Open Workbench®

User Guide
Service Pack 02.1.02

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Chapter 1: Introduction to Open Workbench

Open Workbench is an application for project scheduling and management. This application conforms to and supports the underlying ideas of project management while presenting information in an intuitive and easy-to-learn format.

Use Open Workbench to create projects, populate them with tasks, identify dependent tasks that are internal or external to the project, and assign resources. You can also import data, such as tasks, from other projects. You can display project data in various ways, including in spreadsheet views that include Gantt charts and in Critical Path Method (CPM) Network views. Open Workbench provides standard views that you can use as is or can modify to meet your needs.

Additionally, Open Workbench allows you to save and share projects when Open Workbench is connected to CA Clarity Project & Portfolio Manager (CA Clarity PPM).

Note: For more information, see the *Project Management User Guide.*

Chapter 2: Release Notes: Open Workbench

What's New

The following enhancements are available in this release:

- Cell Text Wrapping (see page 13)
- Estimate to Complete (ETC) Automatic Calculation (see page 13)

Cell Text Wrapping

If you enter text in Open Workbench table cells and the text is larger than the cell width, the text wraps. This behavior ensures that the text you enter from Open Workbench is always visible.

Note: Text wrapping is not available when you open a project from CA Clarity PPM into Open Workbench.

You can also adjust the table row separators to change a row or cell height.

Estimate to Complete (ETC) Automatic Calculation

When you assign a resource to a task in CA Clarity PPM, the ETC for the task is automatically calculated. When you assigned a resource to a task in Open Workbench, the ETC was not automatically calculated. Starting this release, you can configure Open Workbench to calculate ETC automatically.

The automatic calculation applies to all resource assignments that you perform in Open Workbench. You can view and manage these automatically calculated ETC values in CA Clarity PPM and Open Workbench. To enable automatic calculation, select the Auto Calculate ETC check box on the Defaults tab of the Options dialog.

Supported Languages

Open Workbench is a multilingual application available in the following languages:

- Brazilian Portuguese
- English
- French
- German
- Japanese

The Open Workbench online help and user guide is available in the following languages:

- Brazilian Portuguese
- English
- Japanese

Chapter 3: Getting Started

This section contains the following topics:

Installation and Upgrade

Some versions of CA Clarity PPM require a mandatory upgrade of Open Workbench. For more information about compatibility requirements for your specific version of Open Workbench, see the *CA Clarity PPM Release Notes*.

Minimum System Requirements

Open Workbench runs on the following operating systems:

- Windows XP Service Pack 2 or higher

- Windows Vista, all editions

- Windows 7, 32-bit and 64-bit, Professional edition or higher

- Windows 8, 32-bit and 64-bit, Professional edition or higher

To install and run Open Workbench successfully, you must be a power user with the following rights:

- Registry Edit rights

- Read/write access for the %ProgramFiles% folder (for x86 Windows) or the %ProgramFiles(x86)% folder (for x64 Windows)

We recommend at least 256 MB of RAM when using Open Workbench.

Before You Start

Uninstall any existing version of Open Workbench before installing this version.

Important! The Open Workbench installer resets any customized views that you have saved in the Open Workbench library default views folder. Any saved, customized views from a previous installation are removed from the library when you reinstall Open Workbench. After installing the updated version of Open Workbench, you can add back your customized views to the default views folder.

Install Open Workbench

To connect Open Workbench with CA Clarity PPM, download the latest version of Open Workbench and CA Clarity PPM Schedule Connect from the following sources:

- CA Clarity PPM DVD

  Navigate to Clients\OpenWorkbench and click owbsetup.exe.

- CA Clarity PPM

  Open Home, and from the Personal menu, click Account Settings to access the Software Downloads page. You require the *Software Download - Open Workbench* access right.

Follow these steps:

1. Download the latest version of Open Workbench.
2. Save the executable file to your computer.
3. To start the installation process, double-click the executable file.
4. Select your language preference for the installer and click OK.
5. Agree to the Open Workbench license.

   A series of pages guides you through the setup process.
6. Follow the instructions on each page.

Access Online Help

You can access the online help in the following ways:

- From any open dialog, click Help to get context-sensitive help specifically for the dialog you have open. The Help page that is designed specifically for that dialog opens.
- Click the question mark icon on the top right of the ribbon bar.
- Press F1 on your keyboard.

Start Open Workbench

You can launch the application from the Programs menu. If you are using Open Workbench with CA Clarity PPM, you can open a project and can launch Open Workbench from CA Clarity PPM.

When you launch the application, the *Log on to CA Clarity PPM* dialog appears if:

- You have access to CA Clarity PPM.

- You have the *Log on to server* check box selected. The *Log on to server* check box option is available in the General tab under Preferences.

- You are logged in to CA Clarity PPM, that is, CA Clarity PPM is running in an active browser window. But, you launch the application from the Programs menu instead of opening a project in Open Workbench from CA Clarity PPM.

The main window has:

- An application menu which appears at the top left corner.

- A ribbon menu which appears below the application menu. This menu provides access to all the functions in the application.

- A library on the left that contains views which you can apply to projects. The view that you set as the default view automatically appears even if you have not opened a project.

How to Set Up Open Workbench

You can specify the default program preferences and project default options. *Program preferences* determine how the application behaves each time you start it. *Project default options* impact project settings, such as, the default directory locations and the default dependency type that is automatically assigned when you create dependency relationships. Every Open Workbench project that you create uses these defaults unless you specify otherwise.

Use the tabs on the Options dialog to define your preferences. To open the Options dialog, click the application menu, and then click *Preferences*.

Note: Some of the dialogs allow you to override the defaults settings you define in the Defaults tab and the general settings you define in the General tab. The changes that you make in dialogs are automatically saved with your project and override the program defaults when you open the project.

Use the following process to define the program and project default preferences if you are setting up the application for the first time:

1. Define the general options (see page 18).

2. Define the default options (see page 20).

3. Define the file location (see page 21).

4. Define the WBS level labels (see page 22).

5. Define the view display colors (see page 23).

6. Define the time scales (see page 23).

Define the General Options

You can define the default behavior of the application, such as, how the window components are displayed and the location where you save files. To define the default behavior, use the General tab of the Options dialog.

Note: In most cases, you can override these defaults as needed for individual projects.

Follow these steps:

1. Click Preferences in the application menu.

2. Complete the fields in the General tab. The following fields require explanation:

   Show Tips at Startup

   Indicates whether to show tips in the Tip of the Day dialog each time you start the application.

   Default: Not selected

   Note: You can turn off this feature from the *Tip of the Day* dialog.

   Display Status Bar

   Indicates whether to display the status bar. Messages regarding commands that you select or information you enter displays in the bar.

   Default: Selected

   Log on to server (see page 28)

   Specifies that you want the *Log on to CA Clarity PPM* dialog to open each time you launch Open Workbench, if you are using Open Workbench with CA Clarity PPM.

   View Shortcut Bar

   Indicates whether to display the shortcut bar *Library* in the application window.

   Default: Selected

Recent Project File List Contains

Defines the number of recently opened file names to appear in the list when you select File.

Default: 4

Default Project Format

Defines the project format for your Open Workbench project.

Default: *.RMP

Values:

■ *.RMP - Open Workbench .rmp files.

■ *.XML - XML files.

■ CA Clarity PPM - CA Clarity PPM project files.

First Week of Year

Defines the first week of the year. For any selection other than *User Locale*, you must view your project in a time-scaled view that has a scale set to *Weekly*. Select *Show Week Number* to display the week number in the heading for each time period.

Default: User Locale

Values:

■ User Locale - default selection.

■ First Week Contains 1/1. This selection includes January 1 in Week 1.

■ First Full Week After 1/1. This selection does not include January 1 in Week 1, but starts the following week.

■ ISO. Based on the ISO calendar, this selection displays 53 weeks in a year, instead of the default 52 weeks.

Default Currency

Defines the currency code that is used in calculations. You can convert any Euro-based currency entry to the equivalent amount in another Euro-based currency. When you change from one base currency to another, the entries in Open Workbench do not convert. Conversions only occur for display purposes.

Default: USD

Note: When using USD (United States Dollars), you cannot convert the currency entries to another currency.

Warn When Reading or Writing Different Currencies

Displays a warning message on opening a project that uses different currency settings from the base currency, when selected.

Default: Selected

Guideline URL

Defines the default Uniform Resource Locator (URL) or the directory path where guidelines for your organization are located.

Default: Cleared

Note Categories

Define the note categories that you use to group project and task notes.

3. Click OK.

Define the Default Options

Use the Defaults tab of the Options dialog to define the default project-scheduling behavior, such as the loading pattern, units, and the projects duration type. You can also define the default dependency options, such as the dependency type, lag, and lag type.

Follow these steps:

1. Click Preferences in the application menu.

2. Open the Defaults tab.

3. Complete the fields in the Assignments section. The following fields require explanation:

   Loading Pattern

   Defines the loading pattern that is used when assigning resources to tasks.

   Values: Fixed, Contour, Front, or Back

   Default: Front

   Fixed Duration

   Select to specify that the resource's duration type is fixed.

   Default Unit

   Specifies how the resource value is measured.

   Values: Days or Hours

   Default: Hours

Auto Calculate ETC

Specifies whether the ETC is calculated automatically. If you select this check box, the ETC is calculated automatically for all resource assignments. You can view and manage these automatically calculated ETC values in CA Clarity PPM, also.

Note: CA Clarity PPM and Open Workbench use the same method for calculating ETC.

Default: Cleared

4. Complete the fields in the Dependencies section. The following fields require explanation:

Type

Defines the dependency type.

Values: Finish-Start, Start-Start, Finish-Finish, or Start-Finish

Default: Finish-Start

Lag

Defines the number of days (daily lag type) after the predecessor task's constraining date, or percent complete (percent lag type), that the successor task's constraining date begins.

Lag is the predetermined amount of time between the start and/or finish time of two tasks in a project plan.

Lag Type

Defines the lag type.

Options: Daily or Percent

Default: Daily

5. Click OK.

Define the File Location

Use the Locations tab of the Options dialog to:

- Define the default locations for libraries and other files.

- Define a global file location for global settings, such as calendars, note categories, highlights.

- Access your resource pool easily.

This tab displays a list of file locations that you can select and edit. You can review the path and the file name for the listed locations and can browse to define a new location. You can also use this tab to define the default view file location. If you do not specify a default view file location, minimum information is displayed on opening a project.

Follow these steps:

1. Click Preferences in the application menu.

2. Open the Locations tab.

3. Select the name of a library, file, view, or dictionary from the Description column, and click Browse to search for and select the default location.

4. Select the folder you want to use as the location, and click OK.

   The selected location is added to the Location column next to the library, file, view, or dictionary description.

5. Click OK.

Define the WBS Level Labels

Use the WBS tab of the Options dialog to define the default Work Breakdown Structure (WBS) levels to conform to the naming conventions of your organization. You can define any number of WBS levels.

Consider the following rules when defining the WBS levels:

■ WBS level names must be unique.

■ When deleting levels, at least four levels are retained in the WBS.

How are the WBS Levels Displayed

Some dialogs in the application use icons to represent the WBS levels. When you change the WBS level names, equivalent icons are displayed. You can view the WBS items in your master project WBS list. For example, within a master project, subprojects appear with a Subproject icon on the header button of the proxy task. This icon indicates that it is a task inside an inserted subproject. You may see the following list of WBS icons:

Subproject

Specifies a proxy task within an inserted (entire) subproject, as viewed from the master project.

Task in Subproject

Specifies a task within an inserted (entire) subproject, as viewed from the master project.

Subproject Task

Specifies an individually inserted subproject task, as viewed from the master project. Instead of inserting the entire subproject, you inserted only the subproject task.

Follow these steps:

1. Click Preferences in the application menu.

2. Open the WBS tab.

3. Complete the following fields, and click OK:

   Milestone Label

   Defines the label that is used for milestones.

   Default: Milestone

   Task Label

   Defines the label that is used for project tasks.

   Default: Task

   Summary Levels Label

   Displays a list of WBS levels in the order they appear in the WBS.

   Default: Phase, Activity

Define the View Display Colors

Use the Display tab of the Options dialog to:

- Turn the horizontal and vertical lines display on or off.

- Select the line and background colors from the color palette.

- Add new colors to the palette.

When you customize the display colors for a view, all open views use those colors.

Define the Time Scales

Use the Time Scale dialog to define the time periods and the type of time scale information that is displayed in views containing Gantt charts or tabulated views.

Follow these steps:

1. Open a spreadsheet view that displays a Gantt chart.

2. Double-click the column heading that displays dates.

3. Complete the fields in the Time Scale dialog. The following fields require explanation:

Start Date

Defines the start date for the time scale.

Note: To edit this date, select *User Defined Date* from the First Date Displayed drop-down.

First Date Displayed

Specifies the first date to display on the time scale.

Default: Project Start

Values:

- Project Start. The start date of the first task in the project.

- Today's Date. The current system date.

- Project Committed Actuals Start. The date of the first committed actuals on the first task.

- Next Pending Start. The start date of the next task that is estimated to start.

- Project As-of Date. The date of the last change that was made to the project or the last time it was saved.

- Pending Actuals Start. The first date of the currently collected uncommitted actuals.

- Project Fiscal Start. The start of the current fiscal period.

- User Defined Date. Allows you to enter a start date.

Finish Date

Defines the finish date for the time scale.

Note: To edit this date, select *User Defined Date* from the Period Finish Date drop-down.

Period Finish Date

Specifies the finish date for the time scale.

Default: Cleared

To activate this field, you must:

- Add one or more tabulated fields to the view's definition.

- Select the Tabulate check box in the Formatting Options dialog for at least one of the tabulated fields of the view.

- Select Customized from the Scale drop-down.

Note: You cannot use user-defined dates with a view that displays a Gantt chart. For Gantt time scales, Customized is not a Scale option and the Period Finish Date field is unavailable. However, you can use user-defined dates with views that display tabulated fields.

Number of Periods

Enter the number of time scale periods. This feature is unavailable if you select *Customized Scale* from the drop-down list.

Scale

Select the time period increments you want to display in the Gantt chart heading columns. You can display one customized or user-defined period for each field name.

Default: Weekly

Values: Weekly, Daily, Monthly, Quarterly, Semi-annually, Annually, or Customized

Show Week Number

Select this check box to display the week number in the heading for each time period. Week numbers begin at the start of the fiscal year. This option is enabled when you select *Weekly* from the Scale drop-down list.

Note: Week 1 includes January 1, a standard in the U.S. and the U.K.

4. Click OK.

How to Set Up Open Workbench with CA Clarity PPM

Use the following process if you are using Open Workbench with CA Clarity PPM and you are setting up Open Workbench for the first time:

1. Uninstall Open Workbench and CA Clarity PPM Schedule Connect (see page 26).

2. Set up your browser:

   ■ Set the Microsoft Internet Explorer Web browser options (see page 27).

   ■ Set the Netscape Navigator Web browser options.

3. Install Open Workbench and CA Clarity PPM Schedule Connect (see page 27).

4. Set the CA Clarity PPM project management options (see page 28).

   Note: For more information, see the *Administration Guide*.

5. Set the Log on to Server option (see page 28).

Uninstall Open Workbench and CA Clarity PPM Schedule Connect

Uninstall the existing version of Open Workbench and CA Clarity PPM Schedule Connect before installing a newer version.

Follow these steps:

1. Navigate to the Control Panel.

2. Remove the following programs:

   ■ Open Workbench

   ■ CA Clarity PPM Schedule Connect

Set Microsoft Internet Explorer Web Browser Options

The following browser option is suggested when connecting Open Workbench to CA Clarity PPM using Schedule Connect. To prevent the file download window from appearing when the browser encounters an encrypted page, use the following procedure.

For more information, see Microsoft Internet Explorer.

Follow these steps:

1. Open Microsoft Internet Explorer.

2. In the Tools menu, click Internet Options and then click the Advanced tab.

3. In the Security section, clear the Do not save encrypted pages to disk check box.

4. Click OK.

Install Open Workbench and CA Clarity PPM Schedule Connect

CA Clarity PPM Schedule Connect enables communication between CA Clarity PPM and Open Workbench. If you already have Open Workbench installed, install only CA Clarity PPM Schedule Connect.

You can download Open Workbench and CA Clarity PPM Schedule Connect from the following resources:

- CA Clarity PPM DVD

  Navigate to Clients\OpenWorkbench and click owbsetup.exe.

- CA Clarity PPM

  Open Home, and from the Personal menu, click Account Settings. You require the *Software Download - Open Workbench* access right.

Follow these steps:

1. Download Open Workbench using one of the resources.

2. Run or save the executable file (owbsetup.exe), when prompted.

3. Navigate to the %Program Files%\CA Clarity PPM Setups folder.

4. Double-click the executable file to start the installation process.

5. Select your language preference for the installer and click OK.

6. Agree to the license to continue with the installation.

   A series of dialogs take you through the setup process.

7. Follow the instructions on each dialog to continue.

Set the CA Clarity PPM Project Management Options

Before using Open Workbench with CA Clarity PPM, you must be set the following CA Clarity PPM project management options to help with project scheduling in Open Workbench.

■ **Allow Edit of Allocations when replacing Role**

Allows you to edit resource allocation while a project is locked in CA Clarity PPM.

■ **Only Export Current Baseline When Opening Projects in a Scheduler**

Allows you to export only the current baseline to Open Workbench when multiple baselines exist.

Note: For more information, see the *Administration Guide*.

Set the Log on to Server Option

If you use Open Workbench with CA Clarity PPM, you must specify that you want the *Log on to CA Clarity PPM* dialog to open each time you launch Open Workbench. This dialog allows you to specify whether or not you want to log on to CA Clarity PPM during an Open Workbench session.

Follow these steps:

1. Click Preferences in the application menu.

2. Select the Log on to server option and click OK.

   Default: Cleared

Chapter 4: Navigation Basics

This section contains the following topics:

File Menu

The following commands are available from the application menu:

- New (Ctrl+N)

- Open (Ctrl+O)

- Close

- Save (Ctrl+S) - You can save projects as records in the repository or as Open Workbench .rmp project files.

- Save As - If you are using Open Workbench with CA Clarity PPM, you can save projects as records in CA Clarity PPM or as Open Workbench .rmp project files.

- Print Setup

- Page Setup

- Print Preview

- Print (Ctrl+P)

- Quick Print - Prints the active view with the last-used settings.

- Project Properties - Use this dialog to enter description, schedule, resource, key task, and note properties.

- Preferences - Shows the Options dialog for Open Workbench.

- Recent File list

- Exit

Ribbon Bar

The following menus are available in the ribbon bar:

- Tasks (see page 30)

- Project (see page 32)

Tasks

The Tasks ribbon is divided into the following groups:

Clipboard

The following commands are available in this group:

- Copy

- Paste

- Cut. If you select and cut data from an individual cell, the data is deleted. If you select and cut an entire object, the selected object is highlighted by a marquee; the data is not deleted and removed from view until you insert the clipboard contents to a selected location.

Edit

The following commands are available in this group:

- Delete

- Modify. To edit a task, select the task and select Edit, Modify. To edit a resource, select the resource and select Edit, Modify.

- Insert

- Phase. Changes the currently marked task into a phase task. The parent task determines the indentation level of the phase.

- Milestone. Changes the currently marked task into a milestone.

- Task. Changes the currently marked task into a work task.

- Indent. Changes the indentation level of the currently marked phase task by indenting it one level further, that is, after marking a Phase and pressing *Indent*, the task changes to an Activity.

- Outdent. Changes the indentation level of the currently marked phase task by indenting it one level less, that is, after marking an Activity and pressing *Outdent*, the task changes to a Phase.

- Undo

   Note: If your most recent action is irreversible, the Undo command is disabled.

- Redo

   Note: If your most recent undo action is irreversible, the Redo command is disabled.

Search

The following commands are available in this group:

- Quick Search. Allows you to find tasks by name.

- Extended Find. Click to construct search criteria from one or more field names.

- Find Next

Quickfilter

The following commands are available in this group:

- Resource. Use the drop-down to filter the view by a selected resource or all resources.

- Type

Zoom

- In

- Out

Quick Filter by Resources

You can filter a view by resource name to display only data pertinent to that resource by using the Resource drop-down in the Quick Filter group. This drop-down is available when you have resource-specific field names in a view or resource assignments in a project. All project resources are displayed in the list. Selecting a resource from the list, changes data that is displayed in the view to show data pertinent to that resource.

The Gantt Chart view also takes advantage of the tabulated data elements that give running totals in the resource detail section at the bottom of the view. When you modify a view that contains a tabulated data element, the view recalculates dynamically.

