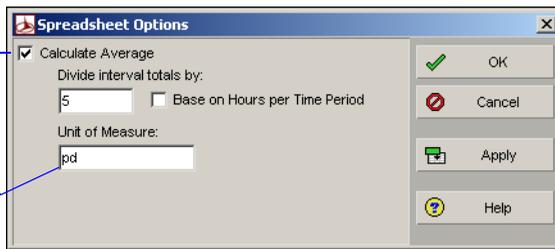
Formatting Gantt Charts

A bar in a Gantt Chart can represent many things, such as a milestone, early and late dates for an activity, or summarized data. To visually distinguish the different bars included in a Gantt Chart, specify unique colors, shapes, and patterns. You can display the Gantt Chart in the Projects window when reviewing the EPS, or in the Activities window when reviewing specific projects.

Add and delete bars Click the Layout Options bar (Activities window) or Display Options bar (Projects window), then choose Bars. Click Add. Type a name for the new bar, then select the timespan the bar represents from the Timescale drop-down list. Double-click the Filter field, then mark each filter you want to apply. Click OK.

To delete a bar, select it in the Bars dialog box, then click Delete.

Mark to show or hide a bar.

Use these fields to change the selected bar's shape, color, and pattern.

To combine bars, specify the same row number for each one. For example, to display the Actual Bar and Remaining Bar on the same line, specify Row 1 for each bar.

Change a Gantt Chart bar's timespan Click the Layout Options bar (Activities window) or Display Options bar (Projects window), then choose Bars. Select the Gantt Chart bar for which you want to change the timescale. Double-click the Timescale column, then select the new timescale.

To represent this value:	Select this bar:
Start Date to Finish Date	Current Bar
Percent Complete	% Complete Bar
Performance Percent Complete	Performance % Complete Bar
Planned Start Date to Planned Finish Date	Plan Bar
Actual Start Date to Actual Finish Date	Actual Bar
Remaining Start Date to Remaining Finish Date	Remain Bar
Primary Baseline Planned Start Date to Primary Baseline Planned Finish Date	Primary Baseline Bar
Secondary Baseline Planned Start Date to Secondary Baseline Planned Finish Date	Secondary Baseline Bar
Tertiary Baseline Planned Start Date to Tertiary Baseline Planned Finish Date	Tertiary Baseline Bar
Early Start Date to Early Finish Date	Early Bar
Late Start Date to Late Finish Date	Late Bar
Remaining Finish Date to Late Finish Date	Float Bar
Remaining Finish Date to Late Finish Date with Remaining after the late date	Neg Float Bar
User start and end dates defined in the activity columns	User Defined Bars

Apply Gantt Chart settings from another layout In the Bars dialog box (Activities window), click Copy From. Select the layout with the Gantt Chart settings you want to apply. To apply the selected layout's settings and close the dialog box, click Open.

Change a Gantt bar's style In the Bars dialog box, select the Gantt Chart bar you want to change. Click the Bar Style tab. To specify the shape, color, and pattern of the bar's Start Endpoint (first field), the height and thickness of the bar (second field), and the Finish Endpoint (end field), click each corresponding field and select a shape.

Change a Gantt bar's settings In the Bars dialog box (Activities window), select the Gantt bar you want to change. Click the Bar Settings tab. In the Grouping Band Settings section, mark the Show Bar When Collapsed checkbox to include the selected bar when you display summary level information. Mark Show Bar for Grouping Bands to display the selected bar as a summary bar only.

Select how to show activity nonwork time in the Bar Necking Settings section. Mark the Calendar Nonwork Time checkbox to show the activity calendar's nonwork time as a neck in the selected bar. Mark the Activity Nonwork Intervals checkbox to show the selected bar's nonwork time based on the activity's suspend/resume dates and other gaps of time, such as when using out of sequence progress.

Change a Gantt Chart bar's label You can choose to display a bar label, which acts like a title in describing the bar's purpose. In the Bars dialog box, select the Gantt Chart bar you want to change. Click the Bar Labels tab. To add a label, click Add. Click in the Label field, then select the label value. To remove a label, select it in the Bar Labels tab, then click Delete.

To change the position of a label, select it, then click in the Position column and select a new position.

You can use the Table, Font and Row dialog box to change the font for text that appears within layout rows, including Gantt Chart bar labels. To access this dialog box, click the Layout Options bar from the Activities window. Then choose Table Font and Row. To change the font, click the Font button, then select a new font.

Display notebook items in the Gantt Chart You can attach notebook items to the bars in a Gantt Chart. Notebook items might include anticipated problems, core requirements, entry criteria, exit criteria, metrics, scope, status, and other information. You can print notebook items with the layout, or publish them with the layout to the project Web site. In the Bars dialog box, click the Bar Labels tab. To add a notebook item, click Add. Select a position for the label, then select a notebook item from the drop-down list.

You can attach notebook items to Gantt Chart bars in the Bar Labels tab. Only one notebook item can be attached to each bar in the Gantt Chart.

Set the default size for notebook items in the Gantt Chart In the Bars dialog box, click Options. Click the General tab. Type or select a new width and height for the notebook items you want to display in the Gantt Chart.

These settings are used only the first time a notebook item is displayed next to the bar. Once you resize the notebook item manually, the default settings are disregarded.

You can also click the Relationship Lines button in the toolbar to show and hide relationship lines.

Show or hide relationship lines in the Gantt Chart In the Bars dialog box, click Options. Click the General tab. Mark the Show Relationships checkbox to display relationship lines in the Gantt Chart, or clear the checkbox to hide relationship lines.

In the Activities view, mark to show relationships between activities.

These settings are used only the first time a notebook item is displayed next to the bar. Once you resize the notebook item manually, the default settings are disregarded.
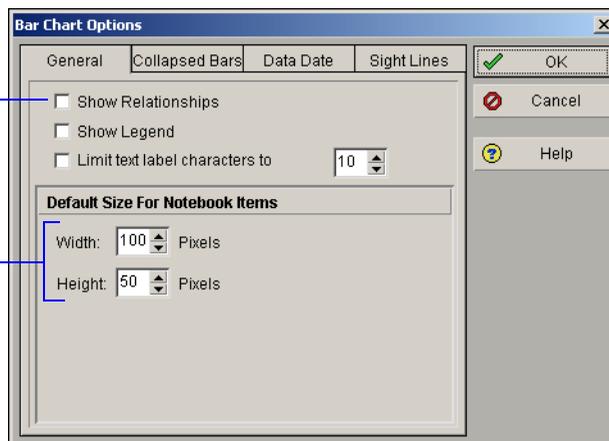
Show or hide the Gantt Chart legend In the Bars dialog box, click Options. Click the General tab. Mark the Show Legend checkbox to display the Gantt Chart legend, or clear the checkbox to hide the Gantt Chart legend.

Set the text limit for bar labels in the Gantt Chart In the Bars dialog box, click Options. Click the General tab. To limit the amount of text characters that show on the bars, mark the Limit Text Label Characters To checkbox and then type or select the character limit at which you want to allow the text label to be displayed.

When showing collapsed bars, only Notebook Items that contain all text will display.

Customize collapsed bars in the Gantt Chart You can format collapsed bars to display as a single bar or as individual bars in the Gantt Chart in the Activities window. In the Bars dialog box, click Options. Click the Collapsed Bars tab. Choose the Collapse to Grouping Bands option to display the activity bars as a single bar. If the Show Relationships checkbox in the General tab is marked, you can mark the Show Relationships for Collapsed Bars to show relationship lines from the collapsed bar to other collapsed and individual bars.

In the Show Bar Necking For section, mark the Calendar Nonwork Time checkbox to show nonwork time from the activity's calendar as a neck, or thin bar, on the collapsed bar. Mark the Activity Nonwork Intervals checkbox to show a neck, or thin bar, for activity and/or calendar nonwork time, including suspend/resume dates.

Choose to place each individual bar as close to the grouping band as possible, under its timescale date.

Mark to allow bar labels and bars to overlap when minimizing space in the Gantt Chart.
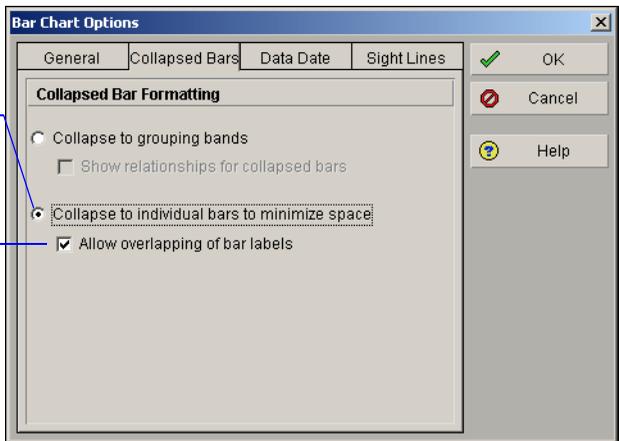
The collapsed Bar tab is available when formatting bars in the Activities window.

Customize the data date line You can change the style, size, and color of the data date line to more easily distinguish it on-screen and in printouts. In the Bars dialog box, click Options. Click the Data Date tab. To change the style of the data date line, select a style from the drop down list. The line can be solid, or contain a series of dashes and dots. To change the thickness of your data date line, select a value between 1 and 10 pixels in the Size field. This option only applies to the solid line style. Click in the Color field to select a color from the color palette.

If your line style is something other than the solid line and you increase the size to a number greater than one, the bar style switches to a solid line.
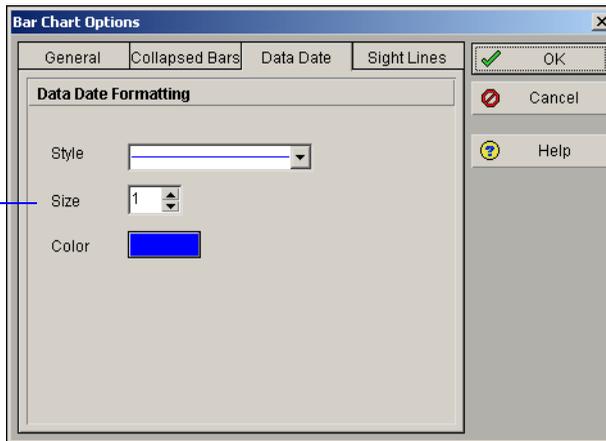
Change the background lines in the Gantt Chart In the Bars dialog box, click Options. Click the Sight Lines tab. To show background horizontal lines before every Summary bar, mark the Show Major Lines checkbox in the Horizontal Lines section and then select a line style from the drop-down list. To show background horizontal lines before every X number of rows, mark the Show Minor Lines Every checkbox and then type or select the row interval at which you want to the minor lines to be displayed. Next, select a line style from the drop-down list.

To show background major vertical lines for every X amount of time, mark the Show Major Lines checkbox in the Vertical Lines section, and then type or select the number of intervals and time unit to display the major vertical lines. Next, select a line style for the vertical lines from the drop down list. To show background minor vertical lines before every X amount of time, mark the Show Minor Lines Every checkbox and then type or select the number of intervals and time unit to display the minor vertical lines. Next, select a line style from the drop-down list.
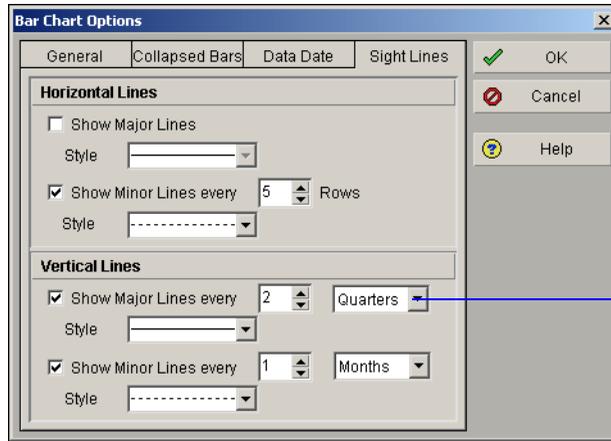
Display the sight lines based on the selected time unit.

Highlight a timeperiod in a Gantt Chart Use the Curtain Attachment dialog box to highlight a specific timeperiod in a Gantt Chart. In the Activities window, choose View, Attachments, Curtain, Add Curtain. Mark the Display Curtain Attachment checkbox. Click the Browse buttons to select the start and finish dates. Click Delete to remove the curtain from the layout. In the layout, to manually shift the curtain, move the mouse cursor over the curtain and click and drag it to the new dates. To change the start and finish dates of the display, click and drag the sides of the curtain to the new dates.

To hide all curtains displayed in the layout, choose View, Attachments, Curtain, Hide All. To display curtains that may be hidden in the layout, choose View, Attachments, Curtain, Show All. Double-click on the curtain to edit the curtain date range, color and fill pattern.
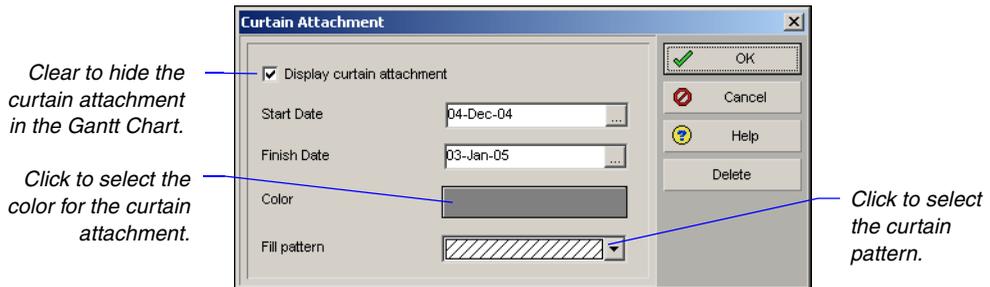
Clear to hide the curtain attachment in the Gantt Chart.

Click to select the color for the curtain attachment.

Click to select the curtain pattern.

Add text to a Gantt Chart Use the Text Attachment dialog box to create formatted text and insert it in a Gantt Chart. The text displays in the foreground of the Gantt Chart, whenever you click in the layout. In the Activities window, select the activity to which you want to add text. Click the Layout Options bar and choose Attachments, Text.

*Click to select the text's
font and style.*

Modify and remove text in a Gantt Chart In the Gantt Chart, double-click the text to select it, then modify it in the Text Attachment dialog box. To manually shift the text attachment, move the mouse cursor over the text, click to select the attachment, and drag it to the new location. To remove a text attachment in the Gantt Chart, click the text attachment you want to remove, then click Delete.

Formatting Activity Network Layouts

The Activity Network layout displays a project as a diagram of activities and relationships, according to the work breakdown structure (WBS). You can control nearly every aspect of the Activity Network, including the appearance of activities, the contents of activity boxes, and the spacing between activities.
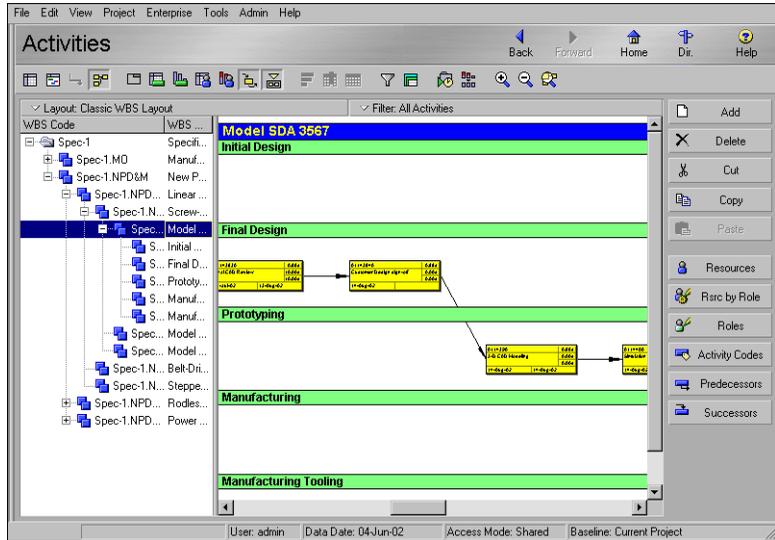
You can use an Activity Network layout to

■   Easily view relationships among activities and the flow of work through a project

■   Examine and edit an activity and its predecessors and successors

■   Focus on the driving relationship path

An Activity Network box visually represents a project activity. When customizing boxes, you can specify particular fonts and colors, set spacing and positioning, and copy styles from another layout.

Activity ID　　　　　　　　　*Total Float*

Activity Name

Early Start　　　　　　*Early Finish*

Original Duration

Remaining Duration
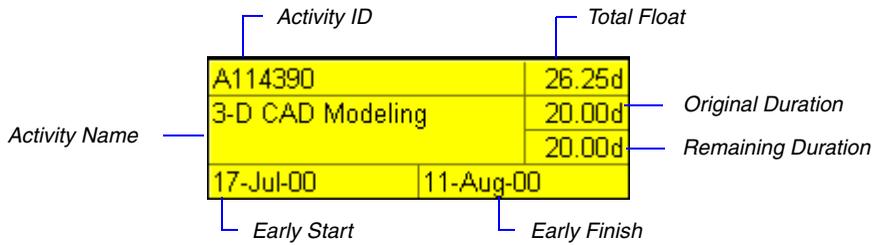
Choose an Activity Network box template With an Activity
Network layout displayed in the Activities window, click the Layout
Options bar, then choose Activity Network, Activity Network Options.
Click the Activity Box Template tab.

*Click to display a list of predefined
activity box templates.*

*Click to customize the
selected activity box's
font and colors.*

*Click to customize the selected
activity box template.*
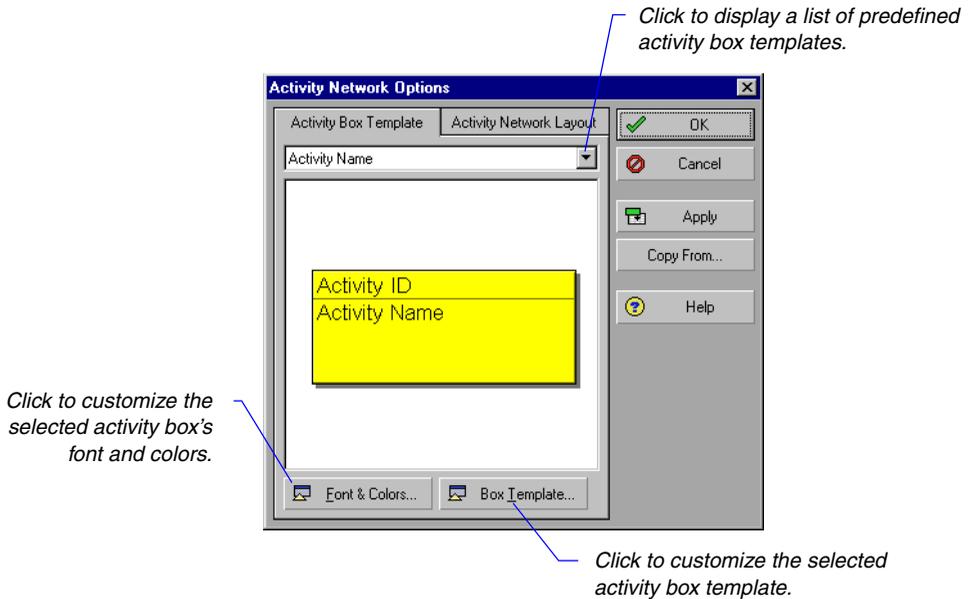
Customize an Activity Network box template You can use one
of the predefined activity box templates, or customize your own. With
an Activity Network layout displayed in the Activities window, click the
Layout Options bar, then choose Activity Network, Activity Network
Options. Click the Activity Box Template tab. From the drop-down list,
select a template that is similar to the one you want to create, then click
Box Template. You can add rows for inserting new fields and determine
how high and wide the field cells should occupy within the activity box.
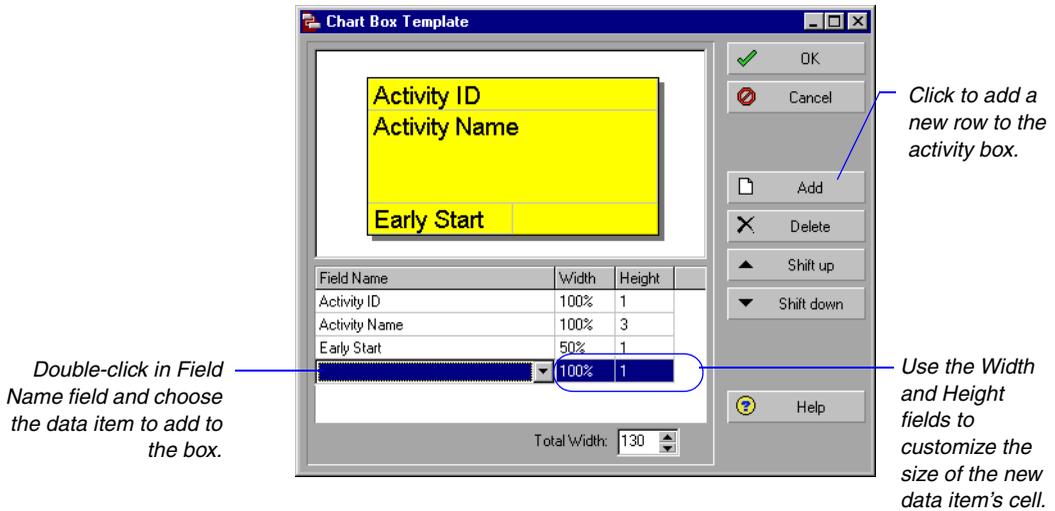
Double-click in Field Name field and choose the data item to add to the box.

Click to add a new row to the activity box.

Use the Width and Height fields to customize the size of the new data item's cell.

Customize the Activity Network layout With an Activity Network layout displayed in the Activities window, click the Layout Options bar, then choose Activity Network, Activity Network Options. Click the Activity Network Layout tab.

Aligns activity boxes towards the top of the Activity Network window, in relation to their predecessors/successors

Centers activity boxes in relation to their predecessors/successors

Choose to display the activity networks with the longest or shortest path of linked activities on top.
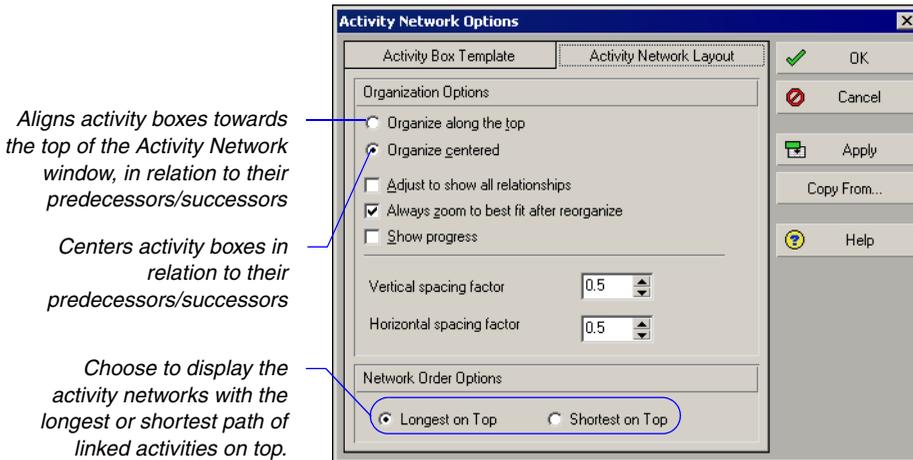
When an activity's predecessor/successor is not immediately adjacent to its activity in the Activity Network, the relationship line may not be visible because of other activity boxes. To reposition activity boxes so that all relationship lines are visible, mark the Adjust to Show All Relationships checkbox.

To have the module automatically determine the view that best shows all activity boxes in the layout after you have reorganized it, mark the Always Zoom to Best Fit After Reorganize checkbox.

To have the module indicate progress by drawing an X on a completed activity or a slash on an activity in progress, mark the Show Progress checkbox.

To change the amount of vertical space between activity boxes in the Activity Network, specify a spacing factor that is a percentage of the height of activity boxes in the Activity Network table.

To change the horizontal space between activity boxes in the Activity Network, specify a horizontal spacing factor that is a percentage of the width of activity boxes in the Activity Network table.

Copy from another Activity Network layout   With an Activity Network layout displayed in the Activities window, click the Layout Options bar, then choose Activity Network, Activity Network Options. Click Copy From. Select the Activity Network layout whose attributes you want to copy. Click Open.

In the Activity Network, when you select a data item for grouping, the hierarchy on the left side of the window contains the WBS so you can filter activities according to the hierarchy.

Save an Activity Network layout   You can save the Activity Network layout as an .ANP file to use later or email to another project user. To save an Activity Network layout, click the Layout Options bar, then choose Activity Network, Save Network Positions.

Open a saved Activity Network layout   To open the saved layout, click the Layout Options bar, then choose Activity Network, Open Network Positions. Select the file and click Open.

Modifying Resource and Activity Usage Profile Settings

The Activity Usage Profile displays a time distribution of activity units and costs in a Bar Chart format. You can customize all aspects of this display, and you can also filter the information it contains.

The Resource Usage Profile displays a time distribution of resource units and costs in relation to activities in a Bar Chart format. You can also customize and filter the settings for this layout.

You can customize Resource and Activity Usage Profiles in several different ways. Select the type of information you want to display, change the timescale, and/or customize the bars and background.

You can also click this button to display the Resource Usage Profile in the bottom layout.

Click the Display Options bar and choose Show All Projects to show data for all projects. If you do not choose this option, only data for open projects are shown.
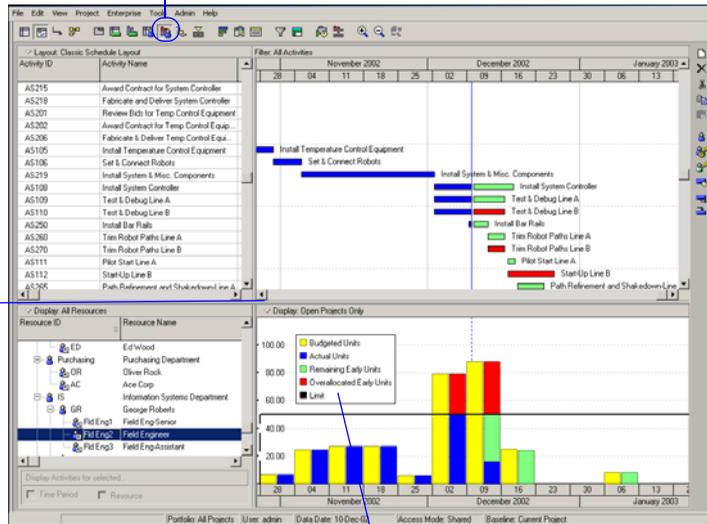
To move the legend, click and hold the mouse button, and drag the legend anywhere in the Profile.

When showing all projects, resource distributions are calculated at the resource level. When showing open projects, calculations are made at the activity assignment level.

Format resource data settings   Display the Resource Usage Profile in the bottom pane of the Activities window. Click the Layout Options bar, choose Show on Bottom, Resource Usage Profile. Next, click the Display Options bar for the Resource Usage Profile, and choose Resource Usage Profile Options. Click the Data tab, then specify the type of data to display in the profile and the way it will be represented. You can also right-click in the Resource Usage Profile area and choose Resource Usage Profile Options. The data options differ slightly depending on whether you are showing data for all projects or only open projects.

Mark to display past period actual values (rather than actual to date values). If projects are summarized by financial period (which is controlled by an administrative setting), this option is ignored. Click Help in this dialog box for more detailed information.

Choose the type of information to display in the profile.

Mark the checkbox for each type of cost/unit value to display. Determine whether you want to show these data by date (as a bar) or as a curve representing cumulative value. Select the color for each bar/curve.

When showing all projects, mark to show resource/role limits, available units, and overallocation. Mark to show allocation limit and overtime when showing open projects only.
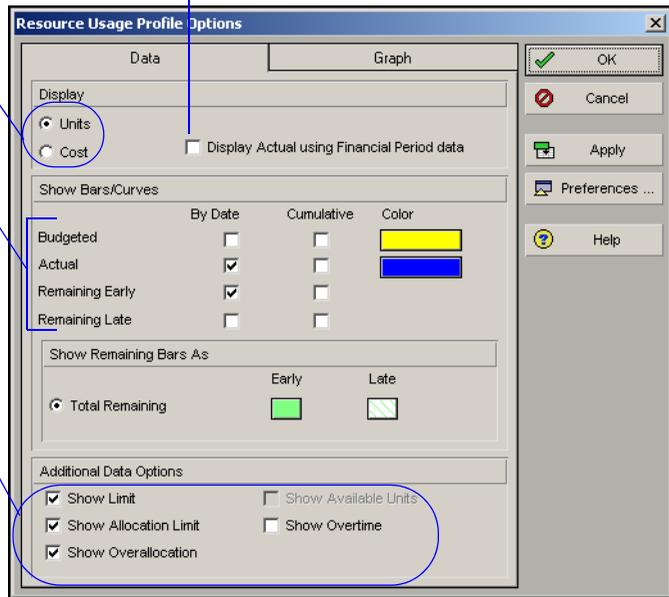
For detailed instructions on customizing Activity and Resource Usage Profiles, refer to the Help.

You can also show the limit and overallocation when displaying open projects only. You can only show the planning limit when displaying data in units.

The Resource Usage Profile displays past period actual data for the Actual, Show Overallocation, and Show Available Units options if you choose the option to Display Actual using Financial Period data.

When showing all project data, choose how to display remaining unit or cost distributions for early and late dates.

Format the resource data settings for the stacked histogram   Display the Resource Usage Profile in the bottom pane of the Activities window. Click the Layout Options bar, choose Show on Bottom, Resource Usage Profile. Next, click the Display Options bar and choose Stacked Histogram. Then click the Display Options bar and choose Resource Usage Profile Options. Click the Data tab, then specify the type of data to display in the profile and the way it will be represented. You can also right-click in the Resource Usage Profile area and choose Resource Usage Profile Options.

Mark to display past period actual values (rather than actual to date values). If projects are summarized by financial period (which is controlled by an administrative setting), this option is ignored. Click Help in this dialog box for more detailed information.

Choose the type of information to display in the profile.

Choose to show one total curve or individual curves representing cumulative value in the color selected for each resource filter.

Add a filter to select the resources to include in the profile. Select a pattern and color for each resource filter.

Use the arrow keys to arrange the order you want to display the resource filters in the stacked histogram.

Resource Usage Profile Options

Data	Graph

Display
- ○ At Completion Units
- ● At Completion Cost

☑ Display Actual using Financial Period data

Show
- ○ No cumulative curve
- ● Individual cumulative curves
- ○ Total cumulative curve

Select Pattern/Color

Resource Filter/Group Name	Pattern	Color
▼ NY		
▼ Labor		
▼ Corp Div - CON		

Add   ✕ Delete   ▲ ▼

- ✓ OK
- ⊘ Cancel
- ▣ Apply
- ▨ Preferences ...
- ⑦ Help

In the profile, the legend displays the resource filter/group name as specified in the options.

▽ Display: Resource
- ☐ Corp Div = Con
- ☐ Labor
- ☐ NY

Display Activities for selected...
☐ Time Period   ☑ Resource

▽ Display: Open Projects Only - Stacked Histogram

$100,000.00	$450,000.00
$80,000.00	$360,000.00
$60,000.00	$270,000.00
$40,000.00	$180,000.00
$20,000.00	$90,000.00

9 16 23 30 06 13 20 27 03 10 17 24 03 10 17 24 3
ember 2002   January 2003   February 2003   March 2003
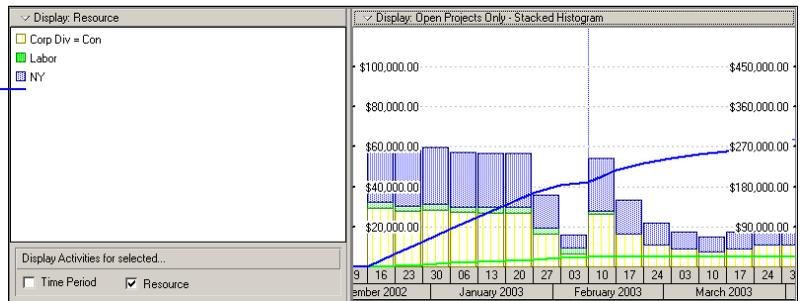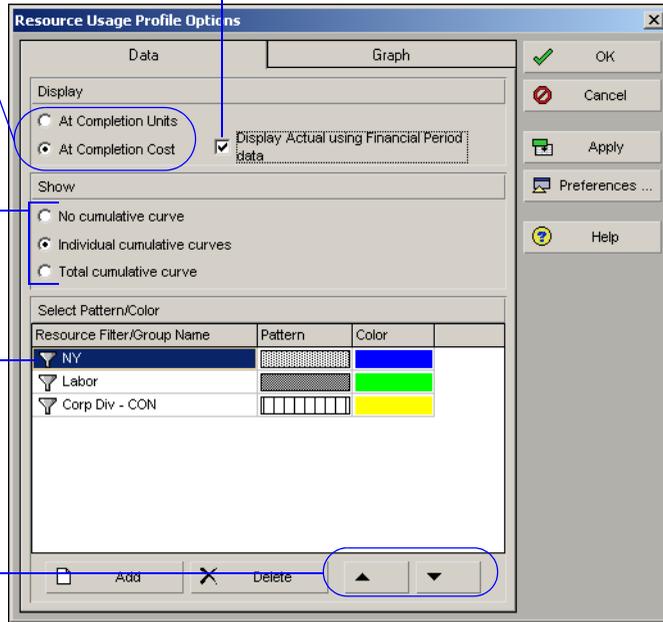
For detailed instructions on customizing Stacked Histograms, refer to the Help.

Double-click on the individual bar to display the value for each resource/role group for the selected time period.

Format resource graph settings Click the Graph tab. Mark the
checkbox next to each time unit (major or minor) for which you want to
display a vertical line in the background. Choose the type of horizontal
line you want to display for each number along the side of the profile,
then select the line color. If the option is available, mark the Show
Legend checkbox to display a legend for the profile's bars. To display
the profile's bars in 3D, mark the 3D Bars checkbox. To change the
profile's background color, click Background Color and select a new
color. To divide the timescale into increments you specify, mark the
Calculate Average checkbox. Specify the Unit of Measure for the
timescale increments.

*Options when Stacked Histogram is selected for
the Resource Usage Profile.*
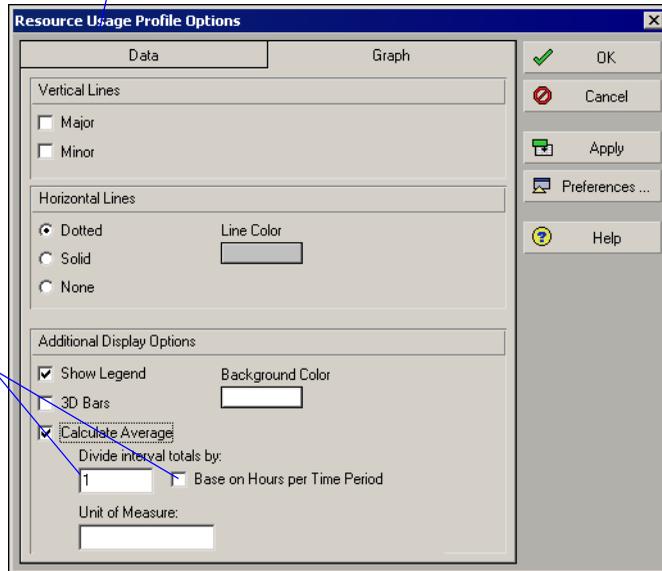
*Specify the value the module
will use to divide the
timescale interval totals. Or,
display the division
increment based on the
increment specified in the
User Preferences for the
corresponding date interval.*

Set user preferences for resource analysis Click Preferences in the Resource Usage Profile Options dialog box to specify whether to include data from open and closed projects, or only the projects currently open in the module, when calculating remaining units and costs. (Closed projects are any projects in the enterprise project structure (EPS) that are not currently open in the module.) For data displayed in the Resource Usage Profile, Resource Usage spreadsheet, tracking layouts, and time-distributed P6 Web Access charts, specify the following:

- choose to use remaining or forecast start and finish dates to display resource units and cost values

- select the interval at which live resource and cost calculations are performed

- choose to display role limits based on custom role limits defined in the Roles dictionary or based on the limit defined for each role's primary resource

Format activity data settings Display the Activity Usage Profile in the bottom pane of the Activities window. Click the Layout Options bar, Show on Bottom, Activity Usage Profile. Click the Display Options bar for the Activity Usage Profile, choose Activity Usage Profile Options. Click the Data tab. Mark the checkbox next to each type of filter you want to use to select the data included in the profile. Then, select the pattern that will be used to display each data type. Mark the Total checkbox to display the total cost. Select more than one filter to see a combination of values in the Activity Usage Profile.

Choose the type of information to display in the profile.

Mark to display past period actual values (rather than actual to date values). If projects are summarized by financial period (which is controlled by an administrative setting), this option is ignored. Click Help in this dialog box for more detailed information.

Mark the checkbox for each type of cost/unit value to display. Determine whether you want to show these data by date (as a bar) or as a curve representing the cumulative value. Select the color for each bar/curve.
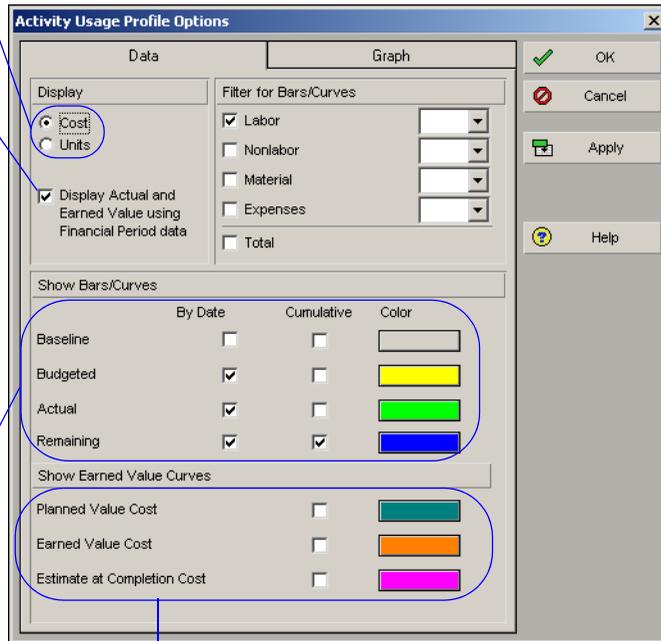
Mark the checkbox for each type of cumulative curve to display. Select the color for each curve.

The Activity Usage Profile displays past period actual data for the Actual bar and curve and the Planned Value, Earned Value, and Estimate at Completion curves if you choose the option to Display Actual and Earned Value using Financial Period data.

Format activity graph settings Click the Graph tab. Mark the checkbox next to each time unit (major or minor) for which you want to display a vertical line in the background. Mark the checkbox next to the type of horizontal line you want to display for each number along the side of the profile. Then select the line color. To display a legend for the profile's bars, mark the Show Legend checkbox. To display the profile's bars in 3D, mark the 3D Bars checkbox. To change the profile's background color, click Background Color and select a new color. To display the timescale in increments you specify, mark the Calculate Average checkbox. Specify the Unit of Measure for the timescale increments.

Specify the value the module will use to divide the timescale interval totals. Or, display the division increment based on the increment specified in the User Preferences for the corresponding date interval.

Customizing Reports

Reporting is a key part of monitoring a project and communicating its progress to team members and executive management. This chapter discusses how to open standard reports, create new reports, and modify existing reports. It also describes how you can organize reports in hierarchical groups.

Refer to "Printing Layouts and Reports" on page 509 for instructions on setting page and print options, previewing and printing layouts and reports, and publishing layouts and reports in HTML format.

Reports Overview

You can create new reports, or modify existing ones, using the Report Wizard or Report Editor. A large library of standard reports is provided for your use.

The Report Wizard enables you to create a wide variety of complex reports very rapidly using a wizard-style interface. You can also use the wizard to modify reports created using the wizard.

The Report Editor is a "what-you-see-is-what-you-get" (WYSIWYG) report writer that allows you to group, sort, filter, and roll up project information. You can also display time distributions for units and costs, and include graphics and HTML links in reports. Use the Report Editor to modify and custom tailor reports created in the Report Wizard.

The report icon shows whether it was created in the Report Wizard or the Report Editor.

Indicates the reports were created using the Report Wizard

Indicates the reports were created using the Report Editor
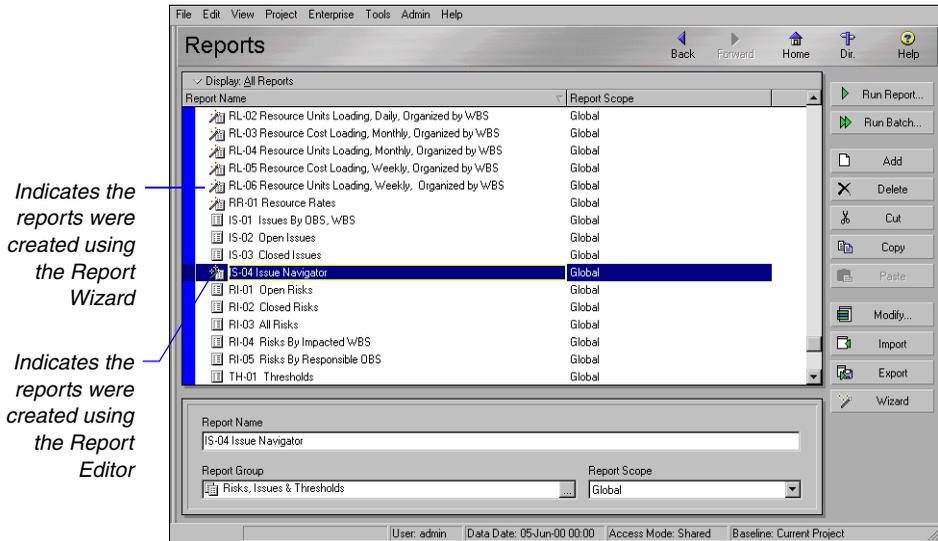
After you create a report, you can preview, print, or save it to a text or HTML file. Saving the report to a file enables you to import data to a spreadsheet program, e-mail it, archive it, or publish it on a Web site.

Opening Reports

Use the Reports window to create, edit, run, and delete global and project reports. You can also use the Reports window to export and import reports to and from other module installations.

Open the Reports window Choose Tools, Reports, Reports.

Reports can be global or project specific.

Click the Display Options bar to sort and filter the reports listed in this window and to define screen fonts and colors.

Print single or batch reports.

Click to build reports using the Report Editor.

Click to easily create ad hoc reports.

Each report can belong to one report group. To add, modify, or delete these groups, choose Tools, Reports, Report Groups.

Creating and Modifying Reports

For additional information about creating and modifying reports using the Report Wizard and Report Editor, refer to the Help.

You can create and modify reports using the Report Wizard or Report Editor. Use the Report Wizard to quickly create a report using the wizard interface. Use the Report Editor to modify and custom tailor your reports according to your needs.

The Report Wizard quickly guides you through creating ad hoc reports and enables you to group, sort, and filter the data. If a report is modified using the Report Editor, and you decide to change it again using the Report Wizard, the changes made in the Report Editor will be lost.

> *To include a new report in a particular report group, select the report group in the Reports window before you start the wizard. When you finish creating the report, it will be saved in the selected report group.*

Create a report with the Report Wizard Choose Tools, Report Wizard, and follow the prompts. Using the Wizard, you can select multiple subject areas for the report. For each selected subject area you can customize columns and apply group, sort, and filter options. When you are finished defining the report parameters, click Finish.
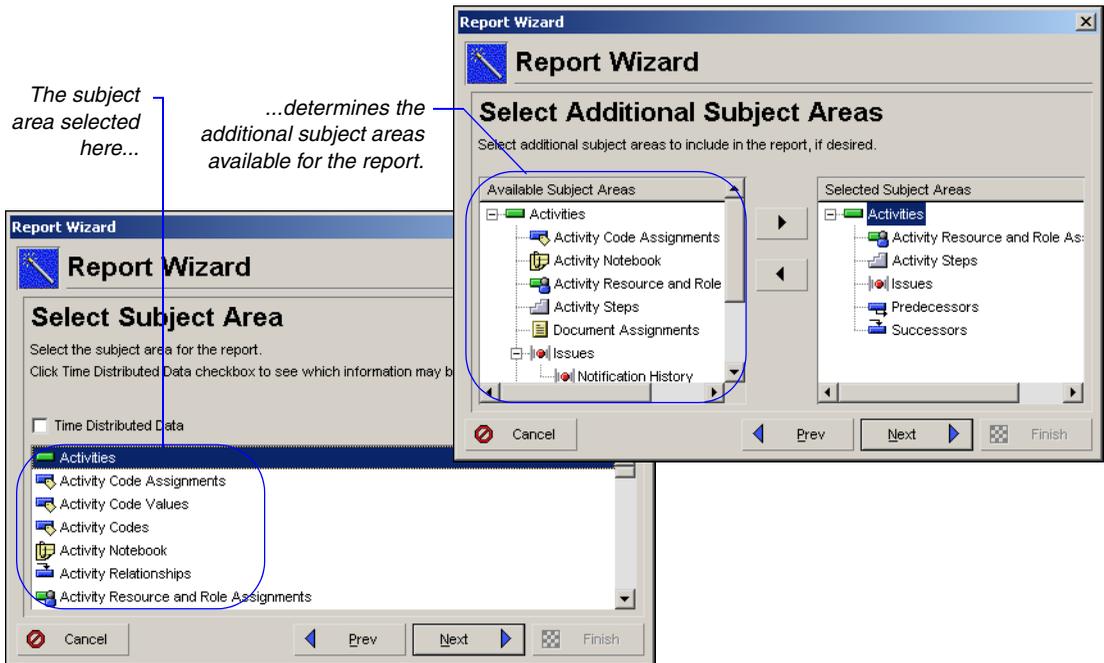
The subject area selected here...

...determines the additional subject areas available for the report.

Select the subject area to configure. You can customize columns and apply group, sort, and filter options.

Click to change the name of a field as it appears on the report.

Create a report with the Report Editor To create a blank report with the Report Editor, you need to select an existing report first. If you do not want to modify your original report, make a copy of it before you edit it with the Report Editor. Once you select a report, click Modify, and confirm that you want to use the Report Editor. Within the Report Editor, click the new report icon and confirm your decision. You have now a blank report that you can customize.

Click the New Report icon to create a blank report.
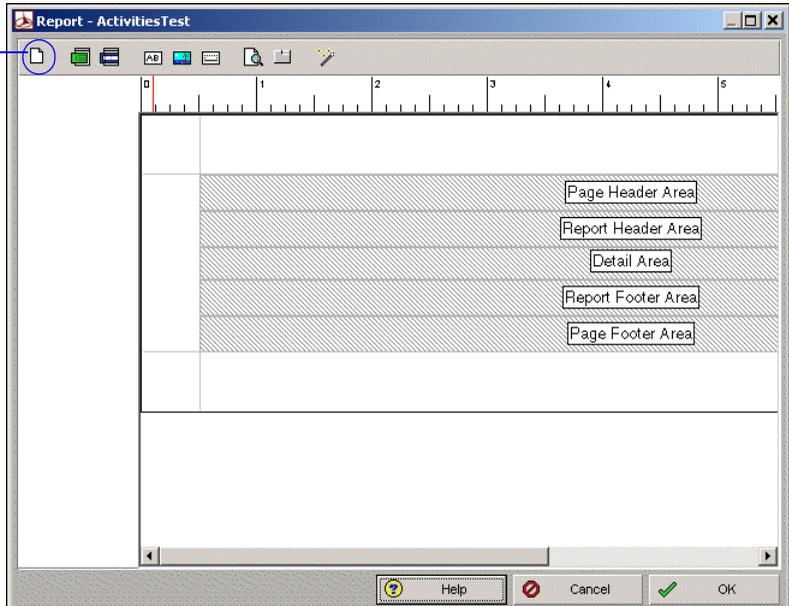
Modify a report You can modify reports using the Report Wizard or the Report Editor. In the Reports window, select the name of the report you want to modify. To use the wizard, click the Wizard button. To use the Report Editor, click Modify.

Using the Report Editor

The Report Editor is an elaborate tool that enables you to create highly customized, custom-tailored reports. The Report Editor allows you to create, edit, and organize report components, where a report component may be a data source, a row, or a cell. The Report Editor consists of the following main parts: Toolbar, Ruler, Left Margin, Report Canvas, and the right-click menu.

In the Reports window, select a report, then click Modify to open it with the Report Editor.
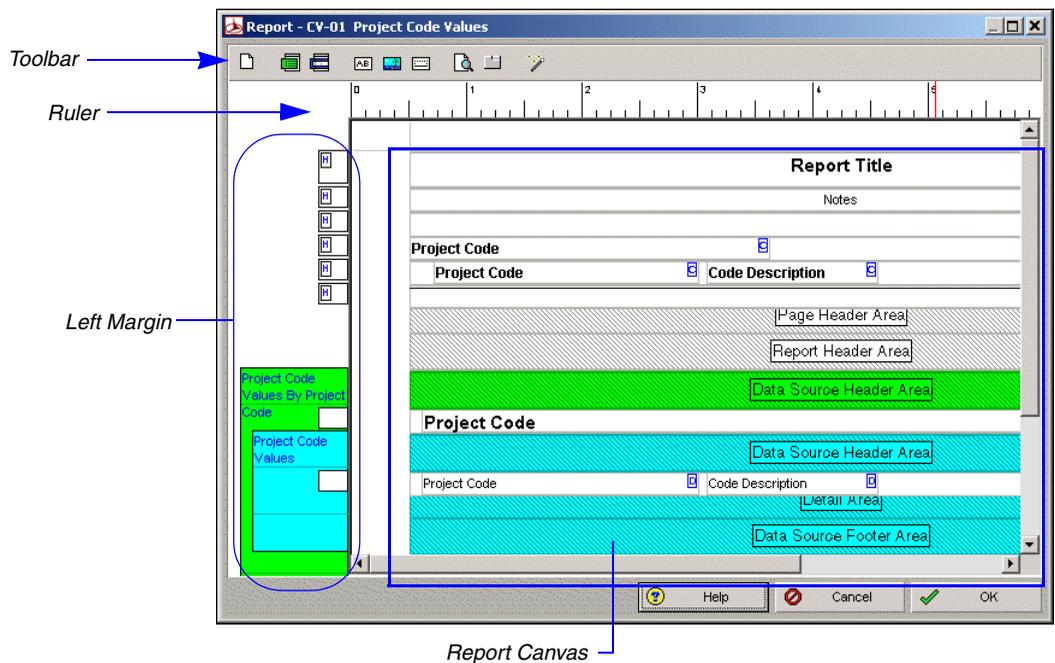
Using the Toolbar The Toolbar provides shortcuts to the main functions of the Report Editor.
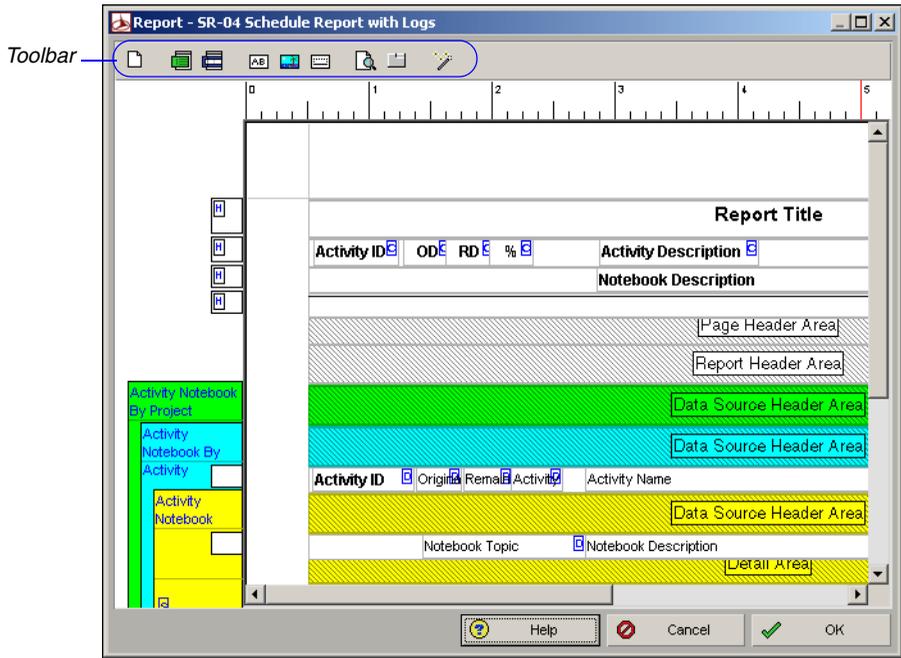
The New Report button deletes the displayed report's settings and creates a new report.

The Add Data Source button adds a data source, or category of information, to the displayed report. This button is available only if the selected report area is a Detail Area.

The Add Row button adds a row to the selected area of the displayed report.

The Add Text Cell button adds a text cell to the selected row.

The Add Image Cell button adds an image cell to the selected row.

The Add Line Cell button dds a line cell to the selected row. Line cells contain horizontal lines only.

The Print Preview button displays a preview of the displayed report.

The Properties button allows you to define the selected report component's properties. You can also double-click a component.

The Report Wizard button allows you to modify the current report settings using the Report Wizard. Launching the Report Wizard within the Report Editor removes any report settings that were added using the Report Editor. Report settings configured by the Report Wizard will not be removed.

Using the Ruler The Ruler indicates the horizontal position of each report component. A blue, shaded area indicates the position and width of the selected cell. A red, vertical bar indicates your cursor's position on the Report Canvas.

Using the Left Margin The Left Margin helps you identify each data source and row. To help you identify data sources, the Left Margin displays each data source's name and grouping, if any, in the upper-left corner of the data source area. To help you identify rows, the Left Margin displays each row's type in the upper-left corner of the row. The H icon indicates rows that are part of a header area. The F icon indicates rows that are part of a footer area.

Using the Report Canvas The Report Canvas enables you to view each component's position in the overall report. The Report Canvas also provides visual cues that identify each component's properties as follows:

■   Data sources are color-coded. If a data source is embedded, or nested, in a parent data source, then each data source displays in an original color.

■   Text cells are coded according to the type of data they report. To determine a text cell's type, you can refer to the icons that appear in the upper-right corner of the cell.

🅲 - indicates a Custom Text cell, or a cell that contains text you specify.

🅳 - indicates a Field Data cell, or a cell that compiles and reports information from a field you specify.

🆃 - indicates a Field Title cell, or a cell that contains the name of a field you specify.

🅼 - indicates a Variable cell, or a cell that reports information related to the overall report, rather than a specific data source.

Text cells that appear in red indicate that the cell's properties either have not been defined or conflict with the properties of the data source that contains the cell. To view a cell's properties, double-click the cell.

Selecting a report component A blue border indicates the selected report component. To select a component, click the component. To increase the scope of the selected area, press Esc. For example, if a text cell is selected, pressing Esc selects the report row that contains it. Pressing Esc again selects the data source that contains the row.

Double-click a component to open the Properties window. While the window is open, you can select any component in the Report Canvas and modify its properties.

Modifying properties In addition to viewing a report's layout, you can also use the Report Canvas to edit a report directly. To view a component's properties, or settings, double-click the component. You can also use the context sensitive help if you right-click on a component.

Deleting a component Some of the components you can delete by pressing the Delete button or choosing Delete from the right-click menu. However, if you cannot delete the selected component this way, press ESC first to increase the scope of the selected area, and press Delete again.

Adding Data Sources and Rows to Reports

Use the Report Editor to add or remove data sources and rows. The
Report Canvas provides you the following main areas for data sources:

Area	Description
Page Header Area	Report components that appear at the top of each page of the compiled report. The Page Header Area may contain rows and cells. The Page Header Area is different from the standard header you specify in the Page Setup dialog box. If you specify a standard header, the standard header appears at the top of the page, followed by the report's Page Header, in the compiled report.
Report Header Area	Report components that appear before the compiled report's details and on the first page of the report only. The Report Header Area may contain rows and cells.
Data Source Header Area	If the report contains a data source, report components that appear before the data source's records in the compiled report. The Data Source Header Area may contain rows and cells.
Detail Area	The area where most report information is compiled. If the report contains a data source, the Detail Area indicates which information the data source compiles and the information's layout in the compiled report. The Detail Area may contain data sources, rows, and cells.
Data Source Footer Area	If the report contains a data source, report components that appear after the data source's details in the compiled report.The Data Source Footer Area may contain rows and cells.
Report Footer Area	Report components that appear after the compiled report's details and on the last page of the report only. The Report Footer Area may contain rows and cells.
Page Footer Area	Report components that appear at the bottom of each page of the compiled report. The Page Footer Area may contain rows and cells.The Page Footer Area is different than the standard footer you specify in the Page Setup dialog box. If you specify a standard footer, the standard footer appears at the bottom of the page, after the report's Page Footer, in the compiled report.

You can only add a data source to a report's Detail Area, or to another data source's Detail Area.

Add data sources to reports

1   In the Report Editor, click the gray Detail Area, then click 📑.

You can also use the right-click menu on the Detail Area.

2   Click the Source tab, then, in the Loop Through list, select the type of information you want to report in the new data source.

To group the data source's information according to a related category, click the Group By arrow, then select a grouping category. The list of available categories reflects the data source you select from the Loop Through list.
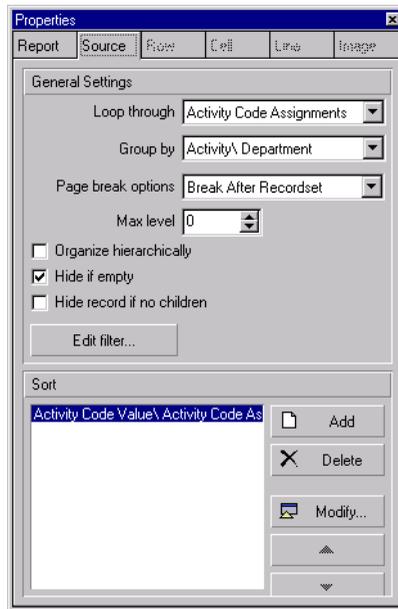
Embed data sources By embedding data sources, or adding data sources to other data sources, you can outline relationships between different types of information. For example, if you embed an activity data source in a WBS data source, the compiled report will list activity information according to WBS.

1   Click the Detail Area of the data source in which you want to embed the new data source, then click 📑.

2   Click the Source tab, then, in the Loop Through list, select the type of information you want to report in the new data source. The list of available data sources reflects the new data source's relationship to the parent data source.

To group the data source's information according to a related category, click the Group By arrow, then select a grouping category. The list of available categories reflects the data source you select from the Loop through list.

Define layout options for data sources

1 Double-click the data source whose layout options you want to define.

2 Click the Source tab.

3 Select when you want to insert page breaks in the compiled report.

4 To specify the number of hierarchy levels you want to include in the compiled report, specify a number in the Max level field. To include all hierarchy levels, select 0.

   The Max level field is available only if the data source reports hierarchical information.

5 To report information in hierarchy order, mark the Organize Hierarchically checkbox.

   The Organize Hierarchically checkbox is available only if the data source reports hierarchical information.

6 To hide, or exclude, the data source's report components if the data source does not produce any records, mark the Hide If Empty checkbox. This includes the data source's header and footer.

7 To hide, or exclude, parent data source records from the compiled report, if its children data sources do not produce any records, mark the Hide Record If No Children checkbox.

Add rows to reports

1 In the Report Editor, click the report area to which you want to add a row, then click 🗐.

2 Click 🗂 .

3 Click the Row tab, then type the height of the new row.

To change the row's background color, click Color, then select a new color.
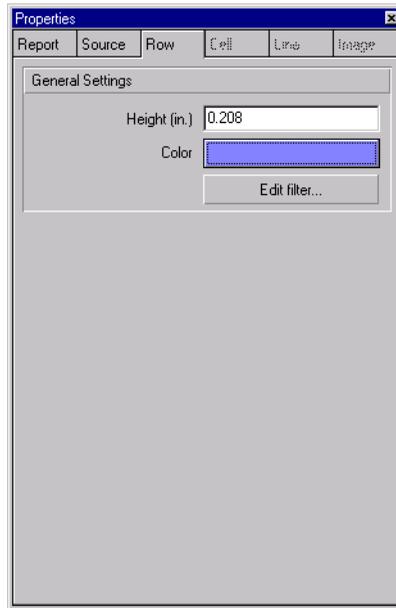
Copy (or cut) and paste rows

1 Right-click the row you want to copy (or cut) and paste, then choose Copy (or Cut).

To copy/cut a row that contains cells, click a cell in the row, press Esc, then press Ctrl+C to copy or Ctrl+X to cut.

2 Right-click the report area where you want to paste the copied/cut row, then choose Paste.

Remove rows from reports Right-click the row you want to remove, then choose Delete. To delete a row that contains cells, click a cell in the row, press Esc, then press Delete.

Adding Text Cells to Reports

The Report Editor enables you to add four types of text cells to reports: Field Title cells, Field Data cells, Variable cells, and Custom Text cells.

Field Title cells contain the name of a Project Management module field you specify. Field Title cells are helpful when you want to add a label to a column or another text cell. Examples of field titles are WBS Code and Activity Name.

Field Data cells compile and report information from a Project Management module field you specify. For example, if you add a Field Data cell that refers to the field WBS Code, then the cell will report codes for WBS elements.

Variable cells report information related to the overall report, rather than a specific data source. Report name and page number are examples of Variable type information.

Custom Text cells contain custom text that you specify.
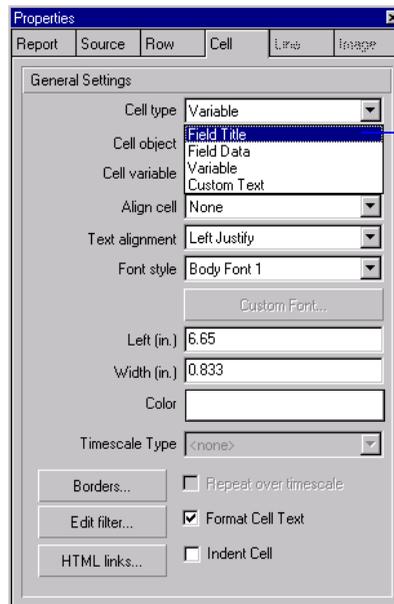
Select the type of cell you want to add to the report.

Add field title or field data cells to reports

1 In the Report Editor, select the row to which you want to add a field title or field data cell.

2 Click ⒶⒷ.

3 Click the Cell tab, then select Field Title or Field Data as the cell type.

 If the cell is part of a data source, select the category of information that contains the field title you want to report in the cell.

4 Select the field whose title you want to report in the cell for a Field Title cell; for a Field Data cell, select the field whose information you want to compile and report in the cell.

Field Title and Field Data are only functional when the selected report cell is within a data source.

Add variable or custom text cells to reports

1 In the Report Editor, select the row to which you want to add a variable or custom text cell.

2 Click ⒶⒷ.

3 Click the Cell tab, select Variable or Custom Text as the cell type.

4 Select the type of variable information you want to report in the cell, or type the custom text you want to appear in the cell.

Properties					
Report	Source	Row	Cell	Line	Image

General Settings

Image alignment	None
Left (in.)	6.65
Width (in.)	0.833

Select image...

HTML links...

Edit filter...
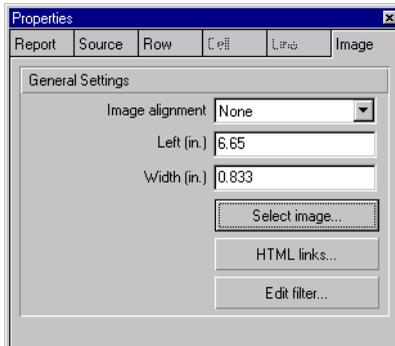
Add image cells to reports

1 In the Report Editor, double-click the row to which you want to add an image cell.

2 Click 🖼 from the Image tab of the Properties dialog box.

3 Click Select Image, then click Load.

4 Select the drive that contains the image's file.

5 In the Look in field, double-click the folder(s) that contains the image's file, select the file, then click Open.

To expand the image to the size of the selected image cell, mark the Stretch Image checkbox.

6 Click OK.

The Report Editor supports BMP and JPG files.

Define layout options for image cells

You can also change a cell's width directly in the Report Editor. Place your pointer over the cell's left or right edge. When the pointer changes to a double-headed arrow, drag the cell's edge to a new position.

1 Double-click the image cell whose layout options you want to define.

2 Click the Image tab, then click the Image alignment arrow

To use your mouse to drag the cell to the appropriate position in the row, select None.

To position the cell relative to the left margin, select Left, then type the cell's left indent in the Left field.

To position the cell flush against the right margin, select Right.

To extend the cell across the entire row, select Center.

3 In the Width field, type the cell's numeric width, or the distance you want the cell to occupy between the report's left and right margins. If the cell's alignment is Center, you cannot enter the cell's width.

Define HTML settings for image cells The Project Management module enables you to specify how you want to include an image in a report if you compile the report to an HTML file.

1 Double-click the image cell whose HTML settings you want to define.

2 Click the Image tab, then click Select Image.

To copy the image's file, type a location and name for the copied image file, relative to the report's HTML directory, in the Relative Image Path field. Copying an image file allows you to maintain a stable HTML directory for the report.

To reference the image's file, rather than copy the file, mark the Reference Image Instead checkbox, then type the location and name of the image's file in the Relative Image Path field. Referencing an image's file is helpful when the image's content frequently changes.

Add line cells to reports

1 In the Report Editor, select the row to which you want to add a line cell.

2 Click 🖮 .

3 Click the Line tab, then specify the number of lines to include in the new line cell.
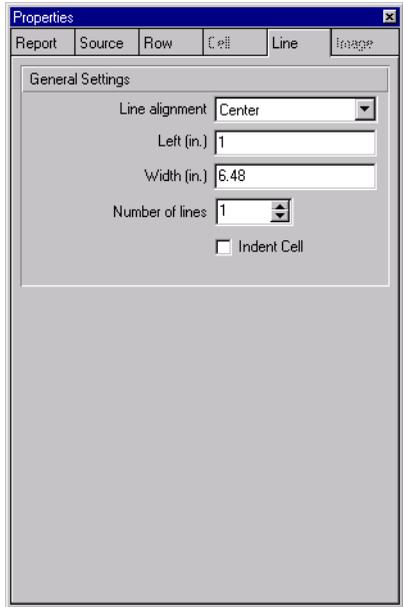
Properties					✕
Report	Source	Row	Cell	Line	Image

General Settings

Line alignment Center ▼
Left (in.) 1
Width (in.) 6.48
Number of lines 1 ⬍
☐ Indent Cell

Define layout options for line or text cells

1 Double-click the line or text cell whose layout options you want to define.

2 To define options for a line cell, click the Line tab, then click the Line alignment arrow. To define options for a text cell, click the Cell tab, then select the cell alignment.

To use your mouse to drag the cell to the appropriate position in the row, select None.

To position the cell relative to the left margin, select Left, then type the cell's left indent in the Left field.

To position the cell flush against the right margin, select Right.

To extend the cell, or line, across the entire row, select Center.

3 Type the cell's numeric width, or the distance you want the cell to occupy between the report's left and right margins.

If the cell's alignment is Center, you cannot enter the cell's width.

Add borders to text cells in reports

1 In the Report Editor, double-click the text cell to which you want to add borders.

2 Click the Cell tab, then click Borders.

3 Mark the appropriate checkboxes to add borders to the cell.

Cell borders always appear in black. You cannot change the color of a cell's borders.
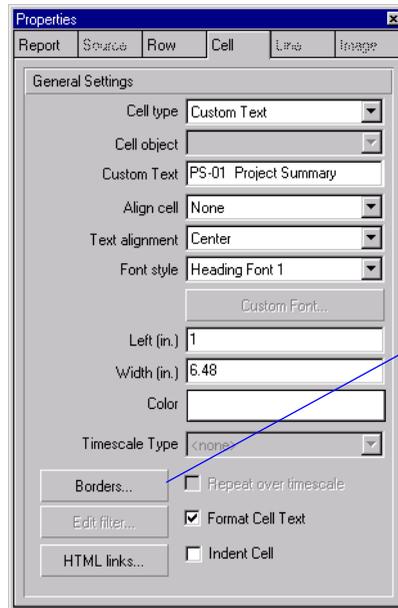
Clear the appropriate checkboxes to remove the cell's borders.

Format text in text cells

1 Double-click the cell whose text you want to format.

2 Click the Cell tab.

To change the position of the cell's text relative to the cell's left and right edges, select a new alignment.

To apply a style to the cell's text, select a new font style.

To apply a custom style to the cell's text, select Custom as the font style, then click Custom Font to select new formatting options.

Change a text cell's background color

1 Double-click the text cell whose background color you want to change.

2 Click the Cell tab, then click Color.

You can use the Color dialog box to either select a color from the Basic Colors palette or define a custom color with the color spectrum.

To select a color from the Basic Colors palette, under Basic Colors, click the color you want to apply to the text cell, then click OK.

To define a custom color

1 In the color spectrum, click the color you want to apply, then drag the slider at the right of the dialog box to adjust the color's attributes.

You can also type the color's numeric values in the RGB (Red, Green, Blue) and HLS (Hue, Luminescence, Saturation) fields.

2 Click Add to Custom Colors, then click OK.

Clear this checkbox to disable the HTML link for the cell.

Edit HTML Link	
HTML Link	✓ OK
Link Prefix	⊘ Cancel
http:\\www.primavera.com	
Link Field	▭ ⊙
☑ Enable Link Field	
☑ Disable link if empty value	
Link Object Project	
Link Field Activity ID Increment	
Link Suffix	
Link Target Frame	
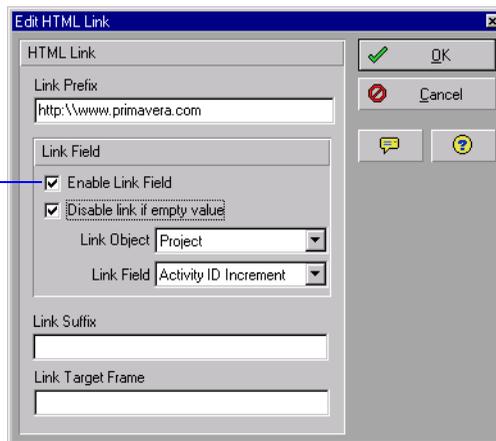
*The Link Prefix field will
most likely be the URL
prior to the file you wish to
link to, for example 'http://
www.foo.com/'. Likewise,
the Enable Link Field
checkbox and the Link
Suffix field will be used to
generate the actual
filename and extension
you wish to link to. If
Enable Link Field is
marked, then the Link
Object and Link Field fields
will determine the filename
and the Link Suffix field will
provide the extension of
the file you wish to link to,
for example '.html'. If
Enable Link Field is not
marked, then the Link
Suffix field will provide both
the filename and extension
of the file you wish to link
to, for example 'foo.html'.*

Add HTML links to image or text cells

1 Double-click the cell to which you want to add an HTML link.

2 Click the appropriate tab for the type of cell for which you want to add the link: Cell tab for text cells or Image tab for Image cells, then click HTML links.

3 Type the Internet address of the Web page to which you want the selected text cell to link, or type the prefix of the Internet address to which you want the selected image cell to link.

4 If you want each report record to be a hot-link to another file, mark the Enable Link Field checkbox.

   To disable the link if a specific field does not produce any records in the compiled report, mark the Disable Link If Empty Value checkbox. Select an object, or category of information, and a field from the Link Object and Link Field lists. The list of available objects and fields reflects the type of information reported by the cell's row.

5 Type the suffix of the Internet address to which you want the selected cell to link.

6 To create a link to a specific frame in the Web page, if the Web page uses frames, type the name of the frame.

> *Both Link Prefix and Link Suffix are used to build the URL link
> for the text or image cell. The URL is built as follows: [Link
> Prefix]+[Link Field]+[Link Suffix], if the Enable Link Field
> checkbox is marked. If the Enable Link Field checkbox is not
> marked, then the URL is built like this: [Link Prefix]+[Link
> Suffix].*

Add background images to reports

1 In the Report Editor, click 🖼.

2 Click the Report tab, then click Background Image.

3 Click Load.

4 Select the drive that contains the image's file.

5 Under Look In, double-click the folder(s) that contains the image's file, select the file, then click Open.

Remove background images from reports

1 In the Report Editor, click 🖼.

2 Click the Report tab, then click Background Image.

3 Click Clear, then click OK.
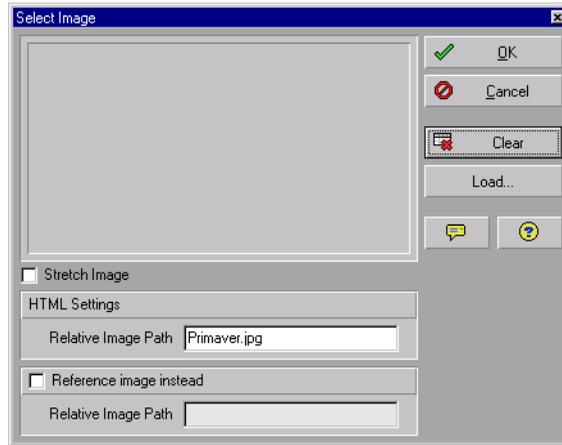
Copy (or cut) and paste cells

1 Right-click the cell you want to copy (or cut), then choose Copy (or Cut).

2 Right-click the row in which you want to paste the copied cell, then choose Paste.

   To paste the cell to a row that contains other cells, select a cell in the row, press Esc, then press Ctrl+V.

Remove cells from reports Right-click the cell you want to remove, then choose Delete.

Sorting Report Data Sources

You can sort a report's records by applying a sort order to one or more of the report's data sources, and edit a report's sort order by changing the sort settings for one or more of the report's data sources.

Sort a report

1 Double-click the data source whose records you want to sort.

2 Click the Source tab, then click Add.

3 Select the field by which you want to sort the data source's records.

The list of available sorting fields reflects the sort object you select from the Sort by Object list.

4 To sort records in ascending order, choose Ascending. To sort records in descending order, choose Descending.

5 Click OK.

To sort by additional objects and fields, repeat steps 2 through 4.
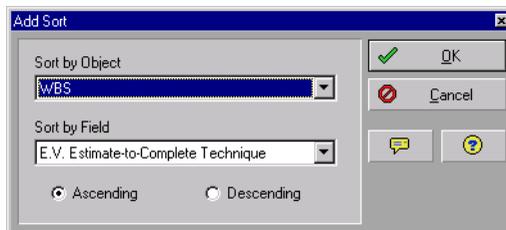
Edit sort orders for reports Double-click the data source whose sort order you want to edit; click the Source tab.

■   To add a new field to the sort order, click Add, then type the sort criteria. Click OK, then change the field's position in the sort order, if necessary.

■   To delete a field from the sort order, select a sort row, then click Delete.

■   To change a data type's position in the sort order, select its sort row, then click the appropriate arrow button.

■   To edit a sort row's sort object or field, select the row, then click Edit.

Customizing a Report with the Report Editor: an Example

In this example, we use the Report Editor to customize a report, originally created with the Report Wizard. To view the original report, select the
'PP-01 EPS, Project Details' report under the report group Project/ WBS details. The original report, depending on your project data should be similar to this:

PP-01 EPS, Project Details

Project ID	Project Name	Total Activities	Risk Level	Strategic Priority
Opportunities	New Opportunities		Medium	500
Opp1	Possible Opportunity	15	Medium	500
Facia Merger	Facia Merger Projects		Medium	10
Systems	Systems Integration		Medium	10
Analyst	Analyst Sample	0	Medium	500
F-SYS1	Financial Systems Integration	32	High	10
F-SYS2	HR System Integration	7	Very High	10
Assets	Assets Inventory		Medium	15
F-INV	Facia IT Assets Inventory	24	Medium	15
Staff	Staff Acquisition		Medium	5
F-SKILLS	Skills Assessment	48	Very Low	10
Technologica	Technologica Acquisition		Medium	20
Assessment	Technology Assessment		Medium	10
A-TECH	Technologica Technology Assessment	24	Very High	10
Integration	Technology Integration		Medium	10
I-TECH	Technologica Integration	7	Very High	10
Training	Technology Training		Medium	5
TRAIN-1	New York - Training	32	Medium	5
TRAIN-2	Chicago - Training	32	Medium	5

After customizing, the same report has the following layout:

b) Only projects that have more than one activity are displayed.

a) Sorted by Strategic Priority order.

PP-01 EPS, Project Details

c) Double line separator.

Project ID	Project Name	Total Activities	Risk Level	Strategic Priority	Project Status
ERP-MAIN	ERP Maintenance	13	High	1	Active
ClaimReq	On-line Claim Submital Application	25	Medium	1	
CRM-SEL	CRM Selection	13	High	2	Active
CRM-IMP	CRM Implementation	7	Very High	2	Active
ERP-IMP	ERP Implementation	15	High	2	Active
Sibelex	CRM System Implementation	31	Medium	2	
FIN-UP1	Financial System Upgrade	32	Very Low	3	
TRAIN-1	New York - Training	32	Medium	5	
TRAIN-2	Chicago - Training	32	Medium	5	
TRAIN-1	New York - Training	32	Medium	5	
TRAIN-1	New York - Training	3	Medium	5	
TRAIN-1	New York - Training	6	Medium	5	
TRAIN-1	New York - Training	4	Medium	5	
TRAIN-1	New York - Training	6	Medium	5	
TRAIN-1	New York - Training	5	Medium	5	
TRAIN-1	New York - Training	4	Medium	5	
TRAIN-1	New York - Training	4	Medium	5	
F-SYS1	Financial Systems Integration	32	High	10	What-if
F-SYS2	HR System Integration	7	Very High	10	What-if

c) If Risk Level is 'High' or 'Very High', the field is highlighted in red.

d) The new column, Project Status, displays only if the Risk Level is 'High' or 'Very High'.

To customize the original report in the Report Editor:

1 In the Reports window, select the original report created in the Report Wizard (PP-01 EPS, Project Details).

2 Click Copy.

3 Click Paste.

4 Double-click the name of the copied report and rename it, so you can remember which one is customized.

5   While the new report is selected, click Modify... .

Since the original report was created in the Report Wizard, a warning appears that you are about to modify the report. Confirm your decision by clicking the Yes button.

The Report Editor displays.
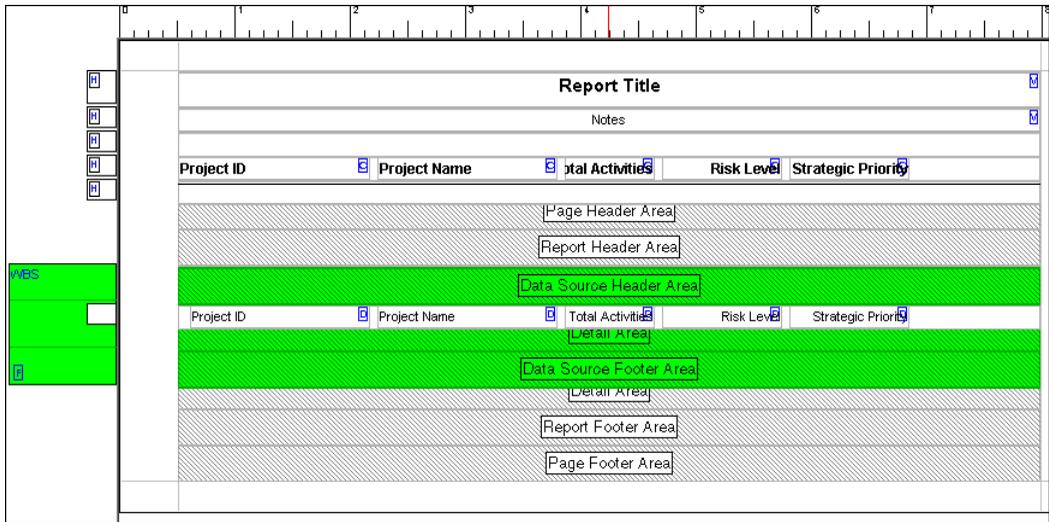
Filtering and sorting the data source   The current report displays all projects, regardless how many activities they contain. You may want to filter the data source to show projects that have more than one activity. You may also want to sort these projects by Strategic Priority.

To filter and sort the data source:

1   Double-click on the Data Source Header Area.

The Properties window displays.

The selected tab shows what component's properties you can modify currently.

Click to edit the filter criteria for the data source.

Click to sort the source data by a field.
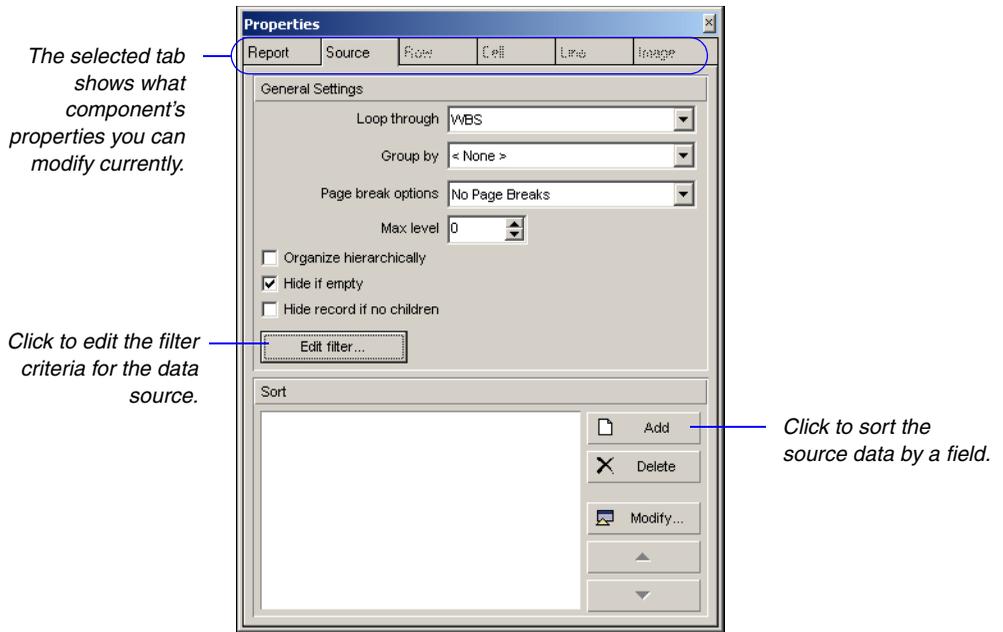
2 Click the Edit filter... button.

The current filter criteria displays all Project and EPS nodes but filters out the WBS nodes.
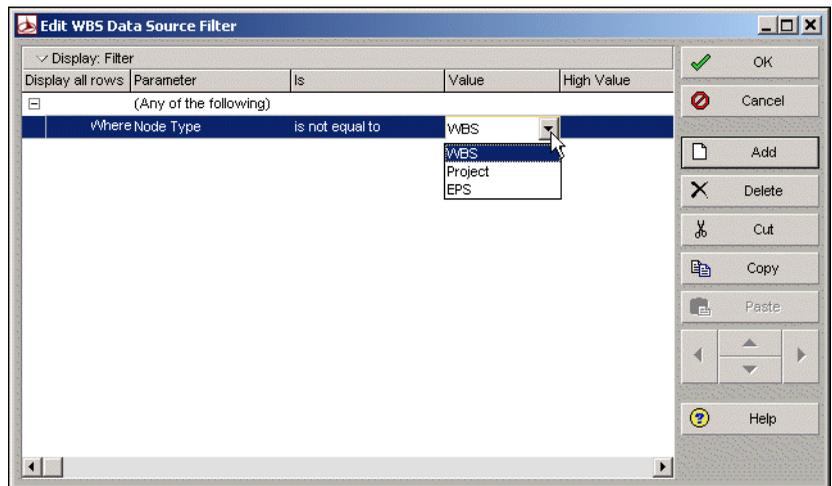
3 Click Add.