Note: The Resource drop-down in the Quick Filter group is not available in the CPM views.

To clear the resource filter, select (All Resources) from the Resource drop-down. The view displays all resource data. You can also filter on resources using the Resource LOA check box.

Project

The Tasks ribbon is divided into the following groups:

Schedule

The following commands are available in this group:

- Autoschedule. Select to specify scheduling criteria (see page 126) for automatically scheduling the project.

- Critical Path. Select to calculate the critical path (see page 130) of a project automatically.

- Recalculate. Select to recalculate the duration (see page 116) of selected tasks.

- Pending Estimates. Select to accept (see page 111) or reject (see page 112) pending work estimates proposed by staff members.

Baselines

The following commands are available in this group:

- Define. Select to set (see page 119) or clear (see page 123) a baseline for the active project, view, or selected tasks.

- Manage. Select to display all available baselines and select the one to be used to calculate display information.

External

The following commands are available in this group:

- Subprojects. Select Subprojects to see a list of subprojects in the current project (see page 150), insert (see page 147) a new subproject, or delete (see page 152) a subproject.

- Dependencies. Select to view a list of external dependencies, create (see page 87), or delete (see page 88) external dependencies.

Assignments

The following command is available in this group:

- Transfer. Select to transfer assignments on the currently marked task from one resource to another.

View

The following commands are available in this group:

- New. Displays the View Definition dialog where you can create a view.

- New Filter. Displays the Filter Definition dialog where you can create a filter.

- New Sort. Displays the Sort Definition dialog where you can create a sort.

- Save. After changing the current view or creating a view, select Save View to display the Save View Definition dialog to save the active view.

- Refresh

- Manage Library. Select View, Library to view, add, and remove groups and the views, sorts, and filters they contain.

- Colors and Shapes. Select Colors and Shapes to review and edit the highlights currently in use.

Clarity

The following command is available in this group:

- Update. Select File, Update to update the current project with specified data from CA Clarity PPM.

  - Calendar. Specifies whether to refresh the current calendar of your project with any changes made to the calendar in the CA Clarity PPM project. Calendars are not specific to a resource.

  - System Options. Specifies whether to update your project's options, such as roles, and customized data mapping, with any changes made to the system options in CA Clarity PPM.

    Important! Selecting this option can change the default options of your working copy.

  - New Notes. Specifies whether to include only the task notes created since the project was opened or last refreshed in the update.

    For example, another user added a note to an unplanned task on their CA Clarity PPM timesheet while the project was locked in Open Workbench.

    Note: You require the project open in read/write mode to select or clear this check box.

  - Resources. Refreshes all attributes for resources that are assigned to the project. Updates the project with revisions to resource data, such as updates to resource calendars. Any assignment revisions, such as a change in the assignment estimate to complete (ETC), are not updated.

    Note: You must have the project open in read/write mode to select or clear this check box.

- Status. Specifies whether to include changes to Actual Usage, Actual Thru, Pending Actuals, and Pending Estimates for assignments of the project in the update.

  Note: You must have the project open in read/write mode to select or clear this check box.

- New Tasks and Assignments

  Specifies whether to include new tasks and assignments that have been created since the project was opened or last refreshed in the update.

  Note: You must have the project open in read/write mode to select or clear this check box.

- Team Members. Specifies whether to include changes to existing team members and bring in new team members that were added while you had the project locked in Open Workbench.

  For example, another user added a new team member or updated an existing team member allocation, start date, or finish date while the project was locked in Open Workbench.

  Note: You must have the project open in read/write mode to select or clear this check box.

Calendar

The following command is available in this group:

- Edit. Select Calendar to choose the calendar (see page 36) you want to apply to every project you open in Open Workbench. You can also create, edit, or delete user-defined calendars.

View Library

The views that you can apply to projects display in the view library. When you click a view, the displayed project view is replaced with that view. You can simultaneously display project data in different views.

The view library can display up to 32 groups of views, each of which can contain views, sorts, and filters. When you select a group, the view library displays icons representing views, sorts, and filters, which you can then click and apply to a project.

Reposition the View Shortcut Bar

By default, the View Library displays on the left side of the page. You can change this location. To reposition the library, click the top of the bar and drag it to another location in the window.

Hide or Restore the View Library

Use the General tab of the Options dialog to hide or restore the library.

Follow these steps:

1. Click Preferences in the application menu.

2. Complete one of the following steps in the General tab, and click OK:

   ■ Clear the View Shortcut Bar check box to hide the library.

   ■ Select the View Shortcut Bar check box to restore the library.

Calendars

Use the Calendars dialog to:

■ Create a calendar.

■ Edit an existing calendar for use by all projects you open in the application.

■ Select the calendar you want to apply to every project you open in the application.

■ Temporarily modify the work week schedules.

■ Assign common vacations, holidays, or other periods of zero availability.

■ Print a calendar. You can print a snap shot of the month that is displayed in the Calendar grid. You can print one month at a time.

The application provides a standard calendar by default. A project (.rmp) file may also have other calendars that are associated with it if you created new calendars while working with the file.

To open the Calendars dialog, open the Project ribbon, and click Calendar. The System Options section applies to all projects you have open in an Open Workbench session. Use the Calendar Editing section to create a calendar and to select the calendar on which to base the new calendar.

You can save the changes that you make to the calendar to use them later only if you have defined a global file location (see page 21). You can make changes in any case, but when you save the project back to CA Clarity PPM, the CA Clarity PPM calendar you edit reverts to their original settings, unless you have defined a global file location.

If you are working on different projects that use different calendars with the same name and you open one or more .rmp files during an Open Workbench session, the calendar in the first opened project is the one used by all projects, even if those projects use calendars with the same name.

Note: If you are using Open Workbench with CA Clarity PPM, the changes you make to CA Clarity PPM calendars are not saved back to CA Clarity PPM.

Using the calendar grid, you can perform the following actions:

- Select weekday column headings to select all the weekdays throughout all months and years of the calendar to apply your changes.

- Select single or multiple days to apply your changes.

- Click the scroll bar to move to next or previous month.

- Select a single day and click Workday to set the selected day to a workday. Resources are expected to be available for use on this day.

- Select a day and click Holiday to set the selected day to a non-workday. Resources are not expected to be available for use on this day.

- Remove individual holiday and non-standard workday exceptions and reset the selected days to their base calendar settings.

- Remove all holiday and non-standard workday exceptions and reset the calendar to the base calendar settings.

Apply a Calendar to Projects

You can apply a calendar other than the default calendar to all of the projects you have open during an Open Workbench session. During an Open Workbench session, you can switch calendars as often as you want to create new scenarios for your projects.

Follow these steps:

1. Open the Project ribbon.

2. Click Edit in the Calendar group.

3. Select the name of the calendar from the Current Calendar drop-down in the System Options section.

   The calendar applies to all of the projects you have open.

4. Click OK.

Create New Calendars

Use the Calendars dialog to create calendars that you can later edit and delete. When you create a calendar, you can define work schedule and holidays.

Follow these steps:

1. Open the Project ribbon.

2. Click Edit in the Calendar group.

3. Click New in the Calendar Editing section.

4. Enter a name for the calendar.

5. Select a calendar on which to base the new calendar from the Based On drop-down list and click OK.

   The new calendar inherits all of the base calendar holidays and other settings.

Edit a Calendar

To edit a calendar, define the fields in the following sections:

System Options:

- Hours per Day. Displays the number of hours that can be worked per day.

- Hours per Week. Displays the number of hours that can be worked per week.

- Week Start. Specifies the day on which the normal work week begins.

  Values: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

- Current Calendar. Specifies the name of the calendar that you want to apply to all projects.

  Default: Standard

Calendar Editing:

- Name. Defines the name of the calendar.

- Based On. Specifies the base calendar on which to base this calendar. If you create a calendar, it inherits the settings of the base calendar.

Delete Calendars

You can only delete calendars that you create in Open Workbench. If a calendar is displayed in the Current Calendar drop-down list, and you currently have open projects using it, you cannot delete that calendar even if it is a user-defined calendar. When you delete user-defined calendars, the default calendar is automatically applied to all open projects.

Note: You cannot delete the standard calendar that comes with Open Workbench and the Open Workbench (.rmp) project files use.

Follow these steps:

1. Click Edit in the Calendar group.

2. Select the name of the calendar from the Current Calendar drop-down list.

3. Click Delete and click OK.

Grid Columns and Rows

You can change the column width in views and on some grids that appear in dialogs. The column width determines the amount of data that can be displayed in a column. You can also insert and delete columns, determine the order of its display, and the sort order of rows.

Insert and Delete Grid Columns

Use the View Definition dialog to insert and delete columns, even when they contain cells that are populated with field names. To insert a column, click the top of a column to select it, and then press the *Insert* key on your keyboard. To delete a column, select the column and then press the *Delete* key.

Resize Grid Columns

You can resize columns to see more or less data in some dialogs and most views.

Follow these steps:

1. Place your cursor over the column line at the top of the grid.

    The cursor changes to a double-headed arrow.

2. Click and hold the left mouse button, and then drag the column line to the left or right.

Insert and Delete Rows in Grid Columns

You can insert and delete rows that appear in most views and in dialogs that display a grid. To insert a row, select the header of a row, and press *Insert*. To delete a row, select the header of a row, and press *Delete* key.

Note: Not all grids support these actions.

Cutting and Copying Project Data

When you cut, copy, and paste tasks and resources, you change the placement of cells in a view or you can add cells to a view. This allows you to paste task data from one view location to another, from one project file to another, and from Open Workbench to a Microsoft Windows application, such as Microsoft Word or Microsoft Excel. When you copy and cut data from a project, the application places it on the clipboard, a Microsoft Windows utility for transporting data between applications. This information remains on the clipboard until you cut or copy other information, or until you clear the clipboard.

When you select Edit, Copy Content and you insert the data individually, only subproject tasks are affected. These copied tasks normally appear in your project, and are copied and pasted, by reference only. When you paste the copied information, you are pasting content, rather than references to such information. To copy and paste data into a project where you want actual data, use Copy Content.

You can use the following data formats to cut and copy:

- Tab-separated text. A common format many spreadsheet and word-processing programs support. If you cut a range of text in Open Workbench, you can paste it to any other application that supports tab-separated text.

- Open Workbench proprietary format. Open Workbench uses its own internal data format for cutting and pasting information in Open Workbench projects.

- Objects. In Open Workbench, an object is a task (summary or detail) or a resource. To select an object in a spreadsheet view, click its row header.

- Gantt chart. You can only copy and paste in Gantt chart data formats. You can copy and paste text and graphics in a Windows application.

Cutting and Copying Cells

When you cut and copy data from views, you cut and copy the cells as text. The following rules are used when you cut, copy, and paste cells:

- You can only cut, copy, and paste data in spreadsheet views.

- When you paste cells, the clipboard content is inserted at the selected location in the project. If you select a cell in the spreadsheet to which you want to paste, the selected cell's content is replaced with the copied data from the clipboard. To avoid this, before you paste clipboard content, insert a blank row in the spreadsheet.

- When you cut and then paste or copy and then paste cell text containing a task, the task's dependencies and resource assignments are not pasted.

- If you cut and then paste or copy and then paste a phase-level task that does not have a WBS level displayed, a new task is created because there was no WBS data in the cell.

The exceptions to the rules are:

- If you only select tasks to copy, all of the task's associated resources are copied.

- You can paste dependencies.

- Open Workbench handles subprojects and their data components differently under different conditions, and the conditions of pasting these components vary accordingly:

    - Referenced project data. When you insert individual WBS items from another project into your project, either by selecting Tools, Subprojects, Insert or by right-clicking and selecting Insert Subproject in the shortcut menu, you paste only references to those items, and not their actual data. To copy and paste data, copy the content from the other project first and then paste it into your project.

    - Subproject (mixed) data. When you insert an entire subproject into a project, the subproject's tasks are added as actual data, even though the line representing the project itself is a reference. A more efficient way to copy and paste entire project data is to:

        - Insert the project as a subproject in Open Workbench.

        - Open the project by itself and copy all items in the standard way (to the clipboard). Then open the target and paste the items in the standard way. Use this method for pasting into Open Workbench or a third-party application, such as Microsoft Project.

        - Import the project from a third-party application, such as Microsoft Project.

Copy, Cut, and Paste Tasks or Resources

Use the paste command to paste text and graphics from a project in the application, including Gantt chart, from one view location to another, from one project file to another, and from Open Workbench to another Microsoft Windows application, such as Microsoft Word or Microsoft Excel.

The elements of a task or resource that you cut vary. When you cut more than one task or resource, all relationships between them are also cut.

Copy and Paste Gantt Charts

When you copy and paste a Gantt chart and its associated tasks, the following data is included:

- Column headings.

- The entire Gantt chart timescale as it is configured, even if it extends beyond what displays on the screen.

- Gantt chart colors.

- Subproject data and icons.

- Hidden columns, the data that is displayed in each column, and its column heading.

  Note: Once you paste the data, this data no longer displays as hidden.

- Dependency lines if dependency relationships are displayed in the Gantt, and if the dependency lines begin and end within the area you selected.

Follow these steps:

1. Select the entire view, a task, or a series of tasks and the corresponding Gantt.

   Note: Although you cannot select column headings, this data gets copied.

2. Right-click and click Copy in the shortcut menu.

3. Select a location in which to paste the Gantt chart, and click Edit, Paste.

Paste Special Command

Use Paste Special for precise control over copying and pasting tasks and resources. The *Paste Special* command behaves like the Paste command, but provides you with capabilities beyond the default paste behavior. Use the Paste Special dialog to use Paste Special.

Note: The options available on the Paste Special dialog depend on the object you select to copy and paste. Only options that pertain to your copy selection are active on the Paste Special dialog. To copy and paste interproject dependencies, first save the original and target project.

Monitor Process Progress

Use the Progress dialog to review the approximate time taken to complete the current process. Click Cancel to end the process before completion. When canceled, the process is completely canceled; it is not partially finished.

Chapter 5: Create and Build Projects

This section contains the following topics:

How to Create Projects

A project is a set of related tasks that are performed to achieve a specific objective. Before you plan a project, have a general idea of what it entails, people responsible for managing and working on it, when it has to be done, and the cost involved. Once you create your project, you will want to populate it with phases, activities, and tasks, and perform other important project management tasks, such as assign resources to tasks and create project schedules.

You can store the projects that you create as files on your computer, a server, or a network location. Use the Project Properties dialog to define your new project. This dialog consists of the following tabs: Description, Scheduling, Resources, Key Tasks, Advanced, and Notes.

Note: If you are using Open Workbench with CA Clarity PPM, you can store projects directly to CA Clarity PPM. You must have CA Clarity PPM Schedule Connect installed to create a project.

Create Projects from the Application Menu

The following procedure explains how to create a project from the application menu.

Follow these steps:

1. Click File, New to create a project.

2. Click File, Project Properties.

3. Complete the fields in the Description tab.

4. Click OK and save your project.

Create Projects from the Command Line

You can create CA Clarity PPM projects using the command line. You can create projects from the:

- DOS prompt

- Windows run dialog

- Properties definition for a Windows icon or the Start menu item

Use the following command-line arguments to create CA Clarity PPM projects:

`npWBench /r [`*`file`*`].rmp + /rR CLARITY\[projectID]`

This command creates a new master project with a Read-only project file and a Read-only CA Clarity PPM project.

`npWBench [`*`file`*`].rmp + /r CLARITY\[`*`projectID file2`*`].rmp /r repoName\[`*`probED2`*`]`

This command creates a new master project in read/write mode and opens two CA Clarity PPM subprojects in read-only mode.

file

Defines the name of the master project you want to create.

projectID

Defines the name of the CA Clarity PPM project you want to create.

projectID file2

Defines the name of the first CA Clarity PPM subproject you want to create.

probED2

Defines the name of the second CA Clarity PPM project you want to create.

How to Save Projects to Files

You can save projects as .xml or Open Workbench .rmp project files. You can save any number of local copies of your project with the same file name. If you are using Open Workbench with CA Clarity PPM, you can save new projects to CA Clarity PPM using the *Save As* dialog.

You can save the project files in the following formats:

- Workbench files (*.rmp). Saves the project to your computer or network as an Open Workbench .rmp project file.

- CA Clarity PPM Projects. Saves the project to CA Clarity PPM.

- XML Files (*.xml). Saves the project to your computer or network as an XML file.

Note: If you are saving the project record as a .rmp file, use the Retain Lock check box to specify whether or not to hold the lock or unlock the project when saving it to your computer or network. This check box is displayed when you select Open Workbench or XML from the Save as type drop-down.

Important! If you do not check this box, you can have issues saving your changes to CA Clarity PPM.

How to Save Projects back to CA Clarity PPM

If you are using Open Workbench with CA Clarity PPM, you can save projects to CA Clarity PPM using CA Clarity PPM Schedule Connect. You can:

- Save a new project created in Open Workbench back to CA Clarity PPM (see page 45).

- Save an existing project to CA Clarity PPM (see page 47).

- Save a copy of an existing project as a new project (see page 48).

When you save a project that is updated in Open Workbench back to CA Clarity PPM:

- The saved project in CA Clarity PPM reflects the updated schedules. The save process does not modify other project information, such as the collaboration or financial information.

- The project remains open yet still locked in Open Workbench which allows you to continue updating the project if necessary. You must explicitly close the project to unlock it.

Important! If you save a CA Clarity PPM project as an Open Workbench .rmp project file with the Retain Locks check box is selected and you continue to edit it and then save the project file again, a message appears letting you know that you are saving a non-working copy. If you continue, you cannot save the project back to CA Clarity PPM as the original copy. You can only save a copy of the project as a new project with its own unique project ID.

Save New Projects to CA Clarity PPM

If you are using Open Workbench with CA Clarity PPM, you can create an Open Workbench .rmp project file and then save it to CA Clarity PPM if:

- You have the access rights to create projects in CA Clarity PPM.

- The resources or charge codes that are referenced in the project exist in CA Clarity PPM.

When you save the project to CA Clarity PPM, the following occurs automatically:

- You become the project manager in CA Clarity PPM with access rights to view and edit the project.

- The project is locked in CA Clarity PPM with your user name.

Note: If you save an Open Workbench file as a CA Clarity PPM project record, then its External ID is the default ID you entered in the Project field in CA Clarity PPM. If it matches an existing project record's External ID, you cannot save the project to CA Clarity PPM. You can save a project over an existing project if you save the project using an existing CA Clarity PPM project ID. If you save over an existing project, the new project information replaces the existing project information.

Follow these steps:

1. Click Save As in the application menu to display the list of projects that you have rights to view or edit.

   CA Clarity PPM Host

   Displays the CA Clarity PPM server that Open Workbench is connected to when opening projects from CA Clarity PPM.

    Click to see a list of available project names.

    (Default view) Click to see a detailed list of available projects.

    Click to open the Open Workbench .rmp project files or XML files from your computer or network.

    Click to save the project to CA Clarity PPM and to display available projects from CA Clarity PPM.

   Save in

   Displays the current folder when saving Open Workbench .rmp project files or XML files to your computer or network.

   You can filter the list by using the wildcard (*).

2. Enter any set of characters in any case in the Project or File Name field. For example, if you enter a*, only projects starting with the letter a or A are displayed. (For the CA Clarity PPM project detail view only)

You can sort the list by clicking column headings. Columns that are displayed include:

- Project ID

- Name

- Locked By

- Manager. The user name that is identified in CA Clarity PPM as the project manager for the project.

Project

Displays the project ID when saving the project to CA Clarity PPM. If the project ID is unique in CA Clarity PPM, a new project is saved to CA Clarity PPM. If the project ID exists in CA Clarity PPM, a confirmation message appears letting you know the ID already exists. Click Yes to replace the existing project with the new project information.

File Name

Displays the file name when saving Open Workbench .rmp project files or XML files to your computer or network. Enter the Open Workbench project name or enter the XML file name (.XML).

Save as type

Defines the type of file you want to save the project.

Values:

- Workbench files (*.rmp). Saves the project to your computer or network as an Open Workbench .rmp project file.

- CA Clarity PPM Projects. Saves the project to CA Clarity PPM.

- XML Files (*.xml). Saves the project to your computer or network as an XML file.

Retain Lock

Specifies whether or not to hold the lock or unlock the project when saving it to your computer or network.

Note: This check box is displayed when you select Open Workbench or XML from the Save as Type drop-down.

3. Click Save.

Save Existing Projects back to CA Clarity PPM

Use the Save As option in the application menu to save an existing project back to CA Clarity PPM. You must have edit rights and you must have a lock on the project to save an existing project back to CA Clarity PPM.

When you save an existing project back to CA Clarity PPM:

■ And the project is locked, the project is saved but remains open in the view and is locked.

■ And the project is unlocked, a message appears letting you know you cannot save a read-only project.

■ Once you save an existing project back to CA Clarity PPM, you can save the project as a new project.

Save Copies of Projects as New Projects in CA Clarity PPM

You can save a copy of an existing CA Clarity PPM project as a new project in CA Clarity PPM using Open Workbench. When you save a copy as a new project, all project information is copied to the new project. Both projects exist independently of each other and no file sharing occurs.

Follow these steps:

1. Log in to CA Clarity PPM.

2. Open the project in Open Workbench.

3. Click Save As in the application menu.

4. Enter a new, unique CA Clarity PPM project ID, and click Save.

   A message appears asking if you want to unlock the original copy in CA Clarity PPM and if you want to remove the working copy from your computer or network.

5. Complete one of the following steps to save a copy of the project:

   ■ Click Yes to unlock original and remove the working copy.

   ■ Click No to hold the lock on the original without removing the working copy.

   Note: For more information, see the *Project Management User Guide.*

How to Open CA Clarity PPM Projects in Open Workbench

If you are using Open Workbench with CA Clarity PPM, you can open CA Clarity PPM projects from:

- CA Clarity PPM (see page 50).

- Open Workbench using CA Clarity PPM Schedule Connect.

- The command line (see page 50).

- Open Workbench (see page 51). Select File and open the file directly from the recently opened list.

Note: If you are using Netscape Navigator, the browser must be aware of the CA Clarity PPM Schedule Connect MIME type before you can open the project in Open Workbench.

Before opening CA Clarity PPM projects in Open Workbench:

- Verify that the CA Clarity PPM project you want to open does not have the same project name as another project you have open in Open Workbench. Otherwise, the CA Clarity PPM project you open could replace the currently open project and any unsaved changes could be lost.

- Change the server settings in CA Clarity PPM Schedule Connect if you are attempting to open a CA Clarity PPM project from a different CA Clarity PPM server.

- If Open Workbench is running and Schedule Connect is already connected to a CA Clarity PPM server, Schedule Connect attempts to open a project with the same ID from the CA Clarity PPM server to which it is connected. If the project ID is not found, the project cannot open.

When you open a CA Clarity PPM project in Open Workbench:

- And you open it in read/write mode, a lock is placed on the project.

- All of the master project's subprojects are loaded.

- Dependent tasks from other projects are loaded, but not the entire dependent project.

- All baseline data is loaded. To load only the current baseline, configure the project management settings in CA Clarity PPM and Open Workbench. You can open programs in Open Workbench using CA Clarity PPM in read-only mode.

Note: For more information, see the *Project Management User Guide.*

Open Projects in Open Workbench using CA Clarity PPM

If you are using Open Workbench with CA Clarity PPM, you can open any active or inactive project that you have rights to view or edit in Open Workbench using CA Clarity PPM. To open projects from CA Clarity PPM, they must be formatted for Open Workbench.

If you can view or edit a project, you can choose to open the project in read-only or in read/write mode. If you can only view a project or if the project is locked, you can open the project as read-only.

When you open a project from CA Clarity PPM:

- Your CA Clarity PPM login is sent automatically to Open Workbench. You are not required to log in to CA Clarity PPM Schedule Connect when you open a CA Clarity PPM project in Open Workbench.

- The project opens in Open Workbench. If Open Workbench is already running, that instance of the application is used. Any projects that you have open in Open Workbench remain open.

Note: For more information, see the *Project Management User Guide.*

Open CA Clarity PPM Projects from a Command Line

You can open CA Clarity PPM projects using the command line. Use this method to open single and master projects without first starting Open Workbench. You can open the projects using:

- DOS prompt

- Windows Run dialog

- Properties definition for a Windows icon or Start menu item

Follow these steps:

1. Complete one of the following steps:

   - Select Start, Run.

   - If you are using Microsoft Windows 2000 or Microsoft Windows XP, select Start, Programs, Accessories, Command Prompt.

   - If you are using Microsoft Windows NT, select Start, All Programs, Command Prompt.

2. Enter the following command-line arguments to create or open CA Clarity PPM projects and press the Enter key.

    ```
    npWBench file.rmp /R CLARITY\[projectID]
    ```

    The projectID defines the name of the CA Clarity PPM project you want to open. This command opens one or more CA Clarity PPM projects, but the subprojects of the project are not opened.

Open CA Clarity PPM Projects using Open Workbench

If you are using Open Workbench with CA Clarity PPM, you can open any CA Clarity PPM project that you have rights to view or edit from Open Workbench using CA Clarity PPM Schedule Connect.

When you view the list of projects in the Open dialog, the following icons display next to the project ID:

You have *Project - Edit Management* access rights to the project.

You have *Project - Edit Management* access rights to the project.

Note: This icon displays if the project is a master project.

You have read-only access to the project.

You currently have the project open and locked.

Another user has locked the project.

Note: For more information, see the *Project Management User Guide.*

Follow these steps:

1. Click Open in the application menu.

2. Use the fields in the Open window to select the project you want to open:

    CA Clarity PPM Host

    Displays the CA Clarity PPM server that Open Workbench is connected to when opening projects from CA Clarity PPM.

    Click to see a list of available project names.

▦ (Default view) Click to see a detailed list of available projects.

📁 Click to open Open Workbench .rmp project files or XML files from your computer or network.

Look in

Displays the currently selected folder when opening Open Workbench .rmp project files or XML files from your computer or network.

🗄 Click to open projects from CA Clarity PPM. You can filter the list by using the wildcard (*).

3. Select the file name and the file type.

4. Select the Open as read-only check box if you want to open the project in read-only mode.

   Default: Cleared

   Note: This check box is only available if you have edit rights to the selected project. If you have view rights to the project, this check box is selected and unavailable.

5. Select the Create Subprojects check box if you want to open the selected project as a subproject in a new master project.

   Default: Cleared

   Note: You can save this new master project back to CA Clarity PPM.

6. Click Open.

Open Projects from a File

Open Workbench projects have an .rmp file extension and you can save them to your computer or a network location. When you open an Open Workbench project, they display in Open Workbench as windows with named tabs or with title bars, using the default view that you specified in the Locations tab of the Options dialog.

To open a project, follow the same steps as you do to open CA Clarity PPM projects in Open Workbench.

How to Update the Project Data

Use the Project Properties dialog to specify the project properties. To view this dialog, click File, Project Properties. This dialog contains the following tabs: Description, Scheduling, Resources, Key Tasks, Advanced, Subproject, and Notes.

Use these tabs to:

- Define the description properties (see page 53).

- Define the scheduling properties (see page 54).

- Define the resources properties (see page 54).

- View tasks marked as key tasks (see page 56).

- Define the advanced properties (see page 57).

- Add notes (see page 58).

Note: The Subproject tab displays only when you right-click a task in the view that has been added to a master project as a subproject and select Modify.

Define the Description Properties

Use the Description tab on the Project Properties dialog to enter or edit project administrative details.

Follow these steps:

1. Click Project Properties in the application menu.

2. Complete the fields in the Description tab. The following fields require explanation:

    Department

    Defines the department responsible for the project.

    Budget

    Defines the project estimated budgeted amount.

    Description

    Defines the project description.

    % Complete Calculation Method

    Specifies the method for calculating the % Complete value for the project and the associated tasks.

    Values:

    - Manual. Use this method if you want to enter the % Complete value for the project and for tasks at any level in the WBS manually.

- Duration. Use this method if you track % Complete for the project and for summary tasks based on duration. Completed Duration is the percentage of the task duration that is considered to be complete. Completed Duration for a summary task is the sum of (% Complete * Duration) for all descendant detail tasks. Total Duration is the sum of the duration for all descendant detail tasks. You manually enter the percent complete value for detail tasks. The % Complete is automatically calculated based on the following formula:

```
% Complete = Completed Duration / Total Duration
```

- Effort. Use this method to calculate the % Complete for all tasks automatically. Labor Actuals is the sum of all actuals posted for labor resources. Labor Estimates is the sum of all ETC for these resources. The % Complete is automatically calculated based on the following formula:

```
% Complete = Labor Actuals / (Labor Estimates + Labor Actuals).
```

3. Click OK.

Define the Scheduling Properties

Use the Scheduling tab on the Project Properties dialog to define or edit a project's scheduling properties, such as the project's start and finish date, as-of date, and priority. To view the Project Properties dialog, select File, Project Properties.

Define the Resources Properties

Resources are people that are required to make sure a project is completed on time. Resources are assigned to project tasks. Resources that you create are automatically available for use in your project. The resources that display in the Team Resources grid on the Resources tab are those resources that you have already added to the project.

Use the Resources tab on the Project Properties dialog to:

- Add (see page 102) or remove (see page 56) resources or roles from your project.
- Define the project's resource's properties, such as the resource's ID, name, or category.
- View a list of resources added to the project (see page 55).
- Select your project's team from a list of global resources.

You can manually enter resources (see page 102) in the resource detail pane of a view, define their properties, and assign them to tasks. Resource that you create in the Resource detail pane of a view display in the Team Resources grid on the Resources tab.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Resources tab.

3. Complete the fields in the Team Resources grid:

   ID

   Defines the resource's external ID.

   Name

   Defines the resource's name.

   Category

   Defines the category to which this resource is associated. Use *Categories* to select and filter different groups and classes of tasks, notes, or resources in the view.

4. Select from the Display Resource By drop-down list to display resources by category or role hierarchy.

5. Click OK.

View the List of Resources Staffed on Projects

You can view a list of resources that are staffed on your project in the Resources tab on the Project Properties dialog.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Resources tab.

3. View the list of resources that are staffed on your project in the Team Resources grid. Click the column heading to sort the list.

4. View the list of resources and roles to which you have booking rights in the Global Resources grid.

5. Select one of the following options from the Display Resources By drop-down list to view the Global Resources list by category or by role:

   Roles

   When viewing the list by role, all resources assigned a role are listed under their role. Resources that are not associated with a role are listed in the No Role folder.

Category

When viewing the list by category, all resources that are associated with a category are displayed in a list under their associated category. Resources that are not associated with a category are listed in the No Category folder.

Note: If no categories exist, role is selected and the drop-down list is unavailable.

6. Click OK.

Remove Resources or Roles from Projects

Use the Resources tab on the Project Properties dialog to remove resources or roles from your project.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Resources tab.

3. Select the resource record you want to remove from the project, and click Remove.

View Tasks Marked as Key Tasks

A *key task* is a task that you consider being of key importance to the project. When you mark a task as a key task, its status does not impact any other Open Workbench behavior. Use the Key Tasks tab on the Project Properties dialog to:

■ View a list of key tasks on your project

■ Revert key tasks to standard tasks

To edit a key task, edit the task's fields in a spreadsheet view, such as the Gantt Chart view.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Key Tasks tab.

3. View the following key task data, and click OK:

ID

Defines the key task's external ID.

Name

Defines the key task's name.

Status

Defines the key task's status.

Values: Not started, Started, or Completed

Project

Defines the project name that is associated with the key task.

Finish

Defines the date the key task is scheduled to finish.

Note: You can edit the finish date provided you have not assigned a resource to the task and the task is a fixed duration task.

Baseline Finish

Defines the date the key task is scheduled to finish based on the current baseline.

Revert Key Tasks to Standard Tasks

You can change a key task into a standard project task. Use the Key Tasks tab on the Project Properties dialog to remove the key task designation. You can view the changes that you make on the General tab on the Task Properties dialog and in any view that displays the key task field name.

Note: When you remove key tasks from the grid on this tab, only the key task designation is removed from the task. The tasks are not removed from the project.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Key Tasks tab.

3. Select the row for the key task you want to revert to a standard project task, and click Remove.

4. Click OK.

Define the Advanced Properties

Use the Advanced tab on the Project Properties dialog to define a project's advanced management information. The Advanced tab provides a central location from where you can set or change project-related values. All project attributes display on this tab.

This tab displays a fields grid that contains the following columns:

- Field - displays a list of all the advanced properties you can specify

- Value - where you can enter or select values for the field. The field values you can enter depend on the field you have selected. You can:

    - Select displayed check boxes.

    - Enter numeric values, currency, or dates.

    - Enter words or phrases.

    - Select options from the drop-down lists.

You can manually edit the project % Complete value provided you have set the % Complete Calculation Method on the Description tab of the Project Properties dialog to Manual. Add the % Complete field to a view to edit the value from a view.

Note: The fields that are available for editing depend on your access rights. If a field is not available for selection or editing, it is disabled (by default).

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Advanced tab.

3. Click a cell in the Value column and enter a value for the field, and click OK.

Add Notes

Notes let you record project-specific information for yourself or for other staff members. Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to record the information. You can view, add, edit, and remove notes. You can also change the notes categories, as well as see historical comments. The list of notes display in the History grid.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete the following steps and click OK.

    a. Enter the notes in the text box.

    b. Enter or select a category with which the note is associated from the Category drop-down list.

        Note: If you add a new notes category, specify a global file location (see page 21) to make it available for future use.

    c. Click Add.

To edit, select the note you want to modify from the History grid, and click Modify to complete one of the following steps:

- To change the content of the note, change the data in the text field, and click Modify.

- To change the note's category, enter or select a category from the Category drop-down list.

Define Note Categories

Use the General tab on the Options dialog to define the note categories that you use to group project and task notes.

Follow these steps:

1. Click Preferences in the application menu.

2. Enter the new note category to which you want to associate notes in the Note Categories field.

3. Click OK.

Associate Notes with Note Categories

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to associate a project note with a note category. Use *Categories* to select and filter different groups and classes of tasks, notes, or resources in the view.

You can enter new categories to the Category drop-down list or you can use the categories that are already listed. The categories listed are those that you added when you defined the Open Workbench general options (see page 18).

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete one of the following steps:

    - Add a note (see page 58) in the text box.

    - Select a note in the History grid.

4. Enter or select a category with which the note is associated from the Category drop-down list.

    Note: If you add a new notes category, specify a global file location (see page 21) to make it globally available for use.

5. Click Add and click OK.

Delete Notes

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to delete a note.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Select the note you want to delete from the History grid and click Delete.

4. Click OK.

Chapter 6: How to Track and Analyze Projects

Tracking is the process for measuring project status and comparing it with the project plan to identify variances and take corrective actions. This process is repeated over the course of a project, allowing you to control and monitor project progress and cost. You can also use tracking information to generate project status reports. Tracking consists of reviewing information on actuals.

For example, the actual start and finish dates, the actual duration of tasks, the actual time worked by resources, and the actual cost of the project. Tracking also provides information about tasks in progress and those tasks that have been completed.

To ensure efficient monitoring of a project, make the lowest level of the Work Breakdown Structure (WBS) represent small amounts of work. Use milestones to indicate significant events and mark progress. To monitor a project closely, you must be able to spot problems and trends that develop during the project's life cycle in time to do something about them. Periodic evaluations of your project data can help you pinpoint problems as they arise, letting you initiate the necessary corrective actions to bring the project back on target. In instances where the word *analysis* is used, it signifies the review, examination, investigation, and evaluation of project data to:

- Identify deviations

- Determine causes of deviations

- Determine the importance of deviations

- Decide on corrective actions

Deviations are differences between expectations and actuality, including variances that are traditionally used by project managers to compare planned and actual performance. Open Workbench incorporates a number of field names that you can use in views to produce the analysis project managers require to track work performance, spot trouble areas, and account for cost and schedule variances.

The list of field names in the View Definition (see page 157) dialog contains many calculated variance elements and performance indices, and several field names that you can use in an analysis to signal potential trouble. For example, *Critically Late?*. Use these fields in views to identify tasks with deviations.

How to Track Projects

Open Workbench uses several methods to track the progress of a project. No single tracking method is appropriate for all projects because projects vary in size and complexity. In designing a tracking system for your project, determine which tracking method is best suited to your requirements.

The tracking methods that you use depend on the size and complexity of the project. You can apply the method that you choose to individual projects and to projects that have master project and subproject relationships.

You can track projects using the following methods:

- Track total actual usage (see page 62)

- Track periodic actual usage (see page 62)

- Track task status (see page 63)

- Track baseline status

Track Projects by Total Actual Usage

Use the total actual usage tracking method to track projects based on actuals, pending actuals, and estimate to complete (ETC) entered in Open Workbench for each resource assigned to a task.

If you are using Open Workbench with CA Clarity PPM, as resources enter hours on their CA Clarity PPM timesheets, you can view pending actual hours in the Open Workbench project plan.

Track Projects by Periodic Actual Usage

Use the periodic actual usage tracking method to periodically enter resource actuals in the tabulated views as well as the ETC usage for each resource that is assigned to a task.

Periodic recording of resource usage for every task to which a resource is assigned is the most comprehensive and accurate way to track your project. The actual usage is the timesheet recording method where the actual time each resource spends on a task is recorded at the end of a specific time period.

You can use the Gantt Chart view to track resource usage for all tasks to which a single resource is assigned. Use this view to track usage data for one resource across an entire project or group. When you use this view with the *Quick Filter by Resource* drop-down, you can display data for one resource at a time.

Note: When tracking periodic actual usage, it is helpful to select the Resource LOA option on the Description tab of the View Definition dialog.

Track Projects by Task Status

Use the task status tracking method to monitor the status of tasks, to change the start and finish dates, and to enter the percent complete values. You can set the task status on the General tab of the Task Properties dialog.

Tracking a project's task status is the easiest way for you to track a project, requiring only that you establish a periodic review cycle to update your project plan. For small to medium-sized projects, it may be enough for you to record only task status information. When you start a task, the status of *Started* is recorded in the Status drop-down list on the General tab of the Task Properties dialog, or in any view which includes status data. When a task is completed, change its status to Completed.

Additionally, when you autoschedule a project, tasks that have a status of *Started* or *Completed* are unaffected by changes you make to the autoschedule start date.

Analyze Projects

You can examine all or any part of your project at whatever level of detail you need using Open Workbench. The analysis you may want to perform on a periodic basis includes:

- Situational: Getting the project summary.

- Problem Solving: Determining what has gone wrong with the project and why.

- Potential Problem Spotting: Determining what might happen if you make a particular change.

How to Determine When and What to Analyze

Project analysis minimizes or eliminates surprises by providing early warnings of trends and situations in a project. In a sense, periodic evaluations of your project serve as checks of your project's health. The frequency and extent of your analysis is up to you. Analyze too frequently, and you quickly find you have little time for anything else. Analyze too infrequently, and problems may not be noticed early enough to avoid an impact on the overall project success.

Project analysis is a means of answering business questions regarding the project. The following questions serve as a guideline for producing useful project health checks:

- Have you defined enough information for each task?

  Ask this question during initial project planning. Use the Gantt Chart view to perform the analysis.

- Who are the key resources?

  Ask this question while scheduling (or rescheduling). Use the Resource Assignment view to perform the analysis.

- On which tasks are these resources working?

  Ask this question while scheduling (or rescheduling). Use the Resource Assignment view to perform the analysis.

- Is everything on schedule?

  Ask this question periodically during the project life cycle. Use the Variance Analysis view to perform the analysis.

- How did actual effort compare with the project plan?

  Ask this question periodically throughout the project and when the project is finished. Use the Variance Analysis view to perform the analysis.

Validate Project Plan Data

Before you analyze project plan data, make sure that its quality is reliable. The data is valid when you have determined that it is complete, up to date, and consistent. You can solve problems with the data by entering corrections directly in views.

Determine the Completion of Plan Data

How you intend to use your project plan data determines how complete the data needs to be. If you want to use the plan to track and control the project, you need more detailed data than if you are simply sketching out a high-level proposal.

For project plan data to be complete:

- All tasks should have assigned resources (see page 95).
- All task dependencies should be defined (see page 82).
- All tasks should have nonzero estimates (see page 79).

Determine the Accuracy of Plan Data

For accurate analysis, make sure that all of the plan data undergoing analysis is correct and is complete up to the same date. That means,

- All tasks set to start or finish before the reference date have been tracked correctly.
- Actuals have been entered for all resources up to the reference date.

Determine the Consistency of Plan Data

To be consistent, make sure that the project plan data does not contain:

- Dependency violations
- Overcommitted resources

Analyze Projects with Earned Value Variances

The deviations between planned and actual performance in a project can be described mathematically as variances. In general, there are two types of variances to watch for: cost variances and schedule variances. Both variances can help you discern the differences between the baseline plan estimates and the actual project performance, and are expressed as actual values.

Open Workbench uses the cost and schedule variances to calculate performance and percent complete indices. These indices provide you with a useful indication of the extent to which your project is ahead or behind cost or schedule. It is important that you review these variances and indices throughout a project's lifetime to monitor ongoing performance and pinpoint problem areas.