4 Set the filter criteria to show data only if the Total Activities is greater than one.

5   Change the (Any of the following) logical operator to (All of the following).

To create a new filter line, you can copy/ paste an existing one, and then modify its properties.
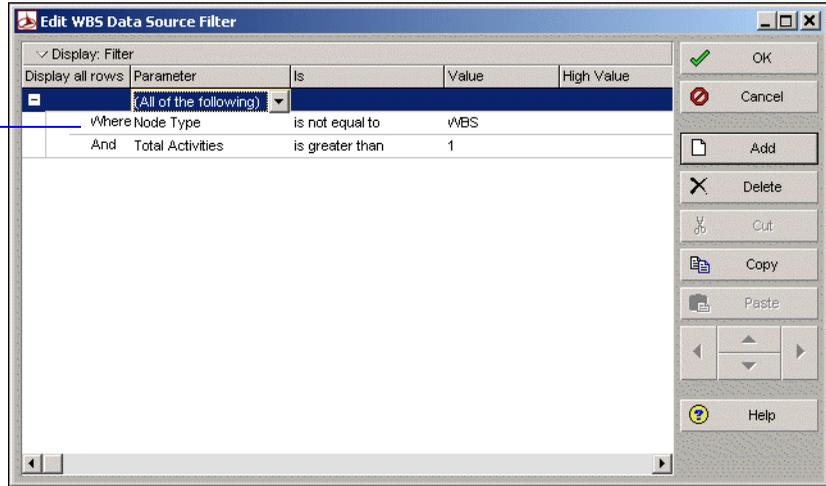
6   Click OK.

7   Click the Add button on the Properties window to sort the data source.

8   Select Project for the Sort by Object field and Strategic Priority for the Sort by Field.
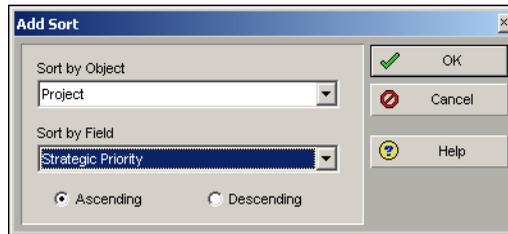
9   Click OK.

10   Close the Properties window by clicking the x at the top right hand corner.

11   Click the preview icon to view the current report.

The Report Canvas does not display the actual height, or amount of vertical space, each report component will occupy in the compiled report. To view the report's vertical spacing and your progress, you can always click the preview icon to view the report.

Adding a new filtered column To display the project status, you have to add a new column to the report. You may want to show the Project Status field only if the Risk Level is 'High' or 'Very High'.

To add a new filtered column

1 Select the row that you want to add the new column.

   The row is highlighted in blue.

2 Right-click the row and choose Add Text Cell.

   The Properties window displays, now showing the Cell properties.

3 Set the Cell Object to WBS, and the Cell field to Project Status.

   You may want to set the cell properties to adjust position and alignment as well.
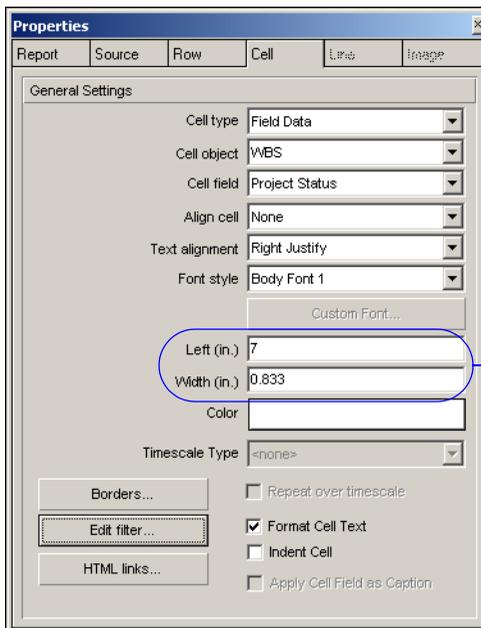
If you accidently moved or resized a cell, you can set the exact position and size here.

4 Click the Edit filter and set the filter criteria to display the cell only if the Risk Level is 'High' or 'Very High'.

The window title displays the scope of the filter. In this case, the filter applies to the selected Cell.

To quickly create the second filter condition, select the first one first, copy/paste (Ctrl+C/ Ctrl+V) it, then change the value, 'Very High' to 'High'.
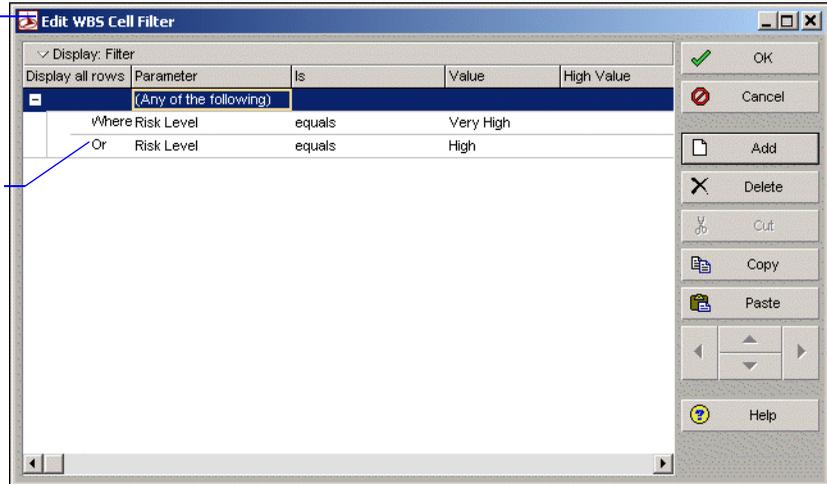
Make sure you set the logical operator to (Any of the following). Note that this time the filter criteria apply to this cell only and not to the whole report.

5 Click OK.

6 Close the Properties window.

7 Add a header, titled 'Project Status' to the new column.
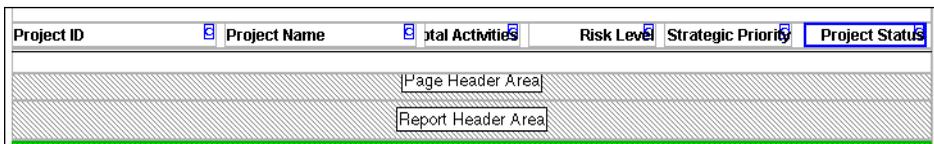
You can either follow the steps above to add this header to the Project Status column, or you can copy/paste the Strategic Priority cell first, then simply move it to the right and edit its properties. These cells are Custom Texts. Custom Texts do not display data, they show exactly what you type in the Custom Text field.

8 Click the Preview icon to view the current report.

The new column should display only if the Risk Level is 'High' or 'Very High'.

Highlighting the Risk Level field You may want to call attention to projects that have a risk level of 'High' or 'Very High' by displaying the field value in red. It is not possible to change the property of a field at run-time but the following tip may help to achieve the same result.

To highlight the Risk Level field in red:

1 Select the Detail Area.

2 Choose Add Row from the right-click menu.
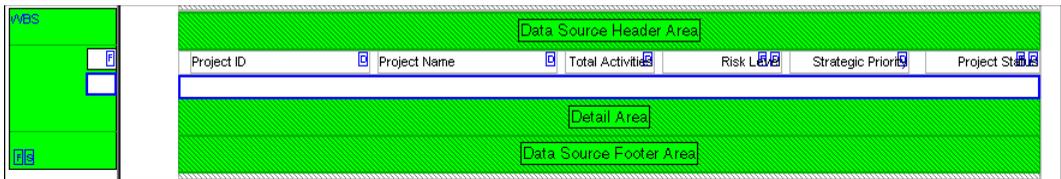
3 Copy the cells from the first row and paste them into the second one.

   If you preview the report now, you see double records, since we created two rows with the exact same data.

4 Double-click the Risk Level cell in the second row.

5 Set the Font Style to Custom, and click Custom Font... to change the color to red.

   Do not close the Properties window yet. You can work on the Report Canvas while the Properties window is still open. It may speed up your work with setting properties of different components on the screen.

6 Click the first row in the Detail Area.

   Since the Properties window is still open, it should display the Row tab now. Make sure you click the row and not a cell in the row.

7 Click the Edit filter... on the Row tab.

8 Set the filter criteria to display data only if the Risk Level is not equal to 'High' or 'Very High'.
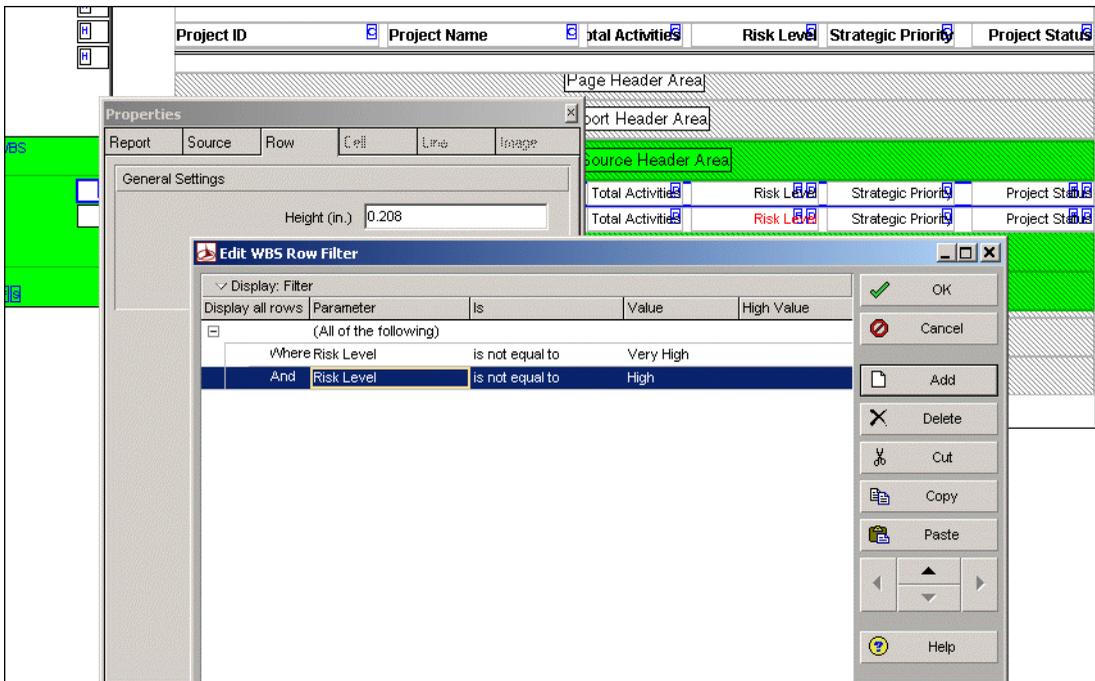
9 Click OK.

This condition allows to display the selected row only if the condition is true. In this case, the data displays only in this row if the Risk Level is not equal to 'Very High' or 'High'.

10 Click the second row in the Detail Area.

11 Click Edit filter, and set the filter criteria to show data only if the Risk Level equals to 'High' or 'Very High'.

12 Close the Properties window and preview the report.

The conditions we set for the rows allow us to show only one row at a time. If the Risk Level is 'High' or 'Very High', the second row displays, if the Risk Level is neither 'High' or 'Very High', the first row displays. Since all the cells are the same in the two rows, except the Risk Level color, it seems as if the cell was highlighted in the report.

PP-01 EPS, Project Details

Project ID	Project Name	Total Activities	Risk Level	Strategic Priority	Project Status
ERP-MAIN	ERP Maintenance	13	High	1	Active
ClaimReq	On-line Claim Submital Application	25	Medium	1	
CRM-SEL	CRM Selection	13	High	2	Active
CRM-IMP	CRM Implementation	7	Very High	2	Active
ERP-IMP	ERP Implementation	15	High	2	Active
Sibelex	CRM System Implementation	31	Medium	2	
FIN-UP1	Financial System Upgrade	32	Very Low	3	
TRAIN-1	New York - Training	32	Medium	5	
TRAIN-2	Chicago - Training	32	Medium	5	

For specific details refer to the help. Click the Help button on the dialog box to open the context sensitive help.

Working with lines Lines are displayed in Line Cells. You may want to use a double line, instead of a single line under the column headers. To modify line properties, double-click the Line Cell under in the Page Header area, and set the number of lines to two.

If you preview the report now, it should resemble to the layout we wanted to achieve. Close the Report Editor, and confirm that you want to save the current report. You can now run the report by clicking the Run Report... button on the Reports view.

Using Report Groups

Report groups are a hierarchical way to organize global and project reports. Each report can belong to one report group.

Add a report group Choose Tools, Reports, Report Groups. Click Add, then type the name of the new report group.

Click to list report groups in ascending or descending order or as a hierarchy.

Report groups can have multiple levels.
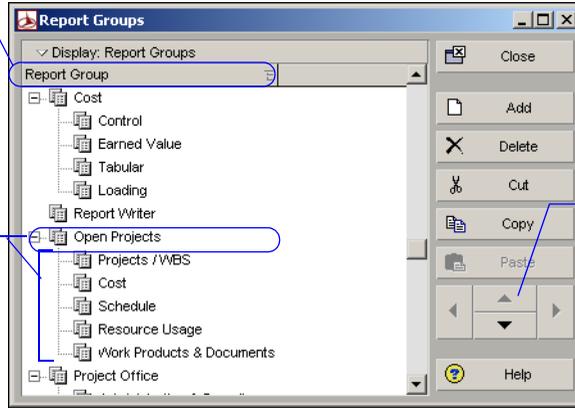
Click to move groups up and down and to indent/outdent to denote hierarchy level.

Assign a report to a report group Choose Tools, Reports, Reports. Select the report you want to add to a report group, then click the Browse button in the Report Group field at the bottom of the Reports window. Select the group to which you want to add the report, then click Select.

Also use this field to remove the selected report from a report group and/or reassign the report to a different report group.
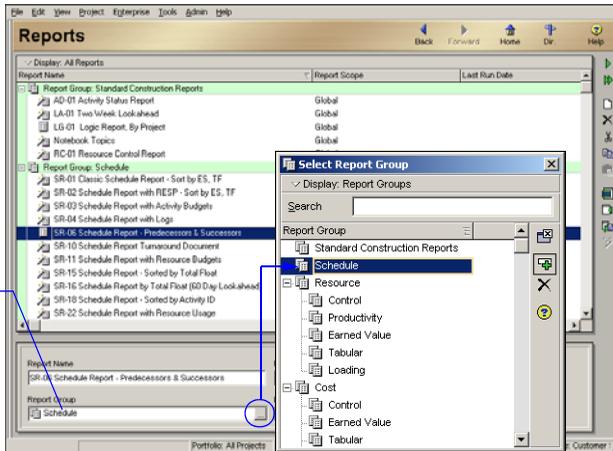
Setting Up Batch Reports

Batch groups allow you to run a series of reports at one time. A report can have only one batch group assignment.

Create a batch report group Choose Tools, Reports, Batch Reports. Choose Global or Project. Click Add, then type the name of the new group. Click Close.
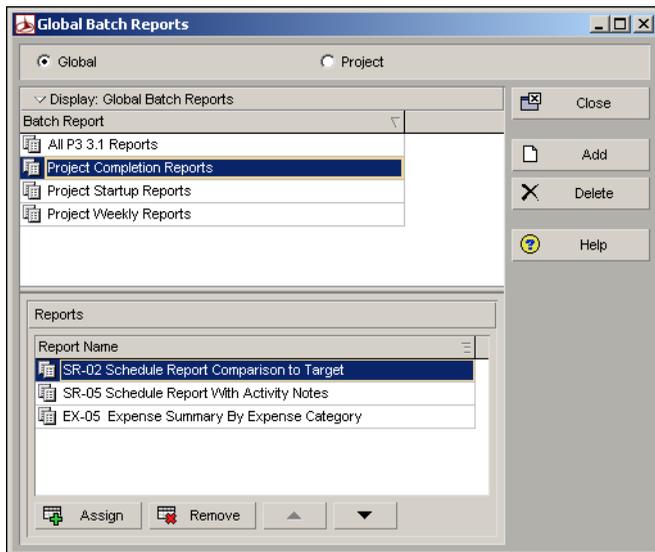
Add reports to a batch report group Choose Tools, Reports, Batch Reports. Select the batch report group, then click Assign. Select the reports you want to assign to this group and click the Assign button. When you are finished assigning reports, click the Close button.

Run a batch report From the Reports window, click Run Batch, select the batch you want to print, then click OK.

Select the batch report.

Click to run the batch report.
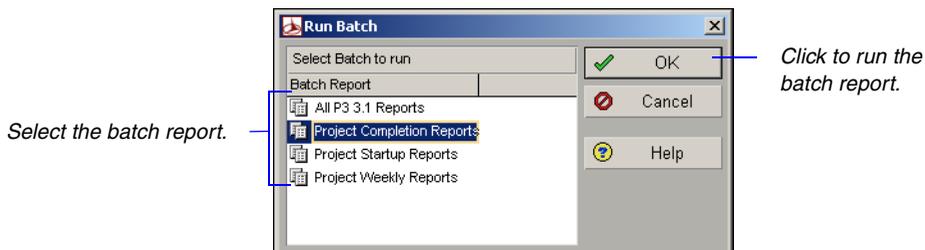
Run a batch report as a service Choose Tools, Job Services, then click Add. Select Batch Reports in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed, if more than one service is listed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the batch report service. You can suspend a service at any time by selecting Disabled in the Status field. In the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify.
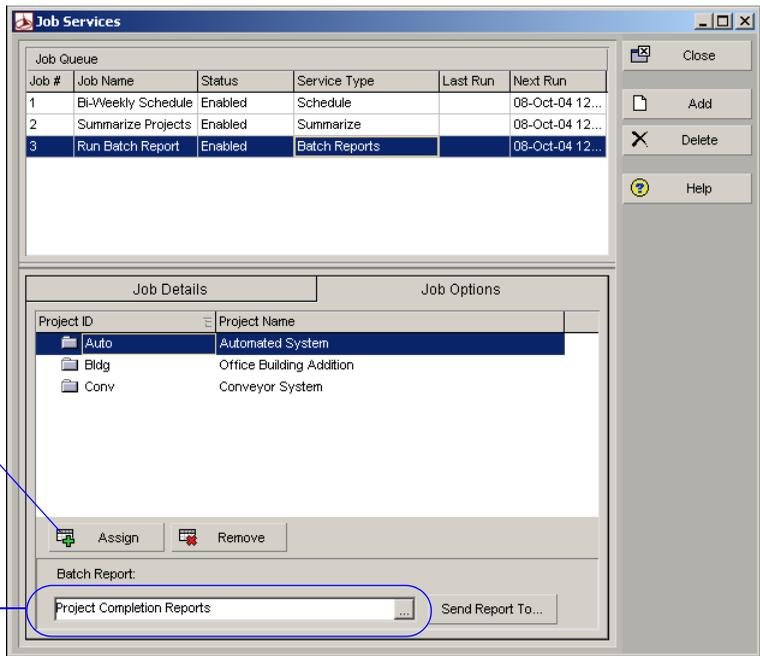
Click to select the projects/ EPS nodes for which you want to run the batch report.

Select the batch report you want the job service to run. Add a separate job service for each batch report you want to run.

> *You must have the appropriate access rights to set up job services. The Job Service does not interact with the module client when running jobs. All jobs are run on the server on which the Job Service is installed.*

Printing Layouts and Reports

Printing layouts and reports for distribution is an effective way to communicate project data. This chapter discusses how to define page settings (such as page orientation, margins, and header/footer settings), preview layouts/reports, and print them (including how to convert them to Web reports).

Defining Page Settings

You can customize printed layouts and reports in a number of ways. For example, customize header and footer settings and change margins for the printed page.

Define page settings From the Print Preview window, click the Page Setup button. Click the Page tab to set orientation, scaling, and paper size.

Portrait orientation prints vertically on the page; landscape orientation prints horizontally on the page.

Use Print Preview to see the number of pages the layout will span. Choose this option to compress spacing by specifying the number of pages. This option is available for layouts only.
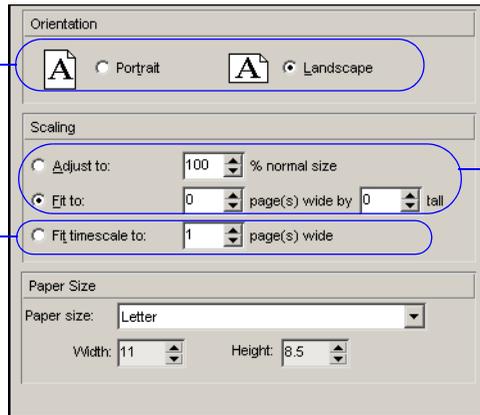
To increase or reduce the size of the printed layout/report, specify a percentage in the Adjust To field. To increase or reduce the number of pages to be printed horizontally and vertically, choose Fit to, then specify a value in the Pages Wide field.

Set page margins Click the Margins tab, then specify the values for each margin.

Top:
0.75

Left:
0.5

0.5

Bottom:
0.75
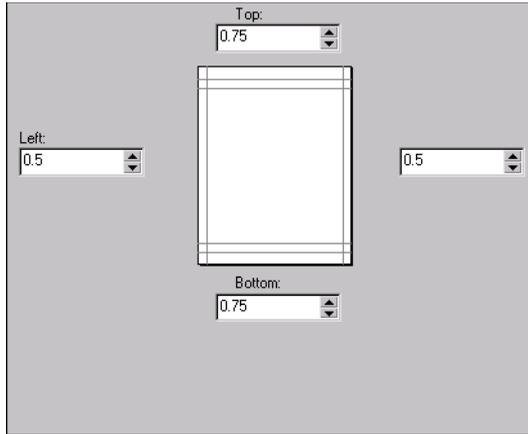
Add headers and footers You can customize the header and footer. You can also insert a graphic, such as your company logo, in the header or footer. Click the Header or Footer tab.

Type or select the amount of sections to divide the header or footer into.

Select when you want to print the header/footer.

Select the height of the header/footer.

Divide Into: 3 ⬍ Sections   Include on: All Pages ▾   Height: 0.5 ⬍

Define header

☑ Show Section Divider Lines

Click to add a logo to the selected section.

Section 1 (33%)	Section 2 (33%)	Section 3 (34%)
Gantt Chart Legend	Text/Logo	Revision Box

Click to change the font, then specify font settings and click OK.

Add Text

A ≣ ≣ ≣   ≔ ≔   ⬅≣ ≣➡   🖼 ✏ ▦

In the Text/Logo section, add text to the header or footer by typing directly in the selected tab. Do not modify any text between square brackets [ ].

[ps]

PS - Earliest Project Start ▾   ☐ Add

Select a global variable and click Add. Global variables include portfolio properties (earliest project start, earliest data date, and so on).

In the Define Header/Footer section, mark the Show Section Divider Lines checkbox to display lines between each section of the header or footer. Define the values you want to insert in the header or footer. Choose Text/Logo to add text variables or a logo, such as your company logo. Choose Revision Box to allow space in the header/footer to be able to enter dates, approvals, and revision information. If displaying the Gantt Chart in your layout, you can choose to display the Gantt Chart Legend in the header or footer.

Add a logo to a header or footer   Click the Header or Footer tab, in the Define header/footer section, choose Text/Logo for the selected section. In the Add Text section, click the Picture button. Click the Browse button in the Picture dialog box, then select a filename and click Open. Specify the layout and spacing options and click OK. The logo image is displayed in the Header or Footer Sample area.
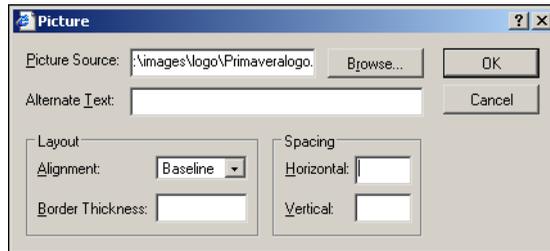
If you change the report page setup from the Print Preview dialog box, the changes will be applied only to the current printing. To save changes to the report page setup permanently, make the changes from the Properties palette in the Report Editor.

Specify layout options Use the Options tab to select the layout areas and timeframe to include in the printed layout.

Mark this checkbox if you want each group printed on its own page. For example, you may want to group your activities by resource and distribute a printout to each individual.

Timescale Start:	02-Jul-03
Timescale Finish:	06-Dec-03

Print

☑ Activity Table
☑ All Columns
☑ Grid Lines
☑ Gantt Chart
☐ Profile
☐ Spreadsheet

Page Settings

☐ Break Page Every Group

The Options tab contains different options when printing reports.

Previewing Layouts and Reports

The Print Preview option enables you to review the layout or report before sending it to a printer.

Open Print Preview To preview a layout, display the layout in the Activities window, then choose File, Print Preview. To preview a report, in the Reports window, select the report you want to preview, then click Run Report. Choose Print Preview, then click OK.

Use these buttons to move to the beginning of the layout/report, scroll through it one page at a time, or move to the end of the layout/report.

Click to zoom in and out of the displayed page.

Click to select the default printer, paper size, and orientation.

When you are satisfied with the look of the layout/report, click to print it.
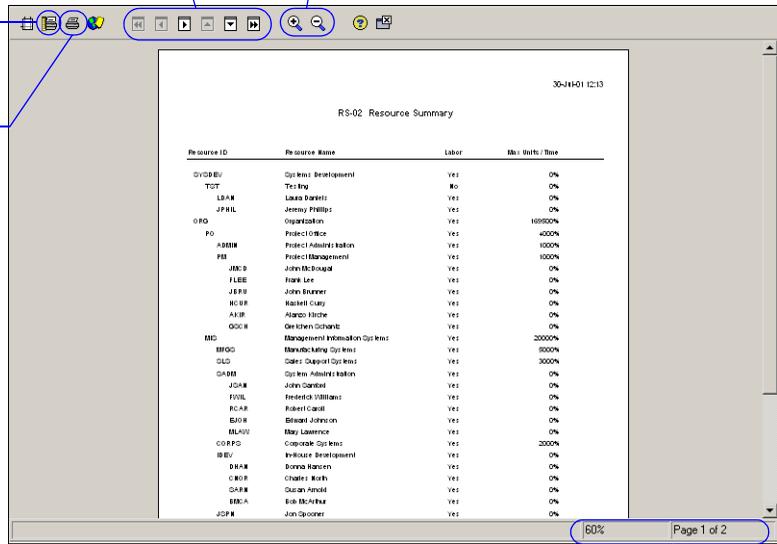
The status bar indicates the size at which the layout/report is currently magnified, the number of the page that is currently displayed, and the total number of pages in the layout/report.

As you move your mouse over the Print Preview window, the pointer changes to a magnifying glass. Click the Zoom In button in the toolbar to zoom in on details and the Zoom Out button to zoom back out.

Printing Layouts and Reports

You can print layouts and reports by sending them directly to a printer, publishing them as HTML files, or printing them to ASCII text files (reports only).

Print a layout To send a layout directly to your printer, open the layout you want to print, then choose File, Print. You can also click the Print button from the Print Preview window.

Print a report From the Reports window, select the name of the report you want to print. Click Run Report.

1 Select the destination for the report. For an ASCII text file, you can also specify the character to use to separate fields and text.

2 For HTML and ASCII files, specify a name and location for the saved file.
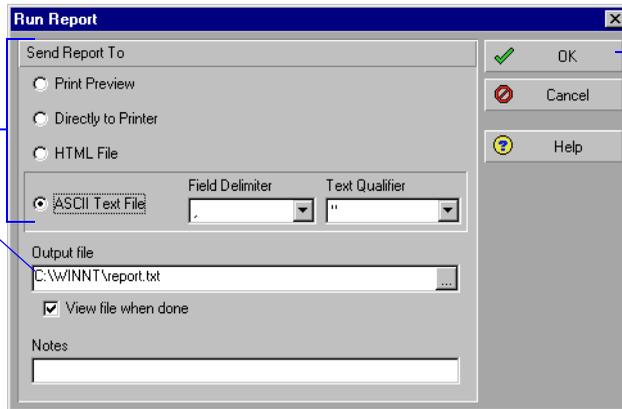
3 Click to run the report.

You can also publish a report to an HTML file through Print Preview. For more information, see *"Publishing Layouts and Reports in HTML Format"* on page 517.

Selecting a Printer

You can select a printer, other than the current default for the operating system, to print your layouts and reports. The printer settings will remain the same until you log out. Choose, File, Print Setup.
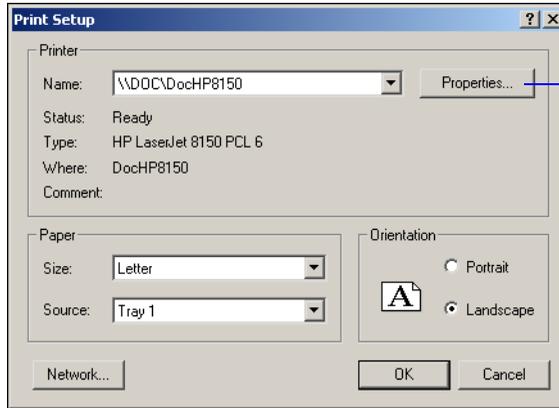
Click to adjust the features and settings provided by the selected printer.

Publishing Layouts and Reports in HTML Format

Use Print Preview to publish layouts and reports as HTML files and post them to a Web site to share with other project team members.

1 Click the Publish button.
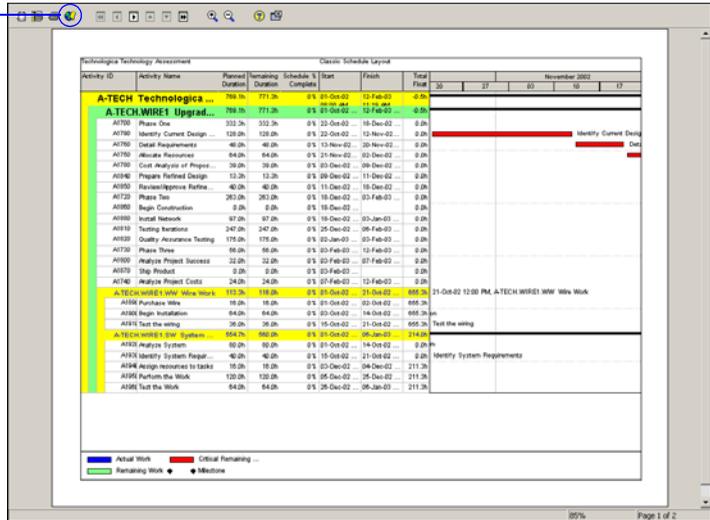
2 Select the drive and folder where the file should be stored.
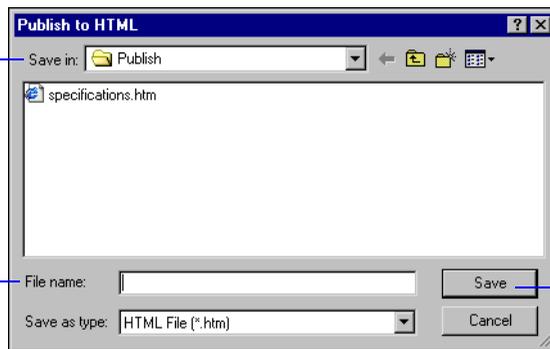
3 Type a name for the file.

4 Click Save.

The layout/report opens in your Web browser.

Publishing a Project On the Web

To share project data, you can publish project plans in HTML format using the Project Web Site Publisher. This chapter describes how to publish project data to a Web site in HTML format, customize the appearance of the Web pages on the project Web site, and publish activity and tracking layouts as HTML pages.
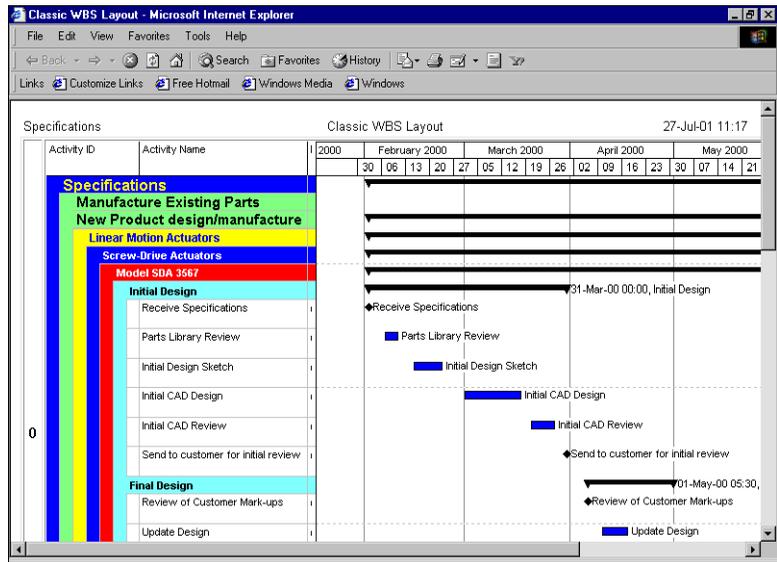
Project Web Site Overview

To share project data between company offices local or worldwide, publish project plans to a project Web site that can be accessed by anyone via the World Wide Web or only employees on your office intranet. Using a Web browser, users can then view project documents that contain hypertext links, or jumps, to other pages in the structure, allowing them to move between projects and reports and from page to page within a report.

A project Web site enables users to browse a project plan at a high level and then quickly view more detailed information about specific project data. The Project Web Site layout is divided into three panes.

The upper pane contains a navigation toolbar for quick access to the various sections of the Web site.
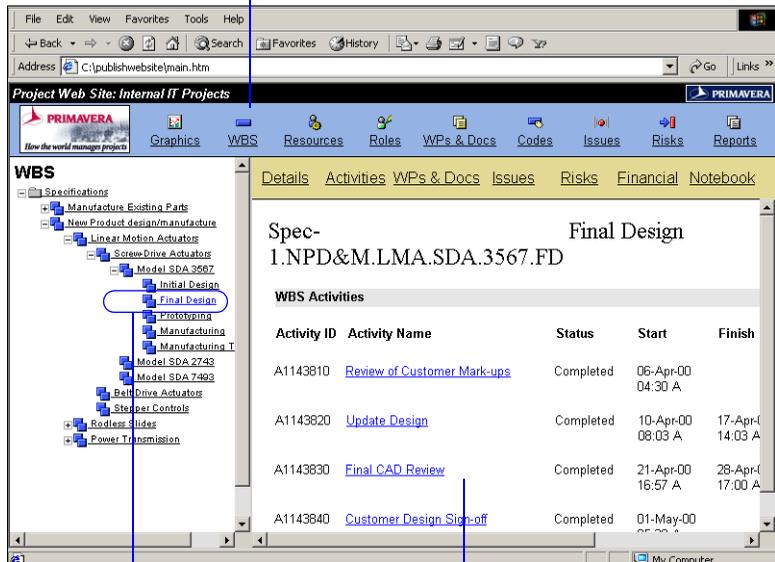
Select the data to view in the left, or Navigation, pane...

...and the details for the selected element are displayed in the right pane.

Navigate a project Web site using the project's work breakdown structure (WBS), resource hierarchy, roles, work products and documents outline, activity codes, issues, and risks. For example, select a resource in the left pane and view the resource's information and activity assignments in the right pane. Similarly, select a work product or document and view the document's details and WBS and activity assignments. The level of detailed information that can be viewed depends on the information you choose to publish.

Also view reports, activity layouts, and tracking layouts in the project Web site. The list of reports or layouts appears in the left pane, and the selected report or layout is displayed in the right pane.

System requirements   Refer to the *Primavera P6 Administrator's Guide* for system requirements for your Web server. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Publishing a Project Web Site

When publishing a project Web site, you control the level of detail published, as well as the project reports and layouts included.

Publish a project Web site Open the project you want to publish. Choose Tools, Publish, Project Web Site.

Click the General tab to specify general information about the Web site.

The Web site name and description appear on the Web site opening (or splash) screen.

Type the location of the Web site files. Choose a folder that contains no existing files.

Mark to preview the Web site in your Web browser after creating the files.
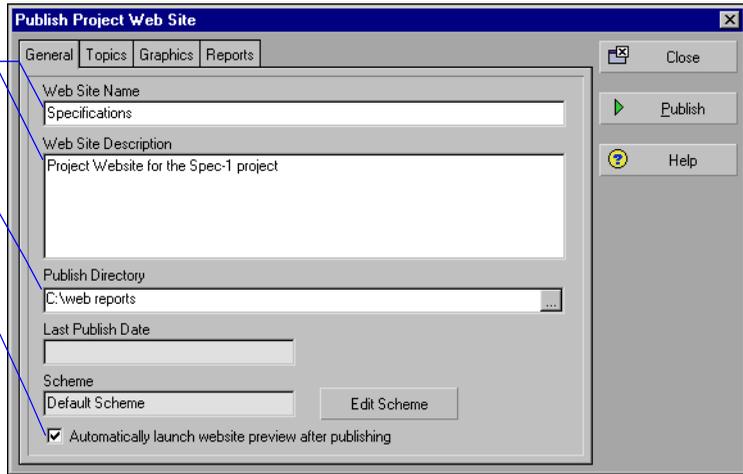
Click the Topics tab to determine the detailed data to publish to the Web site. If all checkboxes are cleared, only WBS data are published. Mark the checkbox next to each type of information to include.

Move the mouse over a checkbox to view a description of it here.
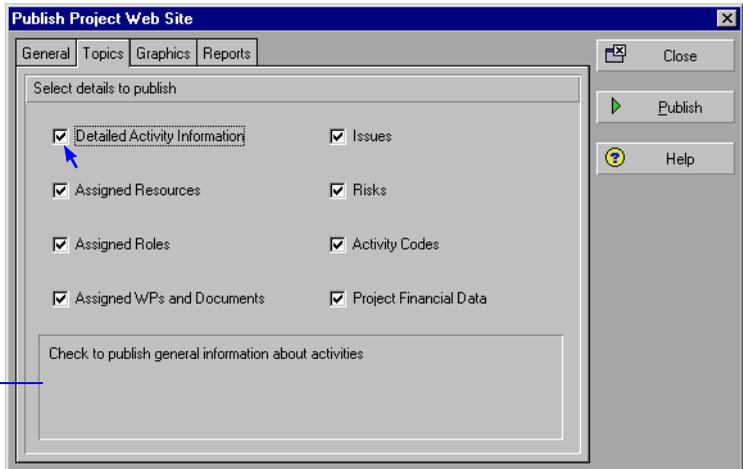
Click the Graphics tab to select existing activity and tracking layouts to publish to the project's Web site. Define activity layouts in the Activities window and tracking layouts in the Tracking window.

Mark to include the selected activity and tracking layouts on the project's Web site.
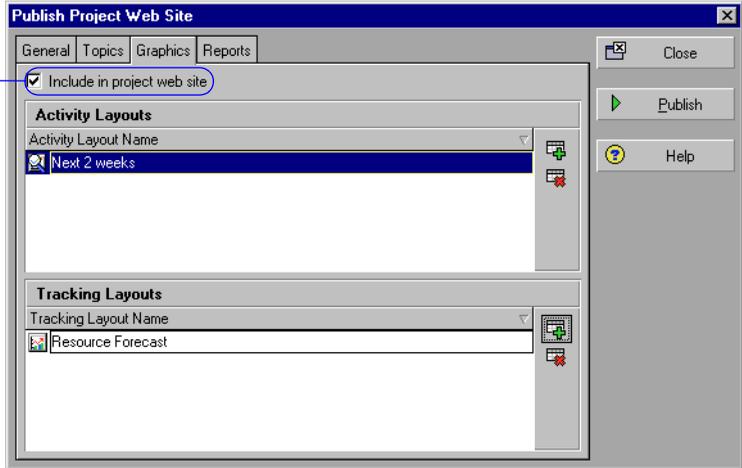
Click the Reports tab to select existing reports to publish to the project's Web site. Reports are defined in the Reports window.

Mark to include the reports on the project's Web site.
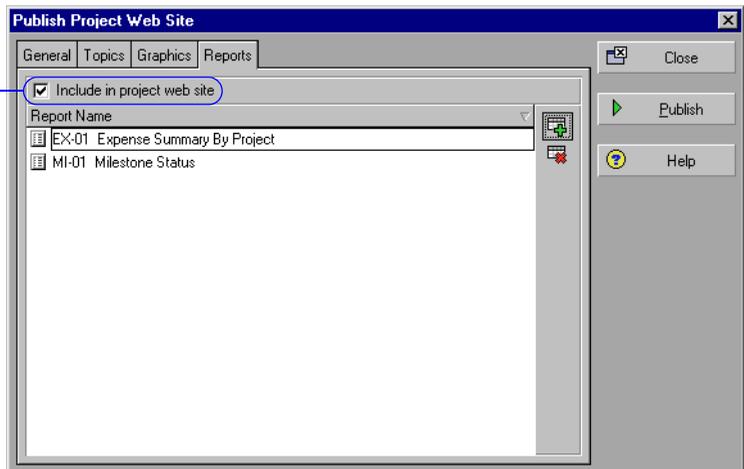
Click Publish to create the project Web site.

Customizing the Appearance of a Project Web Site

Use the standard, or default, Web site scheme to build your project Web site; you can also customize the scheme or create a new scheme.

Customize a Web site scheme Choose Tools, Publish, Project Web Site. Click the General tab, then click Edit Scheme. Select a Web site element from the Item field and modify its settings. Click OK.

Click to specify the Web site icon...

...then select the icon file and location.

You may want to create a copy of the default scheme and then make your changes to the copy. Click Save As, then type a new name.

Publishing Activity and Tracking Layouts

You can also save individual activity and tracking layouts as HTML files, which can be posted to a Web site or your corporate intranet. These layouts are not linked to any project Web site that you may have created previously.

For activity layouts:

■ The timescale begins on the date defined by the selected layout.

■ The columns displayed in the Web pages are defined by the selected layout.

■ Activity layouts are not interactive. They are a picture of your project only.

For tracking layouts:

■ The elements displayed in the Web pages are defined by the selected layout.

■ Tracking layouts are not interactive. They are a picture of your project only.

Publish an activity layout Choose Tools, Publish, Activity Layouts. Select the layout and click the Select button. Specify the location and name of the HTML file to which the layout will be saved. Click Open.

Publish a tracking layout Choose Tools, Publish, Tracking Layouts. Select the layout and click the Select button. Specify the location and name of the HTML file to which the layout will be saved. Click Open.

If you clear the Include in Project Web Site checkbox in the Graphics tab of the Publish Project Web Site window, when the Web site is published, activity and tracking layouts are saved as HTML files without being linked to the project Web site.

Importing and Exporting Data

In this part:

*T*his part describes how to exchange Project Management module data with other applications.