Open Workbench includes fields containing the fundamental calculations that are used for earned value analysis. These fields are available as discrete items for reporting purposes and you can add them to any view. These fields are used primarily as variables by other calculated fields to produce variance values.

Earned value calculates the following values for every scheduled activity:

- **Budgeted Cost of Work Scheduled (BCWS)**

  The budgeted amount to be spent on the project in a given period.

- **Actual Cost of Work Performed (ACWP)**

  The total direct and indirect cost that is incurred in performing work during a given period.

- **Budgeted Cost of Work Performed (BCWP)**

  The percentage of the total budget equal to the percentage of the actual work performed.

These values are used together to determine if work is being performed as planned. The most frequently employed measures are:

- Cost Variance (CV), where CV = BCWP - ACWP.

- Schedule Variance (SV), where SV = BCWP - BCWS.

- Cost Performance Index (CPI), where CPI = BCWP / ACWP.

Data Required for Earned Value Analysis

To perform optimal earned value analysis, enter valid project data. Certain variance formulas compare current data against baseline data. You can add the EVA fields to a spreadsheet view to help ensure the accuracy of the data. Use the View Definition dialog to add EVA fields and columns to a view. You can add the Assignment Actuals field to the spreadsheet view to define a resource's actuals.

Note: Open Workbench can only compute these variances if you have set a baseline of task data.

Enter the following earned value data in your project:

- Project's as-of date
- Resource's actuals

    Note: If you are using Open Workbench with CA Clarity PPM, record the resource's actuals in CA Clarity PPM.

- Resource's ETC
- Resource's billing rate

    Note: If you are using Open Workbench with CA Clarity PPM, define the resource's billing rate in the rate matrix.

- Task's percent complete

Variance Analysis Indices

Use the variance analysis fields to calculate the deviations between actual and planned performance. These fields automatically compare current plan data against the baseline to quantify cost and schedule variations. Examples of variance analysis fields include Schedule Variance (SV), Cost Variance (CV), and Variance at Completion (VAC).

To view this data, first add the fields to a view.

Performance Indices

Variance analysis fields are also used to calculate a range of indices that provide a useful guide to evaluating project and resource performance. Examples of performance index fields are Schedule Performance Index (SPI), Cost Performance Index (CPI), and Schedule Variance Index (SVI).

To view this data, first add the fields to the view.

Percent Complete Indices

Use the % Complete Calculation Method field on the Description tab of the Project Properties dialog to specify how Open Workbench computes the % Complete value. Earned value data is used against the Budget at Completion (BAC) to calculate the percent complete indices.

The percent complete value is used in the following earned value calculations:

- Budgeted Cost of Work Performed (BCWP)

- Cost Variance (CV)

- Cost Variance Index (CVI)

- Schedule Variance (SV)

- Schedule Variance Index (SVI)

- Schedule Variance Performed (SVP)

- Cost Performance Index (CPI)

- Budgeted Cost of Work Scheduled (BCWS)

- Actual Cost of Work Performed (ACWP) as a percent of the baseline budget

Periodic reviews of these measures can help you uncover trends over time as your project progresses. Examples of percent complete index fields include Perform % Complete, Schedule % Complete, and Actual % Spent.

To view this data, first add the field to a view.

Analyze Projects with Current Baseline

When you have multiple baselines, you can analyze project data by altering the current baseline. You can display the current baseline in a Gantt chart view against the current status of the project.

Chapter 7: Project Tasks

Tasks constitute the work steps of your project. During the project planning process, you define the tasks that are required to complete in order to accomplish the objectives of the project. In Open Workbench, the project tasks are organized according to a Work Breakdown Structure (WBS). The default WBS for Open Workbench includes the following hierarchical levels:

- Phase

- Activity

- Task or Milestone

Note: You can change the labels that are used to identify your WBS levels.

Phases are the major steps that are required to achieve the project's goal. Most well-defined projects have multiple phases with specific objectives. Within each phase, there are a number of activities leading to the completion of the phase's objectives. You can further divide each activity into tasks and milestones. A *task* is the smallest identifiable project component. A *milestone* marks significant events or dates that are used to measure the progress of a project.

Only the memory and disk space on your computer limit the number of tasks you can add to a project or a WBS.

Create Project Tasks

There are several methods to create tasks on new and existing projects, move tasks around in projects, and delete tasks. At a minimum, you can add tasks and can define some of their properties directly in a spreadsheet view, depending on the task-specific field names the view displays. Or, you can add tasks and can define their properties in the Task Properties dialog. To view the Task Properties dialog, right-click any task row and click Modify in the shortcut menu.

The Task Properties dialog consists of the following tabs: General, Scheduling, Dependencies, Advanced, and Notes. The tabs that are available in this dialog depend on whether you are creating a phase or activity, a task, or a milestone.

- If you select a phase or activity that is part of a master project or a subproject, only the General, Advanced, and Notes tabs display.

- If you select a task or milestone that is part of a master project or a subproject, all tabs except the Subprojects tab display.

- If you select a single task that was inserted into a master project as a subproject, all of the tabs display, including the Subprojects tab.

You can add tasks to your project directly in a spreadsheet view, such as the Gantt Chart view.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click in a row above which you want to create your task, and click Insert Task in the shortcut menu.

3. Complete one of the following steps to define the task:

   ■ If the view displays task-specific columns, click in the cells of the new task to enter task-related data.

   ■ Right-click the new task row and click Modify in the shortcut menu.

Edit Multiple Tasks

You can select more than one task or resource to edit properties as a group. This allows you to apply common properties or change properties for a selected group of tasks simultaneously, without having to open each task and edit properties.

Use the Task Properties - Multiple Selections dialog to edit multiple tasks. To view this dialog, from a view that displays the task detail pane, select the tasks you want to edit, right-click, and click Modify.

The properties that are displayed on the tabs on the Task Properties - Multiple Selections dialog are those that have the same entry or setting for all of the tasks you have selected. If a field is editable, but the selected tasks do not have the same entry or setting, the field displays blank. When you enter values in blank fields, the values for those fields change for all of the selected tasks. Non-editable fields are disabled. Check boxes appear disabled and selected if the selected tasks have different settings.

The tabs and fields on this dialog are the same as those on the Task Properties dialog, except the changes you make apply to all of the selected tasks.

The following rules are applied when editing multiple tasks:

■ You cannot insert new tasks from this dialog.

■ If any of the selected tasks are subproject tasks, you cannot change the task properties.

■ If you select detailed tasks and summary tasks together, those tabs not applicable to summary tasks, such as the Dependencies and Resources tabs do not display.

- When entering a value in a field for which the value must be unique, the first selected task assumes the entered value, and subsequent tasks assume unique incremental numbers. For example, if you enter an ID of ENG while editing a group of three tasks, Task 1 is given ENG as its ID, Task 2 an ID of ENG-0, and Task 3 an ID of ENG-1.

- Some advanced properties are disabled because the value is not common to all selected tasks.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Select the tasks.

3. Right-click one of the tasks and click Modify from the shortcut menu.

Shift Tasks

You can manually change a task's schedule by dragging its Gantt bars to a new position. When you move Gantt bars, a pop-up window displays the new dates. The task's start and finish dates change to reflect its new position in the Gantt. Changes you make to the start and finish dates automatically update the task's start and finish dates. To view this information, open the General tab on the Task Properties dialog.

You can also shift task start and finish dates interactively on the Gantt chart in the following ways:

- You can shift the start or finish dates, extending the task duration relative to the surrounding time frame.

- You can shift the entire task to a new position relative to the surrounding time frame, keeping the task duration intact.

When shifting tasks, note the following:

- Dependency relationships may impact your ability to change the task start and finish dates, and their duration.

- You can shift only one task at a time.

- You cannot:

    - Shift tasks if you have selected the *Freeze Gantt Bars* check box in the Gantt dialog.

    - Move completed tasks.

    - Set the start dates of tasks to begin after the start date of their resource assignments. A task's start date can only be before or on the assignment start date.

    - Set the finish date of tasks to end before the finish date of their resource assignments. A task's finish date can only be on or after the last assignment date.

    - Change the end date of a variable-duration task to a date later than the end date of the last end date of the assignments, regardless of the loading pattern. You can, however, change the end date on fixed-duration tasks.

    - Change the start and finish dates of variable-duration tasks that have resource assignments with ETC. Instead, you can move these tasks.

    - Change the start date of tasks that have actuals entered against them, unless the task is of a fixed duration and the start date is earlier than the earliest actuals entered.

    - Set task durations longer than the recalculated duration if the variable tasks have resource assignments with ETC. However, you can drag Gantt bars to new positions on the Gantt chart, changing task start and finish dates.

Delete Tasks

You can delete a task from your project manually in the view, such as the Gantt Chart view. To delete the task, right-click the task, and click Delete Task in the shortcut menu.

Establishing Task and Resource Constraints

During the planning process, you can establish and fine-tune task durations for all project tasks to obtain an acceptable total project duration. You can create tasks with either fixed or variable durations, sometimes referred to as time-constrained and resource-constrained tasks, respectively. For example, a meeting task is time-constrained rather than resource-constrained. Use the General tab on the Task Properties dialog to define duration of a task.

Autoschedule handles the following task duration types differently:

- Fixed Duration. A *fixed duration* task is a constrained task that must finish in a specific amount of time. Fixed-duration tasks are constant and are not driven by resource assignments. A fixed-duration task is also called a time-constrained task. When you autoschedule, the length of the task is not changed on the project.

■ Variable Duration. A *variable duration* task is a constrained task that can change when you autoschedule your project. Variable-duration tasks depend on the availability and the number of assigned resources. A variable-duration task is also called a resource-constrained task. When you autoschedule, the length of the task is adjusted around the assigned resource's remaining availability, loading patterns, and maximum percent loading.

Change Task Location in Project WBS

After you create a project task, you can change its position in a spreadsheet view that displays the task detail pane, such as the Gantt Chart view.

Note: If you move a task to an empty location that is within a subproject or after the last line of a subproject, the task becomes part of that subproject.

Follow these steps:

1. Click the header for the task you want to change location to select the task, and then click the selected row and hold the mouse button.

2. Drag the task to the new location in the view, and release the mouse button.

Update the Task Properties

Use the Task Properties dialog to define or update task properties. To view this dialog, double-click the header button to the left of the task you want to update. Use the different tabs on this dialog to create and edit data that you may not find available in a view.

You can also update a task by right-clicking it in a spreadsheet view to access the shortcut menu which displays a list of task-related commands. You can edit subproject task properties if you have Read/Write access or if you save a master project as an Open Workbench project (.rmp) file. You can also select multiple tasks to define or to edit the common properties using the Task Properties - Multiple Selections dialog.

Use the Task Properties dialog to:

■ Define the general properties (see page 74).

■ Define the resources properties (see page 77).

■ Define the dependency relationships (see page 81).

■ Define the advanced properties (see page 90).

■ Add notes (see page 58).

Define the General Properties

Use the General tab on the Task Properties dialog to define the basic attributes of a task, and to identify the task as a key task on the project. You can also use this tab to apply properties to more than one task.

The following task schedules are displayed on this tab:

- Current. The values that are displayed are the current values when calculating the critical path.

- Baseline. The values that are displayed are automatically generated during project baselining and are read-only.

- Early. The values that are displayed are automatically generated when you autoschedule your project and they are read-only. An early schedule indicates the earliest a task can be completed, based on all the dependencies and constraints.

- Late. The values that are displayed are automatically generated when you autoschedule your project and they are read-only. A late schedule indicates the latest a task can be completed, based on all the dependencies and constraints.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task you want to define, and click Modify in the shortcut menu.

3. Complete the fields. The following fields require explanation:

   Category

   Defines the name of the group or class to which this task belongs.

   Type

   Defines the task type.

   Values: Milestone, Task, Phase, Activity

   Default: Task

   Key Task (Type)

   Specifies whether the task is essential to the project and if it is a key task. When you mark a task as a key task, the task is listed on the Key Tasks tab on the Project Properties dialog. You can always revert tasks to standard tasks.

   Duration (see page 76)

   Defines the length of time, in number of business days that the task (if this task is fixed) takes to complete.

   Values: 1 through 20,863.

Fixed (Duration)

Specifies whether the task duration is fixed or variable.

Default: Cleared (Variable)

Priority (see page 76)

Defines the task priority or priority inheritance if the task does not inherit the priority from parent or any higher WBS level.

Default: 10 if the parent task priority or any higher WBS level has not been set.

Values: 0 through 36. The lower the number, the higher the priority.

For example, if the task has a priority of 0 through 9, it is given the highest priority during scheduling. If the task has a priority of 11 through 36, it is given the lowest priority during scheduling.

Inherited (Priority)

Specifies whether you want this task to assume the priority of its parent task, or the next highest WBS level. When selected, the Priority field is not available.

Default: Selected

4. Complete the fields. The following fields require explanation:

Start

Defines the task start date for the current schedule.

Default: Today's date or the next business date after today's date.

Finish

Defines the task finish date for the current schedule.

Note: If you do not enter a finish date, Open Workbench calculates the date based on the tasks duration and start date.

Status (see page 77)

Defines the task completion status.

Values: Not Started, Started, or Completed

Default: Started

% Complete (see page 77)

Defines the progress of the task as a percentage. Regardless of the setting for the % Complete Calculation Method on the Description tab of the Project Properties dialog, you can always edit the percent complete value for any milestone tasks. This value can also be used in the earned value calculations.

■   If % Complete Calculation Method is set to Manual, you can edit this field for the project and for all summary and detail tasks. The status of a summary level task changes only if either the status or the % Complete value is manually modified.

- ■ If % Complete Calculation Method is set to Effort, the value in this field is automatically calculated for the project and for all summary and detail tasks.

- ■ If % Complete Calculation Method is set to Duration, the value in this field is automatically calculated for the project and summary tasks based on the values manually entered for the detail tasks.

   Values: 0 through 100.

5. Click OK.

Task Duration

Duration is the length of time, in business days, a task requires from conception to completion, including the start and finish dates. You can change the task duration using different ways. You can edit it directly on the desired position on the timescale in a spreadsheet view, such as the Gantt view, by clicking and dragging the left or right side of the Gantt bar to the desired position on the timescale. You can also use the General tab on the Task Properties dialog to edit task duration.

When you add tasks to a project, the task's default start date is today's date, or the next working date after today's date if today is a holiday or a non-work day.

The maximum duration you can define can extend from present day to June 3, 2079. The duration for variable-duration tasks is automatically calculated. For fixed-duration tasks, the application automatically calculates the task's finish date. If the task is fixed and you change the finish date, the duration is automatically calculated.

During autoschedule, the duration is not changed for fixed-duration tasks, except when you enter an autoschedule start date that is greater than the task finish date. In this case, ETC is moved for resources and roles to start from the autoschedule start date and is spread to the task finish date, depending on the loading pattern. If the autoschedule start date is greater than the task finish date, then the finish date is moved to the autoschedule start date, and all ETC is placed on that date.

To define a task's duration. right-click the task you want to define duration, and click Modify in the shortcut menu. Complete the Duration field and the Fixed check box.

Task Priority

The *task priority* controls the order in which tasks are scheduled during autoschedule, subject to dependencies and task and resources constraints. Autoschedule, therefore, schedules tasks with higher priority ahead of tasks with lower priority. The priority value you enter in the Priority field is used when scheduling task.

If you do not define the task's priority but instead select the Inherited (Priority) check box on this tab, the priority is inherited from its parent task or the next highest WBS level. By default, this check box is selected.

Task Status and Percent Complete

You can update the status of a task by setting the values in the Status and % Complete fields in the task properties. Depending on the setting for the % Complete Calculation Method on the Description tab of the Project Properties dialog, you can edit or automatically populate the % Complete field.

You can also define the task status by editing the task in a view that has the following data elements on its layout: Status, Start, Finish, and Percent (%) Complete.

When updating the task status, the following rules apply:

- You can enter 100 as the % Complete value for tasks with a status of *Started*.

- You can only mark tasks as *Completed* if the resource assigned to the task has no remaining ETC on the task.

- If you change the status of the task to *Completed*, the % Complete field automatically updates to 100. If you then reduce the % Complete value, the status changes to *Started*.

- If the task is a milestone, you can select a status of *Completed* or *Not Started*.

- If the task has an ETC greater than zero or has actuals but it has not started, you cannot change the status to *Not Started* unless you first remove the ETC and actuals from the task.

- If the task has an ETC greater than zero, you cannot select a status of *Completed*.

Define the Resources Properties

Use the Resources tab on the Task Properties dialog to define the assigned resource's actual usage, ETC, and maximum percentage on tasks. To view this tab, right-click the task in a view that displays the task detail pane, and click Assignments in the shortcut menu.

Use the Resources tab to:

- Define the resource actual usage on tasks (see page 78).

- Define resource ETC on tasks (see page 79).

- Define resource maximum percentage on tasks (see page 80).

- Release resources from task assignments (see page 80).

- Transfer task assignments between resources (see page 80).

Define Resource Actual Usage on Tasks

If you previously recorded a resource's periodic actual usage, you cannot change the total actual usage directly in a view. The following procedure explains how to record a resource's total actual usage.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Assignments from the shortcut menu.

3. Select the name of the resource for which you want to record total actual usage in the Assigned Resources grid.

4. Complete the following fields to update the resource detail section of the view to reflect the resource's actual usage on the task:

    Actual

    Defines the cumulative actual usage.

    Act Thru

    Defines the last date through which actuals have been captured on the task for the resource.

5. Click OK.

Remove Resource Actual Usage on Tasks

Use the following procedure to remove actuals for a specific resource that is assigned to a task. You can also use this procedure if you are using Open Workbench with CA Clarity PPM and if the resource's track mode, the method of time capture, is set to none in CA Clarity PPM.

Note: For more information, see the *Resource Management User Guide.*

You can remove actuals or you can convert any actual usage that has been recorded after the date back to ETC usage.

Follow these steps:

1. Right-click a task in the view and click Assignments.

2. Complete one of the following steps in the Assigned Resources grid:

    ■   Clear the Act Thru date to remove all actuals.

    ■   Change the Act Thru date to an earlier date to convert any actual usage that has been recorded after the date back to ETC usage.

3. Click OK.

Define Resource Estimate to Complete on Tasks

You can also define a resource's ETC on a task from the Schedule spreadsheet view. Enter hour or day ETC values depending on the Default Unit setting you defined in the Defaults tab of the Options dialog. If a task has an ETC value that exceeds zero, you cannot set the task's status to *Completed*.

Note: If the resource's loading pattern is set to *Fixed,* you can only enter ETC in a tabulated view.

You can also remove a resource's ETC on a task using this tab. If you are using Open Workbench with CA Clarity PPM and you want to remove ETC that you have posted to a task that has not started, do this in CA Clarity PPM by adjusting your posted timesheet.

If you are using Open Workbench with CA Clarity PPM, you must define a billing rate for cost-based resources in CA Clarity PPM. If the resource does not have a defined billing rate, in CA Clarity PPM, add an entry to the resource's rate matrix (see page 139) and run the Rate Matrix Extraction job (see page 139).

Note: For more information, see the *Administration Guide*.

The following procedure explains how to define a resource's ETC on a task.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Assignments in the shortcut menu.

3. Enter ETC in the resource's Estimate field in the Assigned Resources grid, and click OK.

The following procedure explains how to define a resource's ETC on a task from a view.

Follow these steps:

1. Select the Schedule view.

2. Change the time scale data, if necessary, and complete one of the following steps:

   ■ Enter ETC in the non-time scaled ETC column to enter a total ETC value.

   ■ Enter ETC in the time scaled ETC column to enter ETC in a specific time period.

3. Change the ETC format from Hours or Days to Cost for cost-based resources, such as expense resources, and save the project.

Define Resource Maximum Percentage on Tasks

The following procedure explains how to define a resource's maximum percentage on a task.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Assignments in the shortcut menu.

3. Enter the maximum percentage amount in the Max % field in the Assigned Resources grid, and click OK.

   Note: If necessary, use the scroll bar to view this field.

Release Resources from Task Assignments

When you release a resource from a task assignment, the resource is still available for assignment to other tasks in the project.

Follow these steps:

1. Right-click a task and click Modify in the shortcut menu.

2. Open the Resources tab.

3. Select the resource assignment you want to release in the Assigned Resource grid, and click Release.

4. Click OK.

Transfer Task Assignments between Resources

When you have resources of the same type assigned to work in your project, you can transfer those tasks from one resource to another on the project. You can choose to transfer all assigned work or specific tasks to a new resource.

When you transfer assignments:

- If the resource from which you are transferring the assignment has not posted actuals on the task, the resource is removed from the task.

- If the resource from which you are transferring the assignment has posted actuals on the task, the resource remains assigned to the task and the remaining ETC is transferred to the new resource.

Follow these steps:

1. Open the Project ribbon.

2. Click Transfer in the Assignments group.

3. Select the name of the resource from the Transfer assignments from this resource drop-down list from which to transfer the assignment.

4. Select the task to transfer to the new resource in the task grid.

5. Select the name of the resource from the to this resource drop-down list to transfer the assignment to.

6. Complete one of the following steps:

    ■ Click the right arrow button (>) to transfer the selected task from the assigned resource to the new resource.

    ■ Click the All right arrow button (All >) to transfer all the listed assignments from the assigned resource to the new resource.

    ■ Click the left arrow button (<) to transfer assignments from the resource listed in the to this resource drop-down list to the resource listed in the Transfer assignments from this resource drop-down list.

    ■ Click the All left arrow button (All <) to transfer all assignments from the resource listed in the to this resource drop-down list to the resource listed in the Transfer assignments from this resource drop-down list.

7. Click OK.

Define the Dependency Relationships

A dependency provides you with a means of ordering the relationship, timing, and logical sequence between a task within the same project (internal dependency) or between a task in your project and a task that is external to the project (external dependency). When you create an external dependency, you add the subproject task to your master project. Creating dependencies does not automatically adjust your project plan; you must autoschedule your project.

A dependency links one task to another where the start or finish date of the second task (the successor) is constrained by the start or finish date of the first task (the predecessor). Define dependency relationships to ensure that you can evaluate the cascading impact of changes to tasks when autoscheduling. If a task is isolated and is not needed by or is not dependent on another task, it can be independent.

You can create the following types of dependencies to establish the relationship between the start and finish dates of dependent tasks:

■ Finish-Start. The predecessor task's finish date determines the successor task's earliest possible start date. With this dependency type, the successor task cannot start until its predecessor task finishes.

■ Finish-Finish. The predecessor task's finish date determines the successor task's earliest possible finish date. With this dependency type, the successor task cannot finish until its predecessor task finishes.

■ Start-Start. The predecessor task's start date determines the successor task's earliest possible start date. With this dependency type, the successor task cannot start until its predecessor task starts.

■ Start-Finish. The predecessor task's start date determines the successor task's earliest possible finish date. With this dependency type, the successor task cannot finish until its predecessor task starts.

The dependency type that is used when creating dependency links is the default dependency type you defined in the Defaults tab of the Options dialog. The default dependency type is *Finish-Start*. Once you create the dependency, you can edit the dependency type.

Task Dependencies Properties

Use the Dependencies tab on the Task Properties dialog to add or remove task dependencies. To view this tab, right-click the task in a view that displays the task detail pane, and click Dependencies in the shortcut menu.

This tab displays a hierarchical list of existing dependencies between the task you have selected and other tasks on the project. Use this tab to create, modify, or delete dependency relationships, and to review the task's name, relationship, dependency type, and the amount of lag. You can also apply dependencies to more than one task using this tab.

The Dependencies grid on this tab displays the following icons that you can use to identify the task's dependency relationships:

 Predecessor

This icon indicates that the task is a predecessor to the selected task.

 Successor

This icon indicates that the task is a successor to the selected task.

Lag and Negative Lag in Dependency Relationships

You can define the lag between tasks as positive or negative. *Lag* is the predetermined amount of time between the start and/or finish time of two tasks in a project plan. *Negative Lag* is the amount of time or percentage of task duration in which two tasks can be simultaneously in process in a project plan. You define lag or negative lag on the Dependencies tab of the Task Properties dialog.

Example - Positive Lag

You have two tasks in your project, Task A and Task B, and you want Task B to start three days after Task A finishes. Define the dependency type as *Finish-Start* type and enter 3.00 as the lag.

Example - Negative Lag

You have two tasks in your project, Task A and Task B, and you want Task A to start two days before Task B ends. Define the dependency type as *Finish-Start* and enter -2.00 as the lag.

Internal Dependencies

An internal dependency is a dependency relationship that you create between two or more tasks in the same project.

Create Internal Task Dependencies

You can create and edit dependency relationships between tasks using different ways. You can create dependencies between tasks in the same project on Gantt charts, in spreadsheet views, and from a CPM network view to create internal task dependencies. Use the Dependencies tab on the Task Properties dialog to create dependencies.

Note: You can create predecessor or successor dependency relationships in a spreadsheet view, only in a view that displays the task detail pane.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task for which you want to create a dependency relationship and click Dependencies in the shortcut menu.

3. Click the task to which you want to create the dependency in the Project Tasks grid.

4. Select the task from the hierarchy:

   ■ Press the *Shift* key on your keyboard and click a range of tasks to select a contiguous range of tasks.

   ■ Press and hold the *Ctrl* key on your keyboard and click the tasks to select a noncontiguous range of tasks.

5. Complete one of the following steps to add task to the Dependencies grid:

   ■ Double-click the task.

   ■ Select a task and drag your selection into the Dependencies grid.

   ■ Select a task and click Add Predecessor or Add Successor.

   ■ Right-click a task and click Add Predecessor(s) or Add Successor(s) in the shortcut menu.

6. Click OK.

Create Multiple Dependencies

You can create multiple dependencies between project tasks. You can add multiple predecessors for successors for a task or milestone or you can create a chain of dependencies.

Create Dependency Chains

As an alternative to individually creating dependency relationships, you can select multiple tasks simultaneously and can create a chain of predecessor-to-successor relationships. You can create in any spreadsheet view that displays the task detail pane.

Note: You must have two or more tasks in a view to create a dependency chain.

Follow these steps:

1. Select the task you want to designate as the predecessor.

2. Press the *Ctrl* key on your keyboard and click each task that you want to make a successor.

3. Right-click one of the selected tasks, and click Make Chain in the shortcut menu.

The following procedure explains how to create multiple predecessors for a task or milestone.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Select the tasks you want to add as predecessor tasks.

   ■ Press the *Shift* key on your keyboard and click a range of tasks to select a contiguous range of tasks.

   ■ Press the *Ctrl* key and individually click tasks to select a non-contiguous range of tasks.

3. Right-click the successor task, and click Make Successor in the shortcut menu.

4. Right-click the successor task, and click Dependencies in the shortcut menu to verify your selection.

The following procedure explains how to create multiple successors for a task or milestone.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Select the tasks you want to add as successor tasks.

3. Right-click the predecessor task, and click Make Predecessor in the shortcut menu.

4. Right-click the predecessor task, and click Dependencies in the shortcut menu to verify your selection.

Edit Internal Task Dependencies

The Dependencies tab on the Task Properties dialog displays dependency relationships for the selected task, including internal and external dependencies. You can use this tab to edit the dependency relationship and to add new dependency relationships.

Note: If you specify percent as the lag type and *Finish-Finish* as the constraint type, you are specifying the percentage of the successor's duration. If you specify percent for any other constraint type, you are specifying the percentage of the predecessor's duration.

Overlap Tasks

If you want two tasks to be scheduled on the same day because the resource has remaining availability on that day, enter -1.00 as the lag to overlap the tasks.

Zero Lag

To schedule two dependent tasks, schedule first on one day and the next on the following day, enter zero as the lag amount.

Follow these steps:

1. Right-click the task from the view and click Dependencies.

2. Select the task you want to modify from the Project Tasks list, and modify the following fields:

   Pred/Succ

   Specifies the task's dependency relationship.

   Default: Successor

   Options: Successor or Predecessor

Type

Specifies the constraint type to be placed on the task's start or finish date.

Default: Finish-Start

Options: Start-Start, Start-Finish, Finish-Start, or Finish-Finish

Lag

Defines the number that represents the days or percent to indicate the amount or time between, or overlapping, the task start or finish dates.

Note: The constraint type used is the type you specify.

Lag Type

Specifies the lag type.

Default: Daily

Options: Daily or Percent

3. Click OK.

Delete Internal Task Dependencies

When you remove an internal dependency relationship, you do not delete any tasks from the project. Instead, you delete the dependency link between the tasks. After removing the dependency, you can change the scheduling and run autoschedule.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task and click Dependencies in the shortcut menu.

3. Select the task you want to delete from the Project Tasks list, and click Delete.

4. Click OK.

External Dependencies

An external dependency is a constraint that you set outside of your project, such as a task on another project that defines when a task is completed. External dependencies are either predecessor or successor tasks on other projects.

If you are using Open Workbench with CA Clarity PPM, you can insert CA Clarity PPM project tasks as external dependencies into a project you have open in Open Workbench.

You can view a list of external dependencies on the External Dependencies page. To view this page, select Tools, External Dependencies. The externally linked project (through the external task dependency) lists the linked task on its project plan.

You can also view externally linked dependencies in your project WBS list. Dependencies appear below the linked task with a *Linked Task* icon on the task's header button to indicate that it is an external task.

The *Linked Task* icon appears as follows:

Linked Task

The linked task icon indicates that the task is an externally linked task.

Create External Task Dependencies

Use the External Dependencies dialog to review or create an external dependency relationship with an external project task. When you create an external task dependency, the external task is inserted as a read-only task; the relationship appears in both projects. Only the external task is linked to the master project, not the entire subproject or project.

The Dependencies grid displays fields that define each external dependency. Use this grid to view external dependency details such as the external task name, whether it is a predecessor or successor task, dependency type, lag type, and the external project name. The Project field displays the selected dependency task's project name. The Task field displays the selected dependency's task name.

Follow these steps:

1.   Open a spreadsheet view that displays the task detail pane.

2.   Right-click the task to which you want to insert an external dependency, and click Insert External Dependency in the shortcut menu.

3.   Locate and select the project, and the task to which you want to create the dependency from the WBS on the right pane, and click Select.

Save Projects with External Dependencies

When you save a project, a copy of the external dependency data is also automatically added to the file. When you make changes to a task which impacts an external dependency, it is not updated in the project on which the task is dependent.

Edit External Task Dependencies

You can edit dependency relationships for external dependencies using the Dependencies tab on the Task Properties dialog or using the External Dependencies dialog. You cannot move the dates on external tasks or modify it within your project; the externally linked task's properties are read-only and do not include resource or dependency information.

Note: You can only access the Dependencies tab on the Task Properties dialog if the externally dependent task has a predecessor relationship with the task in your project.

Follow these steps:

1. Open the Projects ribbon.

2. Click Dependencies in the External group.

3. Locate the external dependency task you want to modify, and complete the following fields:

    Pred/Succ

    Specifies the task's dependency relationship.

    Default: Successor

    Options: Successor or Predecessor

    Type

    Specifies the constraint type to be placed on the task's start or finish date.

    Default: Finish-Start

    Options: Start-Start, Start-Finish, Finish-Start, or Finish-Finish

    Lag

    Defines the number that represents the days or percent to indicate the amount or time between, or overlapping, the task start or finish dates.

    Note: The constraint type used is the type you specify.

    Lag Type

    Specifies the lag type.

    Default: Daily

    Options: Daily or Percent

4. Click OK.

Delete External Task Dependencies

Use the External Dependencies dialog to delete external dependencies. When you delete an external dependency relationship, you do not delete the task from the project. Instead, you delete the dependency link between the tasks. After removing the dependency, you can change the project's scheduling and run autoschedule.

If you delete an external task from its originating project, which is an external dependency in a sub-project, the external dependency is removed from all of its related task records in all other projects.

Follow these steps:

1. Open the Projects ribbon.

2. Click Dependencies in the External group.

3. Select the externally dependent task you want to delete, and click Delete.

Print Task Dependencies

You can print a list of all task dependencies associated with your project. Use the CPM Network view or a spreadsheet view that displays a Gantt chart to print dependency relationships.

Display Dependency Relationships

You can display dependency relationships on the Dependencies grid in the Dependencies tab of the Task Properties dialog or from a Gantt chart view.

Before you can create dependency relationships from a Gantt chart view, you should first be able to view the relationship in the Gantt chart. When you show dependencies, the Gantt chart area of the view displays connecting arrows between tasks that have dependency relationships.

Note: To display the dependency, first add the Task Name or Task ID field name to the view definition and place the fields in a column preceding the *Type*, *Lag*, *Lag Type*, and *Project* columns.

Follow these steps:

1. Double-click anywhere on the Gantt chart.

2. Select the Show Dependencies check box.

3. Click OK to display the established dependency relationships in the view.

Dependency Relationships Between Master Projects and Subprojects

If you work with master projects and subprojects, you can create dependency relationships between them. The method for creating dependencies between a master project and its subproject tasks is the same as that for creating dependencies between tasks in the same project. These relationships are reflected in the master project and the subproject's original project.

Define the Advanced Properties

Use the Advanced tab on the Task Properties dialog to define a task's advanced management details, such as defining, removing, or editing task scheduling constraints. The Advanced tab provides a central location from where you can set or change task-related values. All of the task's attributes display on this tab.

This tab displays a Fields grid that contains the following columns:

- Field. Displays a list of all the advanced properties you can specify.

- Value. Displays cells, where you can enter or select values for the field. The field values that you can enter depend on the field you have selected. You can:

    - Select displayed check boxes.

    - Enter numeric values, currency, or dates.

    - Enter words or phrases.

    - Select options from drop-down lists.

Note: The fields that are available for editing depend on your access rights. If a field is not available for selecting or editing, it is disabled (by default).

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Modify in the shortcut menu.

3. Open the Advanced tab.

4. Enter the values in the Value column for the following fields in the Fields grid:

    Note: The value you can enter depends on the field you have selected.

    % Complete

    Enter a value between 0 and 99 to identify the percentage of work that has been completed for a task. When the tasks are 100% complete, Open Workbench automatically inserts 100 into this field.

    Actual % Spent

    Indicates the completeness of a task out of 100%.

    ACWP

    Defines the actual cost of the work performed, which is the cost of the completed portion of assignments to a task based on the actual usage.

    AV

    Defines the difference between the Budgeted Cost of Work Scheduled (BCWS) and the Actual Cost of Work Performed (ACWP).

BAC

Defines the budget at completion, which is the budgeted cost of resource usage for the baseline plan.

Baseline Fixed Duration?

Defines whether the baseline is set for a fixed duration.

BCWP

Defines the budget cost of work performed. BCWP is the cost of the completed portion of a task based on baseline total usage. BCWP is also an earned value calculation.

BCWS

Defines the budget cost of work scheduled, which is the cost of baseline total usage through the Project As-of date.

Category

Defines the name of the group or class to which this task belongs.

EAC

Defines the estimate at completion, which totals the cost incurred to date and the expected costs for incomplete tasks to give a projected figure.

Unplanned

Defines whether the task is unplanned.

5. Click OK.

Define the Scheduling Constraints for the Task

You can set the task scheduling constraints that impact autoschedule using the Advanced tab on the Task Properties dialog. Constraining tasks allows you to indicate when a task should start or finish during autoscheduling. Scheduling constraints can override priority during autoschedule but cannot override tasks that are locked for scheduling.

When defining task scheduling constraints, the *Start* constraint date indicates that the task starts at the beginning of the work day, and the *Finish* constraint date indicates that the task finishes at the end of the work day. Note the following when constraining tasks:

■   If a task's status is *Started*, the Start constraint date is read-only and you cannot edit it.

■   If a task's status is *Completed*, all constraint dates are read-only and you cannot edit them.

■ If a task is a summary task that constrains detail tasks, you cannot add the summary task constraints.

Note: If a row in a column is gray, you cannot enter a value.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task you want to define scheduling constraints, and click Modify in the shortcut menu.

3. Open the Advanced tab.

4. Define the dates for the constraint types in the Constraints grid, and click OK:

   Must Start On

   Defines the exact date on which the task must start. This date is always respected unless the task is locked to other dates or it causes a resource overload.

   Note: This constraint overrides the *Start No Earlier Than* and the *Start No Later Than* constraint dates.

   Start No Earlier Than

   Defines the date after which the task must start.

   Start No Later Than

   Defines the date before which the task must start.

   Must Finish On

   Defines the exact date on which the task must finish. This date is always respected unless the task is locked to other dates or it causes a resource overload.

   Note: This constraint overrides the *Finish No Earlier Than* and the *Finish No Later Than* constraint dates.

   Finish No Earlier Than

   Defines the date on or after which the task must finish.

   Finish No Later Than

   Defines the date on or before which the task must finish.

Lock Tasks in Place

You may want to lock certain tasks or milestones in place to prevent scheduling functions, such as Recalculate or Autoschedule, from moving the task. Use the Advanced tab on the Task Properties dialog to lock a task. You can still shift a locked task's start date, finish date, or both dates in views that display a Gantt chart, such as the Gantt Chart view.

When you lock a task and you autoschedule your project, autoschedule does not move the ETC. If you have roles that are assigned to the locked tasks, ETC does not move and is in the past. The same is true for a resource that has not tracked current timesheets; the ETC spreads from the task's Start Date to the task's Finish Date, depending on the loading pattern.

Note: You can override this lock by autoscheduling your project.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task and click Modify.

3. Open the Advanced tab.

4. Scroll down the Fields list and select the Lock for Scheduling? check box, and click OK.

View Task Percent Expended Amount

You can view a task's % Expended amount on the Advanced tab on the Task Properties dialog. Unlike % Complete, % Expended is a calculated field that represents the percentage of resource usage expended on a task. Because % Expended is calculated and can be more precise than % Complete, which is a user-defined value and is limited to 2 decimal places, earned value calculations such as BCWP may produce different results depending on which % Complete value you select.

Add Notes

Notes let you record project-specific information for yourself or for other staff members. Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to record the information. You can view, add, edit, and remove notes. You can also change the notes categories, as well as see historical comments. The list of notes display in the History grid.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete the following steps and click OK.

    a. Enter the notes in the text box.

    b. Enter or select a category with which the note is associated from the Category drop-down list.

    Note: If you add a new notes category, specify a global file location (see page 21) to make it available for future use.

     c.   Click Add.

To edit, select the note you want to modify from the History grid, and click Modify to complete one of the following steps:

- To change the content of the note, change the data in the text field, and click Modify.

- To change the note's category, enter or select a category from the Category drop-down list.

Associate Notes with Note Categories

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to associate a project note with a note category. Use *Categories* to select and filter different groups and classes of tasks, notes, or resources in the view.

You can enter new categories to the Category drop-down list or you can use the categories that are already listed. The categories listed are those that you added when you defined the Open Workbench general options (see page 18).

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete one of the following steps:

    - Add a note (see page 58) in the text box.

    - Select a note in the History grid.

4. Enter or select a category with which the note is associated from the Category drop-down list.

    Note: If you add a new notes category, specify a global file location (see page 21) to make it globally available for use.

5. Click Add and click OK.

Delete Notes

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to delete a note.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Select the note you want to delete from the History grid and click Delete.

4. Click OK.

Assign Resources to Tasks

Use the Resources tab on the Task Properties dialog to make and modify task assignments. You can also assign resources to tasks from a view that displays the resource detail pane. Use this tab to apply properties to more than one task.

Note: When you assign a resource to a key task, the ETC of the resource determines the Start and Finish dates.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Assignments in the shortcut menu.

3. Select the resource you want to assign to your task from the Project Resources grid, and click Assign.

4. Click OK.

Resource Loading Patterns

A *loading pattern* defines how work is spread across the duration of a task. The loading pattern for a resource defines how resource assignments are used to complete tasks when you recalculate the task duration and you autoschedule your project. You have the following patterns available to help replicate how team members work on tasks.

You can assign resources to tasks using any of the following loading patterns: Uniform, Contour, Fixed, Front, or Back. Use these loading patterns with autoschedule to produce a workable schedule automatically that allows for real-time variations in the way work is assigned and completed.

Uniform Loading Pattern

The Uniform loading pattern assigns resource time evenly across a task only on those days when the resource is available to meet the task requirements. For example, if a resource is scheduled to work four hours per day on a task, the resource will not be scheduled to work on that task on days when the resource is only available to work on the task for three hours. The maximum percentage and resource availability is taken into account when assigning resources to tasks using this loading pattern.

Note: To use this loading pattern, set the maximum percentage of the resource on the task.

Graphically, this loading pattern can look as follows:
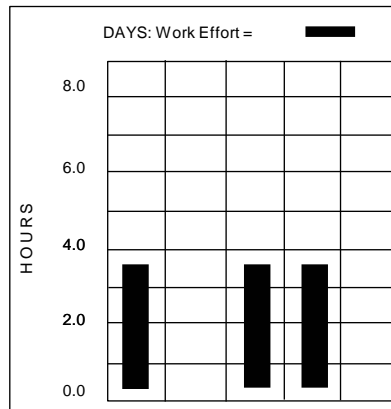
Front Loading Pattern

The Front loading pattern allocates resource usage as early in the task as possible. Resources are assigned to get work done as early as their availability permits. The maximum percentage of the resource on a task and the resource availability are taken into account when using this loading pattern.