"Linking the Project Management and Contract Manager Modules" describes how to link Project Management module projects to and from the Contract Manager module.

"Transferring Data to Other Project Management Module Users" describes how to use XER, Primavera's proprietary exchange format, to back up or exchange project/resource/role data between project management databases. You can also use XML to backup and exchange projects between project management databases. To export methodologies from the Methodology Management module and import them into the Project Management module, refer to "Transferring Methodology Data."

To transfer data between the Project Management module and Microsoft Project, read "Transferring Data Using Microsoft Project Files." To transfer data using Microsoft Excel, read "Transferring Data Using Microsoft Excel Files." To convert Primavera Project Planner (P3) 3.x projects to Project Management module format, or vice versa, read "Transferring Data Between P3 and the Project Management Module." To export project or resource data for use with Primavera Contractor, read "Transferring Data to Primavera Contractor Users."

Linking the Project Management and Contract Manager Modules

Primavera's Contract Manager module (formerly known as Expedition) is a contract management and project administration tool. From the Project Management module, you can set up access to Contract Manager and create a link to import Contract Manager data (version 8.5 or later) to update schedule dates, cost information, the Activity Codes dictionary, and the Costs Accounts dictionary. You can also view Contract Manager documents associated with your project's activities and, if your organization is set up to access Contract Manager version 9.0 or higher, you can view project-level Contract Manager information in P6 Web Access.

This chapter explains how to link the Project Management and Contract Manager modules, link projects, and import data.

Linking the Project Management Module to Contract Manager

To connect the Project Management module to a Contract Manager HTTPS:/ / URL, the SSL library must be loaded. Refer to the "readme.txt" file located in the-\Documentation\ <language>\Technical Documentation\Connect P6 to a Contract Manager HTTPS URL folder of the P6 physical media or download.

To set up access to Contract Manager data, you must first create a link between the Project Management module and Contract Manager (formerly known as Expedition).

Link to Contract Manager Use the Admin Preferences dialog box to set up a link with Contract Manager and choose the Contract Manager product version you are connecting to. Choose Admin, Admin Preferences, then click the Options tab. Mark the Enable Link to Contract Manager Module checkbox, then choose the version you are connecting to. Click Close.

If connecting to Contract Manager 9.x or higher, type the URL and port number to the Contract Manager Web server.

When connecting to Contract Manager 9.x and higher For http, the default port number is 80, but you do not have to enter it. If you are not going to use port 80, you must enter the port number (or name or IP address). For example: http://10.12.14.168:110.

For https, the default port number is 443. You must always enter the port number, including the default port number, at the end of the URL. For example: https://10.12.14.189:443.

To create a link between the Project Management and Contract Manager modules, you must have the required security privilege, Edit Admin Preferences and Categories.

Linking a Project Management Project to a Contract Manager Project

Once the link between the Project Management and Contract Manager modules is established, you can then create a link from your project to an Contract Manager project to enable users to import and view Contract Manager data in the Project Management module. If you are connecting to Contract Manager version 9.x or higher, creating a link between your project and a Contract Manager project additionally enables users to view Contract Manager data in Project Workspace portlets in P6 Web Access. Connecting to version 9.x or higher also enables users to launch Contract Manager from P6 Web Access.

Link to a Contract Manager Project Choose Enterprise, Projects, then display project details. Select the project to which you want to link a Contract Manager project. If the Contract Manager tab is not displayed, right click on a tab at the bottom (for example, General) to display the Project Details dialog box, and move Contract Manager into the Display Tabs section. On the Contract Manager tab, mark the 'Allow this project to link with a Contract Manager Project' checkbox. Click the browse button (in version 9.5 and above) to the right of the Group Name:Project Name field to choose the Contract Manager project to which you want to link your project.

If you are connecting to Contract Manager version 8.5 (Expedition), the Group Name and Project Name appear as separate fields, as shown in the following image. Type the name of the Contract Manager database and project you want to link to your project.

Choose whether users are prompted for a user login and password when retrieving Contract Manager data. If you choose for users to log in without being prompted, type a login name and password.

☑ Allow this project to link with a Contract Management Project

Group Name
<Group Name>

Project Name
<Project Name>

◉ Prompt for login name and password when logging in
○ Login with the following login name and password

Login Name

Password

To link your project to a Contract Manager project, you must have the project privilege, Edit Contract Manager Link.

If an identical username and password do not already exist in both Contract Manager and the Project Management module, you will be prompted to enter the Contract Manager Name and Password. If an identical username and password already exist in both Contract Manager and Project Management module, the Select Project Manager Project popup menu will display for you to select the project.

From Contract Manager, you can additionally create a link from a Contract Manager project to a Project Management project schedule. A link from within Contract Manager enables you to review dates from the project schedule to see how schedule delays or other factors affect the project. For more information on creating a link from Contract Manager, please refer to the Contract Manager User's Guide.

Importing Contract Manager Data to a Project Management Module Project

After linking the Project Management and Contract Manager modules, and linking a Project Management project to a Contract Manager project, you can import specific types of Contract Manager data to the Project Management module.

Importing Contract Manager data To import Contract Manager project data, open the Project Management project to which you want to import data. Choose File, Import from Contract Manager. Select the types of schedule, cost, and dictionary data you want to import. Click Import.
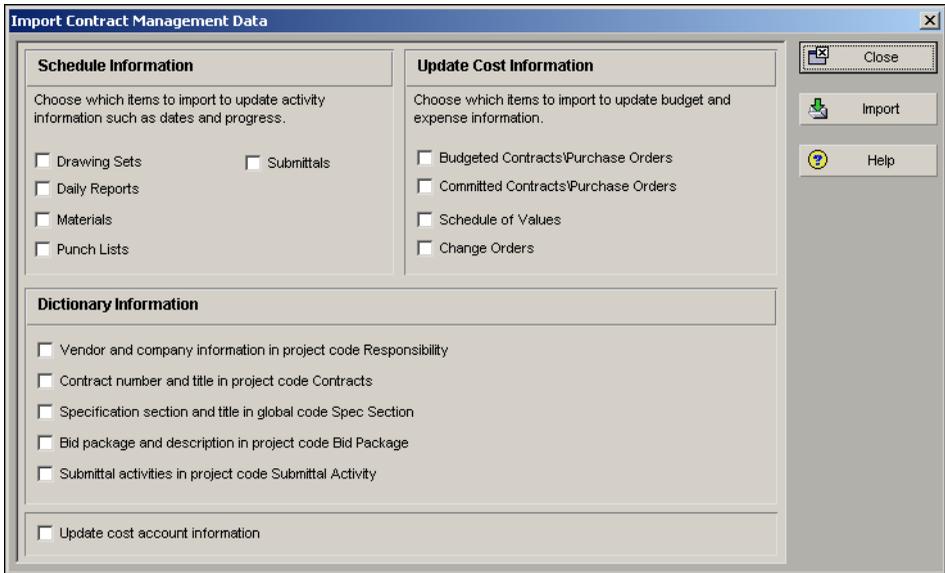
Before data is imported, the Contract Manager Import Report is displayed listing all the information that will be imported to your project. Click Commit Changes to import the data. To save the report to a log file, click Yes and specify a filename and location. Click Close. Click Yes to save any changes you made to the import settings or No to discard changes.

Import considerations This section details how the Project Management module imports data from Contract Manager.

■ **Global activity codes** The Spec Section code is available to all projects in the Project Management module. For Contract Manager 8.54 (Expedition) data, this activity code is referred to as SPCS.

■ **Project activity codes** The Responsibility, Contracts, Bid Package, and Submittal activity codes are imported as project activity codes. For Contract Manager 8.54 (Expedition) data, these activity codes are referred to as RESP, CNTR, BIDP, and ISSB, respectively.

The Responsibility code is imported from the Contacts subsection of the Project Information section. The Abbreviation and Company Name columns are used as the code value and description, respectively.

The Contracts code is imported from the Contracts and Purchase Orders subsections of the Contract Information section. The No. and Description columns are used as the code value and description, respectively.

When you import the Submittal Activity code, the activity is assigned the code value Yes to indicate that the item is a submittal.

■ **How activity codes are imported** If the code or value does not exist, the imported code or value is added to the dictionary.

If the code exists but the value does not, the value is added to the dictionary.

If the code and value exist, but the value assigned to the activity does not match the imported value, the value on the activity is overwritten.

If the activity does not exist, it is created.

■ **Cost accounts** Cost codes in Contract Manager are imported to the Cost Accounts dictionary. The Cost Accounts dictionary is available to all projects in the Project Management module. All items in the Cost Worksheet are imported as cost accounts and placed under a root node having the same name as the imported Contract Manager project. The Cost Code and Title columns are imported as the Cost Account ID and Cost Account Name, respectively.

■ **Cost information** Cost information from Contract Manager is imported as Expenses for activities.

Transferring Data to Other Project Management Module Users

Project, resource, and role data can be transferred from one Project Management or Methodology Management module to another by exporting and importing XER files, Primavera's proprietary exchange format. Project data can also be exchanged between Project Management and other applications in XML format. This chapter describes how to use the Export and Import wizards to share project information, roles, and resources.

Exporting Projects

For information about importing XER and XML files, see **"Importing Projects"** on page 547.

For information about the tables and fields that are converted to XER format, see the XERPROJECTS.PDF file. This file is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

You can transfer project data between Project Management and Methodology Management application as XER files or XML files, which can be used with any other Project Management module installation, regardless of the database type on which it runs. The Export wizard allows you to export Project Management projects to other applications.

Timesheets and baselines are not exported when you export project data. With the appropriate access, you can export secure codes and secure code assignments to XML format; however, you cannot export them to XER format. For more information about secure codes, refer to the Primavera P6 Administrator's Guide.

Primavera ProjectLink users can export a Microsoft Project (MSP)-managed project to XER format, but not to XML format. When you do export an MSP-managed project, the project contained in the XER file is no longer considered MSP-managed. For more information on Primavera ProjectLink, click Help on the Primavera ProjectLink toolbar in Microsoft Project (available only if Primavera ProjectLink is installed).

If you want to make backup copies of a project, export the project as an XER file, then store the exported file.

Primavera's proprietary format (XER) supports all project, resource, and role information developed using the Primavera suite of project management tools. The Primavera PM/MM XER file format enables you to export data between PM and MM release 5.0 and more recent versions, for use within the Project Management module, Methodology Management module, and P6 Web Access.

The Contractor XER format is supported to import data from Contractor 4.0 and subsequent versions into the Project Management module.

The XER format supports all project data, while the XML format does not. You should not use the Export wizard to back up your entire database.

Differences Between XML and XER Export Formats

The following table compares the features and benefits of both formats for exporting project data between Project Management modules. A checkmark represents that a particular format is better suited for that functionality.

Functionality	XML	XER
Data formats XML is an industry-standard format, while XER is proprietary.	✓	
Multiple projects XER supports exporting multiple projects at once, to a single XER file. XML exports only one project at a time to a separate XML file.		✓
Job Service XER supports scheduling exports on a regular basis as services. XML does not.		✓

Exporting Projects in XER Format

Select export type and projects Open the projects in the Project Management module that you want to export. Choose File, Export. Choose Primavera PM/MM (XER), then click Next.
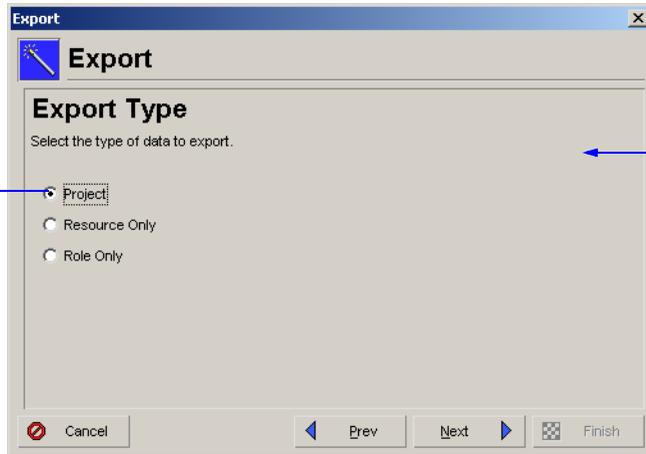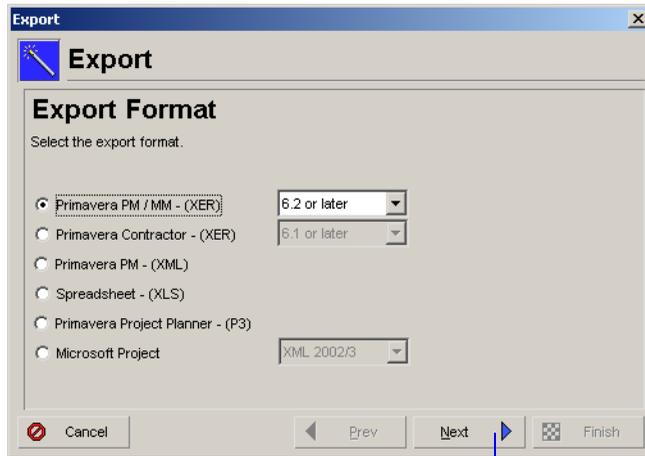
Choose Project as the export type, then click Next.

Clear the Export checkbox next to each project that should not be exported, then click Next.
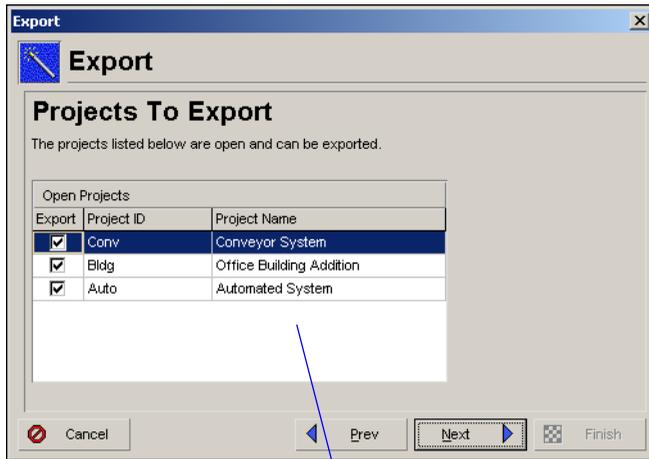
Lists only projects that are currently open in the Project Management module

Specify filename and location   Type a name for the XER file. To specify a different location to store the file, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the project to a single file with an XER extension.
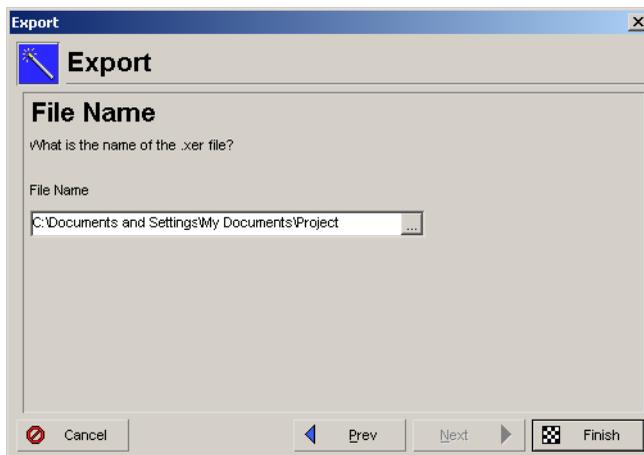
Export projects as a service

With the XER format, you can export projects as a service. Choose Tools, Job Services, then click Add. Select Export in the Service Type field. Specify a number in the Job # field to indicate the sequence in which the service should be performed, if more than one service is listed. Type a brief description of the service in the Job Name field. In the Status field, select Enabled to activate the export service. You can suspend a service at any time by selecting Disabled in the Status field. In the Run Job area on the Job Details tab, schedule when the service should be run: every day at a specific time, or weekly, every two weeks, or monthly on a day and time you specify.

Click the Job Options tab to select the projects/EPS nodes you want to export.

In this example, projects are exported every day at 5pm.

Mark to log information about the service to a file you specify.
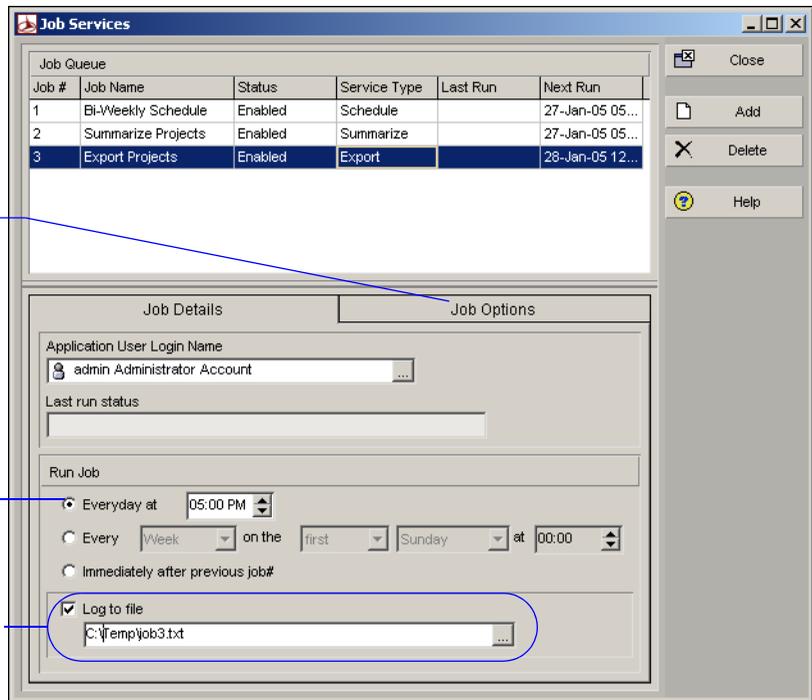
You must have the appropriate access rights to set up job services. The Job Service does not interact with the Project Management client when running jobs. All jobs are run on the server on which the Job Service is installed.

Exporting Projects in XML Format

Select export type and project Open the project that you want to export in the Project Management module. Choose File, Export. Choose Primavera PM (XML), then click Next.
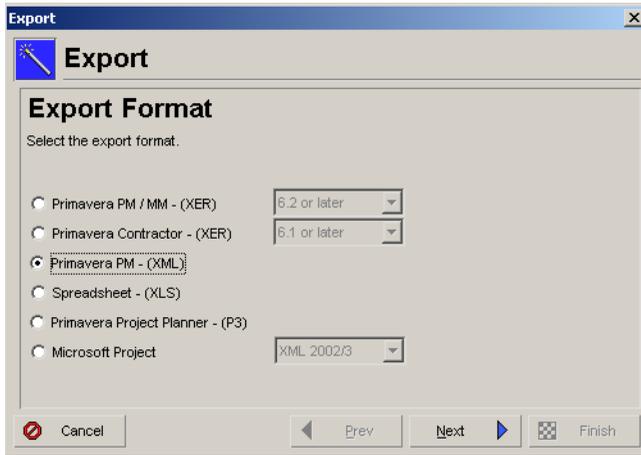
If multiple projects are open, select the Export checkbox next to the single project that you want to export. You can select only one project when exporting to XML format. Then click Next.
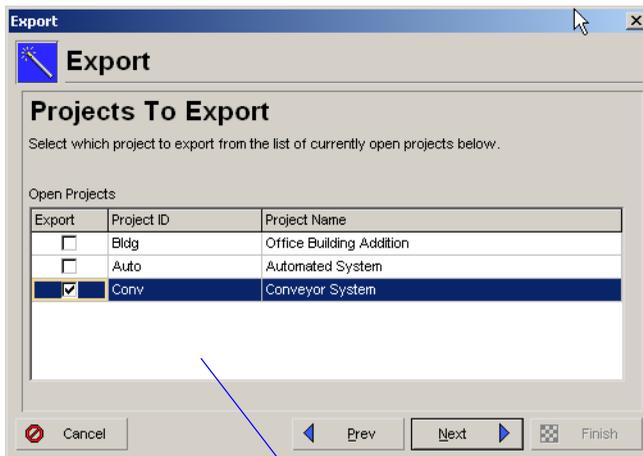
Lists only projects that are currently open in the Project Management module

Specify filename and location Type a name for the XML file. To specify a different location to store the file, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the project to a single file with an XML extension.
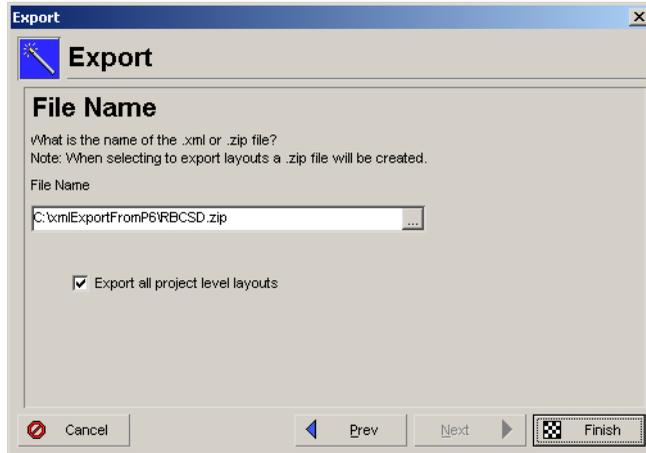
Exporting Roles or Resources

For information about the tables and fields that are converted, see **XERRESOURCES.PDF or XERROLES.PDF.** These files are available from the Primavera Documentation Center, which is located in the **\Documentation\ <language>** folder of the P6 physical media or download.

The Project Management module enables you to export only the roles or resources in your resource hierarchy to XER files. You might want to choose this option to include existing roles or resources in a new database.

When you export roles and resources, secure codes and secure code assignments related to the roles and resources are not exported. For more information about secure codes, refer to the Primavera P6 Administrator's Guide.

Export roles or resource data In the Project Management module, choose File, Export. Choose Primavera PM/MM, then click Next.
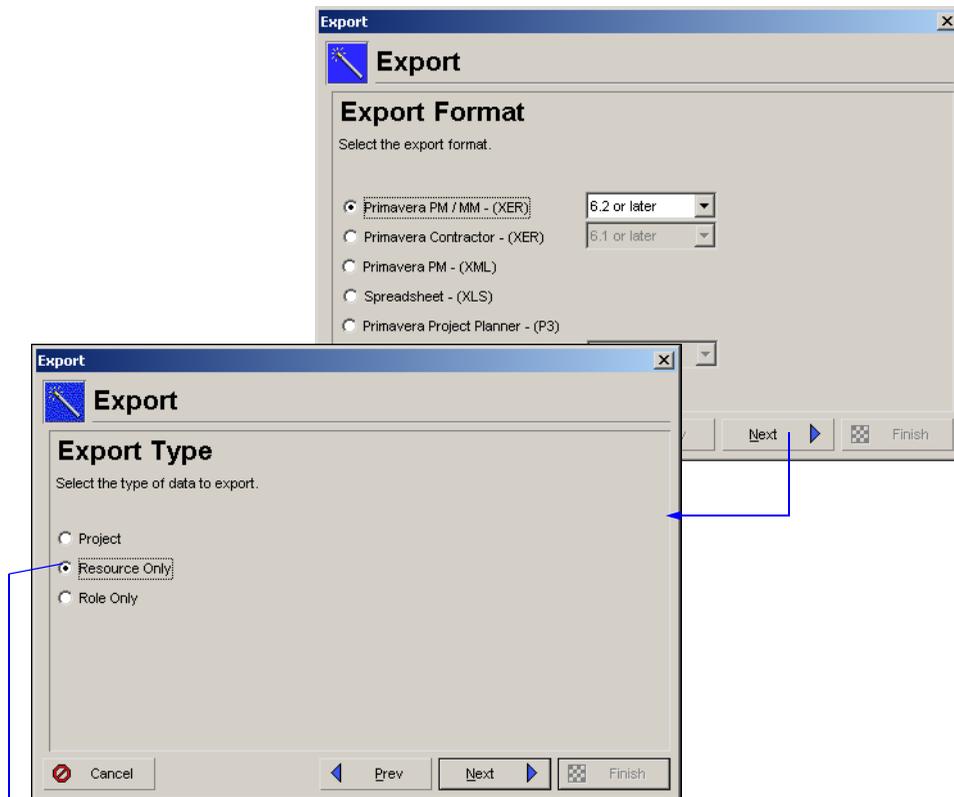
Choose Resource Only or Role Only as the export type, then click Next.

Type a name for the XER file. To specify a different location to store the file, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the roles or resources to a single file with an XER extension.
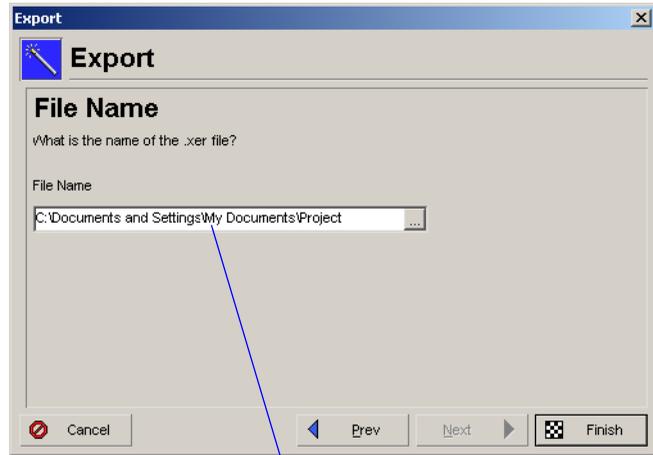
Click to select the location where the file will be stored.

Importing Projects

For information on
exporting project data, see
**"Exporting Projects" on
page 538**.

For information about the
tables and fields that are
converted in XER files, see
the **XERPROJECTS.PDF file**.
This file is available from
the Primavera
Documentation Center,
which is located in the
**\Documentation\
<language> folder of the
P6 physical media or
download**.

You can transfer project data to the Project Management module as
XER files (Primavera proprietary exchange format) or XML files, which
can be used with any other Project Management module installation,
regardless of the database type on which it runs. You can use the Import
wizard to bring XER or XML files into the Project Management
module. You can also use a command line (batch) interface to import
XER files. You might want to use these methods to quickly restore one
or more projects. The Import wizard guides you through the steps for
importing projects.

*When you import project data, some data is not imported,
including timesheets and baselines. You can import secure
codes and secure code assignments to XML format, if you
have the correct access; however, you cannot import them to
XER format. For more information about secure codes, refer
to the* Primavera P6 Administrator's Guide.

*If resource security is enabled in the Project Management
module, some restrictions apply when importing activity
resource assignments. Refer to the Help for more details.*

For information on
importing material
resources, see **"Importing
Roles or Resources" on
page 567**.

*XER files exported from version 5.0 and subsequent versions
of the Project Management module, or from Primavera
Contractor 5.0 and 6.1, can be imported into P6 Project
Management version 6.2.1.*

Differences between XML and XER Import Formats

The following table compares the features and benefits of both formats for importing project data between Project Management modules. A checkmark represents that a particular format is better suited for that functionality.

Functionality	XML	XER
Security XML always enforces individual user security settings, and never violates your security restrictions. If there is a security conflict, the import will try will continue and ignore data that a user should not have access to; if it is not possible to continue while ignoring data, the import is stopped. Security is never bypassed when updating data. XER allows updates to all data if you have the Import Global Data security privilege set.	✓	
Exclusive Project Access XML always opens a project as exclusive, and will stop the import if it cannot gain exclusive access. This ensures that other users are not changing data during the import process. XER accesses projects as shared, which means other users can update data in the middle of the import process.	✓	
Committing Data XML will not commit partial data. If an import action for a specific transaction fails before all data is committed, XML rolls back the data; global and project-specific imports are treated as separate transactions. XER can end up with partial commits of data.	✓	
Work Shift Handling XML replaces any existing work shifts. XER tries to insert work shifts, which can potentially corrupt your shift definitions.	✓	
Broad Range of Actions XER supports the full range of import actions, including Update Existing Project, Create New Project, Replace Existing Project, Ignore this Project, and Add into Existing Project. XML supports only Update Existing Project and Create New Project.		✓

Functionality	XML	XER
Resources and Roles XER supports importing resources and roles. XML does not.		✓
Multiple projects XER supports the import of multiple projects at once, from a single XER file. XML imports only one project at a time from a separate XML file.		✓
Documents XER supports importing documents that are not stored in the content repository, such as work products and other documents. XML does not.		✓
Version Checking XER checks project versions while importing, and ensures you cannot import projects older than 2 prior releases. XML does not; instead, if there is a version incompatibility, bad data is ignored.		✓

Importing Projects in XER Format with the Import Wizard

Select import type and file In the Project Management module, choose File, Import. Choose Primavera PM/MM (XER), then click Next.

Choose Project as the import type, then click Next.

Click the Browse button to select the file you want to import.
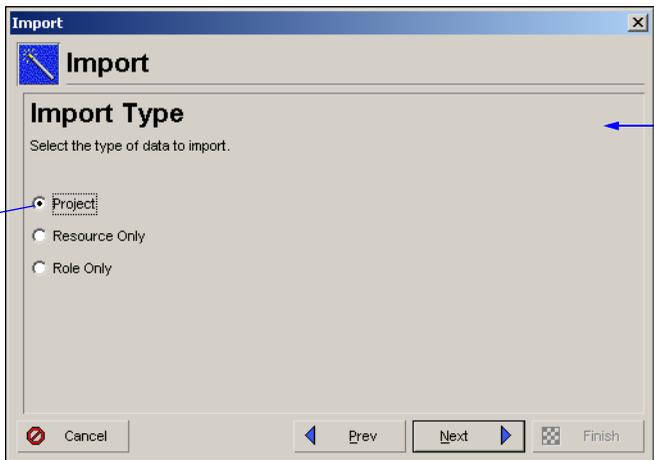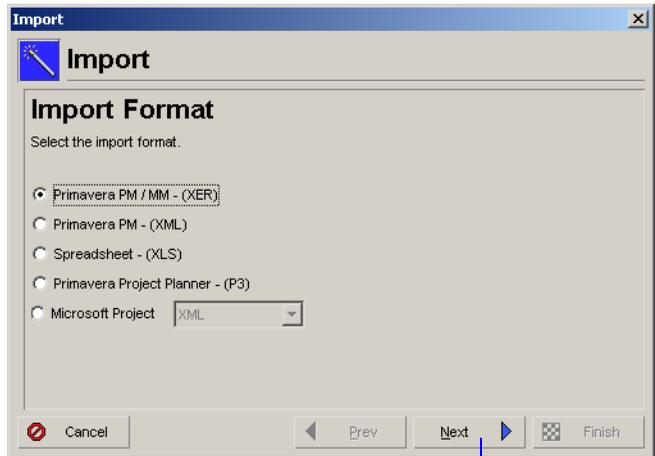
Click Next.
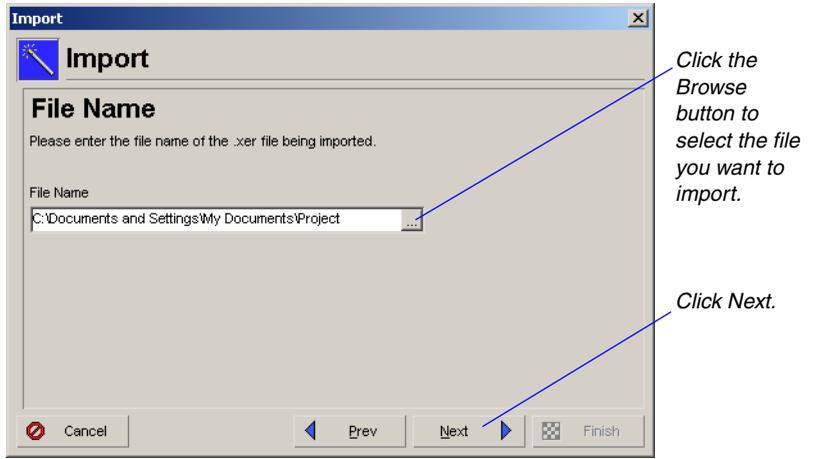
If you include more than one project in an XER file, the relationships between the projects are preserved. External dependencies with projects you did not export are also preserved.

Specify import project options An XER file can contain data from several projects. The first column in the Import Project Options dialog box lists all the projects included in the XER file. If a project with the same name already exists in the current installation of the Project Management module, the Match checkbox next to it is marked.

To prevent data in the project management database from being overwritten when you import the file, double-click the Import Action field next to each project, then select one of the following options:

■   **Update Existing Project**   The existing project is updated with any new/modified data in the XER file; adds new data if the record does not exist. Select the project to update in the Import To field. All currently open projects are listed. You can further define how data should be updated when matches occur. See "Choose update project options" on page 553.

■   **Create New Project**   The existing project's data remains the same. A new project is created. Click the Import To field to select where the new project will be placed in the EPS. A number is appended to the end of the project name. When the import is complete, you can rename the project. For example, if you are creating a new project from the existing project, AUTO, the new project is named AUTO-1.

You must select the Create New Project option if you want the Project Management module to import past period actual data. If you choose any other option, past period actual values are not imported. If you select the Create New Project option, past period actual data will only be imported if the defined financial periods are exactly the same in both databases.

■   **Replace Existing Project**   The existing project is deleted and replaced with the project imported from the XER file. Select the project to be replaced in the Import To field.

Baselines and timesheets assigned to projects are deleted when you select the Replace Existing Project import option.

■   **Ignore this Project**   The project is not imported in the Project Management module.

■   **Add Into Existing Project**   You can merge the project you are importing within an existing project. Click the Import To field, then select a specific WBS level within an existing project. The imported project is appended to the selected WBS.

Choose update project options Click Next to select a layout configuration to use when importing project data. The options specified in the layout determine how the Project Management module handles data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

> *The Update Project Options dialog box appears, regardless of the import option you select. For example, if you choose to create a new project, you still must select a configuration for importing global data.*

Click to create a new layout configuration.

Import

Update Project Options

Import configurations of update options may be saved and reused. These define the action to take when imported data (e.g., resources, activities) conflict with existing data. Please choose which layout configuration to use during the import. You may also Add, Remove or Modify a layout.

Use	Layout Name
Yes	Default Configuration

Add   Remove   Modify...

Cancel   Prev   Next   Finish

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when projects are imported. To modify these options, select the layout in the Update Project Options dialog box, then click Modify.

The import of activities, their relationships, and their resource assignments is dependent on one another. For example, if you choose to update one of these items, all three are updated automatically.

If the XER file you are importing was exported from Primavera Contractor, do not check Delete for activities if the Project Management module project you are updating contains WBS Summary tasks. If you choose to delete activities, the WBS Summary tasks will be deleted.

Mark to delete specific items that are in the project being updated, but are not included in the import file.

The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data item to remove data that exists in the project you are updating, but is not included in the file you are importing. For example, if several activities are defined in the project you are updating, but they are not included in the file to be imported, mark the checkbox in the Delete column to remove the activities from the project being updated.

The Delete field applies only to risks, relationships to external projects, thresholds, activities, activity relationships, and activity resource assignments. Global data types are not affected by this setting.

Select one of the following in the Action field to indicate how the data type is updated:

■   **Keep Existing** Retains data in the existing project and does not overwrite it with the updated data; adds new data if the record does not exist.

■   **Update Existing** Overwrites data in the existing project with updated data; adds new data if the record does not exist.

■   **Insert New** Retains data in the existing project and does not overwrite them with updated data from the import file; adds new data for all records in the import file, even if the same record exists in the project you are updating.

Choosing the Insert New option will result in duplicate records after import when the same record exists in both the existing project and the import file. For example, if the same calendar is present in the import file and the existing project, choosing this option adds the calendar to the project you are updating while preserving the original calendar in the updated project.

■   **Do Not Import** Retains data in the existing project and does not import the updated data.

If you manually plan future period assignments to activities, be sure to select the appropriate import action when importing data; otherwise, manually-planned future period assignment values may be lost. For example, if you are updating an existing project with imported data and you choose to import activity resource assignments, future period assignment values that exist in the project you are importing will overwrite future period assignment values in the project you are updating. Therefore, if the project you are importing does not contain manually-planned future period assignment values and the project you are updating does contain manually-planned future period assignment values, the manually-planned future period values will be lost when the same assignment exists in both projects.

The action you choose for importing the items in the Activity Data Type group are dependent on each other. For example, if you choose to update existing relationships, you must also update existing resource assignments and activities associated with the relationships.
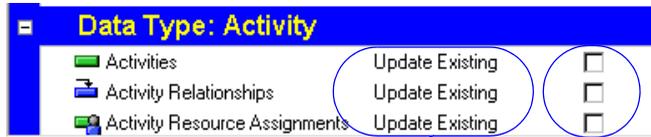
The action for activity data types are dependent on one another.

The Delete field for these items can be independent.

> *The Activity Resource Assignments item under Activity Data Type includes role assignments.*

> *If a relationship type was updated when the project was exported, to import the modified relationship type, you must choose to Update Existing and mark the Delete field for activity relationships; otherwise, a new relationship will be added. For example, suppose you have Activity 100 with a finish to start relationship type. If you import a project that has Activity 100, but the relationship type has been changed to a start to start type, the import process results in Activity 100 with both the finish to start relationship and the start to start relationship when you do not mark the Delete field. You must mark the Delete field to remove the original relationship type of finish to start.*

Click OK to save changes to the modified layout configuration. Click Next.

Select a currency If the import file does not specify a currency, or if the currency does not match a currency defined in the Project Management module, the Currency Type dialog box appears. Click the Browse button to select a currency that matches the one found in the import file. If your currency is not listed, cancel the Import wizard and add the currency in the Currencies dialog box (Admin, Currencies).

> *You will not see this dialog box if the import currency is the same as the base currency.*

Click Next, then click Finish to import the project.

Importing Projects in XML Format with the Import Wizard

To import XML files, you must have access to all resources. For more information on defining access to resources, see the Primavera P6 Administrator's Guide.

Select import type and file In the Project Management module, choose File, Import. Choose Primavera PM (XML), then click Next.
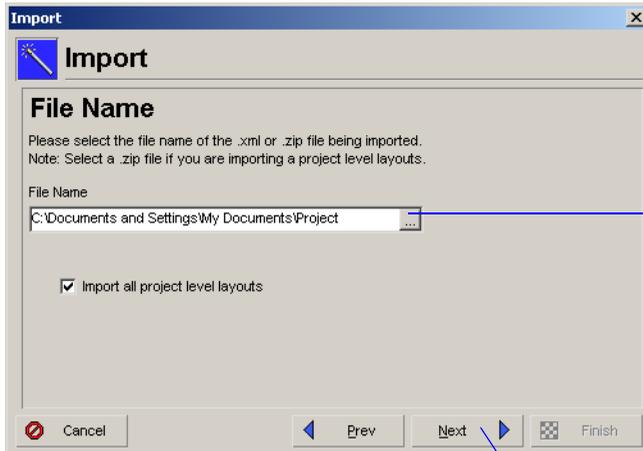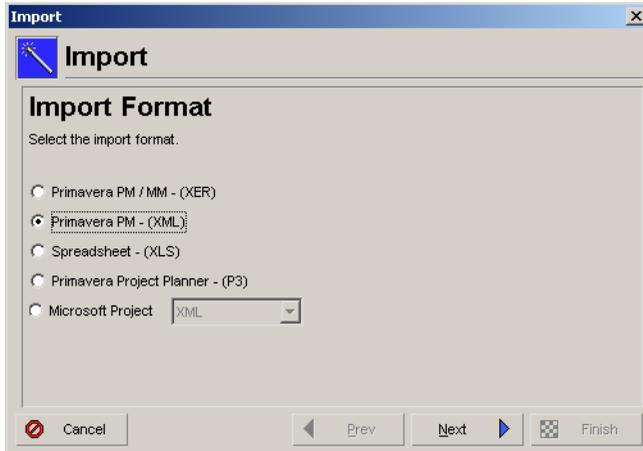
Click the Browse button to select the file you want to import.

Click Next.

Specify import project options An XML file can contain data from only one project. Select the appropriate import action and click Next.
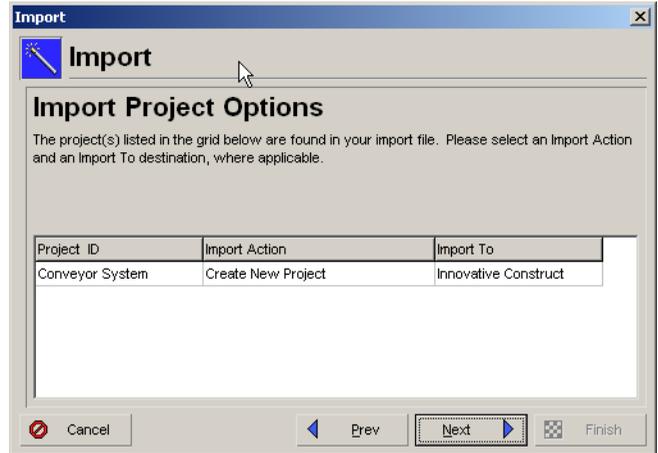
To prevent data in the project management database from being overwritten when you import the file, double-click the Import Action field, then select one of the following options:

■   **Update Existing Project** The existing project is updated with any new/modified data in the XML file; adds new data if the record does not exist. Select the project to update in the Import To field. All currently open projects are listed. You can further define how data should be updated when matches occur. See "Choose update project options" on page 553.

■   **Create New Project** The existing project's data remains the same. A new project is created. Click the Import To field to select where the new project will be placed in the EPS. A number is appended to the end of the project name. When the import is complete, you can rename the project. For example, if you are creating a new project from the existing project, AUTO, the new project is named AUTO-1.

Choose update project options Click Next to modify the layout configuration used when importing project data. The options specified in the layout determine how the Project Management module handles data in the import file that matches data in the database.

Import

Update Project Options

Import configurations of update options may be saved and reused. These define the action to take when imported data (e.g., resources, activities) conflict with existing data.

Layout Name	
XML Import Configuration	

Modify...

Cancel   Prev   Next   Finish

Modify a layout configuration The options specified in a layout configuration determine how data is updated when projects are imported. To modify these options, select the layout in the Update Project Options dialog box, then click Modify.

Mark to delete specific items that are in the project being updated, but are not included in the import file.

The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data item to remove data that exists in the project you are updating, but is not included in the file you are importing. For example, if several activities are defined in the project you are updating, but they are not included in the file to be imported, mark the checkbox in the Delete column to remove the activities from the project being updated.

> *The Delete field applies only to risks, thresholds, activities, activity relationships, and activity resource assignments. Global data types are not affected by this setting. External relationships are not treated as a separate data type in XML import; they are in XER import.*

Select one of the following in the Action field to indicate how the data type is updated:

- ■ **Keep Existing** Retains data in the existing project and does not overwrite it with the updated data; adds new data if the record does not exist and you have the appropriate security privileges.

- ■ **Update Existing** Overwrites data in the existing project with updated data; adds new data if the record does not exist.

- ■ **Insert New** Retains data in the existing project and adds any new data items. For example, if a new role was added in the XML file, but you don't want to change the existing roles, choose Insert New to add the new role to the existing project.

- ■ **Do Not Import** Retains data in the existing project and does not import the new or updated data.

The Activity Resource Assignments item includes role assignments.

If a relationship type was updated when the project was exported, to import the modified relationship type, you must choose to Update Existing and mark the Delete field for activity relationships; otherwise, a new relationship will be added. For example, suppose you have Activity 100 with a finish to start relationship type. If you import a project that has Activity 100, but the relationship type has been changed to a start to start type, the import process results in Activity 100 with both the finish to start relationship and the start to start relationship when you do not mark the Delete field. You must mark the Delete field to remove the original relationship type of finish to start.

Click OK to save changes to the modified layout configuration. Click Next.

Importing Projects in XER Format with the Command Line Interface

You can use a Windows command line interface to import XER files, which also enables you to do so from a batch file or programmatically.

When you import projects with the command line interface, you can create only new projects, you cannot update an existing project.

If there are multiple projects in an XER file, they are created under the same EPS when you use the command line interface.

You cannot filter out specific projects within an XER file.

To use the Windows command line interface to import an XER file, do the following:

1 Using an XML editor, or any program that can save files as XML files, create an **actions.xml** file that specifies the EPS you want to import the project to, the layout you want to use, and the XER file you want to import from.

You can specify more than one import action in a single file, by including multiple <action> nodes.

The following is a sample actions.xml file that imports 2 XER files from the same script. All tags must appear in the file; however, you can leave some tags empty, as noted below. Values in **bold** are literal values you must enter as is. Values in *italics* are samples that will vary with your configuration.

```
<actions>
        <action>
                <type>import</type>
                <importFormat>XER</importFormat>
                <importType>PROJECT</importType>
                <importAction>CREATE</importAction>
                <importTo>EPS1</importTo>
                <importConfiguration>MyConfig1</importConfiguration>
                <importFile>c:\somefile1.xer</importFile>
        </action>
        <action>
                <type>import</type>
                <importFormat>XER</importFormat>
                <importType>PROJECT</importType>
                <importAction>CREATE</importAction>
                <importTo>EPS2</importTo>
                <importConfiguration>MyConfig2</importConfiguration>
                <importFile>c:\somefile2.xer</importFile>
        </action>
</actions>
```

Tag	Description
<type>	Required. The type of action to take. Currently the only supported value is import.
<importFormat>	Required. The format being imported. Value must be XER
<importType>	Required. The type data being imported. Value must be PROJECT.
<importAction>	Required. The action to take while importing. Value must be CREATE.

Tag	Description
<importTo>	Optional. The short name of the EPS element you are importing to. This name must exist in the destination database. If you do not provide a name, the default EPS is used.
<importConfiguration>	Optional. The import configuration to use while importing. This name must exist in the destination database. If you do not provide a name, the default import configuration is used.
<importFile>	Required. The full path to the XER file you want to import.

Internationalization Notes

If you include non-English characters in the actions.xml file, save the file as Unicode, and use the XML encoding attribute to specify the language, prior to the <actions> tag. For example, to specify German or French encoding:

<?xml version="1.0" encoding="windows-1252"?>

If you are using a batch file, use the chcp command to specify the appropriate language encoding. See Microsoft.com for details.

2 Close the PM module if it is running.

3 From the Windows command line, a batch file, or code, issue a command in the following form from the folder where PM.EXE is located:

PM.EXE /username=<name> [/password=<name>] [/alias=<name>] /actionScript=<path> [/logfile=<path>]

For example:

Parameter	Description
/username=<name>	Required. The username to log in to the PM module.
/password=<name>	Optional. The password for the username, if there is one for the username.
/alias=<name>	Optional. The name of an existing destination database alias. If you do not specify an alias, the most recently accessed alias is used.
/actionScript=<path>	The full path to the actions.xml file you created. Must include the file name.
/logfile=<path>	Optional. The full path for creating the log file that contains processing results. Must include the file name. If you do not specify a log file, the default is c:\<PM.exe folder\PrimaveraCmdLineLog.txt

PM.EXE /username=admin /password=admin /alias=PMDB /actionScript=c:\somefolder\importprojects.xml / logfile:c:\somefolder\myLog.txt

If any values include spaces, enclose the value in double quotes (""). For example:

PM.EXE /username=admin /password=admin /alias=PMDB /actionScript="c:\some folder\importprojects.xml" /logfile="c:\some folder\myLog.txt"

Processing results are written to the log file, or you can echo them to the command line interface. Possible results are:

Code	Description
0	Success.
1	Invalid alias.
2	Invalid username or password.
3	XML file not found.
4	Invalid action type (did not specify CREATE).
5	Insufficient security privileges.
6	Failure while processing the import action. Could include invalid or missing values in the xml file.
214783647	Unhandled exception, including invalid characters.

If the command does not include all the required parameters, the PM module opens.

Importing Roles or Resources

For information about the tables and fields that are converted, see XERRESOURCES.PDF or XERROLES.PDF. These files are available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

The Project Management module enables you to import XER files that contain only roles or resources. You might want to choose this option to add new roles/resources to the resource hierarchy or overwrite the existing role/resource hierarchy. Roles and resources are defined at the global level.

When you import roles and resources, secure codes and secure code assignments related to the roles and resources are not imported. For more information about secure codes, refer to the Primavera P6 Administrator's Guide*.*

If resource security is enabled in the Project Management module, some restrictions apply when importing resources. Refer to the Help for more details.

XER files exported from version 5.0 and subsequent versions of the Project Management module, or from Primavera Contractor 5.0 and 6.1, can be imported into P6 Project Management version 6.2.1.

Select import type and file In the Project Management module, choose File, Import. Choose Primavera PM/MM, then click Next. Choose to import Resource Only or Role Only data. Click Next.
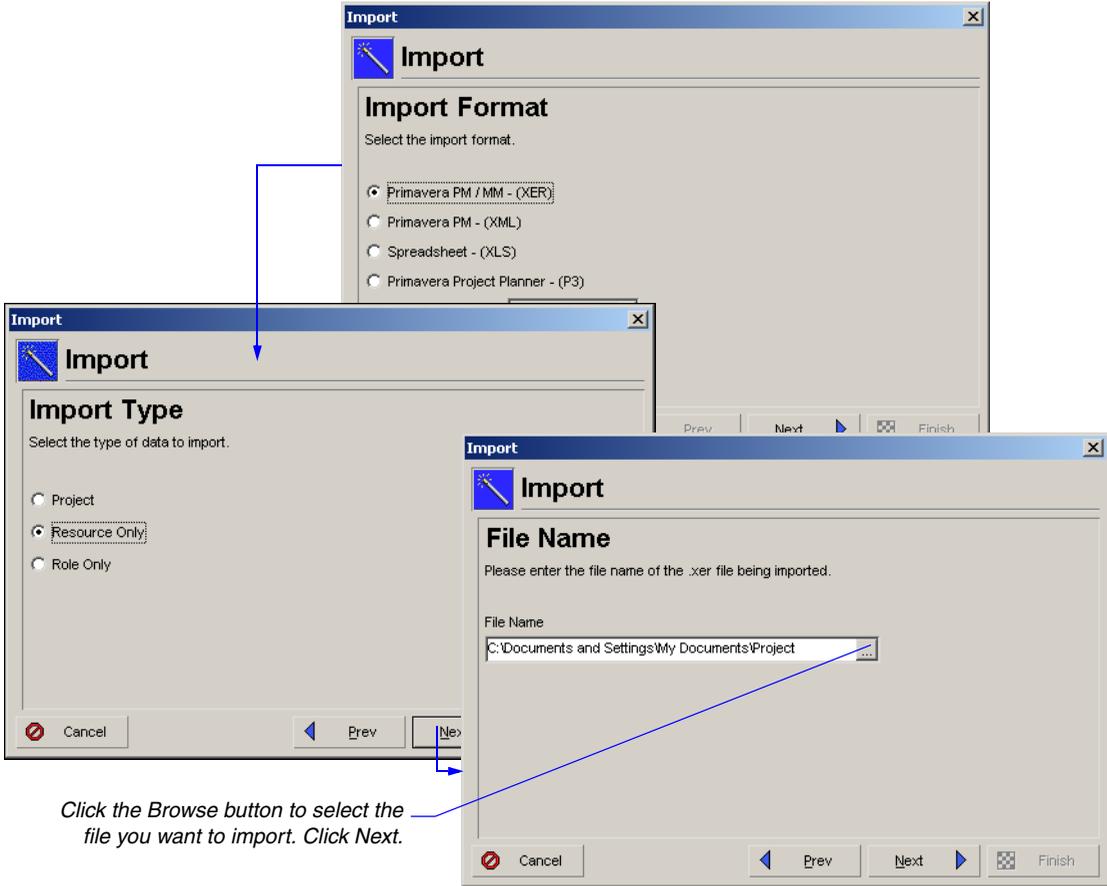
Import

Import

Import Format

Select the import format.

- ⦿ Primavera PM / MM - (XER)
- ○ Primavera PM - (XML)
- ○ Spreadsheet - (XLS)
- ○ Primavera Project Planner - (P3)

Prev   Next ▶ | ▨ Finish

Import

Import

Import Type

Select the type of data to import.

- ○ Project
- ⦿ Resource Only
- ○ Role Only

⊘ Cancel   ◀ Prev   Nex

Import

Import

File Name

Please enter the file name of the .xer file being imported.

File Name

C:\Documents and Settings\My Documents\Project   ...

⊘ Cancel   ◀ Prev   Next ▶ | ▨ Finish

Click the Browse button to select the file you want to import. Click Next.

The data in the import file must match the type being imported. For example, you cannot import resource data from an XER file that contains project data.

Choose update role or resource options Click Next to select a layout configuration to use when importing role or resource data. The options specified in the layout determine how the Project Management module handles role or resource data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

Click to create a new layout configuration.

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when roles/resources are imported. To modify these options, select the layout in the Update Role/ Resource Options dialog box, then click Modify. The Modify Import Configuration dialog box lists the data types for which you can set options. The Delete field does not affect the import of resources or roles. This field applies only to activities, risks, relationships to external projects, and thresholds.

Double-click to select the action to take when duplicate data is encountered.
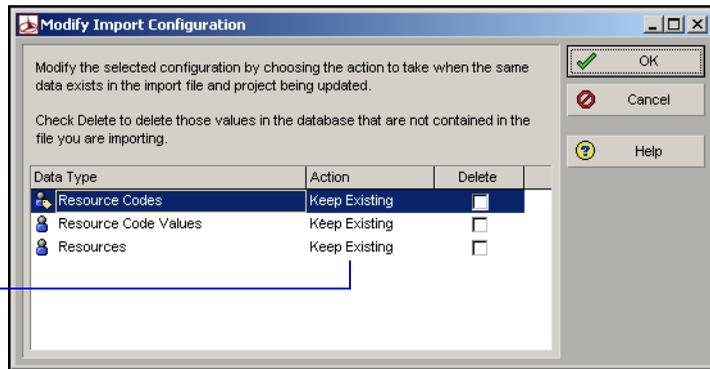
Select one of the following in the Action field to indicate how the roles or resources are updated:

■   **Keep Existing** Retains roles/resources in the global dictionary and does not overwrite them with the updated data; adds new data if the record does not exist.

■   **Update Existing** Overwrites roles/resources in the global dictionary with updated data; adds new data if the record does not exist.

■   **Insert New** Retains roles/resources in the global dictionary and adds any new roles/resources.

Resource assignments to the roles are not included when exporting only roles. To maintain resource role assignments when selecting Insert New, resource data must be exported/ imported.

■   **Do Not Import** Retains existing roles/resources in the global dictionary and does not import the updated roles/resources.

Click OK to save changes to the modified configuration, then click Next.

Select a currency   If the import file does not specify a currency, or if the currency does not match a currency defined in the Project Management module, the Currency Type dialog box appears. Click the Browse button to select a currency that matches the one found in the import file. If your currency is not listed, cancel the Import wizard and add the currency in the Currencies dialog box (Admin, Currencies).

You will not see this dialog box if the import currency is the same as the base currency.

Click Next, then click Finish to import the resources/roles.

Transferring Methodology Data

Methodology data can be transferred between Project Management module users by exporting and importing XER files (Primavera proprietary exchange format). This chapter describes how to use the Export and Import wizards in the Methodology Management module to transfer methodologies between Methodology Management module users, export methodologies to the Project Management module as project plans, and import a project from the Project Management module as a new methodology.

Exporting Methodologies

Methodologies can be transferred from the Methodology Management
module as XER files, Primavera's proprietary exchange format, and
used with any other Methodology Management installation, regardless
of the database type on which it runs.

Use the Export wizard to export methodologies to XER files. Use the
Import wizard to bring XER files into the Methodology Management
module.

> *Although the wizards quickly can back up and restore one or
> more methodologies, they should not be used to back up
> your entire database.*

Select export type and methodology In the Methodology
Management module, open the methodology that you want to export.
Choose File, Export. Choose Methodology, then click Next.

*Choose Methodology as
the export type, then
click Next.*
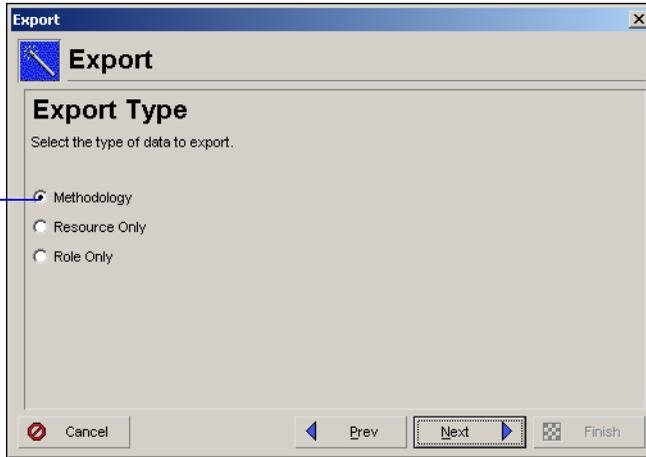
Specify filename and location. Type a name for the XER file. To specify a different location to store the file, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the methodology to a single file with an XER extension.

Exporting Roles or Resources

The Methodology Management module enables you to export roles or resources in your resource hierarchy to XER files. You may want to choose this option to include existing roles or resources in a new database.

Export roles or resource data In the Methodology Management module, choose File, Export. In the Export Type dialog box, choose Resource Only to export resource data, or Role Only to export role data, then click Next.

Choose to export Resource Only data, then click Next,
or . . . choose to export Role Only, then click Next.

Type a name for the XER file. To specify a different location to store the
file, click the Browse button. If you do not specify a folder, the file is
stored in the My Documents folder of the current user. Click Finish to
export the roles or resources to a single file with an XER extension.
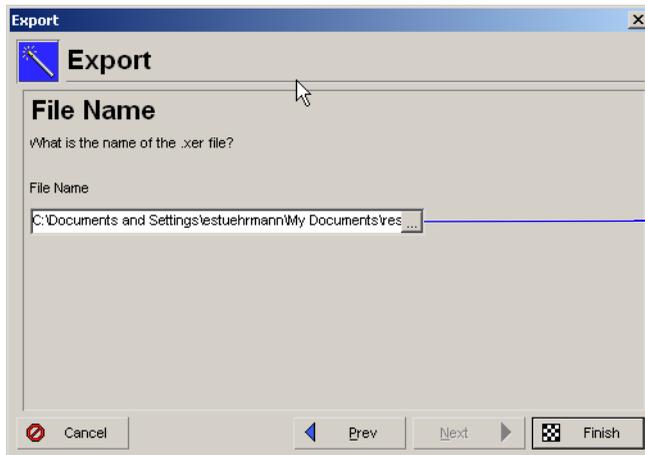
Click to select the location where the file will be stored.

Importing Methodologies

Methodologies can be transferred from the Methodology Management module as XER files, Primavera's proprietary exchange format, and used with any other Methodology Management installation, regardless of the database type on which it runs.

Use the Export wizard to export projects to XER files. Use the Import wizard to bring XER files into the Methodology Management module. The wizards quickly can back up and restore one or more methodologies

Select import type and file In the Methodology Management module, choose File, Import. Choose Methodology, then click Next and choose Methodology.
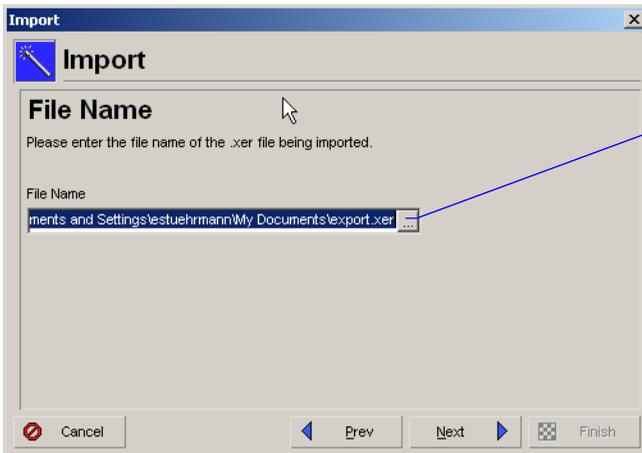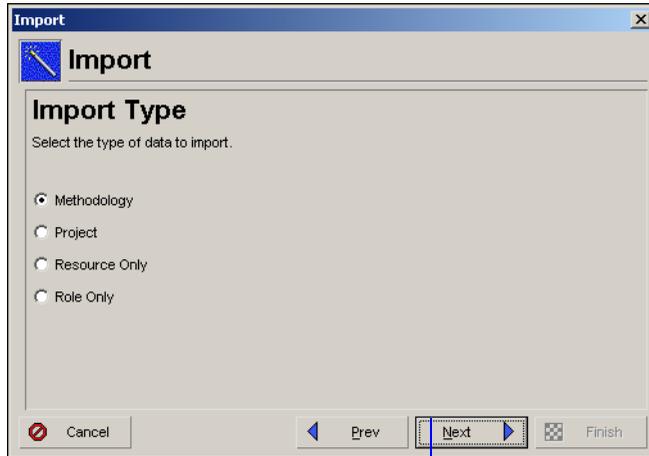
Click the Browse button to select the file you want to import. Click Next.

Select the action to take with the imported data   If you have a methodology open when you import, you are prompted to choose an action. Choose one of the following actions, then click Next:

■   **Create a New Methodology** The existing methodology's data remains the same. A new methodology is created. This action is performed automatically if no methodology is open when you import.

■   **Add into the Current Methodology** You can merge the methodology you are importing within an existing methodology. Click Next, then select a specific WBS level within the methodology. The imported methodology is appended to the selected WBS.

■   **Replace the Current Methodology** The existing methodology is deleted and replaced with the one imported from the XER file.
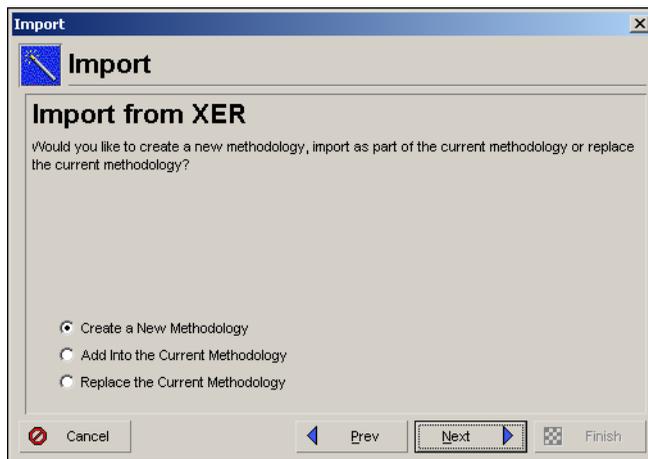
Choose update methodology options Click Next to select a layout configuration to use when importing methodologies. The options specified in the layout determine how the Methodology Management module handles data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

The Update Methodology Options dialog box displays, regardless of the import option you select. For example, if you choose to create a new methodology, you still must select a configuration for importing global data.
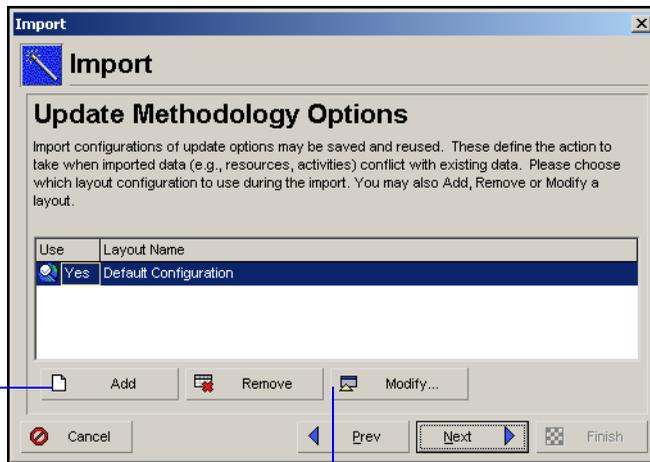
Click to create a new layout configuration.

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when methodologies are imported. To modify these options, select the layout in the Update Methodology Options dialog box, then click Modify.

Mark to delete risks, activities, or activity cores that are in the methodology being updated, but are not included in the import file.

The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data item to remove data that exists in the methodology you are updating, but is not included in the file you are importing. For example, if several activities are defined in the methodology you are updating, but are not included in the file to be imported, mark the checkbox in the Delete column to remove the activities from the methodology being updated.

> *The Delete field applies only to activities, activity cores, and risks. Global data types are not affected by this setting.*

Select one of the following in the Action field to indicate how the data type is updated:

■ **Keep Existing** Retains data in the existing methodology and does not overwrite it with the updated data; adds new data if the record does not exist.

■ **Update Existing** Overwrites data in the existing methodology with data; adds new data if the record does not exist.

■ **Insert New** Retains data in the existing methodology and adds any new data items. For example, if a new role was added in the XER file, but you do not want to change the existing roles, choose Insert New to add the new role to the existing methodology.

■ **Do Not Import** Retains data in the existing methodology and does not import the updated data.

Click OK to save changes to the modified layout configuration. Click Next.

Select a currency If the import file does not specify a currency, or if the currency does not match a currency defined in the Methodology Management module, the Currency Type dialog box appears. Click the Browse button to select a currency that matches the one found in the import file. If your currency is not listed, cancel the Import wizard and add the currency in the Currencies dialog box (Admin, Currencies).

You will not see this dialog box if the import currency is the same as the base currency.

Click Next, then click Finish to import the methodology.

Importing Projects as Methodologies

Project data can be transferred from the Project Management module as XER files (Primavera proprietary exchange format) and imported as a methodology. You can capture the best practices of a successful project by importing the project as a methodology. Use the Export wizard in the Project Management module to export projects to XER files; use the Import wizard in the Methodology Management module to bring XER files in as methodologies.

To import a project as a methodology, the XER file must contain only the project you are importing. XER files exported from Project Management 5.0 and subsequent versions can be imported into the P6 Methodology Management module.

Select import type and file In the Methodology Management module, choose File, Import. Choose Project, then click Next.
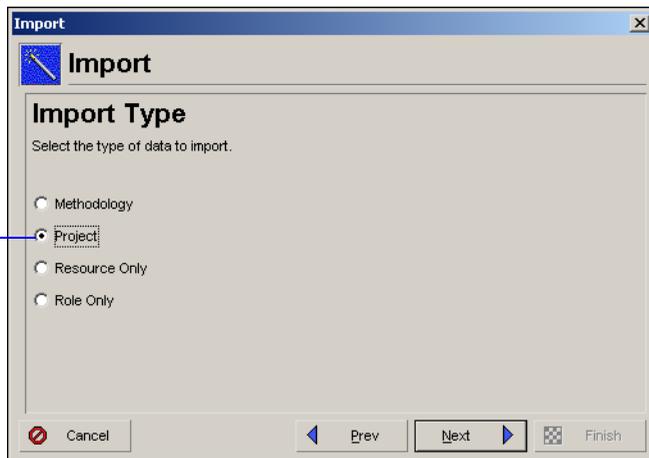
Choose Project as the import type, then click Next.

The data in the import file must match the format being imported. For example, you cannot import a project from an XER file that contains only role or resource data.

Click the Browse button to select the file you want to import. Click Next.
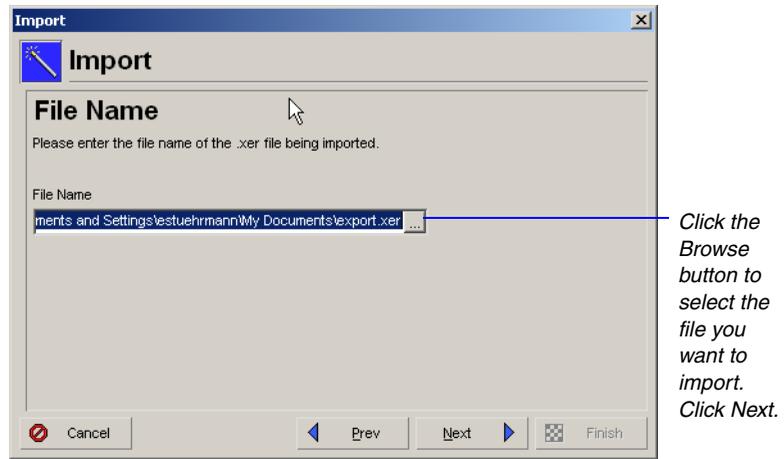
Select action to take with the imported data If you have a methodology open when you import, choose one of the following actions:

■   **Create a New Methodology** The existing methodology's data remains the same. A new methodology is created. This action is performed automatically if no methodology is open when you import.

■   **Add into the Current Methodology** You can merge the methodology you are importing within an existing methodology. Click Next, then select a specific WBS level within the methodology. The imported methodology is appended to the selected WBS.

■   **Replace the Current Methodology** The existing methodology is deleted and replaced with the one imported from the XER file.
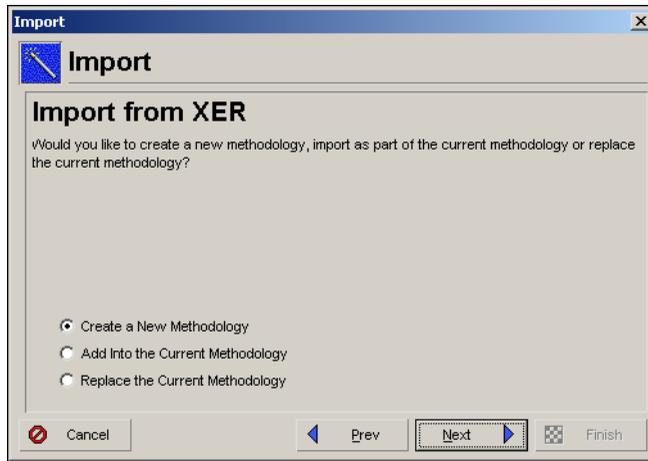
Select the source data for estimates You use either the actual effort and cost data from the project or the project's planned data as the basis of the methodology's effort and cost estimates.

Choose update project options Click Next to select a layout configuration to use when importing project data. The options specified in the layout determine how the Methodology Management module handles data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

The Update Project Options dialog box appears, regardless of the import option you select. For example, if you choose to create a new methodology, you still must select a configuration for importing global data.

Click to create a new layout configuration.

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when projects are imported. To modify these options, select the layout in the Update Project Options dialog box, then click Modify.

Mark to delete risks, activities, or activity cores that are in the methodology being updated, but are not included in the import file.

The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data item to remove data that exists in the methodology you are updating, but is not included in the file you are importing. For example, if several activities are defined in the methodology you are updating, but are not included in the file to be imported, mark the checkbox in the Delete column to remove the activities from the methodology being updated.

> *The Delete field applies only to activities, activity cores, and risks. Global data types are not affected by this setting.*

Select one of the following in the Action field to indicate how the data type is updated:

- **Keep Existing** Retains data in the existing methodology and does not overwrite it with the updated data; adds new data if the record does not exist.

- **Update Existing** Overwrites data in the existing methodology with updated data; adds new data if the record does not exist.

- **Insert New** Retains data in the existing methodology and adds any new data items. For example, if a new role was added in the XER file, but you don't want to change the existing roles, choose Insert New to add the new role to the existing methodology.

- **Do Not Import** Retains data in the existing methodology and does not import the updated data.

Click OK to save changes to the modified layout configuration. Click Next.

Select a currency If the import file does not specify a currency, or if the currency does not match a currency defined in the Methodology Management module, the Currency Type dialog box appears. Click the Browse button to select a currency that matches the one found in the import file. If your currency is not listed, cancel the Import wizard and add the currency in the Currencies dialog box (Admin, Currencies).

> *You will not see this dialog box if the import currency is the same as the base currency.*

Click Next, then click Finish to import the project.

Importing Roles or Resources

The Methodology Management module enables you to import XER files that contain only roles or resources. You may want to choose this option to add new roles/resources to the resource hierarchy or overwrite the existing role/resource hierarchy. Roles and resources are defined at the global level.

XER files exported from Project Management 5.0 and subsequent versions can be imported into the P6 Methodology Management module.

Select import type and file In the Methodology Management module, choose File, Import. Choose Resource Only to import resource data, or Role Only to import role data, then click Next.
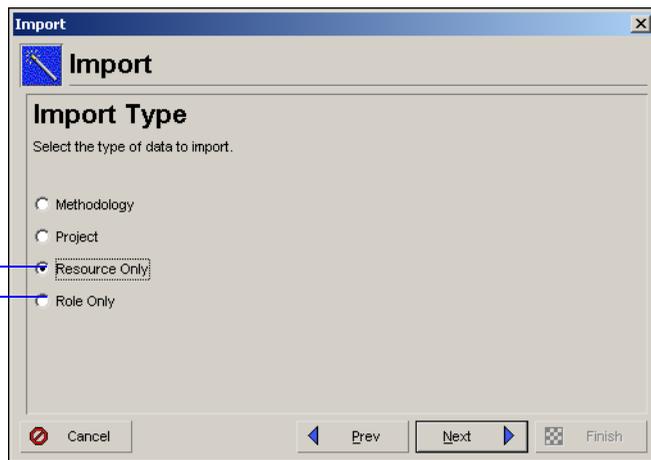
Choose Resource Only or Role Only, then click Next.

Click the Browse button to select the file you want to import. Click Next.

The data in the import file must match the format being imported. For example, you cannot import resource data from an XER file that contains project data.

Choose update role or resource options Click Next to select a layout configuration to use when importing role or resource data. The options specified in the layout determine how the Methodology Management module handles role or resource data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

Click to create a new layout configuration.

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when roles/resources are imported. To modify these options, select the layout in the Update Role/Resource Options dialog box, then click Modify. The Modify Import Configuration dialog box lists the data types for which you can set options. The Delete field does not affect the import of resources or roles. This field applies only to activities, risks, and activity cores.
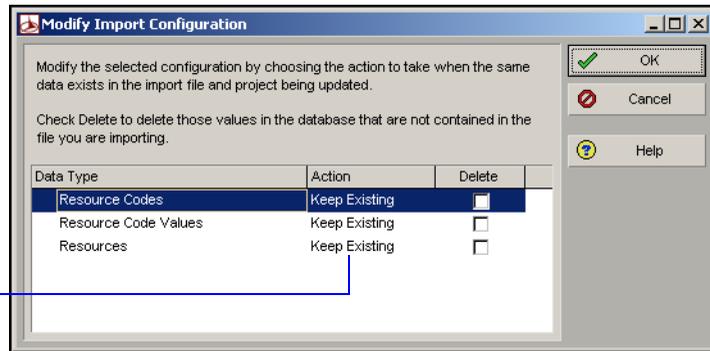
Double-click to select the action to take when duplicate data is encountered.

Select one of the following in the Action field to indicate how the roles or resources are updated:

■ **Keep Existing** Retains roles/resources in the global dictionary and does not overwrite them with the updated data; adds new data if the record does not exist.

■ **Update Existing** Overwrites roles/resources in the global dictionary with updated data; adds new data if the record does not exist.

■ **Insert New** Retains existing roles/resources in the global dictionary and adds any new roles/resources.

Resource role assignments are not included when exporting only roles. To maintain the resource role assignments when selecting Insert New, resource data must be exported/ imported.

■ **Do Not Import** Retains roles/resources in the existing global dictionary and does not import the updated data.

Click OK to save changes to the modified layout configuration. Click Next.

Select a currency If the import file does not specify a currency, or if the currency does not match a currency defined in the Methodology Management module, the Currency Type dialog box appears. Click the Browse button to select a currency that matches the one found in the import file. If your currency is not listed, cancel the Import wizard and add the currency in the Currencies dialog box (Admin, Currencies).

You will not see this dialog box if the import currency is the same as the base currency.

Click Next, then click Finish to import the roles/resources.

Transferring Data Using Microsoft Project Files

Use the Microsoft Project import and export options to transfer project and resource information between the Project Management module and Microsoft Project 2002 or a more recent version.

Project Management shares data with Microsoft Project 2002, 2003, and 2007 via Microsoft Project XML files. Microsoft Project is not required to be installed on the same computer as Project Management to import XML files.

You can also use the Microsoft Project option to import or export MPX files, which integrate with third-party applications that support MPX versions 4.0 and 4.1.

This chapter describes how to use the Export and Import wizards to share information using the Microsoft Project format.

Exporting Projects

For information about the fields that are converted, see **MSPMAPPINGS.PDF** or **MPXMAPPINGS.PDF**. These files are available from the Primavera Documentation Center, which is located in the **\Documentation\ <language>** folder of the P6 physical media or download.

Exporting project data from Project Management to an MPX, MPP, or XML format allows you to import the file into Microsoft Project. MPX files can also be imported into other software applications that support the MPX format. The Export wizard guides you through the steps for exporting projects. You can convert multiple projects at a time to MPX, MPP, or XML formats.

When you export project data, secure codes and secure code assignments related to the project are not exported. For more information about secure codes, refer to the Primavera P6 Administrator's Guide.

The Project Management module does not export past period actual data to Microsoft Project.

For additional export considerations regarding manual assignment values (manual curves), refer to the Project Management module Help.

Microsoft's actual units for manual assignments, referred to as manual curves, are not imported to Project Management when using the Microsoft XML format. The total actual units are imported and spread linearly.

To export manual assignment values to MPP format, you are required to have installed Microsoft Project 2000 or a subsequent version. Microsoft provides a conversion utility to upgrade your to Microsoft Project 2002. For more information, refer to http://www.microsoft.com/downloads.

If you plan to exchange project data containing manual assignment values with Microsoft Project, you can achieve the most accurate conversion results using Microsoft Project 2003 or 2007. For more information on manually planning future period assignments, refer to "Manually Planning Future Period Assignments" *on page 235 or the Project Management module* Help.

Select export type and project In the Project Management module, open the projects that you want to export. Choose File, Export. Choose Microsoft Project and select the type of file to which you want to export, then click Next.

Microsoft Project's MPX file format does not support resource curves. If the projects you export contain resource curves or manual assignment values, such as manual curves, select a different export file format to retain these values. Manual curves are not imported to Project Management when using the Microsoft XML format.

You are required have installed Microsoft Project 2002 or a subsequent version on your computer to export to MPP format.

Suspend and resume dates can only be exported to MPP format.

You can export to MPX, MPP, XML 2002/ 2003, or XML 2007 formats. The file formats displayed in the pull-down menu are based on the version of Microsoft Project you have installed on your computer. If a version of Microsoft Project or another application that supports the MPP format is installed, it will cause MPP to be displayed in the list.

Choose Project as the export type, then click Next.
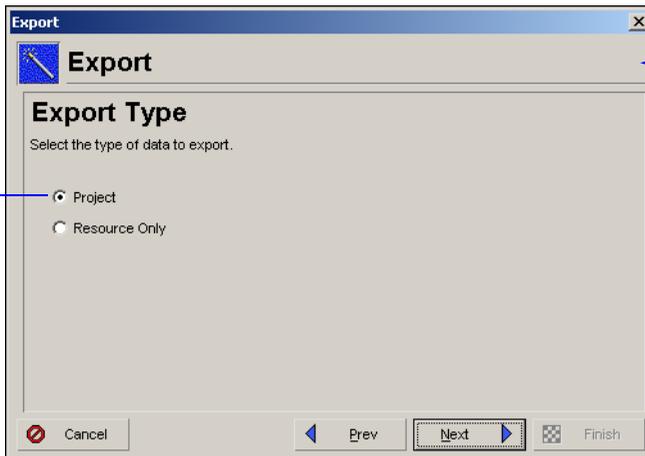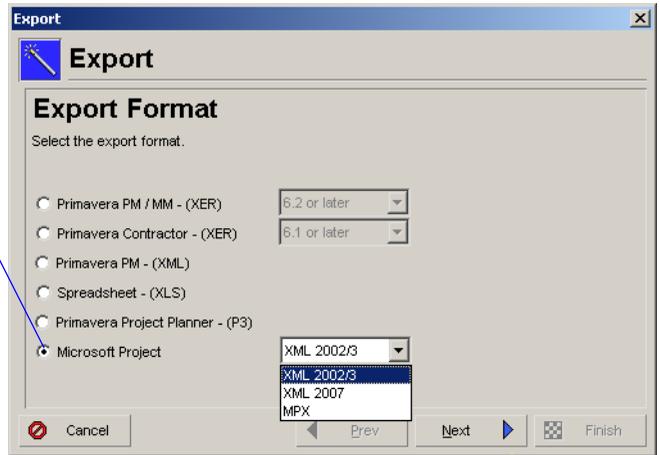
By default, all projects are selected in the Project to Export screen. Clear the Export checkbox next to each project that should not be exported. Double click in the Export File Name field if you want to change the name and location of the Microsoft Project file. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Next.
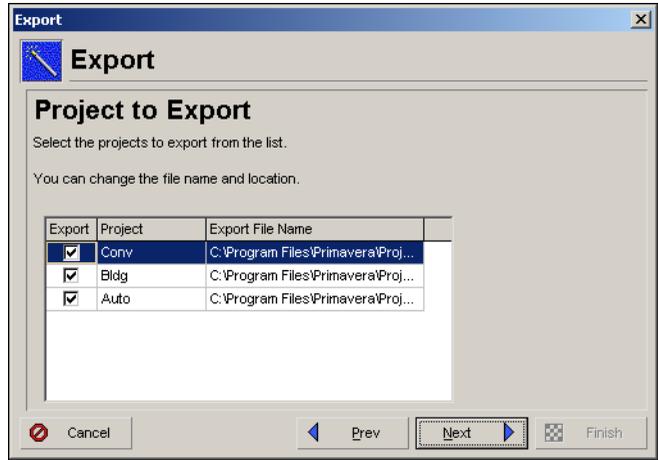
Modify template options Add a new template or modify the existing template, which contains options for exchanging data with Microsoft Project.
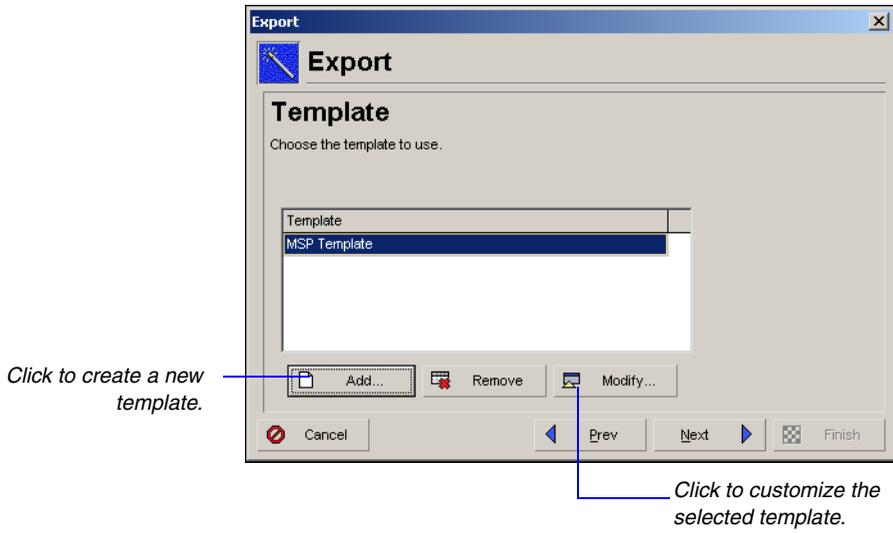
*Click to create a new template.*

Click to customize the selected template.

Click the General tab in the Modify Template dialog box. If you previously selected to export to XML format, the following screen is displayed.

In the Select a currency field, click the button. In the Select Currency dialog box, select the type of currency used for expressing project and activity costs.
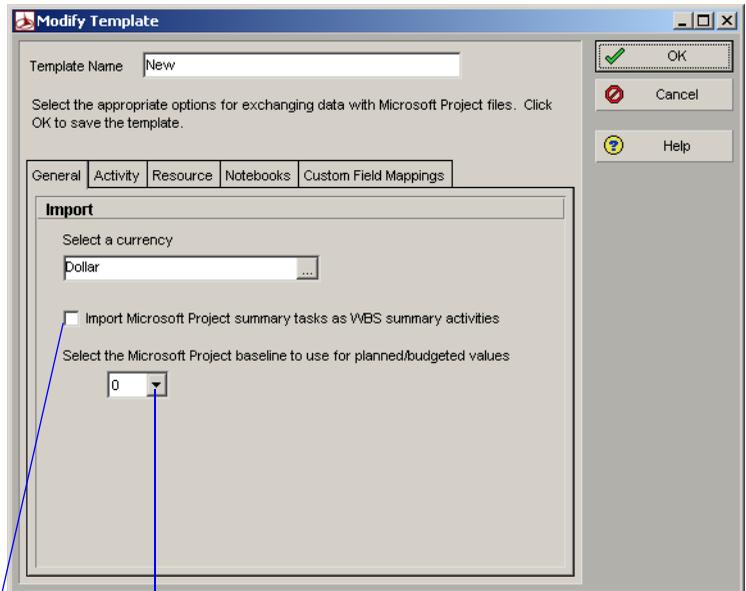
Select one of the 10 Microsoft Project baselines to export for planned and budgeted values. Selecting 0 indicates the current baseline.