Note: To use this loading pattern, set the maximum percentage of the resource on the task.

Graphically, this loading pattern can look like as follows:
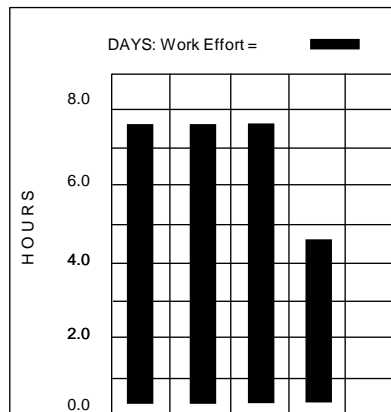
Back Loading Pattern

The Back loading pattern allocates resource usage as late as possible in the task. Resources are assigned to get work done as late as their availability permits. The Max % and resource availability is taken into account when assigning resources to tasks using this loading pattern.

Note: To use this loading pattern, set the maximum percentage of the resource on the task.

Graphically, this loading pattern can look as follows:
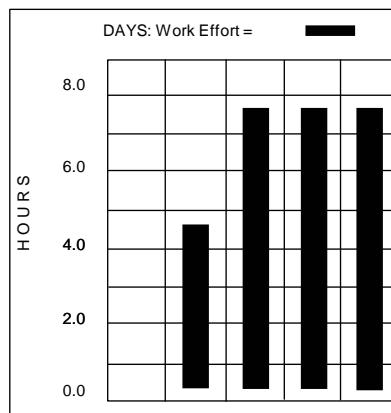
Fixed Loading Pattern

This Fixed loading pattern allocates resource usage to tasks according to your needs. Open Workbench automatically locks fixed resource assignments so that they are not changed when you autoschedule or when you recalculate task duration.

When you use this loading pattern, you can create a discontinuous task, or one that starts and stops, and then starts again. You can display the pattern in views where ETC is tabulated.

Graphically, this loading pattern can look as follows:
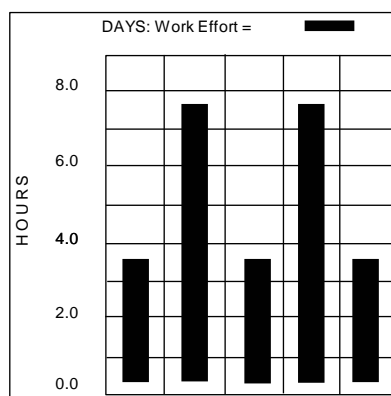
Contour Loading Pattern

The Contour loading pattern fits resource loading around the remaining availability of the resource, smoothing out the peaks and valleys. This pattern is flexible and can appear as the reverse or mirror image of overlapping task patterns. The changes that you make to the task duration after it is scheduled causes resource assignments for each period to even out across the duration of the task.

This pattern assumes the characteristics of the Uniform loading pattern in the following cases:

- Duration, start date, or finish date of a task changes

- Autoschedule the task

- Enter any new ETC values

Graphically, this loading pattern can look as follows:
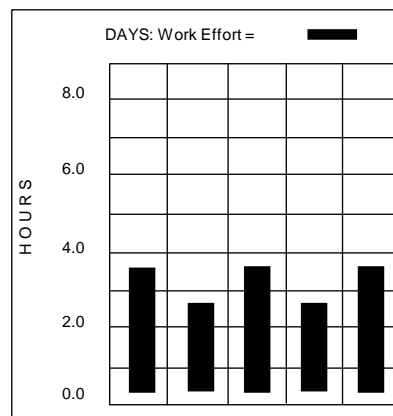
Set Resource Loading Pattern

Use the Loading field on the Resources tab of the Task Properties dialog to set the loading pattern on a task for a resource.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click a task and click Assignments in the shortcut menu.

3. Select the name of the resource in the Assigned Resources grid for which you want to set the loading pattern.

4. Complete the Loading field in the grid, and click OK.

How to Track Resources

Open Workbench uses several methods to track the progress of a resource. You can use the following methods to track resources using Open Workbench.

- Track total actual usage (see page 99)

- Track periodic actual usage (see page 99)

- Track resource actual cost (see page 99)

Track Resources by Total Actual Usage

You can record periodic actual usage using the Resources tab on the Task Properties dialog or by editing a view that displays the Actual field name.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Select a task and click in the cell displaying total actual usage.

3. Enter the total actual usage for each applicable cell on the timescale.

Track Resources by Periodic Actual Usage

Periodic recording of resource usage for every task to which a resource is assigned is the most comprehensive and accurate way to keep track of your project. Resources record actual usage by completing CA Clarity PPM timesheets where the actual time each resource spends on a task is recorded at the end of a specific time period.

You can use the Gantt Chart view to track resource usage for all tasks to which a single resource is assigned. Use this view to track usage data for one resource across an entire project or group. When you use this view with the Quick Filter by Resource drop-down list, you can display data for one resource at a time.

Actual Cost of Resource Task Assignments

You can display the total actual cost data for resource task assignments in views. You must first add the Actual Cost field to your view layout. In the view definition, this field is available in the Assignment To Tasks and All subfolders of the Resource Information folder. You can format the Actual Cost field to display a single value or multiple time-scaled values.

The actual cost of a task assignment is used to determine the Actual Cost of Work Performed (ACWP) for a task, and is used to baseline costs for tasks and task assignments.

If you are using Open Workbench with CA Clarity PPM, the actual cost of a task assignment in Open Workbench is the total actual cost of the task assignment from CA Clarity PPM. This value is based on the actual work units posted against a resource assignment using timesheets, financial transactions, external schedulers, or XOG.

When building what-if scenarios using Actual Usage, the Actual Cost is calculated using the resource rate instead of actual work units. The following formula is used:

```
Actual Cost = Actual Usage * resource rate
```

Chapter 8: Resources

Resources provide the necessary people needed to make sure that projects are completed on time and within budget. *Global resources* are those resources that are available to you to staff on projects when you are using Open Workbench with CA Clarity PPM. You can select a team of resources from a list of global resources and make them available to your project. The global list displays roles and resources to which you have booking rights.

Labor and Non-Labor Resource Types

Staff can consist of labor, materials, equipment, and expense resource or role types. If you are using Open Workbench with CA Clarity PPM, include non-labor resources or roles in your CA Clarity PPM project to be able to process financial transactions against them. For example, you may want to bill customers for the cost of traveling to customer sites.

You can add the following resource or role types to projects:

- Labor. Includes any person or role who works or completes tasks.

- Equipment. Includes any type of machinery that is used to perform a job. For example, delivery trucks, printers, and computers.

- Material. Includes any type of material that is used to perform a job. For example, training guides, chemicals, or fuel.

- Expense. Includes any cost that is associated with a resource or a role. For example, the cost of traveling to a customer site.

Create Resources

You can manually enter resources in the resource detail pane of a view and define their properties. The resources that you create are automatically available for you to assign to tasks in your project.

Best Practice: If you are using Open Workbench with CA Clarity PPM, create the resources in CA Clarity PPM. Any new resources that you create in Open Workbench must have matching resource IDs in CA Clarity PPM in order to save the project to CA Clarity PPM.

Note: If the Resource and Team objects have attributes with the same ID, Open Workbench picks the attribute in the Team object.

You can define resources by categories for reporting and analysis, as groups of more than one, or as roles such as Business Analyst. Resources can use different units of measure. Once you create a resource, you define its properties in the Resource Properties dialog. You can access the Resource Properties dialog from views that display the resource detail pane.

To view usage for material and expense non-labor resources, set the format of the view to *cost*. To view usage for expense non-labor resources, define the billing rate for resources.

Follow these steps:

1. Open a view that displays the resource detail pane, such as the Gantt Chart view.

2. Right-click a resource and click Insert in the shortcut menu.

3. Right-click the empty resource row that is added to the resource detail pane, and click Modify in the shortcut menu.

4. Define the general and advanced properties for the resource, and click OK.

Note: For more information, see the *Resource Management User Guide.*

Add Resources and Roles to Projects

You can add staff to your project by manually inserting a resource line item and entering the resource details directly in the resource detail pane of a view, such as the Gantt Chart view. To add a resource, right-click anywhere in the resource section, and click Insert in the shortcut menu. You can also copy resources from another project you have open in Open Workbench and paste them into your project.

If you are using Open Workbench with CA Clarity PPM, you can add resources or roles to your project from:

■   CA Clarity PPM. You can allocate a single role to the same project more than once. As a result, a role may appear more than once on the project staff in CA Clarity PPM. A number appends each additional occurrence of the same role. For example, Programmer 1, Programmer 2, and Programmer 3.

   Note: For more information, see the *Project Management User Guide.*

■   Open Workbench. You can add resources and roles to a project by browsing from a list of available CA Clarity PPM resources. Use the Resources tab on the Project Properties dialog to add resources to your project. When you add resources to your project, they are allocated at 100 percent.

Note: You can also add a resource to a project by creating a resource in Open Workbench and then adding the resource to CA Clarity PPM.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Resources tab.

3. Select one of the following options to view the Global Resources list by role or by category:

    ■ Roles. All resources that are assigned a role are listed under their role. Resources that are not associated with a role are listed in the No Role folder.

    ■ Category. All resources that are linked to a category are listed under their category. Resources that are not associated with a category are listed in the No Category folder.

    Note: If you are using Open Workbench with CA Clarity PPM and you have not defined resource categories in CA Clarity PPM, *roles* is selected and the list box is unavailable.

4. Complete one of the following steps in the Global Resources grid:

    ■ Expand the role folder and select the role name.

    Note: To view a list of roles and resources that are linked to the role, click the *+* sign or double-click the role folder.

    Role icon

    ■ Expand the role folder and select the resource name.

    Resource icon

5. Click Add and click OK.

Resource Role Assignments

You can assign multiple roles to a resource in a single project. *Roles* are generic resources that represent the job responsibilities of the resources assigned to a project. A role defines the work function while a resource identifies the individual who performs that role. Examples of roles include project manager, programmer, and business analyst. The following types of resource roles are available:

■ Primary. The default role assigned to a resource. You cannot save changes to the primary role back to CA Clarity PPM.

■ Project-level. A role assigned to a resource for a specific project. Changes are saved back to CA Clarity PPM.

■ Assignment-level. A role assigned to a resource for a specific task. Changes are saved back to CA Clarity PPM.

To view or edit the roles assigned to resources, you must edit the view in the application and add the Assignment Role field to the task detail pane. You can optionally add the Primary Role and Project Role fields to the resource detail pane.

Edit Resource Roles at the Project Level

Use the Advanced tab on the Resource Properties dialog to edit the resource's role. You can also edit resource roles from the resource details pane if you have added the Primary Role and Project Role fields to the pane.

Follow these steps:

1. Open a view that displays the resource detail pane.

2. Right-click the name of the resource whose role you want to change and click Modify in the shortcut menu.

3. Open the Advanced tab.

4. Complete one of the following steps and click OK.

   ■ To edit the resource's primary role, scroll to the Primary Role field.

   ■ To edit the resource's role on the project, scroll to the Project Role field.

Note: If you are using Open Workbench with CA Clarity PPM, the project roles that are listed are the resource roles that are defined in CA Clarity PPM from the drop-down.

Edit Resource Roles at the Assignment Level

Important! Before you can edit resource roles from the task detail pane, make sure you have added the Assignment Role field to the pane.

To edit a resource's role at the assignment level, from a view that displays the task detail pane, in the resource row for which you want to change the role, select the role from the Assignment Role drop-down.

Note: All CA Clarity PPM roles display in the list.

Editing Multiple Resources

You can select more than one resource to edit properties as a group. Use the Multiple Selections dialog to edit multiple resources. To view this dialog, select the resources you want to edit from the resource detail pane, right-click, and click Modify.

The following rules are applied when editing multiple resources:

■ You cannot insert a new resource from the Multiple Selections dialog.

■ Values are displayed if all the selected resources have the same entry or setting for that field. If a field is editable and if the selected resources do not have the same entry or setting, the fields appear empty. Non-editable fields are disabled.

■ When changing fields for which the value must be unique, a series of entries is created. For example, if you assign an ID of 12345 to a group of three resources, the entries for each task are 12345, 12345-0, and 12345-1. The unique field appears empty after the field no longer has the same entry.

■ If the selected resources have different settings, check boxes can appear disabled and selected.

■ On the Advanced tab of the Multiple Selections dialog, groups of options can appear shaded. You can select them to reset their attributes for all the selected resources.

Update the Resource Data

Use the Resource Properties dialog to define resources and to update resource data. This dialog is available when you use a view with resource-specific fields or when you use a view with a resource detail pane. The dialog contains several tabs where you create or edit properties specific to a resource.

If you are using Open Workbench with CA Clarity PPM, CA Clarity PPM controls all the resource data. You can edit data in Open Workbench, but on saving the changes back to CA Clarity PPM, only the Availability, From, and To data on the General tab of the Resource Properties dialog are saved; any other property changes, such as calendar changes, are discarded. To make other changes, edit the resource's properties in CA Clarity PPM.

Use the Resource Properties dialog to:

■ Define a resource's or role's general properties and availability (see page 106).

■ Define the resource's advanced properties (see page 107).

■ Define the resource's calendar (see page 108).

■ Add notes (see page 58).

Define a Resource's or Role's General Properties and Availability

Use the General tab on the Resource Properties dialog to review or set basic resource or role attributes, such as the resource's tracking, billing, and availability data. When you define resource or role availability, it applies to all time periods except those explicitly specified to be different. If you assign usage to a resource which exceeds the resource's availability for a specific time period, the resource becomes over committed.

Note: Resource IDs are held in memory during a given Open Workbench session. For example, if you create or open a project with a resource with the ID of jdoe on project A, and create the same resource on project B, the ID for the resource on project B is jdoe-0. To avoid this, create the resource record in project A, then copy and paste it into project B.

Follow these steps:

1. Open a view that displays the resource detail pane.

2. Right-click the resource and click Modify in the shortcut menu.

3. Complete the fields. The following fields require explanation:

    Category

    Defines the resource category. Use categories to select and filter different groups and classes of resources in the view.

    Rate

    Defines the resource's billing rate applicable today. If the resource has a variable rate over time, enter the variable rate in a time scaled view.

    Note: If you are using Open Workbench with CA Clarity PPM, you can enter a zero billing rate.

    Default: 1.0

    Type

    Defines the resource's type.

    Default: Labor

    Values: Labor, Equipment, Material, or Expense.

4. Complete the following fields in the Availability section, and click OK:

    Availability

    Defines the resource's default availability in hours per day.

    Note: If you are using Open Workbench with CA Clarity PPM, zero (0) availability is supported.

    Default: The amount that is defined on the calendar, typically 8.0.

    Limits: Equal to or greater than zero

From

> Enter the first date the resource is available to work on projects.

To

> Enter the last date the resource is available to work on projects.

Edit the Resource's Periodic Availability

A resource's availability can vary during a project. Any resource that has scheduled holidays (other than weekends) or vacations has variable availability. You can change the availability for a resource for any given period by editing the resource calendar.

For example, a resource is available 8 hours per day for the first 20 days of a project, but for the next 10 days, the resource has a scheduled holiday. You can change a resource's periodic availability using the Availability field in a view, or by scheduling holidays in the resource's calendar.

Define the Resource's Advanced Properties

Use the Advanced tab of the Resource Properties dialog to define advanced management details, such as defining, removing, or editing resource scheduling constraints for a resource. The Advanced tab provides a central location from where you can set or change resource-related values. All of the attributes for a resource display on this tab.

This tab displays a Fields grid that contains the following columns:

- Field. Displays a list of all the advanced properties you can specify.

- Value. Displays cells, where you can enter or select values for the field. The field values that you can enter depend on the field you have selected. You can:

    - Select displayed check boxes.

    - Enter numeric values, currency, or dates.

    - Enter words or phrases.

    - Select options from drop-down lists.

Note: The fields that are available for editing depend on your access rights. If a field is not available for selecting or editing, it is disabled (by default).

Follow these steps:

1. Open a view that displays the resource detail pane.

2. Right-click a resource and click Modify in the shortcut menu.

3. Open the Advanced tab.

4. Enter the values for the fields in the Value column, and click OK.

Define the Resource's Calendar

Use the Calendar tab on the Resource Properties dialog to assign vacations, holidays, or other periods of unavailability. If you are using Open Workbench with CA Clarity PPM, use this calendar only to perform what-if scenarios.

Note: Set all days as either work days or holidays.

Follow these steps:

1. Open a view that displays the resource detail pane.

2. Right-click the resource and click Modify in the shortcut menu.

3. Open the Calendar tab.

4. Select a calendar from the Based on drop-down list.

   The resource calendar inherits the working days, holidays, and shift settings of this calendar.

   Options: USA, United States, or United Kingdom

   Default: USA

5. Complete one of the following steps:

   ■ Click the date to select a day.

   ■ Click the header for the day of the week to select a day of the week throughout all months and years of the calendar.

6. Complete one of the following steps:

   ■ Click Workday to set the selected day to a work day. The resource is available according to its availability setting.

   ■ Click Holiday to set the selected day to a non-work day. The resource is unavailable to work on the selected dates.

   ■ Click Reset to remove holiday and workday exceptions and return the selected day to the base calendar settings.

   ■ Click Reset All to remove all holiday and workday exceptions and return the calendar to its base calendar settings.

7. Click OK.

Add Notes

Notes let you record project-specific information for yourself or for other staff members. Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to record the information. You can view, add, edit, and remove notes. You can also change the notes categories, as well as see historical comments. The list of notes display in the History grid.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete the following steps and click OK.

   a. Enter the notes in the text box.

   b. Enter or select a category with which the note is associated from the Category drop-down list.

   Note: If you add a new notes category, specify a global file location (see page 21) to make it available for future use.

   c. Click Add.

To edit, select the note you want to modify from the History grid, and click Modify to complete one of the following steps:

- To change the content of the note, change the data in the text field, and click Modify.

- To change the note's category, enter or select a category from the Category drop-down list.

View a List of Notes

Use the Notes tab on the Project Properties, Task Properties, and Resource Properties dialogs to view a list of the notes that you have added to the project, task, or resource. The list of notes display in the History grid.

Associate Notes with Note Categories

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to associate a project note with a note category. Use *Categories* to select and filter different groups and classes of tasks, notes, or resources in the view.

You can enter new categories to the Category drop-down list or you can use the categories that are already listed. The categories listed are those that you added when you defined the Open Workbench general options (see page 18).

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Complete one of the following steps:

   ■ Add a note (see page 58) in the text box.

   ■ Select a note in the History grid.

4. Enter or select a category with which the note is associated from the Category drop-down list.

   Note: If you add a new notes category, specify a global file location (see page 21) to make it globally available for use.

5. Click Add and click OK.

Delete Notes

Use the Notes tab on the Project Properties, Task Properties, and the Resource Properties dialogs to delete a note.

Follow these steps:

1. Open the Project Properties, Task Properties, or the Resource Properties dialog.

2. Open the Notes tab.

3. Select the note you want to delete from the History grid and click Delete.

4. Click OK.

How to Enter Pending Estimates

A *pending estimate* is the pending state of ETC until a resource's project manager accepts or rejects the new value. You can edit the ETC, though you should only change it if you complete the assignment ahead of schedule or if you need more hours. Resources enter pending ETC on their CA Clarity PPM timesheet to reflect their completion of the task or to indicate the remaining ETC, and send this information to the project manager by posting the timesheet. The project manager can accept or reject ETC using Open Workbench or using CA Clarity PPM.

Use the following process to enter pending estimates:

1. The resource creates a CA Clarity PPM timesheet.

2. The resource enters actuals (pending actuals) into their timesheet and edits ETC to pending ETC when appropriate.

3. The resource posts the timesheet.

4. The project manager accepts (see page 111) or rejects (see page 112) the pending ETC.

    Note: For more information, see the *Project Management User Guide.*

5. The project manager autoschedules the project (see page 124).

Display Pending Estimates Data in Views

To view pending estimates in a spreadsheet view, such as the Gantt Chart view, first create a new view that includes the fields that display pending estimate data.

Add the following fields to the task detail pane:

- Task Estimate to Complete

- Task Pending Estimates

- Task Pending Estimate Override?

- Task Pending Actuals

- Task Pending Actuals?

Accept Pending Estimates

Use the Pending Estimates dialog to accept the pending estimates for the entire project, for the tasks that are displayed in a view, or for selected tasks. When you accept pending estimates, Open Workbench adds the pending estimates and the pending actual amounts, and saves this value as the resource's pending ETC in the pending estimate. Open Workbench also flags the pending estimate to change in the resource's CA Clarity PPM timesheet.