Mark to import Microsoft Project summary tasks as WBS summary activities.

If you previously selected to export to MPP or MPX format, the following screen is displayed.

In the Select a currency field, click the button. In the Select Currency dialog box, select the type of currency used for expressing project and activity costs.
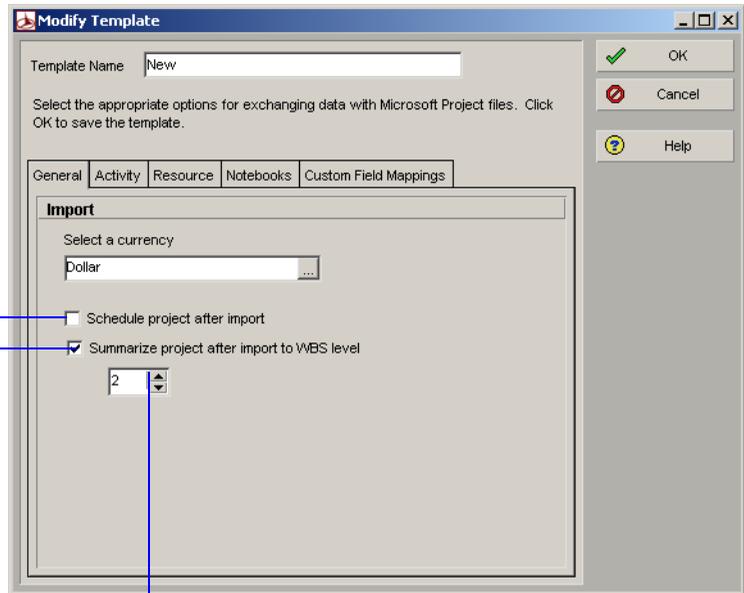
Select one of the 10 Microsoft Project baselines to export for planned and budgeted values. Selecting 0 indicates the current baseline.

Mark the check box to summarize the project to the WBS level after the import.

Mark the check box to schedule the project after the import.

Click the Activity tab in the Modify Template dialog box. In the Export section, choose the text field to which to export the Activity ID from the Project Management module. If you choose not to export the Activity ID to a text field in Microsoft Project, in which case, the checkbox is not marked, the Project Management Activity ID is not exported to Microsoft Project.

From the pull-down menu, you can select up to 30 task IDs.
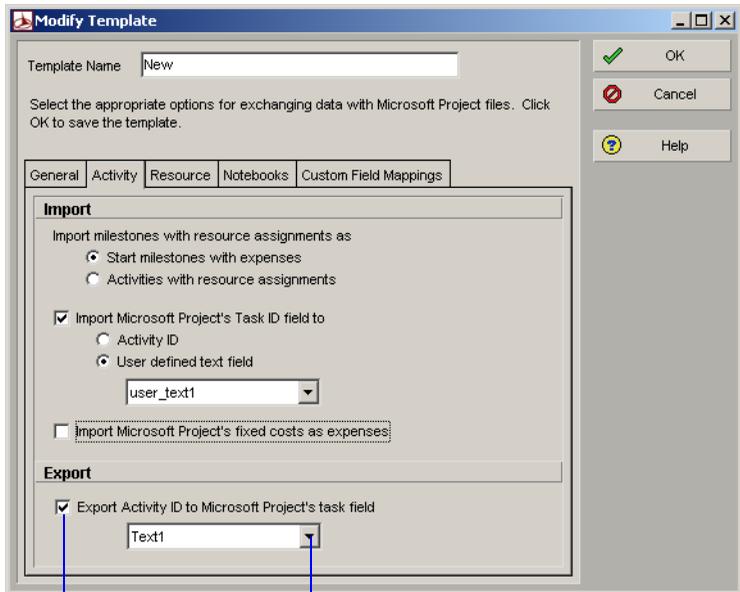
Mark to export activity IDs to Microsoft Project's task field.

Click the Notebooks tab in the Modify Template dialog box. Notebook fields are defined in the Project Management module in Admin Categories (choose Admin, Admin Categories, then click the Notebook Topics tab). These notebook fields can be exported to project, WBS, and activity notes fields in Microsoft Project.

Mark to export all notebook topics defined in the Project Management module. Otherwise, only the notebooks selected for the Project, WBS, and Activity notes are exported.
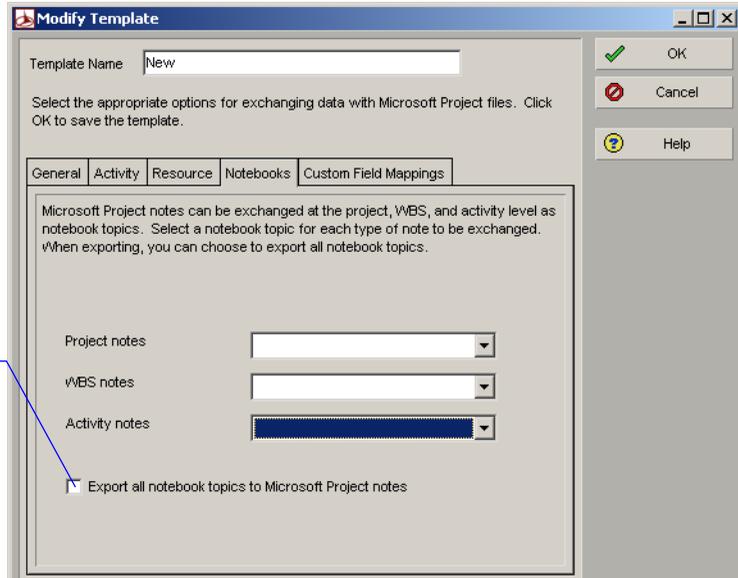
Click the Custom Field Mappings tab in the Modify Template dialog box. To export your user-defined fields to a particular Microsoft Project field, select the user-defined field in the Project Management Field column.

You can map custom fields defined for WBS, projects, resources, activities, or activity resource assignments.
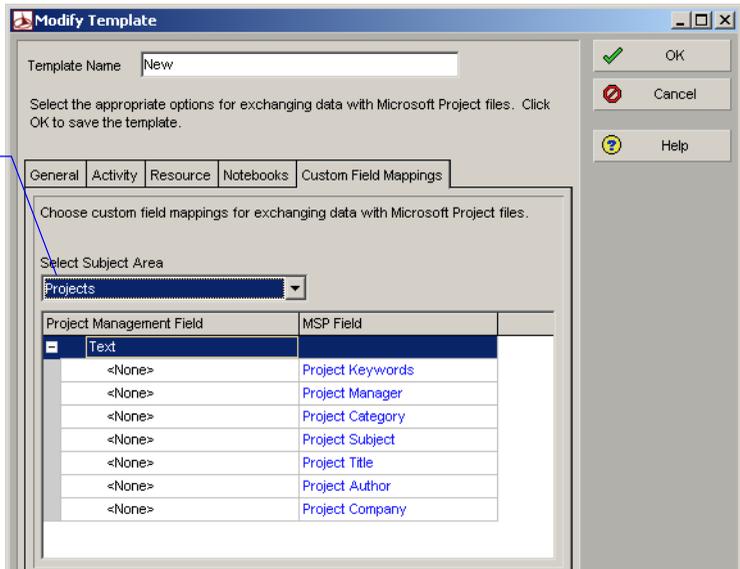
Click OK to save your modifications to the template. Click Next to review the settings for your export, then click Finish.

WBS Summary activities in the Project Management module convert to Summary Tasks in Microsoft Project.

MPX and MPP formats have separate template options.

Exporting Resources

For information about the
fields that are converted,
see MSPMAPPINGS.PDF or
MPXMAPPINGS.PDF. These
files are available from the
Primavera Documentation
Center, which is located in
the \Documentation\
<language> folder of the
P6 physical media or
download.

The Project Management module enables you to export only the
resources in your resource hierarchy. When you export the Project
Management module's resource data to MPX or MPP format, you can
import the file into Microsoft Project. MPX files can also be imported
into other software applications that support the MPX format. The
Export wizard guides you through the steps for exporting resources.

*When you export resources, secure codes and secure code
assignments related to the resources are not exported.
For more information about secure codes, refer to the*
Primavera P6 Administrator's Guide.

Export resource data In the Project Management module, choose
File, Export. Choose Microsoft Project and select the type of file to
which you want to export, then click Next.

*You are required to have Microsoft Project 2002 or a more
recent version installed on your computer to export to MPP
format.*

You can export resource data to MPX.
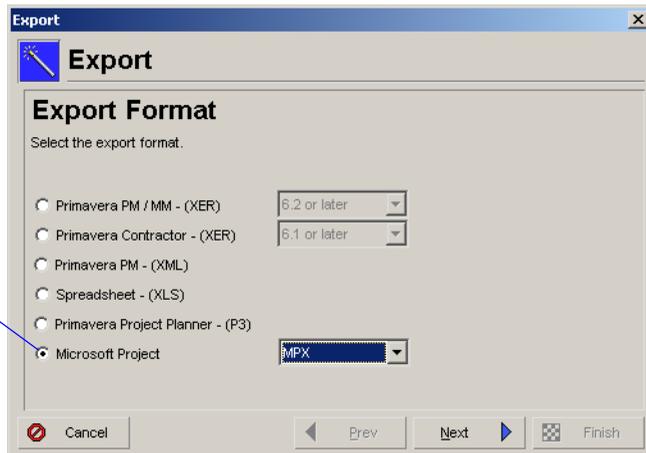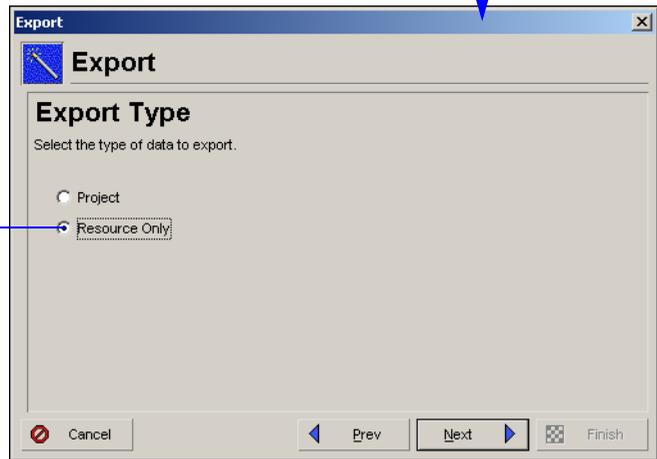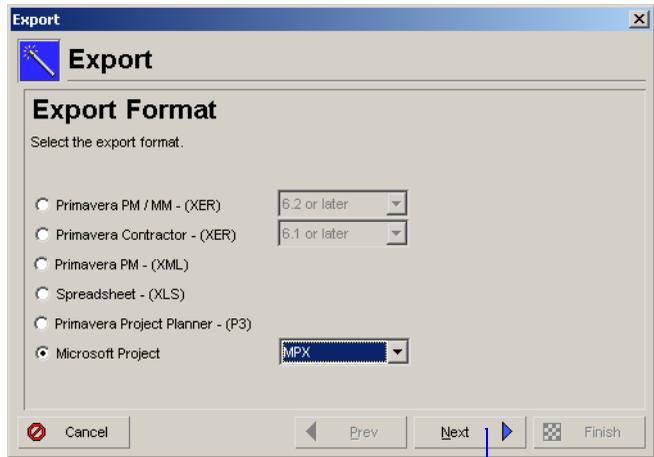
*Choose Resource Only as the
export type, then click Next.*

Type a name for the MPX or MPP file. To specify the location where the file will be stored, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user.
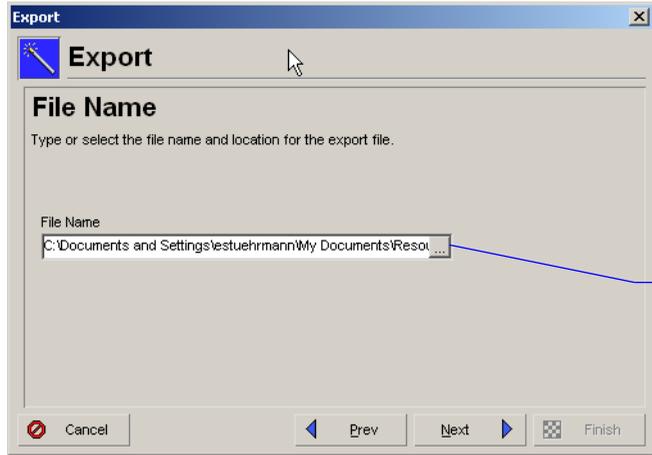
Click to select the location where the file will be stored.

Modify template options Add a new template or modify the existing template, if necessary. The template contains options for exchanging data with Microsoft Project.
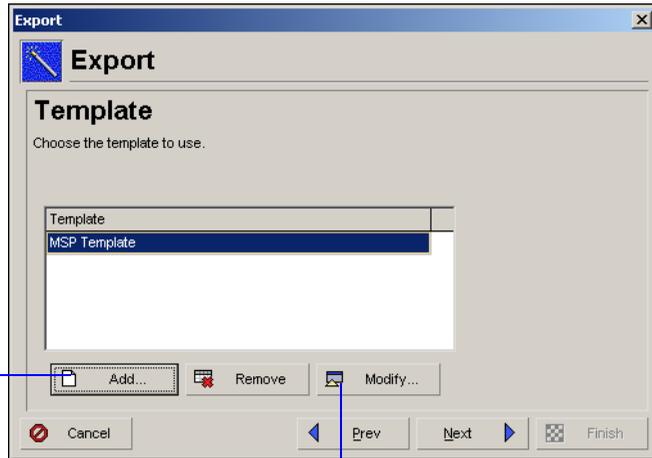
Click to create a new template.

Click to customize the selected template.

Click the Resources tab in the Modify Template dialog box. Choose to import Microsoft Project fields by the resource's name or initials, to manage existing resources, or to import a resource to be displayed under a specific resource in the Microsoft Project resource tree.

Select to import the Resource ID by the resource's name or initials.
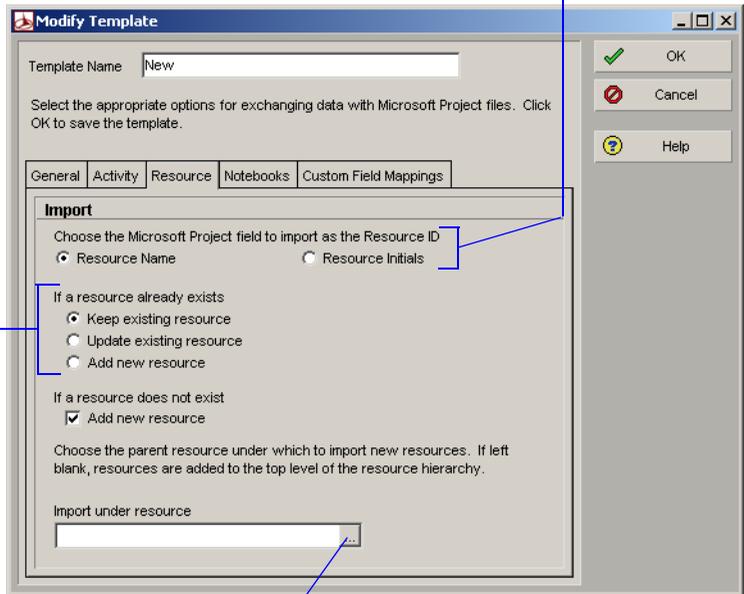
Modify Template   _ □ X

Template Name   New

Select the appropriate options for exchanging data with Microsoft Project files. Click OK to save the template.

✓ OK

Ø Cancel

? Help

General | Activity | Resource | Notebooks | Custom Field Mappings

Import

Choose the Microsoft Project field to import as the Resource ID
● Resource Name   ○ Resource Initials

If a resource already exists
  ● Keep existing resource
  ○ Update existing resource
  ○ Add new resource

If a resource does not exist
  ☑ Add new resource

Choose the parent resource under which to import new resources. If left blank, resources are added to the top level of the resource hierarchy.

Import under resource

[   ] [..]

Opens the Select Resource dialog box in which you can search for and select a specific resource under which to import a resource.

If an imported resource already exists, you can select to keep it in its current form, update it, or include it as a new resource.

Click the Custom Field Mappings tab in the Modify Template dialog box. Choose Resources from the drop down list. To export your user-defined fields to a particular Microsoft Project field, select the user-defined field in the Project Management Field column.
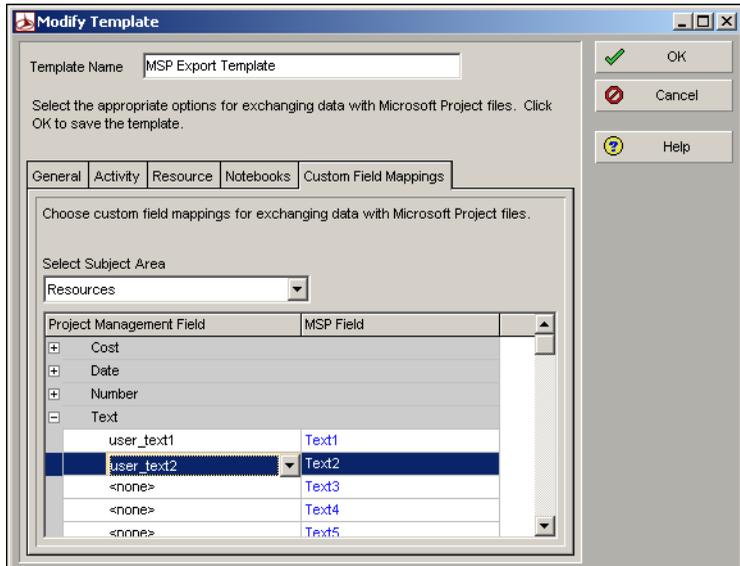
Click OK to save your modifications to the template. Click Next to review the settings for your export, then click Finish to export the resources to a single file with an MPX or MPP extension.

Importing Projects from Microsoft Project

For information about the fields that are converted, see MSPMAPPINGS.PDF or MPXMAPPINGS.PDF. These files are available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Transferring data from Microsoft Project to the Project Management module is determined by the version of Microsoft Project you use. You can import the following file types:

■   MPX files Microsoft Project or similar applications

■   MPP files from Microsoft Project 2002 and 2003

■   MSP XML files from Microsoft Project 2002, 2003, and 2007.

To import XML or MPX files, Microsoft Project is not required to be installed on your computer. The Import wizard guides you through the steps for importing projects.

> *When you import project data, secure codes and secure code assignments related to the project are not imported. For more information about secure codes, refer to the* Primavera P6 Administrator's Guide*.*

> *For users importing MPX files, review the export table in Microsoft Project before you generate the MPX file. The default export table settings in Microsoft Project do not contain some data fields supported by the MPX format.*
>
> *For example, assume you have a custom field mapped to the task field Start1. By default, Start1 is not included in the Microsoft Project export table. In this case, you must add the Start1 field to the export table to accurately generate and import the MPX file.*
>
> *For third-party MPX tools, refer to the vendors' documentation for information on how to export additional data fields. Refer to the Microsoft Project online help to learn how to edit the export table.*

> *If your Microsoft Project software is not activated, you are prompted to activate the software through the Microsoft Office Activation Wizard the first time you attempt to export data from MS Project to the Project Management module (by selecting File, Export, in MS Project). You are required to activate Microsoft Project the first time you are prompted, otherwise, the import will not be successful.*

Microsoft Jet 4.0 users are required to install Service Pack 6. Import errors may occur on computers running Microsoft Jet 4.0 Service Pack 5 or earlier.

If resource security is enabled in the Project Management module, certain restrictions apply when importing activity resource assignments. Refer to the Help for more details.

Select import type and file Choose File, Import. Choose Microsoft Project, then click Next.

You can import MPX, MPP, XML 2002/2003, or XML 2007 formats. The file formats displayed in the pull-down menu are based on the version of Microsoft Project you have installed on your computer. If a version of Microsoft Project or another application that supports the MPP format is installed, it will cause MPP to be displayed in the list.

Note: If you select the XML option in the Import Format screen, the Import Type screen is not displayed.

Choose Project as the import type, then click Next.

Project and Resource Only buttons become available when XML, MPX, or MPP is selected.

The Summary Only button becomes available when XML or MPP is selected.
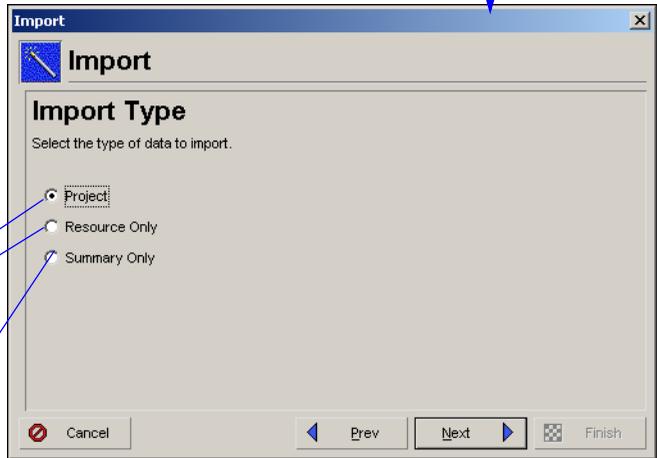
Click Select to choose the files you want to import. If a password has been set on the Microsoft Project file, enter the password to ensure that the project will be imported.

Suspend and resume dates can only be imported from MPP files (not MPX files). When an activity contains multiple suspend and resume dates in Microsoft Project, the first suspend and resume dates (split task dates in Microsoft Project) are imported into the Project Management module. Any remaining suspend and resume dates are ignored.

Double click the Import Action field to select how the Microsoft Project file should be imported:

■   **Create New Project** The existing project's data remains the same. A new project is created. Select the level of the EPS at which the project should be imported. Click the Browse button in the Import To field to select an EPS node.

■   **Add into Existing Project** Click the Browse button in the Import To field to select a specific WBS level within an existing project. The imported project is appended to the selected WBS. The existing project must be open in the Project Management module.

■   **Replace Existing Project** The existing project is deleted without preserving information and replaced with the project imported from the Microsoft Project file. Click the Browse button in the Import To field to select the project to replace. The existing project must be open in the Project Management module.

Baselines and timesheets assigned to projects are deleted when you select the Replace Existing Project import option.

For additional import considerations related to manual assignment values (manual curves), refer to the Project Management module Help.

The MPX file format does not support time-phased data, and therefore, does not support manual assignment values (manual curves). When you import an MPX file, if you choose the Replace Existing import action and the project you are replacing contains manual assignment values, all manual values will be deleted.

Organizations using Primavera ProjectLink cannot import MSP-managed projects when selecting Add into Existing Project or Replace Existing Project in the Project Management module. For more information on ProjectLink, click Help on any ProjectLink screen to access the Primavera ProjectLink Help in Microsoft Project (available only if ProjectLink is installed).
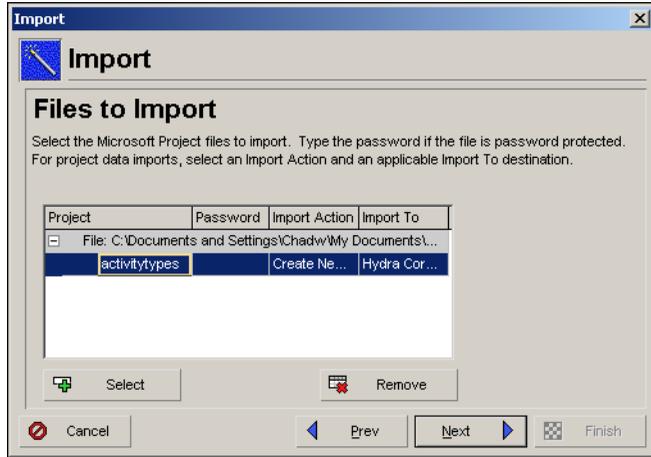
Modify template options Add a new template or modify the existing template (if necessary). The template contains options for exchanging data with Microsoft Project.
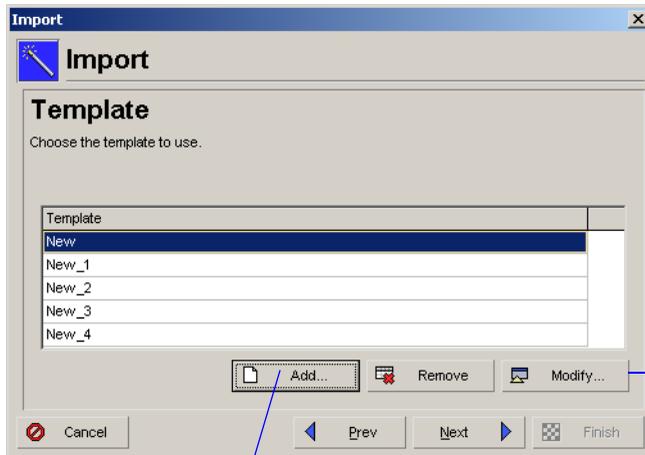
Click to create a new template.

Click to customize the selected template.

Click the General tab in the Modify Template dialog box. If you previously selected to import XML format, the following screen is displayed.

In the Select a currency field, click the button. In the Select Currency dialog box, select the type of currency used for expressing project and activity costs.
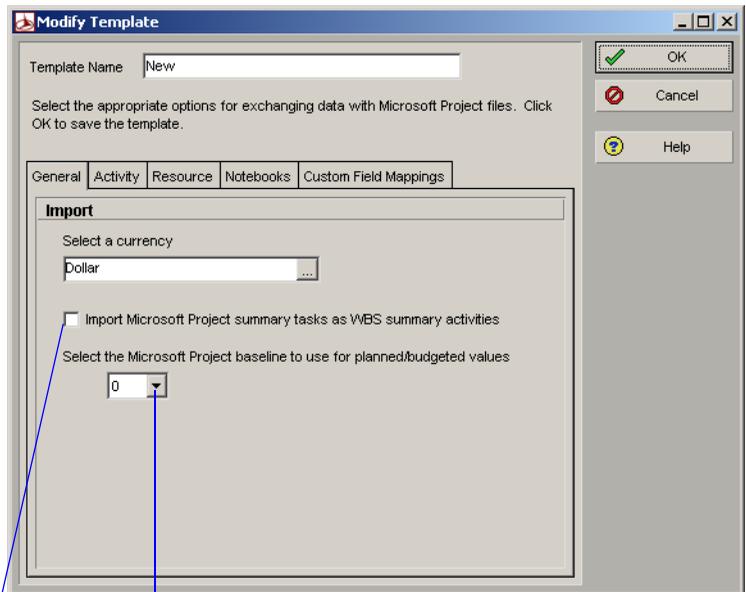
Select one of the 10 Microsoft Project baselines to export for planned and budgeted values. Selecting 0 indicates the current baseline.

Mark to import Microsoft Project summary tasks as WBS summary activities.

If you previously selected to import MPP or MPX format, the following screen is displayed.

In the Select a currency field, click the button. In the Select Currency dialog box, select the type of currency used for expressing project and activity costs.

Select one of the 10 Microsoft Project baselines to export for planned and budgeted values. Selecting 0 indicates the current baseline.

Mark the check box to summarize the project to the WBS level after the import.

Mark the check box to schedule the project after the import.

Click the Activity tab in the Modify Template dialog box. In the Import section, choose how you want to import milestone activities that have resource assignments. You can import them into the Project Management module as Start Milestone activities with associated expenses, or as Task Dependent activities with associated resource assignments. Then, choose to import the Task ID from Microsoft Project to the Activity ID field in the Project Management module or to a selected user-defined text field. Select if you want to import MSP's fixed costs as project expenses. If you do not choose this option, fixed costs are not imported.

If you choose this option but DO NOT select the 'Import Microsoft Project's fixed costs as expenses' option, the milestones are imported but expenses associated with the start milestones are not.

If you choose not to import the Task IDs from Microsoft Project, the Project Management module creates Activity IDs for each activity.

Unmark this checkbox if you do not want to import expenses.

The fields are relevant for export only.

Click the Resource tab in the Modify Template dialog box. Choose whether you want to import the Resource Initials or the Resource Name from Microsoft Project to the Resource ID field in the Project Management module.

■   If you select Resource Initials, only one resource is imported if multiple resources in Microsoft Project use the same initials.

■   If you select Resource Name, up to the first 20 characters of the name are imported (based on your setting in the Admin Preferences, ID Lengths tab in the Project Management module). If multiple resources in Microsoft Project use the same characters up to the specified ID Length, only one resource is imported.

Choose how to handle resources that already exist in the project management module database but are also contained in the Microsoft Project import file.

■   **Keep existing resource** Retains the resource in the project management database and does not overwrite it with the resource from the Microsoft Project file.

■   **Update existing resource** Overwrites the resource in the project management database with the resource from the Microsoft Project file.

■   **Add new resource** Retains the resource in the project management database but also adds the resource from the Microsoft Project file.

Choose whether you want to add a new resource if the resource does not already exist in the project management module database but is contained in the Microsoft Project import file. Then, select the level of the hierarchy at which resources should be imported. Click the Browse button, then select the resource under which to place all resources from the Microsoft Project file.

Select to import the Resource ID by the resource's name or initials.

Opens the Select Resource dialog box in which you can search for and select a specific resource under which to import a resource.

If an imported resource already exists, you can select to keep it in its current form, update it, or include it as a new resource.

Click the Notebooks tab in the Modify Template dialog box. Project, WBS, and activity notes from Microsoft Project are imported into Notebook fields in the Project Management module. Notebook fields are defined in the Project Management module in Admin Categories (choose Admin, Admin Categories, then click the Notebook Topics tab). Select the Notebook fields into which you want to import the Microsoft Project notes.

Modify Template		□ X
		✓ OK
Template Name MSP Import Template		⊘ Cancel
Select the appropriate options for exchanging data with Microsoft Project files. Click OK to save the template.		? Help

General | Activity | Resource | Notebooks | Custom Field Mappings

Microsoft Project notes can be exchanged at the project, WBS, and activity level as notebook topics. Select a notebook topic for each type of note to be exchanged. When exporting, you can choose to export all notebook topics.

Project notes   Project Objectives ▼

WBS notes   WBS Description ▼

Activity notes   Review Comments ▼

☐ Export all notebook topics to Microsoft Project notes

Click the Custom Field Mappings tab in the Modify Template dialog box. You can import information from Microsoft Project into user-defined fields in the Project Management module. For each Microsoft Project field you want to import, select a user-defined field in the Project Management Field column.

You can map Microsoft Project fields to user-defined fields related to WBS, projects, resources, activities, or activity resource assignments.
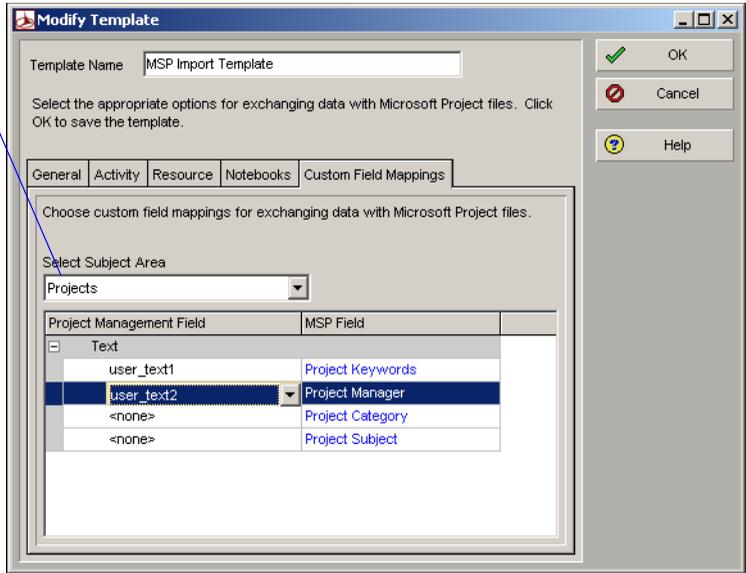
Click OK to save your modifications to the template. Click Next to review your import settings, then click Finish to import the Microsoft Project files.

Summary Tasks in Microsoft Project import as WBS Summary activities in the Project Management module.

Importing Resources from Microsoft Project

For information about the fields that are converted, see MSPMAPPINGS.PDF or MPXMAPPINGS.PDF. These files are available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

Transferring data from Microsoft Project to the Project Management module is determined by the version of Microsoft Project you use. You can import the following file types:

■ MPX files Microsoft Project or similar applications

■ MPP files from Microsoft Project 2002 and 2003

The Import wizard guides you through the steps for importing resources.

> *When you import resources, secure codes and secure code assignments related to the resources are not imported. For more information about secure codes, refer to the* Primavera P6 Administrator's Guide.

> *If resource security is enabled in the Project Management module, certain restrictions apply when importing resources. Refer to the Help for more details.*

> *Microsoft Jet 4.0 users should install Service Pack 6. Import errors may occur on computers running Microsoft Jet 4.0 Service Pack 5 or earlier.*

Select import type and file Choose File, Import. Choose Microsoft Project, then click Next.

You can import MPX, MPP, XML 2002/2003, or XML 2007 formats. The file formats displayed in the pull-down menu are based on the version of Microsoft Project you have installed on your computer. If a version of Microsoft Project or another application that supports the MPP format is installed, it will cause MPP to be displayed in the list.

Note: If you select the XML option in the Import Format screen, the Import Type screen is not displayed.

The Import Type screen is available for MPX and MPP formats, only. The screen contains the following options:

Choose Project as the import type, then click Next.

Project and Resource Only buttons become available when XML, MPX, or MPP is selected.

The Summary Only button becomes available when XML or MPP is selected.

Click Select to choose the files you want to import. If there is a password on the Microsoft Project file, type the password. If you do not enter a password on a protected file, the resources will not be imported.
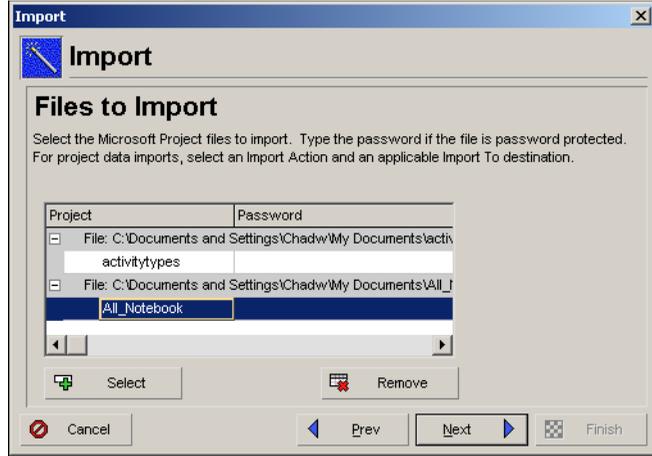
Modify template options Add a new template or modify the existing template (if necessary). The template contains options for exchanging data with Microsoft Project.
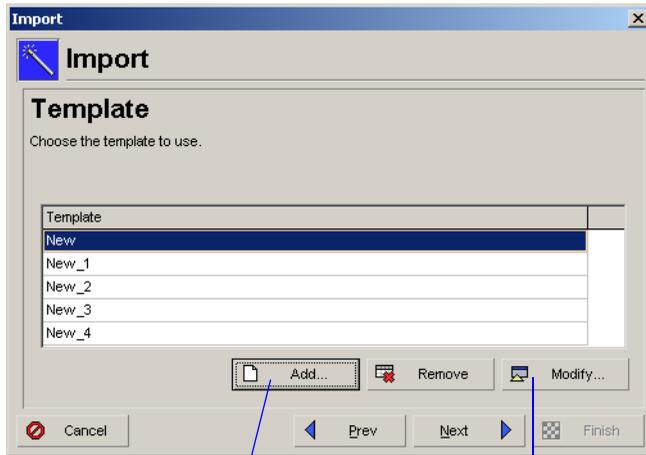
Click to customize the
selected template.

Click to create a new template.

Click the General tab in the Modify Template dialog box. The following screen is displayed, supporting the MPP or MPX options.

In the Select a currency field, click the button. In the Select Currency dialog box, select the type of currency used for expressing project and activity costs.

Select one of the 10 Microsoft Project baselines to export for planned and budgeted values. Selecting 0 indicates the current baseline.

Mark the check box to summarize the project to the WBS level after the import.

Mark the check box to schedule the project after the import.

Click the Activity tab in the Modify Template dialog box. In the Import section, choose how you want to import milestone activities that have resource assignments. You can import them into the Project Management module as Start Milestone activities with associated expenses, or as Task Dependent activities with associated resource assignments. Then, choose to import the Task ID from Microsoft Project to the Activity ID field in the Project Management module or to a selected user-defined text field. Select if you want to import MSP's fixed costs as project expenses. If you do not choose this option, fixed costs are not imported.

If you choose this option but DO NOT select the 'Import Microsoft Project's fixed costs as expenses' option, the milestones are imported but expenses associated with the start milestones are not.

If you choose not to import the Task IDs from Microsoft Project, the Project Management module creates Activity IDs for each activity.

Unmark this checkbox if you do not want to import expenses.

These fields are relevant for export only.

Click the Resource tab in the Modify Template dialog box. Choose whether you want to import the Resource Initials or the Resource Name from Microsoft Project to the Resource ID field in the Project Management module. If you select Resource Initials, only one resource is imported if multiple resources in Microsoft Project use the same initials. If you select Resource Name, the first 20 characters of the name import (based on your setting in the Admin Preferences, ID Lengths tab in the Project Management module).

Choose how to handle resources that already exist in the project management database but are also contained in the Microsoft Project import file.

■   **Keep existing resource** Retains the resource in the project management database and does not overwrite it with the resource from the Microsoft Project file.

■   **Update existing resource** Overwrites the resource in the project management database with the resource from the Microsoft Project file.

■   **Add new resource** Retains the resource in the project management database but also adds the resource from the Microsoft Project file

Choose whether you want to add a new resource if the resource does not already exist in the project management database but is contained in the Microsoft Project import file. Then, select the level of the hierarchy at which resources should be imported. Click the Browse button, then select the resource under which to place all resources from the Microsoft Project file.

Select to import the Resource ID by the resource's name or initials.

Opens the Select Resource dialog box in which you can search for and select a specific resource under which to import a resource.

If an imported resource already exists, you can select to keep it in its current form, update it, or include it as a new resource.

Click the Custom Field Mappings tab in the Modify Template dialog box. You can import information from Microsoft Project into user-defined fields in the Project Management module. Choose Resources from the drop-down list. For each Microsoft Project field you want to import, select a user-defined field in the Project Management Field column. The Field column is sorted by field type.
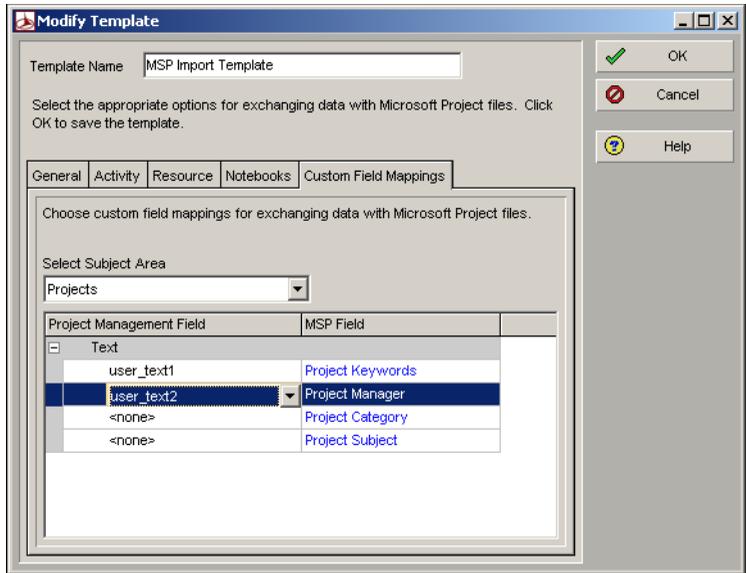
Click OK to save your modifications to the template. Click Next to review the settings for your import, then click Finish to import the Microsoft Project resources.

Transferring Data Using Microsoft Excel Files

Use the Spreadsheet import/export option to transfer project and resource information between the Project Management module and Microsoft Excel.

This chapter describes how to use the Export and Import wizards to share information using the Spreadsheet (XLS) format.

Exporting Project Data to Microsoft Excel

For information about the tables and fields that are converted, see the XLSmappings.PDF file. This file is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

When you export Project Management project data to XLS file format, you can then open the file in Microsoft Excel. You can also import the file into other software applications that support the XLS file format. The Export wizard guides you through the steps for exporting projects.

To import data from an XLS file, you must have the Project Superuser security profile.This setting is available in the Project Access tab in the Admin, Users dialog box.

Export does not support the sub-unit time format. Make sure the Sub-unit checkboxes are clear in the Edit, User Preferences, Time Units tab.

The Project Management module ignores external project relationships when exporting activity relationship data to XLS files.

Select export format and subject area   Open the project in the Project Management module you want to export. Choose File, Export to start the Export wizard. Choose Spread Sheet, then click Next.
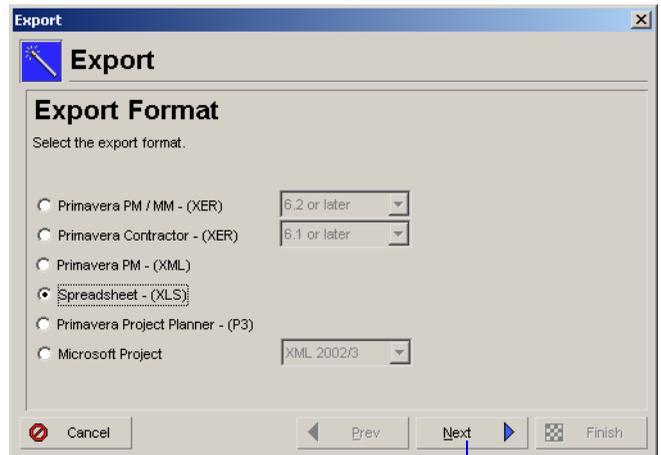
Select the subject areas you want to export, then click Next.

If you choose multiple subject areas, Export will create an individual worksheet for each subject area in the spreadsheet file.

If you choose Resources as the only subject area to export, you do not have to select a project to export. This step is skipped during the Export wizard. The Project Management application exports all resources in the Project Management database.

Select the data types to export, then click Next.
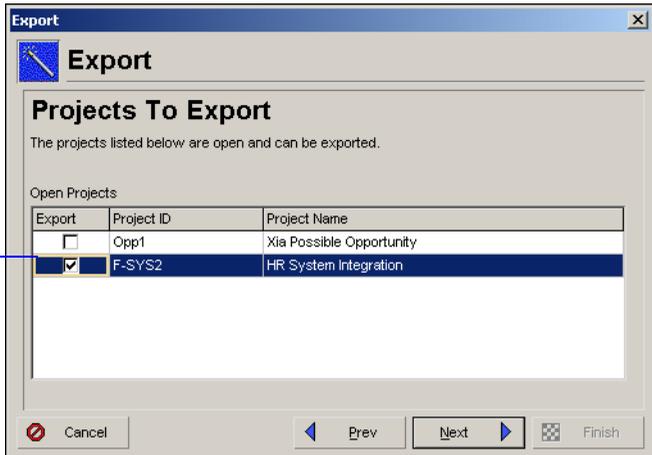
Mark the appropriate checkbox next to the projects you want to export.

Modify template options Add a new template or modify the
existing template. The template contains options for exchanging data
with Microsoft Excel or other spreadsheet applications. Click Modify to
customize the selected template.

*Single-click to rename the
template.*

*Click to create a new
template.*
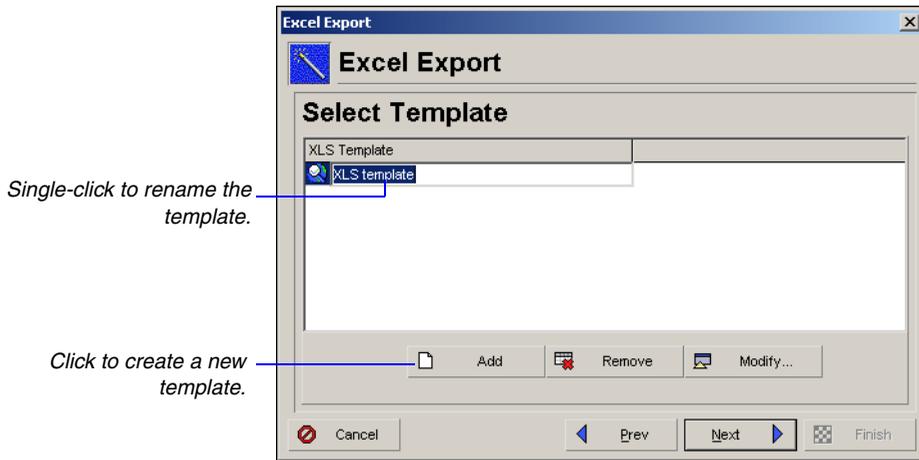
Select a Subject Area in the Modify Template dialog box to modify its
options. In the Columns tab, select the fields to export. The available
options are based on the selected subject area.

> *You cannot remove a subject area's required columns from
> the Selected Options section.*
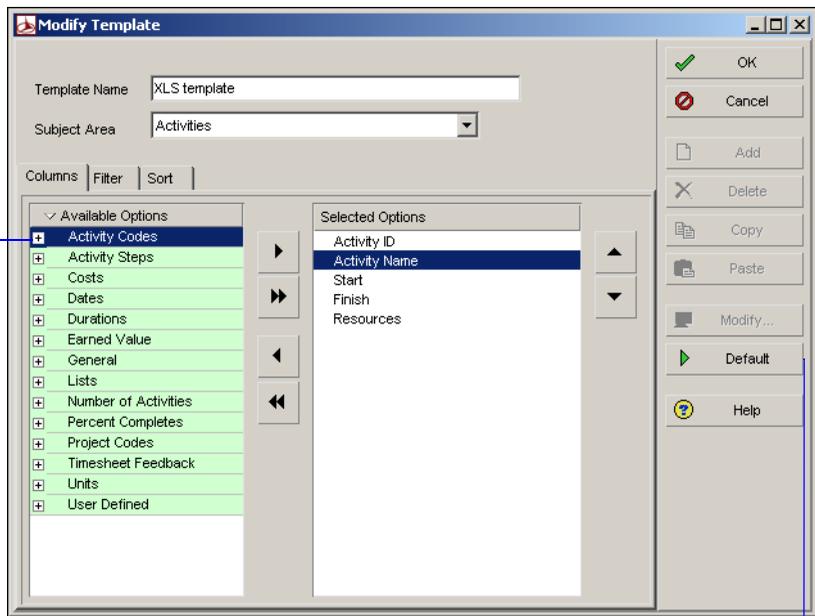
Click to expand the list of data items.

Click to apply the default columns to the export template.

In the Modify Template dialog box, click the Filter tab to select the activities you want to export for the selected subject area. If using more than one filter, choose to show activities that meet all selection criteria in each filter, or to show activities that must meet only one selection criteria in each filter. Select the filter(s) to use for the export file. If necessary, click Modify to edit the selected user-defined filter. The fields available for filtering are based on the selected subject area.

Mark to include all the data items that export with the selected subject area.
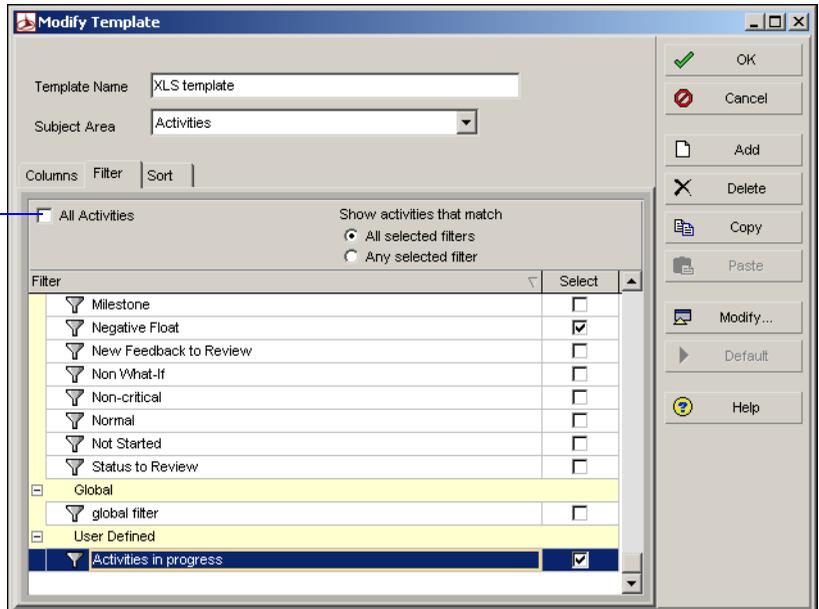
Click the Sort tab in the Modify Template dialog box to apply order to the columns during export. Select the sort order for each field name. Click OK to save your modifications to the template.

Click to define a sort order for the selected subject area.
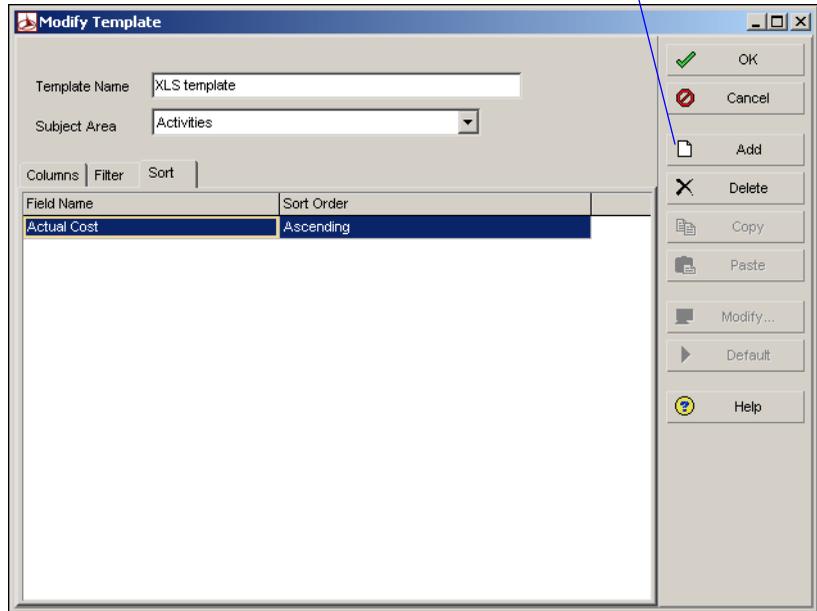
Click Next to define the location to save the export file. Double click in the File Name field and click the Browse button if you want to change the name and location of the export file.

Click Next to view the summary information for the export file. Click Finish to export the project data to an XLS file.

Updating Project Data in Microsoft Excel

The Project Management module exports subject areas as individual sheets within the XLS file. In the export file, each field within a subject area displays as a column in the excel sheet. You can update each subject area in its own sheet.

> *To successfully import data, do not delete the USERDATA sheet. This sheet contains the user preference settings for the Project Management application.*

For information about sheet names for subject areas, refer to the Primavera Project Management module Help.

Update unit, cost, duration, percent complete, and date fields When updating unit, cost, duration, and percent complete fields, you may want to import one updated field at a time into the Project Management module. For example, you can export the Activities subject area, and update the activity percent complete and the remaining duration in the export file. When you import the Excel file, PM updates the activity data. However, to update other activity values related to the remaining duration and percent complete, PM needs to know which field was updated first. In PM, you cannot update these fields simultaneously.

To update unit, cost, duration, and percent complete fields, make a copy of the export file you want to update.

The activity expenses have been exported to Excel.

	A	B	C	D	E	F	G
1	task_id	cost_name	TASK__status_c	target_cost	act_cost	remain_cost	total_cost
2	Activity ID	Expense Item	(*)Activity Status	Budgeted Cost ($)	Actual Cost ($)	Remaining Cost ($)	At Completion Cost ($)
3	A1000	(New Expens	Not Started	0	0	0	0
4							

In the copied file, update the necessary field for an activity. In that activity row, blank out the remaining fields that are not marked (*) to give it a null value. As a result, during import, PM will not update the fields with null values in the project, and PM will calculate the other fields as necessary.

	A	B	C	D	E	F	G
1	task_id	cost_name	TASK__status_c	target_cost	act_cost	remain_cost	total_cost
2	Activity ID	Expense Item	(*)Activity Status	Budgeted Cost ($)	Actual Cost ($)	Remaining Cost ($)	At Completion Cost ($)
3	A1000	(New Expens	Not Started	50			

Updated field

The other cost fields are blank in the export file. Import will only update the Budgeted Cost field for activity A1000.

Do not remove or null the value of unique fields. Refer to Table 1 to view the list of unique fields.

In PM, choose File, Import to import the Excel file into the selected project. Repeat these steps for each unit, cost, duration, percent complete, and date field.

Delete a row To delete a row in the exported file, place a "D" or "d" in the Delete This Row column in the export file. This is placed as the last column in the export file. When you import, the deleted row is moved from the project database.

Update unique fields If you modify unique columns, such as Activity ID, Relationship type, and Resource ID, import adds new data instead of updating the existing information. For example, if you modify the Activity ID and import the file, import adds a new activity to the project. To successfully update the existing activity ID, or other unique fields, copy and paste the existing row, update it, then delete the original row.

For example, to change the relationship between two activities, select the row of the relationship you want to modify in the TASKPRED sheet in Excel. Choose Edit, Copy, and then choose Edit, Paste to place a copy of the activity row in the same sheet. Change the value in the Relationship Type field of one of the rows. Type a "D" or "d" in the other row to delete it. As a result, Project Management adds a new relationship and deletes the old relationship.

Table 1 lists the unique fields for each subject area.

Subject Area	Column(s)
Activities	Activity ID
Activity Relationships	Successor, Predecessor, Relationship Type
Expenses	Activity ID, Expense Item
Resource Assignments	Activity ID, Resource ID, Role ID, Cost Account ID

Importing Projects from Microsoft Excel

For information about the tables and fields that are converted, see the XLSmappings.PDF file. This file is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

You can import data that has been exported and updated in Microsoft Excel into the Project Management module. However, you cannot import any global data that does not currently exist in the database, such as resources, codes, and cost accounts. If Microsoft Excel does not reside on your computer, you can still import XLS files that may have been created in other third-party applications. The Import wizard guides you through the steps for importing projects.

> *The User Preference settings are stored in the USERDATA sheet of the exported file. If this sheet is deleted, information will not be imported based on the user preference settings that were used while exporting data.*

> *The Project Management module ignores past period actual columns when importing data from XLS files.*

> *When you import multiple fields, fields are updated in the order reflected in the XLSmappings.PDF, not in the order of the Excel spreadsheet.*

For more information on importing, refer to the Project Management Help.

Select import format Choose File, Import. Choose Spreadsheet, then click Next.
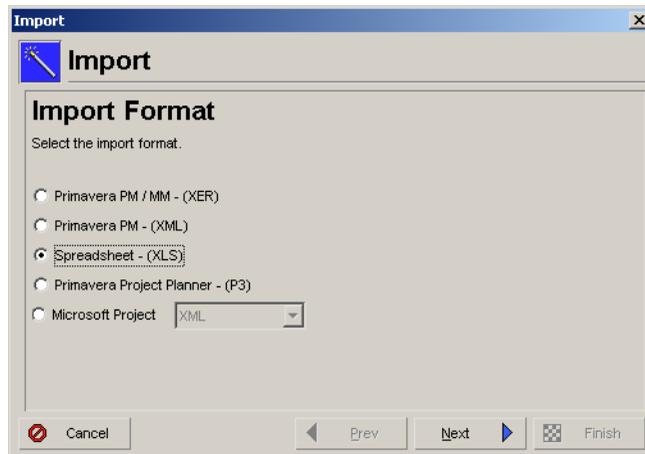
Select the Excel file to import Type the location of the XLS file or click the Browse button to select the file you want to import. Click Next.
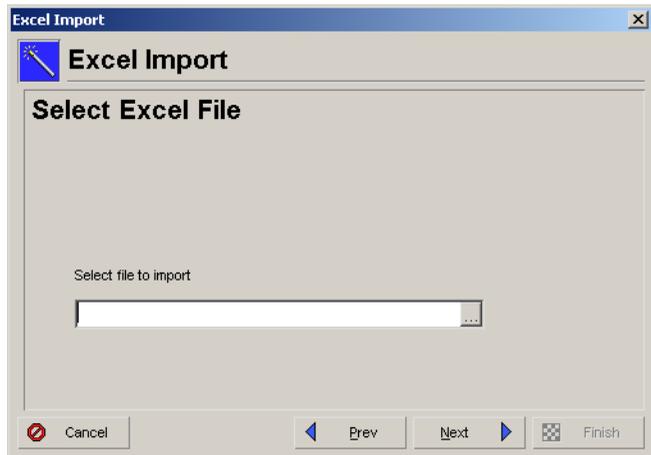
Select import type and options Choose the subject areas to import into the project. Click Next.

Each subject area is exported to a separate worksheet in the XLS file. The Import wizard will not import a subject area if its title has been changed in the worksheet within the XLS file. If the title has been changed, the subject area will be grayed out on the Import Type window.
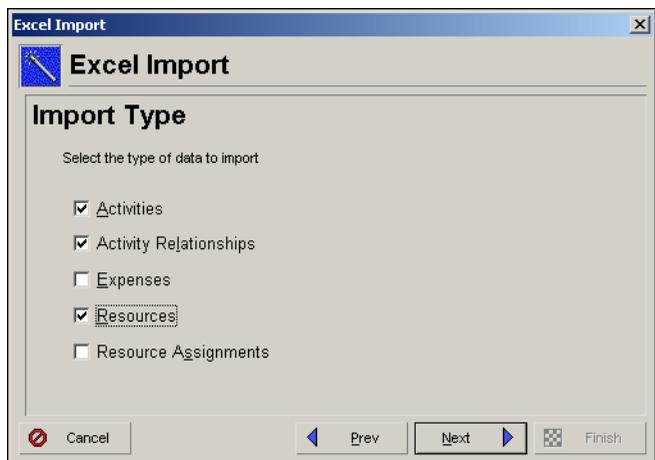
In the Project Management module, users cannot import any global data that does not currently exist in the Project Management database, such as resources, codes, cost accounts.

Select the project to update The existing project is updated with any new/modified data in the XLS file. Click the Browse button in the Import To field to select the project to update. The project must be open in the Project Management module to use this option.
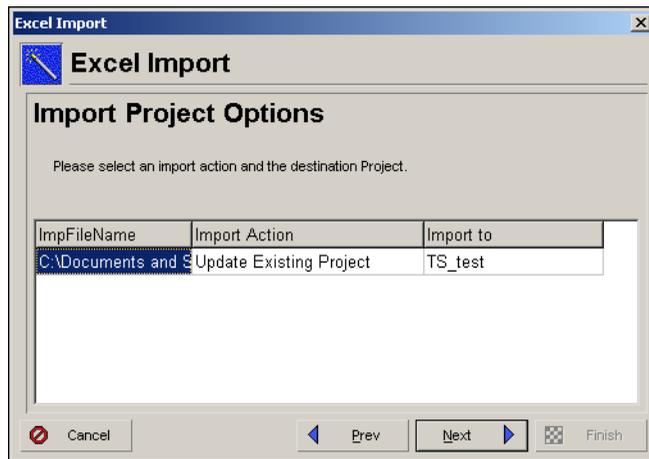
Click Next to display information about the import file. Click Finish to complete the import.
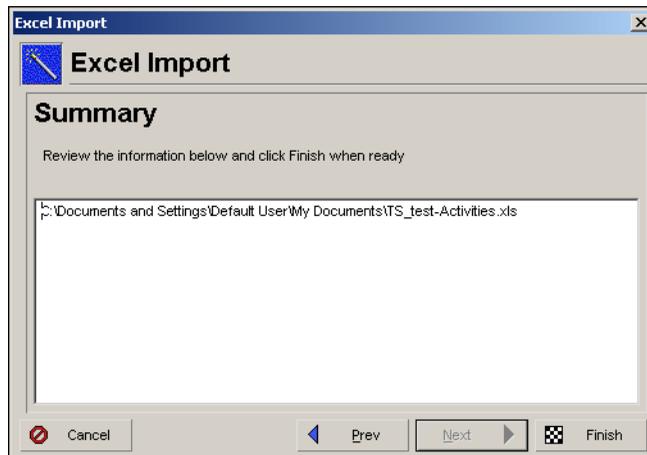
Import errors are recorded in the import log file PRM_XLSIMPORT.LOG. If errors occur, Import will prompt you to view this file in the user's temp directory.

Transferring Data Between P3 and the Project Management Module

Project data from Primavera Project Planner (P3) version 3.x can be converted and opened in the Project Management module, and Project Management projects can be converted and opened in P3 3.x. If you are using the Project Management module, however, Primavera recommends that you convert your P3 3.x projects to Project Management format, as the Project Management module contains many features and fields that cannot be converted to P3 3.x format.

This chapter describes how to use the Export and Import wizards to share project information between P3 and the Project Management module.

Exporting Projects to P3 3.x

You can convert an existing Project Management project to Primavera Project Planner (P3) 3.x format, for example, when you need to share data with a subcontractor who does not use the Project Management module. Because the Project Management module uses many structures and features that P3 3.x does not support, some data is not converted. The Export wizard guides you through the steps for exporting projects. You can convert only one project at a time to P3 3.x format.

Select export type and project Open the project you want to export. Choose File, Export. Choose Primavera Project Planner, then click Next.
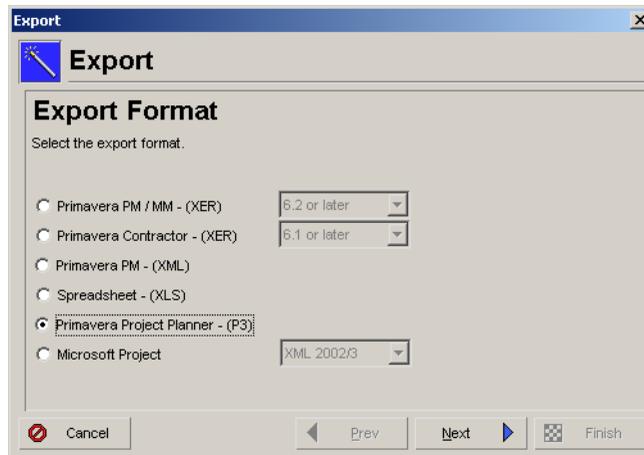
Mark the Export checkbox next to the project you want to export, then click Next.
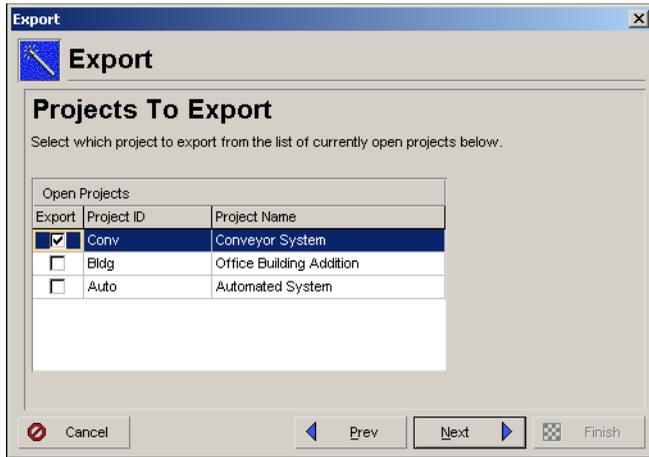
Type a name for the P3 3.x file.
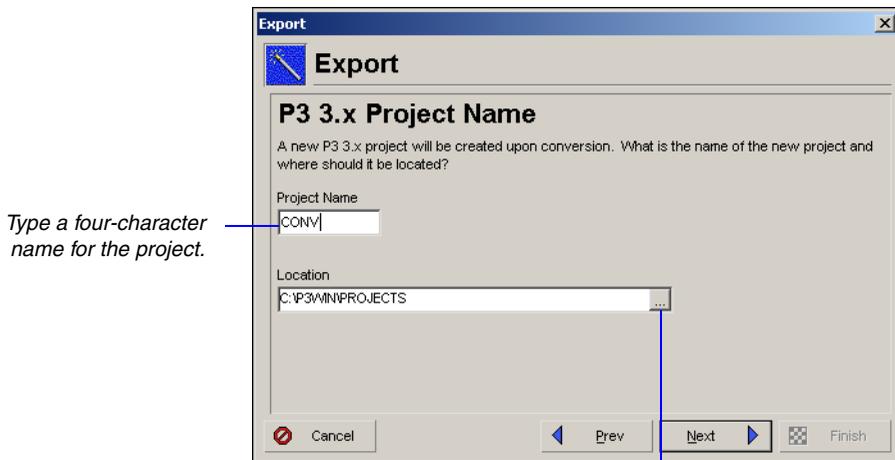
Type a four-character name for the project.

Click the Browse button to select the location where the P3 3.x file will be stored.

Select planning unit Choose the planning unit (hours or days) that you want P3 3.x to use to schedule project data. The Project Management module uses only hourly planning units. If you choose Days, you can select to export the resource units as hours or days. Click Next.
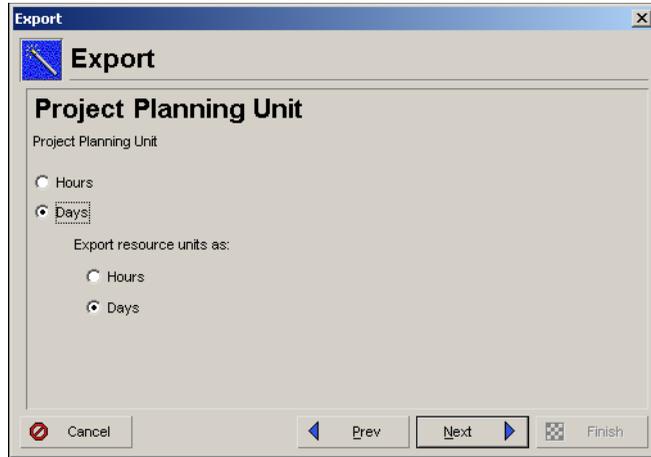
See *"Advanced conversion options" on page 677* to change the number used to calculate days.

Choose cost calculation rules You can set several Autocost rules for the exported project. Default settings are used for all other Autocost rules. These calculations apply only when the project is scheduled in P3 3.x. You can change these settings when you open the project in P3 3.x.
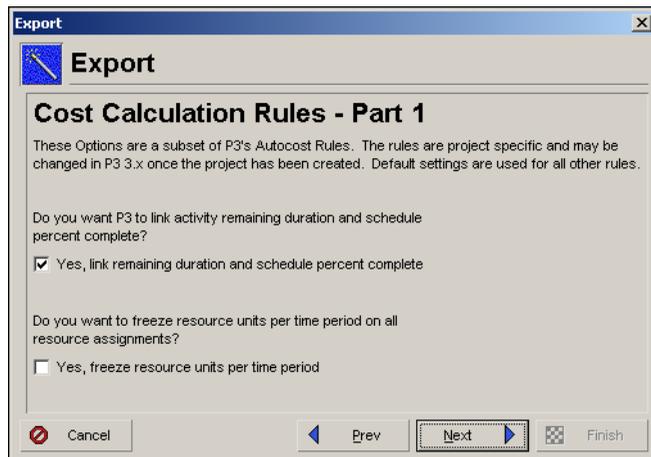
■ **Yes, link remaining duration and schedule percent complete**:
This rule automatically links each activity's schedule percent
complete (PCT) with its remaining duration (RD). When you
update either value, P3 3.x calculates the other. Clear this checkbox
if the schedule percent complete for your activities does not
typically indicate their remaining duration.

■ **Yes, freeze resource units per timeperiod**: Mark this checkbox to
freeze the units per timeperiod and calculate a new estimate to
complete when the remaining duration changes:

Estimate to Complete = Units per Timeperiod x Remaining Duration

Estimate at Completion = New Estimate to Complete + Actual to Date

When this checkbox is cleared, P3 3.x can adjust the units per
time-period when the estimate to complete or the remaining
duration changes:

Units per Timeperiod = Estimate to Complete / Remaining Duration
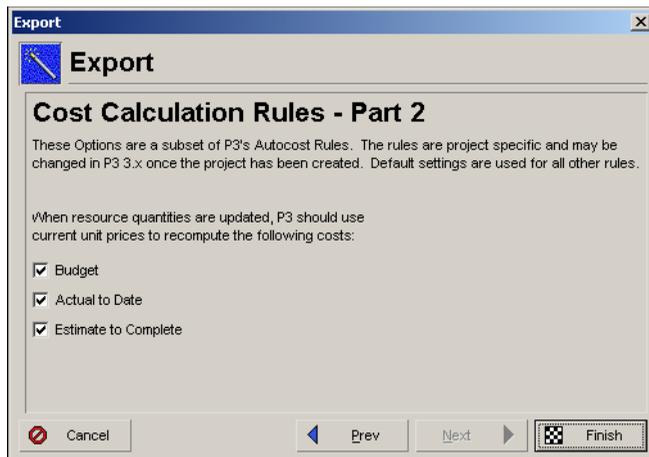
■ **When resources quantities are updated, P3 should use current
unit prices to recompute the following costs: Budget, Actual to
Date, Estimate to Complete:** Mark any checkbox for this rule if
you want P3 3.x to calculate the cost of the resource's budget,
actual to date, or estimate to complete as the product of its unit
price (from the Resource dictionary) and the quantity.

P3 3.x uses the following formulas:

Budgeted Cost = Budgeted Quantity x Price per Unit

Actual Cost = Actual Quantity to Date x Price per Unit

Cost to Complete = Quantity to Complete x Price per Unit

Because the cost at completion depends on the newly calculated costs, P3 3.x recalculates the cost at completion as

Cost at Completion = Cost to Complete + Actual Cost

After selecting the cost calculation rules, click Finish to export the project. P3 3.x files are created in the folder specified. These files can be opened directly through P3 3.x.

Special considerations The following list describes the data items that are transferred from the Project Management module to P3 3.x.

■ **Duration types** The Project Management module's duration types control the way resource and activity dates are scheduled. Duration types are similar to Autocost rules in P3 3.x. When the duration type in the Project Management module is Fixed Units or Fixed Units/Time, the resource assignment becomes driving in P3 3.x. When the duration type in the Project Management module is Fixed Duration & Units/Time or Fixed Duration & Units, the resource assignment becomes nondriving in P3 3.x. Using Fixed Duration & Units/Time is comparable to marking the Freeze Resource Units per Timeperiod checkbox in P3 3.x.

■ **Resources** The Project Management module contains a global dictionary of resources that are used for all projects in the organization. P3 3.x stores resources at the project level. Only resources assigned to activities in the project being exported are imported into P3 3.x. The resource ID in the Project Management module can contain 15 characters; resource IDs in P3 3.x can contain eight characters. P3 3.x truncates resource IDs to 8 characters. If duplicate IDs exist, P3 3.x automatically increments the last two characters of the ID.

■ **Notebooks** In the Project Management module, each activity is assigned a Notebook field, which can contain up to 32,000 characters. P3 3.x contains 99 log records. Each log can contain 48 characters. Notebooks are converted to logs in P3 3.x, but the information is truncated if it does not fit in the 99 log records.

■   **Units and costs** To calculate quantities in P3 3.x, labor and nonlabor units from the Project Management module are added. To calculate costs in P3 3.x, labor, nonlabor, and material costs, expenses, and overtime costs from the Project Management module are added.

■   **Activity IDs** In the Project Management module, activity IDs can contain 20 characters, while in P3 3.x, they are limited to 10 characters. P3 3.x truncates the Project Management module's activity IDs to 10 characters. When duplicate IDs exist, the first eight characters of the activity ID are converted and P3 3.x increments the last two characters starting with 00. For example, the Project Management module's activity IDs ABCDEFGHIJKLMNOPQRST and ABCDEFGHIJKLMNOPPPP are converted to ABCDEFGHIJ and ABCDEFGH00 in P3 3.x.

■   **Cost accounts** The Cost Accounts Dictionary in both P3 3.x and the Project Management module can contain an unlimited number of cost accounts; however, in the Project Management module the dictionary is global, while in P3 3.x it is project-specific. Only the cost accounts assigned in the Project Management project are converted to P3 3.x. In the Project Management module, cost accounts can contain 15 characters; in P3 3.x they can contain 12 characters. P3 3.x truncates cost accounts to 12 characters. When duplicate accounts exist, P3 3.x automatically increments the last two characters of the account.

■   **Calendars** In the Project Management module you can create an unlimited number of global, project, and resource calendars. Global and project calendars can be assigned to activities; global and resource calendars can be assigned at the resource level. In P3 3.x, you can create one global calendar, 31 project calendars, and an unlimited number of resource calendars. When you import a Project Management project to P3 3.x, the global calendar in P3 3.x is not changed. All resource calendars are imported to P3 3.x.

Resource holidays and exceptions are not converted to P3 3.x. Only the standard worktime is converted. For example, if a resource calendar's standard worktime is three days per week, then the resource calendar is imported with a standard worktime of three days per week. No other nonworktime is imported.

If the Project Management module contains less than 31 calendars (global plus project), the calendars are imported directly to the project calendars in P3 3.x. However, if the Project Management module contains more than 31 calendars, only the first 30 calendars assigned are exported. These calendars are assigned numbers 2 to 31 in P3 3.x. Any activity in the Project Management module assigned to a calendar that is not exported is assigned to Calendar 1, the standard five-day, eight-hour calendar in P3 3.x.

You can define work hours in the Project Management module in half hour increments. The smallest unit in P3 3.x is hour. If one half of an hour is work time and the other half is nonworktime in the Project Management module, the entire hour will be nonworktime in P3 3.x.

■ **Activity codes** P3 3.x supports up to 10 characters for the activity code value length; the Project Management module allows a maximum of 20 characters. P3 3.x truncates the Project Management module code values to 10 characters. The maximum number of activity codes in P3 3.x is 20, and the total of the lengths assigned to the codes cannot exceed 64. You can create an unlimited number of codes in the Project Management module. When you export a Project Management project to P3 3.x, only the first 64 characters of activity codes are converted to P3 3.x.

Also, the Project Management module exports the first four letters of the activity code description to P3 3.x as the activity code name. For example, if the activity code description is Responsibility in the Project Management module, the module will export RESP as the activity code name in P3 3.x.

■ **Project codes** P3 3.x supports up to 10 project codes. All project codes assigned to the Project Management project are exported. However, only the first 10 project codes exported are imported to P3 3.x.

■ **WBS** The Project Management module supports a maximum of 25 levels with an unlimited number of characters. P3 3.x supports 20 WBS levels with a limit of 48 characters. The Project Management module will export as many levels as possible until the limit of 48 characters or 20 levels is reached.

WBS descriptions are converted only if the WBS node is assigned to activities.

■ **Custom data items** The first eight custom data items in the Project Management module are converted to P3 3.x.

■ **Suspend and resume dates** In P3 3.x, a suspend date indicates that an activity is suspended at the end of the specified day. In the Project Management module, a suspend date indicates that an activity is suspended at the beginning of the specified day. Due to this discrepancy, actual and remaining durations are affected for daily projects. Hourly projects are not affected.

For example, an activity suspend date of 05OCT04 (beginning of the day) in the Project Management module will export to P3 as 05OCT04 (the end of the day). In P3, the actual duration for the activity will be one day greater than it was in the Project Management module because P3 progresses the work through the suspend date.

Scheduling options The following advanced scheduling options convert to P3 3.x:

Project Management	P3 3.x
Make open-ended activities critical	Show open ends as (Critical or Noncritical)
For activities started out of sequence use (Retained logic or Progress override)	When scheduling activities apply (Retained logic or Progress override)
Calculate start-to-start lag from (Early Start or Actual Start)	Calculate start-to-start lag from (Actual start or Early start)
Compute Total Float as (Start float, Finish float, or Smallest of start float and finish float)	Calculate total float as (Most critical, Start float, or Finish float)

In the Project Management module, you can choose the calendar to use for scheduling relationship lag. Regardless of your setting in the Project Management module, P3 3.x always uses the predecessor calendar.

Project level calculations In the Project Management module, you can choose how you want to update resource assignments. Choose to Add Actual to Remaining or Subtract Actual from At Completion when updating Actual Units or Costs. In P3 3.x this setting is the same as the autocost rule, Add actual to ETC or Subtract actual from EAC.

The Recalculate Actual Units and Cost when duration % complete changes setting determines if the actual units and cost are updated when the % complete is updated. If the setting is marked, both the Actual quantity to date and Actual cost to date fields are marked in the autocost settings in P3 3.x. If it is not marked in the Project Management module, neither field is marked in P3 3.x.

The Link Actual and Actual this Period Units and Cost field converts to the Link actual to date and actual this period autocost rule in P3 3.x.

■   **Expenses** All expenses become resource assignments in P3 3.x. An "expense" cost account is assigned to the resource assignment if a cost account is not already assigned.

Data not converted The following data is not converted to P3 3.x:

■   Constraints on Level of Effort activities

■   Enterprise project structure (EPS)

■   EPS Codes

■   Feedback (from resources)

■   Financial periods

■   Issues

■   OBS

■   Past period actuals

■   Resource curves

■   Future period buckets

■   Risks

■   Roles

■   Secure codes

■   Steps

■   Thresholds

■   Timesheet data

■   Work products and documents

Importing P3 3.x Projects to the Project Management Module

You can import an existing P3 3.x project to the Project Management module. In most cases, you will be upgrading your P3 3.x schedules to the project hierarchy in the Project Management module. The Import wizard guides you through the steps for importing P3 3.x projects to the Project Management module.

> *If resource security is enabled in the Project Management module, some restrictions apply when importing resources and activity resource assignments. Refer to the Help for more details.*

Select import type In the Project Management module, choose File, Import. Choose Primavera Project Planner, then click Next.
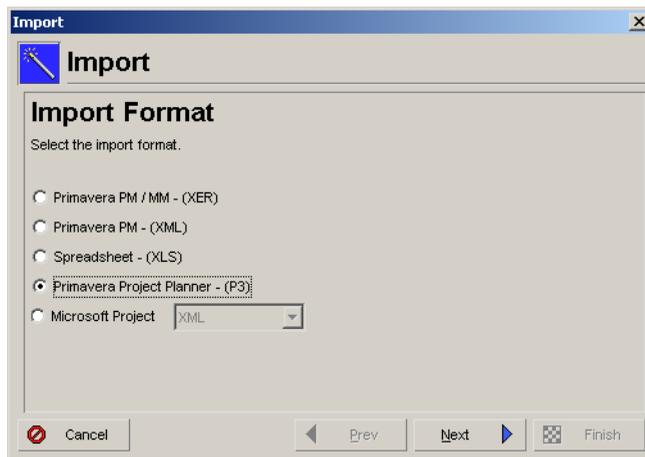
Choose project group(s) to import When converting P3 projects to the Project Management module, you can import multiple project groups (master projects) simultaneously or import project groups individually. You should select multiple project groups only when you want to import all subprojects contained in those projects. You should import project groups individually when you want to specify the subprojects to import. The projects cannot be open in P3. The existing P3 projects remain intact.

> *The import wizard displays different screens and options when you import a single project group versus multiple project groups. Determine if you want to import single or multiple project groups, then follow the corresponding instructions detailed in this section.*

To import multiple project groups:

In the P3 3.x Project Directory field, click the Browse button to select the location of the projects you want to import, then select the project groups to import. Click Next and skip to the next section,
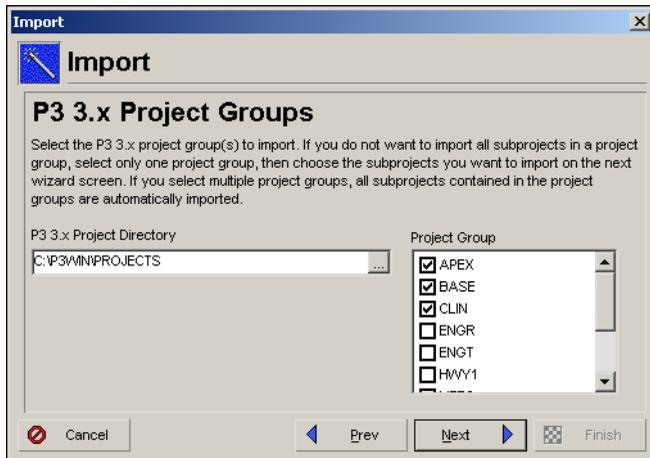
To import a single project group:

In the P3 3.x Project Directory field, click the Browse button to select the location of the projects you want to import, then select the project group to import. Click Next.
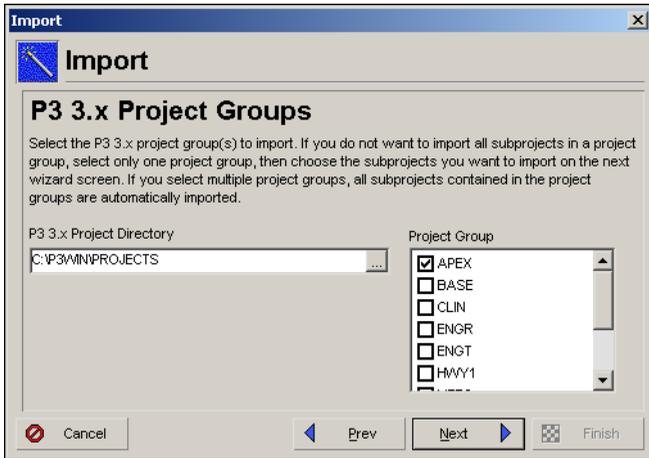
Choose subprojects to import The selected project group (master project and its associated subprojects) is displayed on the next wizard screen. By default, all projects (master project and subprojects) are selected for import. Unmark the checkbox next to each project you do not want to import. You do not have to import the master project.

> *The project group you chose to import may not contain subprojects; however, you still must choose to either combine subprojects or create separate projects as described below. If the project group contains subprojects and you choose to combine subprojects, you must select at least one subproject.*

Choose to combine subprojects or create separate projects for each selected subproject. Mark the 'Combine subprojects' option if you want to import the selected projects as one project rather than separating them into individual projects. For example, in P3 3.x, the project group APEX contains three projects, AUTO, BLDG, and CONV (as shown in the following image). If you select the Combine subprojects option, the Project Management module imports one project named APEX with all selected subprojects as WBS levels.

Mark the 'Create separate projects' option if you want to import each selected subproject as an individual project. If you select this option, you cannot import the master project. For example, in P3 3.x, the project group APEX contains three subprojects, AUTO, BLDG, and CONV. This group is converted to three individual projects (APEX is not converted). Before the import, create an EPS node to select as the location for the converted projects.

Regardless of whether subprojects exist for the selected project group, f you choose to combine subprojects, project activity codes are imported as global activity codes; if you choose to create separate projects, project activity codes are imported as project activity codes.

Mark to import the selected projects as one project with the subprojects representing WBS levels. If you select this option, you must select at least one subproject (if a subproject exists). You do not have to select the master project.

Select this option if you want to import each selected subproject as an individual project. If you select this option, you cannot select the master project.
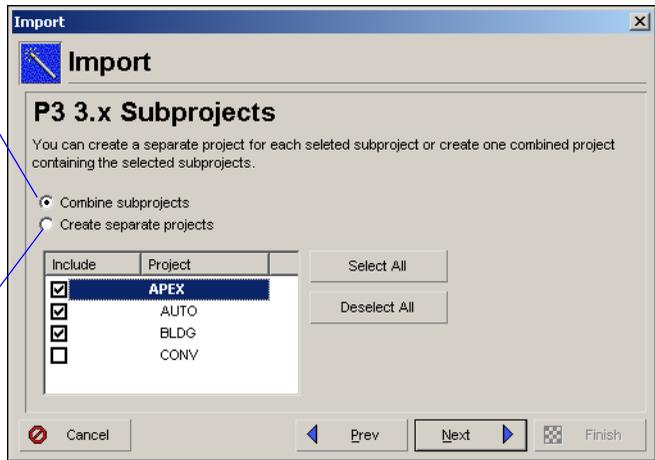
Specify import project options Choose how the P3 3.x projects should be imported. Beside each project name, click the Import Action field, then click the down arrow to select the type of import. Normally, you will choose the Create New Project option when moving your P3 projects to the Project Management module. You can also choose to update or replace an existing Project Management module project.