Note: The *Pending Estimates* command is disabled if you are viewing a read-only copy of a project or if the project does not include pending estimates. Pending estimates are updated only if you have saved changes to the current pending estimates.

Follow these steps:

1. To accept pending estimates for selected tasks only, open the project and select the tasks you want to accept estimates for. Otherwise start with step 2.

2. Open the Project ribbon.

3. Click Pending Estimates in the Schedule group.

4. Define the scope for pending estimates by selecting project, view, or selected tasks, and select Accept Pending Estimates.

5. Click OK.

Reject Pending Estimates

Use the Pending Estimates dialog to reject the pending estimates for the entire project, for the tasks that are displayed in a view, or for selected tasks. When you reject pending estimates, Open Workbench removes the pending estimates and the pending actuals amounts. The resource's pending ETC remains the same.

Follow these steps:

1. To reject pending estimates for selected tasks only, open the project and select the tasks you want to reject estimates for. Otherwise start with step 2.

2. Open the Project ribbon.

3. Click Pending Estimates in the Schedule group.

   Note: This selection is disabled if you are viewing a read-only copy of a project or if there are no pending estimates. Pending estimates are updated only if you have saved changes to the current pending estimates.

4. Define the scope for pending estimates by selecting project, view, or selected tasks, and select Reject Pending Estimates.

5. Click OK.

Chapter 9: Schedule Projects

When you finish creating a project plan and dependency relationships, you are ready to schedule tasks and the resources that work on tasks. If your project is large, scheduling can be a complex process that balances task relationships, resource availability, and task duration.

As scheduling is an iterative process, it usually takes several steps to balance resources working on a project. This means you may need to make several adjustments to your project plans. Adjustments can include changing resource availability, adjusting dependency links, and adding tasks.

To ease the burden of scheduling projects, Open Workbench uses an automated scheduling process called *autoschedule*.

How to Develop Project Schedules

You can use some of the following steps to develop a realistic schedule:

1. Adjust the resource calendars to define work days and holidays for each resource.

2. Autoschedule the project (see page 124) without constraints on resource availability.

3. Autoschedule the project (see page 124) again with constraints on resource availability to eliminate any resource overcommitment.

4. Prioritize phases, activities, and tasks.

5. Recalculate the duration (see page 116) of inherently overcommitted tasks, keeping in mind that you cannot recalculate the duration of tasks with fixed resource assignments.

6. Lock tasks (see page 92) that you do not want rescheduled.

7. Refine your use of resource loading patterns (see page 95).

8. Adjust task priority (see page 185).

9. Autoschedule the project (see page 124) again with constraints to resource availability.

10. If needed, complete one of the following steps, and autoschedule the project again:

    ■   Manually adjust the schedule by shifting tasks (see page 71).

    ■   Refine the dependency relationships (see page 82).

How to Schedule Projects Using Open Workbench

There are several scheduling techniques you can use to schedule your projects using Open Workbench. The scheduling process involves the following steps:

1. Determine one of the following:

   ■ The minimum length of time required to complete each task (task duration (see page 76)).

   ■ The resource usage (see page 78) on each task (used to automatically determine durations).

2. Determine the ETC (see page 79) for each resource.

3. Determine each task's resource loading pattern (see page 95) from one of the available loading patterns.

4. Autoschedule the project (see page 124).

Manually Schedule Projects

Use the Scheduling tab on the Project Properties dialog to define the scheduling attributes, such as the start and finish dates of the project. This data is used when scheduling the project. Schedule all project tasks to begin and end during the project period.

Note: If you use autoschedule, these dates may change according to the resource assignments, task dependencies, and constraints.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Scheduling tab.

3. Complete the fields in the Project section. The following fields require explanation:

   Start

   Defines the project's start date.

   Default: The current system date.

   Imposed (Start)

   Specifies whether or not you want to impose a start date for the project.

   Note: You must select this field if you later autoschedule your project from its start date. When selected, autoschedule cannot change the project's start date to accommodate any changes it makes to the start and end dates of the project's tasks, no matter when the first task starts.

Finish

Defines the anticipated project completion date. The project's finish date must equal or be beyond the finish date of the last task. This date is used as the finish date for the last task in the CPM Network.

Imposed (Finish)

Specifies whether or not you want to impose a finish date for the project.

Note: You must select this field if you later autoschedule your project from its finish date. When selected, autoschedule cannot change the project's end date to accommodate any changes it makes to the start and end dates of the project's tasks, no matter when the last task finishes.

As-of

Defines the date that is used as a reference point when performing Earned Value Analysis (EVA) calculations. If you do not enter an as-of date, zero (0) displays in earned value fields such as Actual Cost of Work Performed (ACWP) and Budgeted Cost of Work Performed (BCWP).

Note: When using autoschedule to schedule a project, the As-of date for the project defines the date to include data in time and budget estimates. This date is used in Earned Value Analysis (EVA) calculations, such as Budgeted Cost of Work Scheduled (BCWS) and drives the calculations for costs. ETC for a project is not scheduled on or before the As-of date.

Priority

Defines the order in which subprojects are scheduled within a master project. The priority amount that you enter here is used as the default priority for summary tasks. Any lower-level WBS tasks that have been marked as inheriting the priority of its parent assume this priority amount. For example, if the project has a priority of 0 through 9, its tasks are given the highest priority during scheduling. If the project has a priority of 11 through 36, its tasks are given the lowest priority during scheduling.

Default: 10

Values: 0 through 36 (A lower number indicates a higher priority.)

4. Complete the fields in the Critical Path section. The following fields require explanation:

   Type

   Defines on which dates to base the critical path during CPM calculations.

   Default: Current

   Values:

   ■ Current. The application uses the project task's current start and end dates to determine the critical path.

   ■ Baseline. The application uses the start and finish dates and durations from the current baseline to determine the critical path.

   Subnets (All Projects)

   Specifies whether you want CPM to calculate the project's critical path separately for each subnet. When cleared, one critical path is calculated for the entire project.

   Default: Cleared

5. Click OK.

Recalculate Task Duration

You can recalculate task duration so that the application computes the shortest possible task duration. To recalculate task duration, select one or more tasks from the current view, and select Tools, Recalculate.

To eliminate resource over commitment and to maximize resource use, Open Workbench recalculates task duration according to the ETC, total resource availability, and maximum percentage load. The following mathematical calculation is used for recalculating task duration:

```
Duration = actuals + ETC/(resource availability per day) x (max % availability
per day)
```

The recalculation process also maximizes resource use to shorten task duration whenever possible. If a task is inherently over committed, recalculating task duration can extend its duration to eliminate any inherent resource over commitment for that period. The exception is when the task is fixed.

When you assign multiple resources to a task and you recalculate the task's duration, Open Workbench computes the duration for each resource separately and selects the longest duration to determine the total task duration. All incomplete tasks in the selected range are adjusted, except for fixed tasks. If you recorded resource actual usage on the task, the ETC is modified.

Tasks with a *Contour* loading pattern are recalculated as *Uniform*. The recalculation process also replaces patterns created by autoschedule, and computes duration based on total availability per task. Locked or completed tasks are not impacted by the recalculation process. Instead, if the task has an ETC, the incomplete portion of the task is modified.

Example 1

Resource availability is 8 hours per day and the maximum percentage is 50% (the resource can work on this task 4 hours per day). If usage is 12 days, when you recalculate the task duration, the task's duration computes to 24 business days.

Example 2

Resource availability is 4 hours per day and the maximum percentage is 50% (the resource can work on this task 2 hours per day). If usage is 12 days, when you recalculate the task duration, the task's duration computes to 48 days.

Baseline Projects

A *baseline* is a snapshot of the original project plan that you preserve for later comparison with the current plan. You can baseline to evaluate a project and compare it with an approved plan. Baselining preserves a version of the plan that does not change as work on the project progresses, unless you baseline the project again.

You can baseline a task, a selected range of tasks, all tasks in a view, or the entire project. When you create a baseline, you preserve information such as start dates, finish dates, and usage from that moment in time. You can then compare the current plan with the baseline plan to determine if the project is proceeding as expected.

The appropriate time for you to baseline a task or resource assignment data is after management approves the project plan and before the task starts and actuals are tracked. This gives you a reference against which to measure the project progress. If the plan goes through several review cycles, and management approves a new basis for measurement, you can rebaseline the task so that you can compare the revisions with the original plan.

Open Workbench supports multiple baselines so you can create new baselines as the project progresses.

Baselines and Earned Value Computations

Open Workbench factors in baseline information in many calculations that are performed in the earned value analysis.

Earned Value Analysis (EVA) is a statistical operation that compares the project's present actuals against what was planned. For example, it may compare the length of time a task would take, according to a baseline budget plan, with the actual length of time it took. EVA is also called *Performance Measurement*.

Open Workbench includes fields containing the fundamental calculations that are used for earned value analysis. These fields are available as discrete items for reporting purposes and you can add them to any view. These fields are used primarily as variables by other calculated fields to produce variance values.

Earned value calculates the following values for every scheduled activity:

■ **Budgeted Cost of Work Scheduled (BCWS)**

The budgeted amount to be spent on the project in a given period.

■ **Actual Cost of Work Performed (ACWP)**

The total direct and indirect cost that is incurred in performing work during a given period.

■ **Budgeted Cost of Work Performed (BCWP)**

The percentage of the total budget equal to the percentage of the actual work performed.

These values are used together to determine if work is being performed as planned. The most frequently employed measures are:

■ Cost Variance (CV), where CV = BCWP - ACWP.

■ Schedule Variance (SV), where SV = BCWP - BCWS.

■ Cost Performance Index (CPI), where CPI = BCWP / ACWP.

Use the EVA fields to track work performance to account for cost and schedule variances. For example, Open Workbench computes BCWS using the following formula:

```
BCWS = (cumulative baseline usage from the start date through the Project as-of
date) x (the resource billing rate)
```

Note: You must baseline your project to attain date or EAC variances.

Set Baselines

Use the Multiple Baselines dialog to set baselines and to rebaseline your project. This dialog lists the baselines that you have already set on the project. When you set a new baseline, its default name is Baseline1 and it is marked as the current baseline. If the project already has a baseline that is named Baseline1, then the new baseline you set is named Baseline2. You can edit the name after you capture the baseline.

Select all levels of the WBS to rebaseline your project, view, or selected tasks. When you rebaseline tasks that have changed, such as changes to a resource's ETC, the data is not rolled up to the summary task level. Data, however, is rolled down to a phase's tasks when you rebaseline at the summary task level.

Follow these steps:

1. Click Tools, Baselines, Multiple Baselines.

2. Click New.

3. Click OK.

Display Baseline Data in Views

You can display one baseline in a view at a time. To view baseline information, first include the fields that display baseline data in one of your views. You can display the current baseline in a spreadsheet view, such as the Gantt Chart view, against the current status of the project. Special baseline markers on Gantt bars indicate the baseline information to differentiate the baseline information from the current schedule.

The following procedure explains how to include the fields that display baseline data in a view.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Add the following fields:

   ■ Task Baseline Cost

   ■ Task Baseline Usage

   ■ Task Baseline Usage (aggregated)

   ■ Assignment Baseline Cost.

3. Add the Resource Baseline Cost field in the resource detail pane.

The following procedure explains how to display a baseline.

Follow these steps:

1.   Double-click the Gantt chart.

2.   Select the Baseline check box in the Gantt Bars group and click OK.

Edit Baselines

Use the Multiple Baselines dialog to edit the name, description, and code, and to set a baseline as the current baseline.

Follow these steps:

1.   Open the Project ribbon.

2.   Click Manage in the Baselines group.

3.   Select the Current check box next to the baseline you want to set as the current baseline.

     Note: You can select one baseline as the current version.

4.   Click OK.

Rebaseline Projects

Use the Set Baseline dialog to rebaseline your project. When you rebaseline your project, the current baseline is replaced with the new baseline data.

Note: When you choose to rebaseline the view or selected tasks, the project baseline values are not updated.

You must select all levels of the WBS to rebaseline your project, view, or selected tasks. When you rebaseline tasks that have changed, such as changes to a resource's ETC, the data is not rolled up to the summary task level. Data, however, is rolled down to a phase's tasks when you rebaseline at the summary task level.

Follow these steps:

1.   Open the Project ribbon.

2.   Click Define in the Baselines group.

3.   Select the following options:

     ■   Project in the Scope section.

     ■   Set in the Baseline Settings section.

4. Click OK.

5. Click Yes to confirm that you want to overwrite the prior version of the baseline data with the new version, when prompted.

Multiple Baselines

If you are using Open Workbench with CA Clarity PPM, you can create multiple baselines to track the progress of your projects from:

- CA Clarity PPM.

  Note: The project must be unlocked to create a new baseline.

- Open Workbench.

Baseline data is stored at the summary-task and project level. Cost data is stored with the baseline. If you make subsequent changes to rates, they do not retroactively modify baseline costs.

If you are using Open Workbench with CA Clarity PPM and you rebaseline the master project, only the data you enter directly in the master project is captured and not the data you enter in the subprojects.

From Open Workbench you can:

- Set a baseline to save a range of tasks, all tasks in a view, or all tasks in a project to a baseline.

- Create multiple baselines to maintain historical versions.

- View or edit project baseline properties.

To save a baseline in CA Clarity PPM, you must have the access rights to modify baselines for the project.

Note: For more information, see the *Project Management User Guide.*

Multiple Baselines with Master Projects and Subprojects

When you set the baseline for a master project, you also set it for the project's subprojects. The master project's baseline data is an aggregation of its own baseline data and its subprojects. It is dynamically aggregated at the time you set the baseline. The master project's resource baseline data is an aggregation of the team baseline data.

When you open a master project that you have not baselined, but one of the subprojects has been baselined, the current baseline for that subproject is displayed in views. For example, if you have a master project with two subprojects, Subproject1 and Subproject2, and only Subproject1 has a current baseline, Baseline1. You rename that baseline and you baseline a selected task in Subproject2. Then Subproject1's baseline is deleted and is replaced with Subproject2's baseline. Subproject2's baseline is marked as the current baseline.

If you are using Open Workbench with CA Clarity PPM and you create multiple baselines for a master project, a baseline (Baseline1) is created for the master project and its subprojects. When you save the master project back to CA Clarity PPM, the baseline data for the master includes the values from the subprojects. For example, if you have a master project that has a task with 5 hours of ETC, and its two subprojects have a task with 10 hours ETC each, then on saving the project back to CA Clarity PPM, the master project baseline usage is 25 hours.

If you open a master project that you have baselined, and then add a new subproject, the existing subproject's current baseline is saved. If you baseline the master project, the subproject's baseline is replaced by the new baseline. If the master project's subprojects have more than one baseline, the baseline that is marked as the current baseline displays in views.

Note: If you are using Open Workbench with CA Clarity PPM, to keep master project baselines in sync with the subproject baselines, do not change baselines that are marked current without first changing them in CA Clarity PPM. When you open a CA Clarity PPM project in Open Workbench, all baseline data that is defined in CA Clarity PPM is loaded into Open Workbench.

Set Multiple Baselines

When you maintain multiple baseline versions, the current version is the version from which earned value analysis (EVA) is measured. You can change the current version any time.

If you are using Open Workbench with CA Clarity PPM, you can set multiple baselines and can save the project back to CA Clarity PPM. By default, when you create a new baseline, it is selected as the current version. You can choose to select another baseline to be the current version.

When you create a new baseline, the name and code of the new baseline by default is baselineN, where N is an incremental number starting at 1. Double-click the cell to change the value.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage in the Baselines group.

3. Click New to add a new baseline to the grid. This baseline is selected as the current baseline version.

   Code

   Defines the code for the baseline.

   Name

   Defines the name of the baseline.

   Description

   Defines the description of the baseline.

4. Click OK.

Analyzing Data in Multiple Baselines

You can create a baseline to analyze the impact of the additional work. When you select only a few of the project tasks and baseline, the baseline values are updated for those tasks. The summary level baseline information remains the same until you update the baseline for the selected summary task, or the entire project. Use the summary level baseline to analyze the changes that have occurred at that level, even though they do not show at the task level.

Clear Baseline Values

Use the Set Baseline dialog to clear the baseline values or to rebaseline. Clearing baseline values replaces the existing baseline data that has been set for all of the tasks in a project, all of the tasks in the active view, or a selection of tasks. If you are using Open Workbench with CA Clarity PPM, save the project to CA Clarity PPM after you clear the current baseline values.

To delete entire baselines, use the Multiple Baselines dialog.

Follow these steps:

1. Open the Project ribbon

2. Click Define in the Baselines group.

3. Select one of the following options in the Scope section:

   ■ Project to clear the baseline of all the tasks in the current project.

   ■ View to clear the baseline of the tasks in the active view.

   ■ Selected Task(s) to clear the baseline of the selected tasks.

4. Select Clear in the Baseline Settings section and click OK.

5. Click Yes to accept the change when prompted with a warning that clearing the baseline replaces your existing baseline data.

Delete Baselines

Use the Multiple Baselines dialog to delete a baseline or to edit your baseline. If you want to delete a previous baseline but that baseline is marked as current, clear the Current field before deleting. You can only delete the current baseline if it is the only baseline listed.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage in the Baselines group.

3. Select the baseline row you want to delete, and click Delete.

Autoschedule Projects

Autoschedule is an automated way to create project schedules. Autoschedule schedules tasks based on an internal set of rules the system sets. Each task is scheduled to:

■ Use availability as early in the project as possible.

■ Start at the earliest or latest possible time, subject to constraints.

■ Minimize the duration of the critical path.

Before scheduling, autoschedule automatically calculates the project's critical path. Autoschedule works in the following order:

1. Schedules work that has no flexibility, such as actual work, fixed assignments, and all work on locked tasks, and reduces the remaining availability accordingly.

2. Processes the remaining tasks in order of a calculated priority subject to task dependencies. As each task is processed, remaining availability is reduced accordingly.

Autoschedule uses the following factors to determine the order in which the subproject tasks are scheduled, and the factors are considered in this order:

1. The task has a *Must Start On* or *Must Finish On* scheduling constraint

2. The task's priority (lower values rank higher)

3. The task's float (lower values rank higher)

4. The task has started

5. The task's physical location in the WBS. Tasks located towards the top of the WBS rank higher

If two or more tasks have equaling factors, the next factor in the queue is taken into account. For example, if you have two tasks, both with no defined scheduling constraints and priority as 5, and the first task's float is less than the second task's, the first task is scheduled before the second.

By default, Autoschedule operates on the entire project, but does not change tasks that:

■ Start earlier than the date you enter for *Ignore Tasks Starting Before*

■ Start later than the date you enter for *Ignore Tasks Starting After*

■ Are marked as locked or completed

   Note: You can override the task lock.

■ Have actuals, except for the time period between the last actuals thru date and the finish date

Autoschedule performs three passes of the project to create a schedule that satisfies all dependencies and does not overallocate selected resources. Each pass includes a forward pass and a backward pass. To develop a schedule, the following passes are performed whether you schedule from the project start or finish date:

■ During the first pass, autoschedule creates a baseline schedule and performs a priority sort to resolve potential scheduling conflicts.

■ During the second pass, the schedule is created. When autoschedule considers resource constraints, autoschedule first makes a pre-pass.

■ During the third pass, autoschedule recalculates the critical path based on the schedule that was developed in the second pass.

Important! You can set dependencies, constraints, and resource availability so that it is impossible for autoschedule to produce a schedule free of dependency violations or resource over allocations.

Define Autoschedule Parameters

Use the Autoschedule dialog to specify the scheduling criteria and to begin scheduling tasks using autoschedule. You can autoschedule an entire project or only tasks that occur between ranges of dates.

The following procedure explains how to define autoschedule parameters and to schedule your project.

Follow these steps:

1. Open the Project ribbon.

2. Click Autoschedule in the Schedule group.

3. Complete the fields. The following fields require explanation:

    Start Date

    Defines the date from which to begin scheduling tasks. To schedule from the finish date, enter the date on or before which you want to begin scheduling tasks.

    Ignore Tasks Starting Before

    Defines the date before which you want tasks to be excluded. For example, if you enter 4/3/2008 as the Ignore Tasks Starting Before date, and you have a task starting on 3/31/2008, this task is excluded from the schedule.

    Ignore Tasks Starting After

    Defines the date after which you want tasks to be excluded. For example, if you enter 4/3/2008 as the Ignore Tasks Starting After date, and you have a task starting on 4/10/2008, this task is excluded from the schedule.