> *The projects listed on the wizard screen depend on your selections on previous screens, as described in the following images.*

If you are importing multiple project groups simultaneously, the wizard displays the project group names.
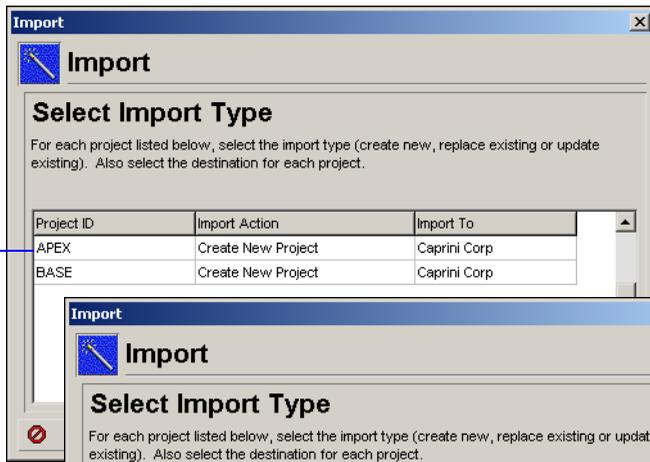
If you are importing a single project group and chose to combine subprojects in the previous wizard screen, the Project ID will always be the name of the project group (master project), even if you do not import the master project itself.
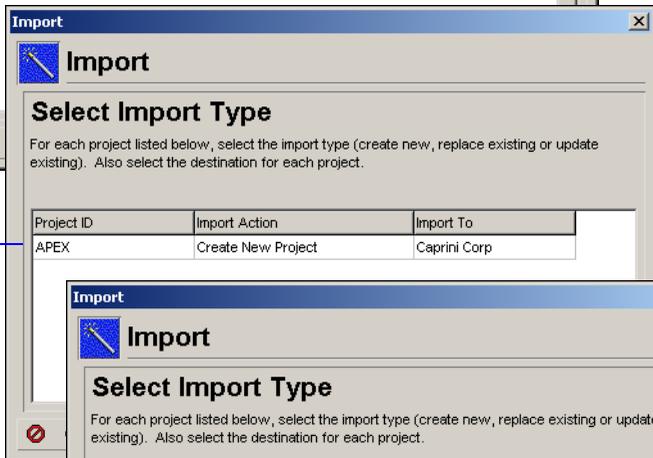
If you are importing a single project group and chose to create separate projects in the previous wizard screen, each subproject is listed separately.
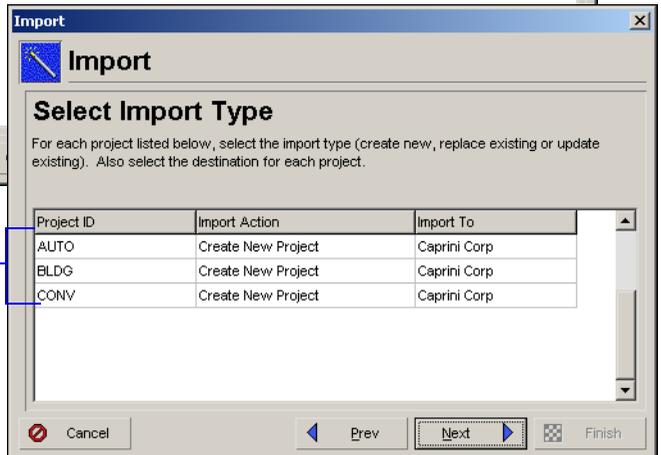
■ **Create new project** The existing project's data remains the same. A new project is created. If the project does not fit within the existing EPS, create a new level before importing the project. Click the Browse button in the Import To field to select the level of the EPS at which the project should be imported.

■ **Replace existing project** The existing project in the Project Management module is deleted (without preserving any information) and replaced with the project imported from P3 3.x. Click the Browse button in the Import To field to select the project to replace. The project must be open in the Project Management module to use this option.

■ **Update existing project** The existing project is updated with any new or modified data in the P3 3.x file and adds new data if the record does not exist. Click the Browse button in the Import To field to select the project to update. The project must be open in the Project Management module to use this option.

For additional import considerations regarding future period bucket planning, refer to the Contractor application Help.

When you import a P3 project to a Contractor project that contains manual future period assignment buckets, the manual values are deleted if you choose the Replace Existing or Update Existing import option.

If you chose Create New Project in the Import Action field, click the Browse button in the Import To field to select the level of the EPS at which the project should be imported. To keep your projects organized, it is best to set up a basic EPS before you import projects.

If you chose Update Existing Project or Replace Existing Project in the Import Action field, click the Browse button in the Import To field to select the project you want to update or replace.
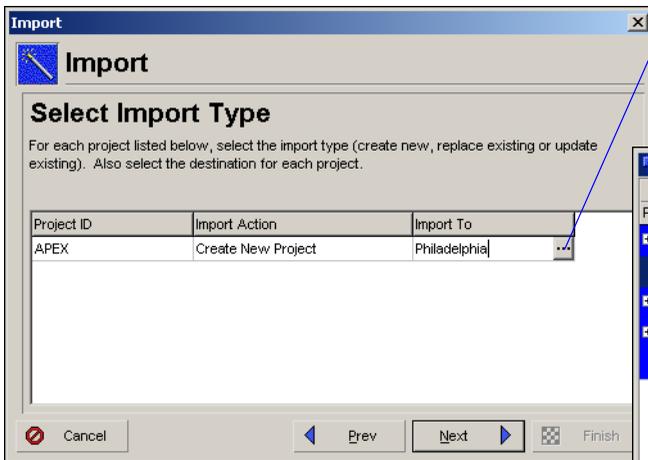
If you choose to create a new project, select the location in the EPS for the imported project.
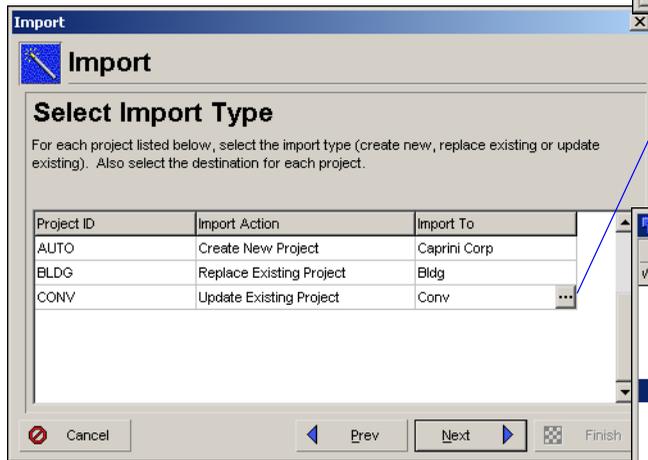
If you choose to replace or update an existing Project Management module project, select the project to replace or update.
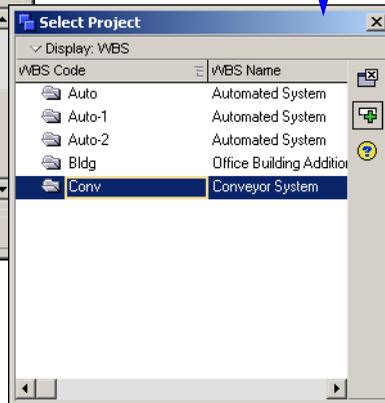
Select location for resources For each project, select the level of the hierarchy at which resources should be imported. Click in the Import To field, then click the Browse button. Select the resource under which to place all resources from the P3 3.x project. To better organize your resources, it is best to set up a basic resource hierarchy before you import projects. If you leave the field blank, the Project Management module creates a root node with the same name as the P3 project. The resource field is disabled for the Replace Existing Project and Update Existing Project import types.

> *If resource security is enabled in the Project Management module, users with restricted resource access will only have the option to select their assigned resource access node. Resources contained in the import file that do not exist in Project Management's resource dictionary are added to the user's resource access node. Users with no resource access cannot import resources.*

Select the location in the resource hierarchy for the selected project's resources.

Select location for activity logs P3 3.x activity logs are converted to notes in the Project Management module. Notebook topics are predefined categories in the Project Management module that help to organize your project notes. Choose to create a new notebook topic for the notes, or select from the existing list of notebook topics. To display notes in the Project Management module, in the Activities window click the Layout Options bar, then choose Show on Bottom, Activity Details. Click the Notebook tab.

Choose update project options Click Next to select a layout configuration to use when importing project data. The options specified in the layout determine how the Project Management module handles data in the import file that matches data in the database. You can create and save several different configurations; however, only one configuration can be used to import the file. Select Yes in the Use field next to the configuration you want to use.

The Update Project Options dialog box appears regardless of the import option you select. For example, if you choose to create a new project, you still must set update options for global data.
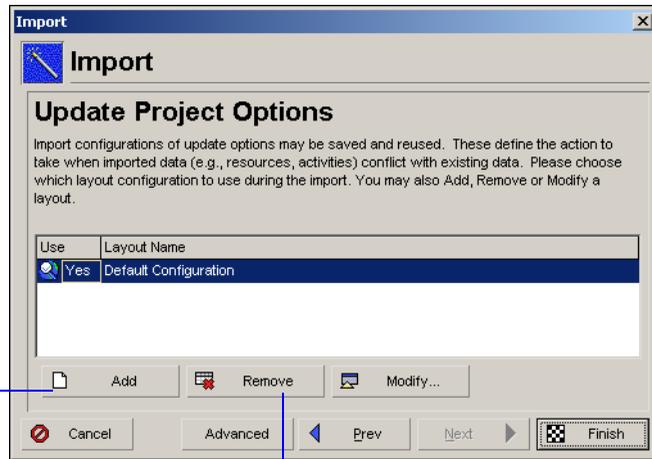
Click to create a new layout configuration.

Click to customize the layout configuration.

Modify a layout configuration The options specified in a layout configuration determine how data is updated when projects are imported that contain duplicate data. To modify these options, select the layout in the Update Project Options dialog box, then click Modify.
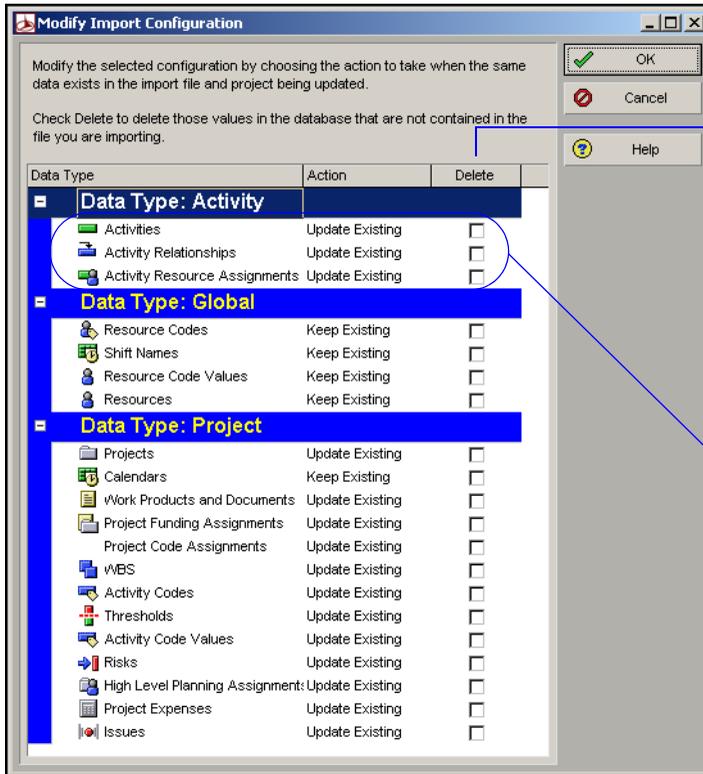
Mark to delete relationships to external projects, activities, activity relationships, and activity resource assignments that are in the project being updated, but are not included in the import file.

The import of activities, their relationships, and their resource assignments is dependent on one another. For example, if you choose to update one of these items, all three are updated automatically.

The Modify Import Configuration dialog box lists the data types for which you can set options. Mark the Delete checkbox next to a data item to remove data that exists in the project you are updating but is not included in the file you are importing. For example, if several activities are defined in the project you are updating, but are not included in the file to be imported, mark the checkbox in the Delete column to remove the activities from the project being updated.

The Delete field applies only to relationships to external projects, activities, activity relationships, and activity resource assignments. Global data types are not affected by this setting.

Select one of the following in the Action field to indicate how the data type is updated:

- **Keep Existing** Retains data in the existing project and does not overwrite it with the updated data; adds new data if the record does not exist.

- **Update Existing** Overwrites data in the existing project with updated data; adds new data if the record does not exist.

- **Insert New** Retains data in the existing project and adds any new data items. For example, if a new calendar was added in the P3 3.x file, but you don't want to change the existing calendars, choose Insert New to add the new calendar to the existing project.

- **Do Not Import** Retains data in the existing project and does not import the updated data.

The actions you choose for importing the items in the Activity Data Type group are dependent on each other. For example, if you choose to update existing relationships, you must also update existing resource assignments and activities associated with the relationships.
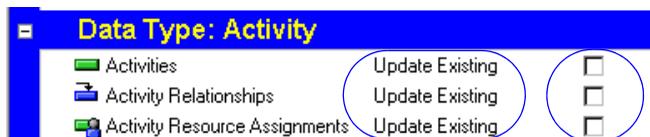
The action for activity data types are dependent on one another.

The Delete field for these items can be independent.

If a relationship type was updated when the project was exported, to import the modified relationship type you must choose to Update Existing *and* mark the Delete field for activity relationships; otherwise, a new relationship will be added. For example, suppose you have Activity 100 with a finish to start relationship type. If you import a project that has Activity 100, but the relationship type has been changed to a start to start type, the import process results in Activity 100 with both the finish to start relationship and the start to start relationship when you do not mark the Delete field. You must mark the Delete field to remove the original relationship type of finish to start.

The Activity Resource Assignments item under Activity Data Type includes roles.

Calculate cost values Click Advanced in the Update Project Options dialog box to display options specific to existing P3 3.x projects regarding how you want costs handled in the Project Management module.
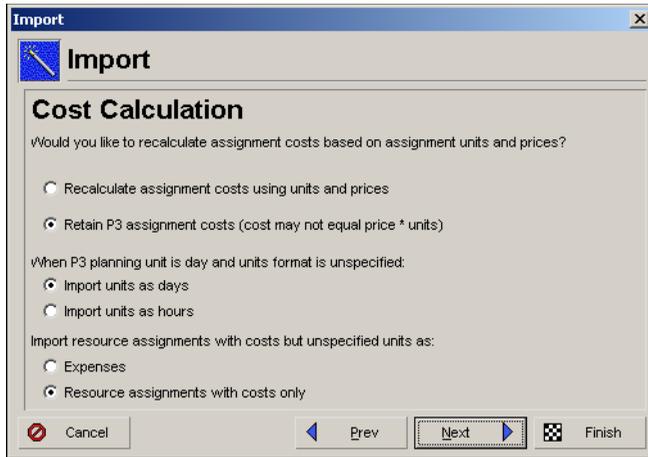
- Indicate whether you want the Project Management module to recalculate the cost values from the unit prices and assigned resource quantities.

- When importing a daily project that has resources with a blank unit of measure in P3 3.x, choose to convert the resource assignments in days or hours. If you choose hours, the Project Management module retains the resource values as-is. If you choose days, the Project Management module multiplies all resource values by a factor of eight (assuming 8 hr/day). You can change the multiplier in the PRMCONVERT.INI file. Refer to *Advanced Conversion Options* section later in this chapter.

- Choose whether to import resource assignments that only have cost information (no quantity information) associated with them as expenses or as resource assignments with a budgeted cost.

Choose additional project options Use the Project Options dialog box to specify the following additional options. Click Finish to begin the import process.

This option only appears when you are importing multiple project groups.

Import

Import

Project Options

☑ Merge sub projects.

☐ Schedule project after import.

☐ Import WBS codes as a global activity code.

☐ Import unused WBS codes.
(Check this box if you want to import WBS codes that are not assigned to activities in the P3 project, but exist at the dictionary level.)

Click to import the P3 project.

⊘ Cancel   ◀ Prev   Next ▶   ▓ Finish

■ **Merge subprojects** Mark this setting to import each project group as one project rather than separating them into individual projects. For example, in P3, the project group APEX contains three projects, AUTO, BLDG, and CONV. Merging the subprojects imports only one project named APEX with all activities under that project. This option is only available when you choose to import multiple project groups simultaneously.

Projects are merged automatically when your Import Type is Replace Existing Project. *If your Import Type is* Update Existing Project, *projects are merged automatically only when you import multiple project groups or multiple subprojects (in a single project group).*

When you merge subprojects, all activity codes convert to Project Management as project activity codes. Otherwise, they convert as global activity codes.

■ **Schedule project after import** Mark this setting to automatically schedule the project in the Project Management module after the import.

- ■   **Import WBS codes as a global activity code** Mark this setting to import the WBS codes from P3 into the Project Management module as global activity codes assigned to the activities. The global activity code name created, P3 WBS - Proj, where Proj is the name of the project group in P3, will store the WBS values.

- ■   **Import unused WBS codes** Mark this setting to keep all the WBS codes within each project, even if they are not assigned to any activities.

Special considerations Most data is converted directly from P3 3.x to the Project Management module. This section explains how data is handled after it is imported into the Project Management module and a direct match does not exist; it also identifies data that is not converted. See "Data not converted" on page 652 for additional cases.

- ■   **Planning unit** You can only convert projects with an hourly or daily planning unit. Weekly and monthly planning units are not supported. To display duration units in hours, choose Edit, User Preferences, Time Units. Choose Durations as the time unit and Hour as the unit.

- ■   **Activity codes** The Project Management module contains global and project activity codes. Global activity codes are provided with the sample data delivered with the Project Management module. If you choose to create separate projects (rather than combine them) in the Import wizard, all activity codes, activity ID codes, and alias codes from P3 3.x import as global activity codes in the Project Management module, so they are available to all projects. If you choose to combine subprojects into one project to import, the activity codes, activity ID codes, and alias codes import as project-specific activity codes.

> *Activity code values assigned to activities in P3 3.x that do not exist in the Activity Codes Dictionary are not converted to the Project Management module.*

When activity codes are imported into the Project Management module, the P3 activity code description is used as the activity code in the Project Management module. For example, if the activity code name in P3 is RESP and the description is Responsibility, then Responsibility is imported as the activity code in the Project Management module. If there is no description associated with an activity code, then the four-character name is imported as the activity code.

■ **Project codes** The Project Management module contains a global project codes dictionary which is available to all projects in the organization. You can assign a project code value to projects for each project code you create. All 10 project codes defined in the P3 3.x project and their assignments are imported.

If the import option "Combine subprojects" (when importing a single project group) or "Merge Subprojects" (when importing multiple project groups) is marked in the Import wizard, the project codes and values assigned to the master project are imported.

■ **Activity type** The Project Management module supports the following activity types that correspond to activity types in P3 3.x: .

P3 3.x Activity Type	Project Management Activity Type
Task	Task Dependent
Independent	Resource Dependent
Start Milestone	Start Milestone
Finish Milestone	Finish Milestone
Meeting	Resource Dependent
Start Flag	Start Milestone
Finish Flag	Finish Milestone
Hammock	Level of Effort
WBS	WBS Summary

■ **Activity IDs** In P3, numeric Activity IDs are right-justified. In Primavera Contractor, all activity IDs are left-justified. When you import a P3 project that uses numeric activity IDs into Primavera Contractor, they are left-justified. However, leading blanks are not removed.

■ **Duration types** The Project Management module allows you to specify each activity's duration type as Fixed Units/Time, Fixed Duration and Units/Time, Fixed Units, or Fixed Duration and Units. When all resource assignments on the P3 3.x task are non-driving, the duration type becomes Fixed Duration & Units/Time, which indicates that an activity's duration will not change, regardless of the number of resources assigned to the activity or the amount of work required to finish the activity.

When any resource assignment on the P3 3.x task is driving and Freeze Resource Units per Timeperiod is marked in the autocost rules, the duration type becomes Fixed Units/Time.

When any resource assignment on the P3 3.x task is driving and Freeze Resource Units per Timeperiod is not marked in the autocost rules, the duration type becomes Fixed Units.

■ **Percent complete type** Each activity in the Project Management module must be assigned one of the following percent complete types: physical, duration, or units. When you import P3 3.x activities to the Project Management module, they are assigned the percent complete type of Duration, which specifies that the activity's percent complete is calculated from the actual and remaining durations.

■ **Suspend and resume dates** In P3 3.x, a suspend date indicates that an activity is suspended at the end of the specified day. In the Project Management module, a suspend date indicates that an activity is suspended at the beginning of the specified day. Due to this discrepancy, actual and remaining durations are affected for daily projects. Hourly projects are not affected.

For example, an activity suspend date of 05OCT04 (end of the day) in P3 will import to the Project Management module as 05OCT04 (the beginning of the day). In the Project Management module, the actual duration for the activity will be one day shorter than it was in P3 because P3 progresses the work through the suspend date (while the Project Management module suspends progress at the beginning of the day).

■   **Custom data items** P3 3.x custom data items are converted to the following user-defined data items in the Project Management module.

P3 3.x Custom Data Item Type	Project Management Activity User Field	Project Management Resource User Field
Character (C)	User Text	User Text
Start (S)	User Start Date	User Start Date
Finish (F)	User End Date	User End Date
Numeric (N)	User Integer	User Integer
Precision (P)	User Number	User Number

You can display converted activity custom data items as columns in the Project Management module's Activity Table. In the Activities window (with an Activity Table or Gantt Chart displayed on top), click the Layout options bar, then choose Columns. Select the appropriate user-defined fields from the list of Available Options and add them to the layout.

You can also display your converted resource custom data items as columns in the Project Management module. In the Activities window, click the Layout options bar, then choose Show on Bottom, Activity Details. Click the Resources tab to display resource information. Right-click in the column area, and choose Customize Resource Columns. Select the appropriate user-defined fields from the list of Available Options and add them to the table.

■   **WBS codes** In the Project Management module, a WBS must exist and all activities must be assigned to a WBS code. If the imported P3 3.x project uses a WBS, it is converted to the Project Management module. If no WBS exists, the Project Management module creates a WBS root node and names it PROJ, where PROJ is the P3 3.x project name. All activities are assigned to this WBS code.

Because the Project Management module uses the WBS to define a project structure, you should not assign the same WBS code to different activities across projects within a project group in P3 3.x. For example, if activity CS300 is part of the Conveyor System project, it should not be assigned a WBS code that belongs to the Automation System project. If the conversion program encounters this situation, it duplicates the code's entire branch in both projects. To distinguish the projects, the program and project names are added as a prefix to the WBS code structure. For example, for the APEX project, APEX.CONV.AM.01 and APEX.AUTO.AM.01 would be included as branches in the WBS.

■   **Resources** The Project Management module contains one master resource pool across all projects. A sample resource hierarchy is provided when you install the Project Management module. When you import a project, the resources are imported to the location in the hierarchy you specify in the Import wizard. If duplicate resource IDs are encountered during the import process, you can choose how to resolve each conflict by modifying the import configurations in the Import wizard.

In the Project Management module, resources are classified as labor, nonlabor, or material. Any resource in P3 3.x with a unit of measure equal to most variations of a time unit, such as h, hr, or hour, is converted as a labor resource. Any resource in P3 3.x with a unit of measure equal to those defined in the Admin Categories, Units of Measure tab in the Project Management module is converted as a material resource. All other resources are classified as nonlabor. Labor units are displayed as hrs/day. You can change the display unit by choosing Edit, User Preferences, and then clicking the Time Units tab.

You can customize how the import program classifies resources. See "Advanced conversion options" on page 677 for more information.

All time-based calculations in the Project Management module are based on hourly units. If your project in P3 3.x is planned in days, the Project Management module refers to each resource's unit of measure to determine how to convert resource assignments. If the resource unit of measure is equal to most variations of an hourly time unit such as, hr or mh, then the Project Management module assumes the resource assignment is based on hours and converts it as-is. If the resource unit of measure is something other than hours such as, day or d, then the Project Management module assumes the resource assignment is in days and multiplies all resource values by a factor of eight (assuming 8 hr/day). In this case, decide if eight is the correct multiplier. If the resource is classified as a material resource, the resource units are not multiplied; they convert as-is.

You can change the multiplier in the PRMCONVERT.INI file. You can also modify the list of unit of measure abbreviations that the Project Management module refers to during the conversion. Refer to *Advanced Conversion Options* section later in this chapter.

For resources that have a blank unit of measure, use the Import wizard to decide how to handle the assignments, as described earlier in this chapter.

The conversion process creates additional levels in the resource structure for P3 3.x hierarchical resources. The Project Management module supports only maximum limits for resources. Normal resource limits are not converted.

Resources assigned to milestone activities in P3 3.x become expenses in the Project Management module. The resource name is used for the expense name, and the resource's budgeted cost is the expense's budgeted cost. The first resource found on the milestone becomes the primary resource in the Project Management module.

■   **Resource curves** You can specify the allocation of resources and costs over the duration of an activity using resource curves. All resource curve definitions assigned to the projects being exported from P3 3.x, are imported into the Project Management module. The curve name is prefaced by the P3 3.x project name in the Project Management module (e.g., APEX - Triangular). The resource curve assignments are also imported.

P3 3.x divides the activity's duration into 11 increments (points) from 0 through 100 percent. Each increment indicates resource use. The value for 0% represents the amount of resource already used when the activity begins; the value for 10% represents the usage between the start and 10% completion. Curves in the Project Management module are defined using 21 points. The first point from P3 3.x imports directly into the Project Management module. The other 10 curve values are split in half and rounded to the nearest 10th.

For example:

P3 3.x Bell Shape 0 1 3 8 15 23 23 15 8 3 1

Project Management Bell Shape: 0 .5 .5 1.5 1.5 4   4 7.5 7.5 11.5 11.5 11.5 11.5 7.5 7.5 4 4 1.5 1.5 .5 .5

■   **Costs** In P3 3.x, the estimate to complete can be a negative value to account for cost overruns on an activity. All negative cost values import to the Project Management module as expenses, so the cost overruns can be tracked. Lump sum costs can be converted as expenses or resource assignments with a budgeted cost in the Project Management module. From the Import Wizard, click on the Advanced button in the Update Project Options dialog box to select your preference.

■   **Cost accounts** Cost accounts are converted from P3 3.x to the Project Management module. Cost accounts are global across all projects in the Project Management module. A sample cost account hierarchy is provided when you install the Project Management module. When you import a project, the Project Management module creates a branch for the project cost accounts, and the project name is added to the beginning of each cost account. The cost category in P3 3.x becomes part of the cost account in the Project Management module. For example, cost account 11101 from project APEX creates the following branch in the Project Management module:

•   APEX

•   APEX.11101

•   APEX.11101.L

If duplicate cost accounts are encountered when you import a P3 3.x project, you can choose how to resolve each conflict by modifying the import configurations in the Import wizard.

■ **Calendars** The Project Management module supports global, resource, and project calendars. Global calendars in the Project Management module apply to all projects. Sample global calendars are provided with the Project Management module. When you import a project, all base calendars are added to the list of existing global calendars. Resource calendars from P3 3.x are converted to resource calendars in the Project Management module.

The Project Management module does not support the ability to designate repeating holidays. If you convert a daily P3 3.x project, the repeating holidays from the P3 3.x project are applied directly to the global calendars in the Project Management module. For example, if July 4 is a repeating holiday in P3 3.x, it is designated as a nonworkday in the global calendars for each applicable date from the project start date to the project finish date in the Project Management module.

■ **Constraints** The Project Management module supports two constraints per activity. Review the following conversion table:

P3 3.x Constraint Type	**Project Management Constraint Type**
Early Start (start no earlier than)	Start On or After
Late Start (start no later than)	Start On or Before
Early Finish (finish no earlier than)	Finish On or After
Late Finish (finish no later than)	Finish On or Before
Start On	Start On
Expected Finish	Expected Finish Date
Mandatory Start	Mandatory Start
Mandatory Finish	Mandatory Finish
Zero Total Float	Not Converted
Zero Free Float	As Late As Possible

■ **Target projects** You can convert target projects just as you would any other project; however, the target designators are not converted. To designate a target project in the Project Management module, choose Projects, Maintain Baselines. Click Add and choose Convert Another Project to a New Baseline of the Current Project. Select the converted target project as the baseline for the current project.

■ **Scheduling options** The following scheduling options convert to the Project Management module:

P3 3.x	Project Management
Show open ends as (Critical or Noncritical)	Make open-ended activities critical
When scheduling activities apply (Retained logic or Progress override)	For activities started out of sequence use (Retained logic or Progress override)
Calculate start-to-start lag from (Actual start or Early start)	Calculate start-to-start lag from (Early Start or Actual Start)
Calculate total float as (Most critical, Start float, or Finish float)	Compute Total Float as (Start float, Finish float, or Smallest of start float and finish float)

In P3 3.x, relationship lag is always calculated using the predecessor calendar. An advanced scheduling option in the Project Management module enables you to choose the calendar you want to use. This setting will default to predecessor calendar for imported P3 3.x projects.

In the Project Management module, float calculations for subprojects converted as individual projects are always based on the finish date of each individual project.

The Project Management module always rolls up resources assigned to an activity, which then determine the activity's durations and schedule dates.

■ **Autocost rules** P3 3.x provides automatic resource/cost calculation rules by which P3 3.x calculates costs and estimates resource use when you update activities. These rules convert to the Project Management module.

The autocost rule, Add actual to ETC or Subtract actual from EAC converts to the Add Actual to Remaining or Subtract Actual from At Completion when updating Actual Units or Costs field in the Calculations tab in the Projects window.

P3 3.x provides an autocost rule to choose whether you want to use the updated percent complete to calculate actual quantity to date, actual cost to date, both (mark both checkboxes), or neither (clear both checkboxes). If both checkboxes are marked in P3 3.x, the setting in the Project Management module, Recalculate Actual Units and Cost when duration % complete changes, is marked. If neither checkbox is marked in P3 3.x, the setting is not marked in the Project Management module. If one checkbox is marked and the other is not, the setting in the Project Management module is not marked.

The Link actual to date and actual this period autocost rule in P3 3.x converts to the Link Actual and Actual this Period Units and Cost field in the Calculations tab in the Projects window in the Project Management module.

Data not converted This section lists the data items that are not converted from P3 3.x to the Project Management module. Refer to "Special considerations" on page 648 for additional cases.

- **Layouts, filters, Global Change specifications, and report and graphic specifications** Layouts, filters, Global Change specifications, and report and graphic specifications are not converted with the project; however, sample data is provided for these items in the Project Management module.

- **Access rights** Access rights are not converted in the Project Management module. Your system administrator must set up global and project profiles that determine privileges.

- **Leveling options and leveling priorities** Choose Tools, Level Resources, to set options for leveling in the Project Management module.

Refer to the *Primavera P6 Administrator's Guide* for more information on defining financial periods in the Project Management module. This guide is available from the Primavera Documentation Center, which is located in the \Documentation\ <language> folder of the P6 physical media or download.

- **Financial periods and past period actuals** In the Project Management module, financial periods are global. Financial periods and past period actual data are not converted to the Project Management module because financial periods are project-specific in P3. Choose Admin, Financial Periods, to define financial periods in the Project Management module. After you define financial periods choose Tools, Store Period Performance, to store past period actuals per financial period.

Advanced conversion options The Conversion utility provides additional options that you can set in an INI file. You can also use command-line parameters to convert multiple projects at one time.

The PRMCONVERT.INI file is created in your Windows or Winnt folder the first time an import is run. Add any of the following options to the file:

[WBS]

WbsAsActCode=[0,1] Choose 1 to enable the import process to import all WBS codes as a global activity code. The global activity code name created, P3 WBS - Proj, where Proj is the name of the project group in P3, will store the WBS values. If this option is set to 0, the WBS will import to the WBS structure in the Project Management module. The default setting is 0.

AutoSelect=[0,1] Choose 1 to enable the conversion process to attempt to match the WBS with the project hierarchy structure. A unique WBS branch will be created for each project within the project group. The default setting is 1.

[Settings]

NoUI=[0,1] Choose 1 to remove the GUI screens when using command line conversions. For example, if you are using a batch file to perform many conversions, and you do not want any GUI to show, select 1. The default setting is 0.

DailyMultiplier=[#] Select an integer to use as a multiplier when exporting/importing daily P3 3.x projects. The default multiplier is 8.

For example: *P3 3.x to Project Management*: If a duration is one day in P3 3.x and the daily multiplier is set to 12, the duration in the Project Management module will be 12 hours.

Project Management to P3 3.x: If a duration is 40 hours in the Project Management module and the daily multiplier is set to 10, the duration in P3 3.x will be four days.

[Resource Units]

The conversion process uses the unit of measure for resources in P3 3.x to determine whether to categorize a resource in the Project Management module as labor, nonlabor, or material. If a resource in P3 3.x contains one of the following units of measure, it is converted as a labor resource in the Project Management module: h, h., hr, hr., hrs, hrs., hour, d, d., day, days, w, w., wk, wk., wks, wks., week, m, m., mnth, y, y., yr, yr., yrs, yrs., year, md, md., mds, mds., mh, mh., mhs, mhs.

If a resource in P3 3.x contains one of the following units of measure, it is converted as a material resource in the Project Management module: feet, ft, ft., sqft, cyds, cyd, cyd., yard, yrd, yrd., yrds, yd, yd., yds, yds., inch, ton, tons, in, in., lf, lnft, lft, ea, each, unit, u.

All other resources are converted as nonlabor. The unit of measure conversion is not case-sensitive.

Labor=[unit of measure] Specify unit of measure strings to add to the default labor list; use commas to separate each string.

NonLabor=[unit of measure] Specify unit of measure strings to add to the default nonlabor list; use commas to separate each string.

Material=[unit of measure] Specify unit of measure strings to add to the default material list; use commas to separate each string.

In the following example, a1, test, and bbb will be added to the default list above, hrs and hr. will be removed from it and added to the nonlabor list, and lb, lbs will be added to the default material list:

[Resource Units]

Labor=a1,test,bbb

NonLabor=hrs,hr.

Material=lb,lbs

BlankIsLabor=[0,1,2]

Set to 0 to convert blank resource unit of measure fields to nonlabor resources in the Project Management module; set to 1 to convert blank resource unit of measure fields to labor resources; set to 2 to convert blank resource unit of measure fields to material resources. The default setting is 1.

HourlyAdd=[comma-delimited string] Specify resource unit strings to be added to the default list of units treated as hourly.

HourlyRemove=[comma-delimited string] Specify resource unit strings to be removed from the default list of units treated as hourly.

DailyAdd=[comma-delimited string] Specify resource unit strings to be added to the default list of units treated as daily.

DailyRemove=[comma-delimited string] Specify resource unit strings to be removed from the default list of units treated as daily.

In the following example, the unit strings a1, test, and bbb are treated as hourly units:

[Resource Units]

HourlyAdd=a1,test,bbb

The default string for Hourly = h,h.,hr,hr.,hrs,hrs.,hour,mh,mh.,mhs,mhs., rh,rh.,rhs,rhs.,ph,ph.,phs,phs.

The default string for Daily = d,d.,day,days,md,md.,mds,mds.,rd,rd., rds,rds.,pd,pd.,pds,pds.

[UOM Mapping]

UOM1=unit of measure=unit of measure string

Specify the units of measure used in P3 that are equivalent to the unit of measure specified in the Admin Categories in the Project Management module.

In the following example, all abbreviations of cubic yard listed in the unit of measure string will convert to the standard cubic yard (cu. yard) unit of measure defined in the Project Management module:

[UOM Mapping]

UOM1 =cu. yard=cy, cuyd, cuy, kf

Transferring Data to Primavera Contractor Users

In this chapter:

Exporting Projects

Exporting Resources

Data can be transferred from a Project Management module user to a Primavera Contractor 5.0 or 6.1 user by exporting XER files, Primavera's proprietary exchange format. This section describes how transfer project and resource information from the Project Management module for use with Primavera Contractor 5.0 or 6.1.

You cannot export data for use with Primavera Contractor 4.1; however, you can transfer data from Primavera Contractor 4.1 to a Project Management module user using the import process described in "Importing Projects" on page 547.

Exporting Projects

Use the Export wizard to export Project Management module projects to Primavera Contractor 5.0 or 6.1 XER files. The Export wizard guides you through the steps for exporting projects.

Select export type and project Open the project(s) in the Project Management module you want to export. Choose File, Export. Choose Primavera Contractor 6.1 or later, or 5.0, then click Next. Choose Project as the export type, then click Next.
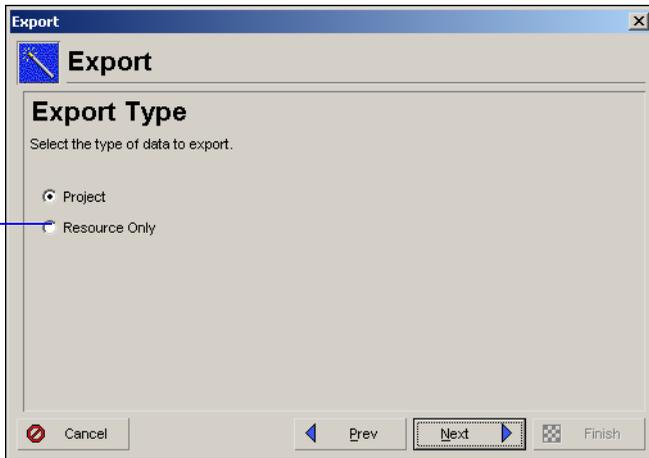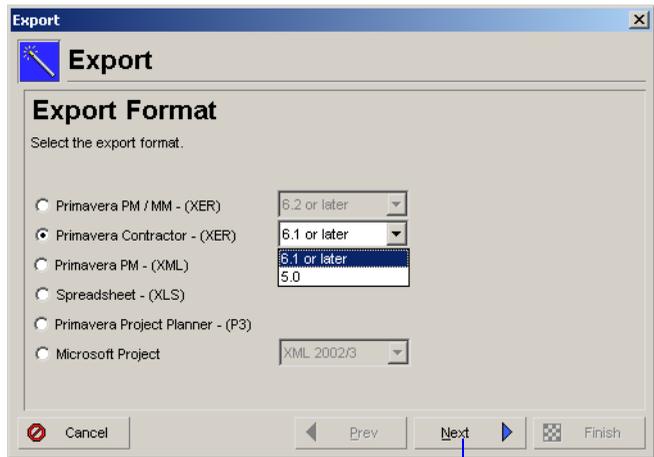
Choose Project as the export type, then click Next.

Mark the Export checkbox next to the project that you want to export. You can only export one project at a time. Click Next.

Lists only projects that are currently open in the Project Management module. You can only select one project to export.
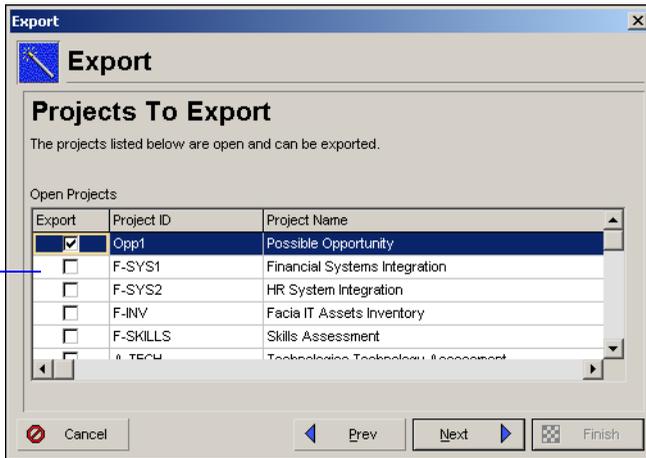
Specify filename and location Type a name for the XER file. To specify the location where the file will be stored, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the project to a single file with an XER extension.
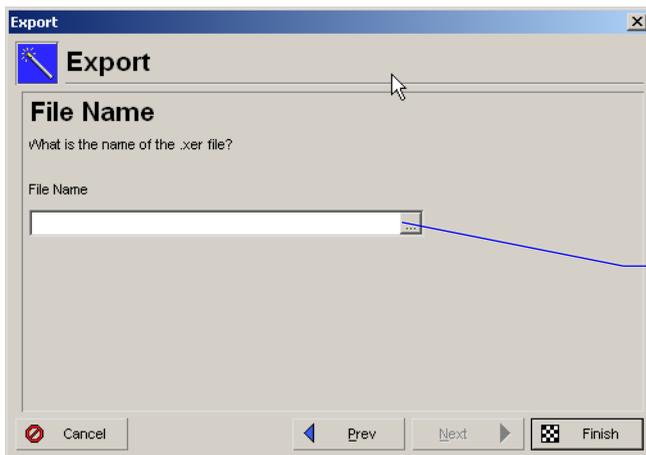
Click to select the location where the file will be stored.

Data not available in Primavera Contractor Primavera Contractor does not contain some of the functionality available in the Project Management module. To enable Primavera Contractor to import an XER file exported from the Project Management module, the following data is contained in the XER file but not imported into Primavera Contractor:

- Budget data

- EPS Codes

- Financial periods

- Funding data

- Issues

- Issue Codes

- Manual resource curves

- Multiple critical float paths

- Past period actuals

- Portfolios

- Project Codes

- Resource Shifts

- Risks

- Roles

- Thresholds

- Work products and documents

Exporting Resources

The Project Management module enables you to export only the resources in your resource hierarchy to Primavera Contractor 5.0 or 6.1 XER files. Use the Export wizard to export Project Management module resources to Primavera Contractor XER files. use the Import wizard to bring XER files into the Project Management module. The Export wizard guides you through the steps for exporting projects.

Export resource data In the Project Management module, choose File, Export. Choose Primavera Contractor 6.1 or later, or 5.0, then click Next. Then, choose Resource Only as the export type and click Next.

Choose Resource Only as the export type, then click Next.

Type a name for the XER file. To specify the location where the file will be stored, click the Browse button. If you do not specify a folder, the file is stored in the My Documents folder of the current user. Click Finish to export the resources to a single file with an XER extension.

Click to select the location where the file will be stored.

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