4. Select the following options.

    Resource Constraints

    Specifies whether you want autoschedule to consider resource availability when scheduling the project.

    Default: Selected

    Note: If you clear this check box, autoschedule treats resources as having unlimited availability. Each task is scheduled against the resources total availability, not against the resources remaining availability which takes other task assignments into consideration. This results in the shortest possible schedule, but it may also cause resources to be overcommitted.

Schedule from Finish Date

Specifies whether you want autoschedule to perform a backwards schedule from a defined deadline date.

Default: Cleared

Note: If you select this check box, the *Start Date* field toggles to the *Finish Date* field.

Honor Constraints on Started Tasks

Specifies whether you want autoschedule to honor any constraints or dependencies you have on tasks with a status of *Started*.

Default: Cleared

Note: If you select this check box, you run the risk of overallocating resources or violating task dependencies.

Schedule Assignments on Locked Tasks

Specifies whether you want autoschedule to move the assignment ETC within the scheduling Start Date and the task's Finish Date.

Default: Cleared

Start Successors on Next Day

Specifies whether you want autoschedule to start successor tasks with zero lag the day after the predecessor task finishes. When cleared, successor tasks start the same day as the predecessor task finishes as long as the resource has availability left.

Default: Cleared

Note: This applies to variable-duration tasks only.

5. Click OK.

Autoscheduling Master Projects

You can autoschedule a group of subprojects from the master project to show the best fit of all tasks in all projects.

Best Practices: Before you autoschedule a master project, create a project start milestone for each subproject and link it to the first task in the master project. You can then lock or define a *Start No Earlier Than* date constraint to the milestone to assist with the individual project time frame constraints.

The master project's resource list contains the names of the resources assigned to work on the projects that are contained in the master projects, the subprojects.

Autoschedule Projects from a Start Date

When you schedule a project from its start date, autoschedule attempts to schedule all project tasks to start as early as possible. When you run autoschedule using a project's start date, it calculates the early start and early finish, moves the early start forward, checks for fixed loading pattern assignments, and adjusts the early start or early finish to make sure that fixed assignments are within the date range of the project.

When you autoschedule your project, the task start dates change to the date you enter or a later date, except in the following cases:

- The task has a status of *Started* or *Completed*.

- The task has a *Must Start On* scheduling constraint.

- The task is marked as *Locked for Scheduling*.

- The task has resource assignments with *fixed* loading patterns before the entered start date.

Follow these steps:

1. Open the Project ribbon.

2. Click Autoschedule in the Schedule group.

3. Enter the date on or after which you want to begin scheduling tasks in the Start Date field.

4. Make sure that the Schedule from Finish Date field is cleared, and click OK.

Autoschedule Projects from a Finish Date

You can autoschedule projects from a finish date to help you find out on which date your project has to start in order to meet a required finish date. When you schedule your project based on its finish date, autoschedule performs three traversals of the project. In the second and third traversals, it goes over the tasks backward first and enforces finish constraints over start constraints so that the project is scheduled to start as late as possible.

When you run autoschedule using a project's finish date, it does the following:

- Calculates the late finish and late start dates.

- Moves the late finish date forward.

- Checks for any fixed loading pattern assignments.

- Adjusts the late start or late finish date to make sure the fixed assignments are within the project's date range.

Follow these steps:

1. Open the Project ribbon.

2. Click Autoschedule in the Schedule group.

3. Select the Schedule from Finish Date check box to perform a backwards schedule from a defined deadline date.

    The Start Date field toggles to the Finish Date field. The current project finish date displays in the Finish Date field.

4. Enter the project's anticipated finish date in the Finish Date field, and click OK.

Autoschedule by Task Priority

The *task priority* controls the order in which tasks are scheduled during autoschedule, subject to dependencies and task and resources constraints. Autoschedule, therefore, schedules tasks with higher priority ahead of tasks with lower priority. Use the General tab on the Task Properties dialog to define a task's priority or priority inheritance. If you do not specify priority for a task, autoschedule uses the priority of its parent task, or the next highest WBS level. If no priority is defined, autoschedule uses the default value (10).

Autoschedule schedules task priority as follows:

- Numbers 0 through 9 are given the highest priority level during scheduling.

- Numbers 11 through 36 are given the lowest priority level during scheduling.

For dependencies, autoschedule assumes that a predecessor task has a priority at least equal to its successor. In some cases, dependency relationships override individual task priority during the scheduling process.

Override Task Lock during Autoschedule

You can override the lock on tasks while autoscheduling. For example, if you have a task that is locked between February 25, 2008 and April 4, 2008, autoschedule distributes the assignment's ETC to the task between the two dates. If you do not override the lock and autoschedule changes the task's end date to April 25, 2008, the assignment's ETC remains between February 25, 2008 and April 4, 2008. However, if you choose not to override the lock, the assignment's ETC is distributed between February 25, 2008 and April 25, 2008, per the assignment's loading pattern.

When scheduling locked tasks using this option, autoschedule adheres to the following rules:

- Assignments that have a fixed loading pattern are not scheduled (No change in behavior). Variable assignments that have Front, Back, or Uniform loading are scheduled.

- Variable assignments that have a loading pattern other than fixed on the locked tasks are scheduled before any other assignments. If a variable assignment is on a fixed task, it is scheduled before any assignment on variable tasks.

- Variable assignments on the locked tasks are scheduled without regard to the resource's work on other tasks, within the same project.

- The assignment does not get over allocated and the assignment's loading pattern is honored.

- When forward scheduling, work is distributed between the task's *Actuals Thru* date or the *Autoschedule* date, whichever is later, and the task's finish date. If the Autoschedule date is later than the task's finish date, all work is placed on the task's Finish Date since the task duration cannot be extended as the task is fixed.

- When backward scheduling, work is distributed between the task's *Finish Date* or the *Autoschedule* date, whichever is earlier, and the task's Start date or the Actuals Thru date. If the Autoschedule date is earlier than the latter of the task Start date and the Actuals Thru date, all work is placed on the later date.

- When scheduling variable assignments on locked and fixed tasks, neither the task's start nor finish are changed.

Follow these steps:

1. Open the Project ribbon.

2. Click Autoschedule in the Schedule group.

3. Select the Schedule Assignments on Locked Tasks check box, and click OK.

Calculate Critical Path

Critical path is a set of tasks in a project for which any delay or expansion lengthens the project or causes project deadlines to slip. The critical path determines the project's earliest finish date.

Autoschedule uses the critical path value to determine the tasks that drive the project deadlines and constraints. The critical path is calculated using the dependency sequence and task duration. If you choose to schedule subnets, a separate critical path is calculated and displayed for each subnet and for each task that does not have dependencies.

To calculate the critical path, autoschedule your project or select Tools, Critical Path. You can view the project's critical path in a CPM Network view.

How is Critical Path Calculated

Open Workbench calculates a project's critical path using a two-step process. The following rules govern how this two-step process is conducted:

- Tasks that are part of the longest duration chain are on the critical path.

- Project finish date is the sole reference date used to calculate both the early and late schedules.

- Float can be zero, lesser or greater than zero.

- Task status has no bearing on dependency violations or the critical path calculation.

- A task that is not on the dependency network cannot have an early schedule or late schedule; hence, it cannot be on the critical path.

- Resource constraints do not affect the critical path calculation.

To arrive at the critical path, the application performs two passes through the dependency network.

The First Pass

The first pass works forward through the network to determine the early start and early end dates for each task in the network, and calculates the longest duration path through the network. The project's reference end date is the project's defined finish date. If you did not define this date, the end date is the early end date of the last task in the network or, if there is more than one branch, the latest of the early end dates of the last task in each branch.

To calculate the early start date for the task's successor(s), the application starts with the first task in the network and adds the task's duration to the start date. Adjustments are made for gaps or overlaps by adding or subtracting from the duration. The early end date is calculated by adding the task's duration to the early start date. The application repeats this process for each task in the network.

Note: The successor of a *Start-Start* dependency has the same early start date as the predecessor. The successor of a *Finish-Finish* dependency has the same early end date as the predecessor.

The Second Pass

The second pass works backward through the network starting from the project finish date to determine each task's late start and late end date. The last task of each branch of the network has a late end date equal to the project finish date. To calculate the late end date for a task's predecessor(s), the application subtracts the task's duration from the project finish date. Adjustments are made for gaps or overlaps by adding or subtracting from the duration. The late start date is calculated by subtracting the task's duration from the late end date. The application repeats this process for each task in the network.

Note: The predecessor of a *Start-Start* dependency has the same late start date as the successor. The predecessor of a *Finish-Finish* dependency has the same late end date as the successor.

Calculate Float

Open Workbench calculates the float for each task by subtracting the early start date from the late start date. *Float* is the number of days that a task's initiation or completion can be delayed without adversely affecting the project finish date. Float is calculated using the following formula: Late Start - Early Start. Tasks with a float of zero (0) appear on the critical path.

Schedule Subnets

Subnets are a set of tasks in a project that have dependencies among themselves. During Autoschedule, you can choose to calculate and display separate critical paths for each subnet and for each task that does not have dependencies. Otherwise, only one critical path, the longest path, is calculated for the project. Use the Subnets (All Projects) check box on the Scheduling tab to specify whether you want CPM to calculate the project's critical path separately for each subnet.

You have the following benefits of scheduling subnets:

■ If you are working with a master project that contains multiple projects, you can calculate and display the critical path of each subproject and not just the longest critical path.

■ If you are working with a project where you have structured the work breakdown structure to support multiple concurrent critical paths, you can display all critical paths.

■ If you have a project that contains management tasks that span the project's life, you can display the management tasks and the true critical path.

The following procedure explains how to set up your project to calculate separate critical paths.

Follow these steps:

1. Click Project Properties in the application menu.

2. Open the Scheduling tab.

3. Select the Subnets (All Projects) check box in the Critical Path section.

4. Complete one of the following steps to calculate separate critical paths for your project:

    ■ Autoschedule your project (see page 124).

    ■ Calculate the critical path (see page 130).

Chapter 10: Manage Projects

This section contains the following topics:

How is Project Data Shared Globally Across Projects

Open Workbench shares the following project data globally across all of the open projects:

- Week Start

- Base Calendar

- Guidelines URL

This information is retrieved from:

- CA Clarity PPM when you use Open Workbench with CA Clarity PPM.

- The global file when you have specified a global file location (see page 21).

You must have administrator access rights to edit global project settings in CA Clarity PPM.

For more information, see the *Project Management User Guide*.

Find Information in Projects

Use the Find dialog to search for specific project information in views. You can construct search criteria from field names that appear in a view, and construct search statements on the many combinations of data that comprise your project plans. To find information in a view, open the Find dialog and select field names as the basis for your search criteria.

Note: Searches begin at the cell in which your cursor is placed and works downward within the view.

You can combine *And* and *Or* arguments to refine your search. For example, if you have multiple search statements listed in the Criteria grid, the search starts at the top and looks for information in your project that matches the criteria. The last And/Or statement that is listed in the dialog is ignored unless you add another statement.

Define Search Criteria to Find Data

The following procedure explains how to create search criteria to find data.

Follow these steps:

1. Open the Tasks ribbon.

2. Click Extended Find in the Search group.

3. Double-click the information folders to display the field names.

4. Drag the field names to the Field column.

5. Select the relationship from the drop-down list in the Compare column.

    Default: Equal

    Values: Equal, Not Equal, Greater, Less, Not Less, and Not Greater

    Note: The choices available depend on the fields you have selected.

6. Double-click the cell in the Value column and enter a value.

    Important! The value that you enter must be valid.

7. Select one of the following options in the And/Or column to define the link type:

    And

    Finds data that matches the current and following field names and comparison conditions you enter, and to link multiple search criteria.

    Or

    Finds data that matches either the current or following search criteria.

8. Click OK.

Note: To search for other occurrences of matching data, select Edit, Find Next. Another search is performed and displays in the project.

Manage CA Clarity PPM Projects using Open Workbench

Refresh Project Data

If you are using Open Workbench with CA Clarity PPM, it is possible for other users to update information in CA Clarity PPM that affects the project you have open and locked in Open Workbench. To verify that you have the latest information, you can refresh certain types of information from your project open in Open Workbench with any updates made in CA Clarity PPM.

You can refresh:

■ Global information, such as calendar and guidelines URL. You do not need to have a project open in Open Workbench to refresh global information.

■ Project-specific information. To update all project data, you must have your project open in CA Clarity PPM in read/write mode. The options in the Options for [Project] section of the Update dialog are unavailable if you open the project from CA Clarity PPM. Use the Update dialog to determine what data you want to pull from CA Clarity PPM into your project in Open Workbench.

Follow these steps:

1. Open the Project ribbon.

2. Click Update in the Clarity group.

3. Select or clear the following check boxes:

   Calendars

   Specifies whether to refresh your project's current calendar with any changes made to the calendar in the CA Clarity PPM project.

   Note: Calendars are not specific to a resource.

   System Options

   Specifies whether to update your project's options, such as roles, and customized data mapping, with any changes made to the system options in CA Clarity PPM.

   Important! Selecting this option can change your working copy's default options.

4. Select or clear the following check boxes in the Options For [Project] section:

   Note: You must have the project open in read/write mode to select or clear check boxes in this section.

   New Notes

   Specifies whether to include only the task notes created since the project was opened or last refreshed in the update. For example, another user added a note to an unplanned task on their CA Clarity PPM timesheet while the project was locked in Open Workbench.

   Resources

   Refreshes all attributes for resources that are assigned to the project. Updates the project with revisions to resource data, such as updates to resource calendars. Assignment revisions, such as a change in the assignment estimate to complete (ETC), are not updated.

   Status

   Specifies whether to include changes to Actual Usage, Actual Thru, Pending Actuals, and Pending Estimates for assignments of the project in the update.

New Tasks and Assignments

Specifies whether to include new tasks and assignments that have been created since the project was opened or last refreshed in the update.

Team Members

Specifies whether to include changes to existing team members and bring in new team members that were added while you had the project locked in Open Workbench. For example, another user added a new team member or updated an existing team member allocation, start date, or finish date while the project was locked in Open Workbench.

5. Click OK to refresh the information you selected in your local copy of the project.

Cost Rate and Currency Data

If you are using Open Workbench with CA Clarity PPM, cost rate and currency data is retrieved from the CA Clarity PPM rate matrix (see page 139).

Cost Rates

Cost rates determine the cost that is associated with a resource assigned to a task in a project. Cost rates are also known as billing rates. The cost rates that are shown in Open Workbench are retrieved from the Actual Cost field in the CA Clarity PPM rate matrix when you open the project. These costs are shown over time by task and at the project level.

Open Workbench supports time-varying and project-specific cost rates. The changes that you make from Open Workbench to the cost rates are for what-if purposes only and cannot be saved to CA Clarity PPM.

Note: You cannot enter a zero (0) billing rate in Open Workbench. If you encounter a zero billing rate for a resource on your project, define a row for the resource on the CA Clarity PPM rate matrix and run the *Rate Matrix Extraction* job.

Currencies

Monetary values in Open Workbench are displayed in the home currency you set in the project. Monetary values of a project include actual, estimated, and baseline amounts for expense resource assignments, project budgets, custom field values, and resource cost rates. No conversion is required for expense resource assignments, project budgets, or custom fields values. Open Workbench converts resource rates since the home currency of the resource may not be the same as the home currency of the project.

Open Workbench uses a single, session-wide currency. If the Actual Cost field in the CA Clarity PPM Rate Matrix (see page 139) contains multiple currencies, they are converted to the currency specified in the project. If you have specified a global file location, the session currency is used on starting Open Workbench. If you have not specified a global file location, Open Workbench uses the 3-character ISO code of the home currency set in the project.

If you have not set the conversion between the resource's rate and the project's home currency in CA Clarity PPM, the conversion may fail. A message appears letting you know that the system was unable to convert the resource's cost rate to the source currency of the target currency. On loading different currencies in Open Workbench, a message appears if the project loaded does not use the system currency. You can set Open Workbench to show messages when loading projects with different currencies.

CA Clarity PPM Rate Matrix

If you are using Open Workbench with CA Clarity PPM, cost and rate matrices are used in CA Clarity PPM to determine costs and billing or charge rates during financial processing. You can create cost and rate matrices for labor, materials, equipment, and expense resource types.

The cost or rate matrix is composed of columns that you can assign to identify the criteria that are used to match the billing rates and costs to transactions. You can establish default matrices at the system level, entity level, and the investment level. During financial processing, matrices determine cost and rates of transactions. CA Clarity PPM looks for and applies matrices first at the investment level, then at the entity level, and lastly at the system level. You can set default rate locations at either the entity level or system level.

You must financially enable any resource that is involved with financial transactions. When a resource is financially enabled, that resource can be linked to CA Clarity PPM rate matrix. You must also financially enable your project in order to process financial transactions on them.

Note: For more information, see the *Resource Management User Guide.*

CA Clarity PPM Rate Matrix Extraction Job

The *CA Clarity PPM Rate Matrix Extraction* job extracts the rate matrix information and is run in CA Clarity PPM. You can run this job each time the rate matrix has changed, when the financial properties of a project have changed, or when resources have been added to an investment.

You can set this job to do the following:

- Generate resource rates and costs for a project that includes rates for the time spanning the project's start and finish date or for a wider range that includes the time before the project start and after the project finish dates.

  Parameter:

  - *Extract Cost and Rate Information*. When selected, a wider range of rates and costs are generated, and allows Open Workbench to have access to valid rates outside the project's start and finish date.

- Refresh the rate matrix with the most recent rate information and avoid inaccessibility to the rate matrix which can lead to resources having a rate of zero.

  Parameters:

  - *Prepare Rate Matrix Data*. When selected, the Prepare Rate Matrix Data updates a copy of the rate matrix with the most recent rate information.

  - *Update Rate Matrix Data*. When selected, the Update Rate Matrix Data copies the contents of the rate matrix copy to the rate matrix.

Note: For more information, see the *Administration Guide*.

Display Resource Billing Rates in Views

If you want to view the resource billing rates in a view, first create a view and add the Billing Rate field to the view. This field displays the resource billing rate data.

Vary Resource Billing Rates

You can vary a resource's billing rate to show more accurately the total cost a resource has on your project. For example, you may want to show a varying billing rate if a resource gets a pay raise mid-project. You can update a resource's billing rate using:

- CA Clarity PPM if you are using Open Workbench with CA Clarity PPM.

- Open Workbench for performing what-if scenarios on your project.

  You can save the changes that you make to the resource's billing rate to an Open Workbench .rmp project file but you cannot save these changes back to CA Clarity PPM.

For Example:

Suppose that a resource's billing rate is based on the following rate matrices:

- 2006 Rate Matrix. $50 billing rate for all resources and roles from January 2006 to December 2006.

- 2007 Rate Matrix. $55 billing rate for all resources and roles from January 2007 to December 2007.

- Network Administrator Rate Matrix. $65 billing rate for resources who are network administrators from January 10, 2006 to January 28, 2006.

To vary a resource's billing rate, in a view that displays resource billing rate data, double-click the resource's Billing Rate cell and enter the new rate. To change the altered billing rates back to a single rate for a resource, open the General tab on the Resource Properties dialog and edit the rate.

Note: For more information, see the *Project Management User Guide.*

CA Clarity PPM Project Locks

If you are using Open Workbench with CA Clarity PPM and you open a project from CA Clarity PPM in Open Workbench, you can open it in read-only or in read/write mode.

When you open a project in:

- *Read-only* mode, a lock is placed on the project. Project locks prevent others from updating the project and potentially overriding any changes while you are making changes to the project.

- *Read/write* mode, a lock is not placed on the project. When you do not lock a project, other users can edit the project locally, but cannot save changes to CA Clarity PPM.

When the project is locked:

- You hold the lock until you close the project. You can update and save the project, and continue updating the project without losing the lock. When you hold the lock, you can update the project locally for extended periods of time. You can also share updated project information with other users as you continue to make changes.

- Other users can open the project in read-only mode. Users can make changes locally, but they cannot save the changes to the project in CA Clarity PPM. If users make changes, they can save the project as a new project. If the users save a project they have open in read-only mode, a message appears notifying them that they cannot save the project. They can save that file as a new project.

Note: For more information, see the *Project Management User Guide.*

Close Projects and Hold the Lock

If you are using Open Workbench with CA Clarity PPM, you can hold a lock when saving a project by saving it as a new project. You can also hold a lock by closing the project without saving it to CA Clarity PPM, and saving it locally as an Open Workbench file. You can close the project and can hold the lock using the Save As dialog. The name of the CA Clarity PPM server that hosts the project displays in the *CA Clarity PPM Host* field.

Follow these steps:

1. Open the project in Open Workbench.

2. Click Save As in the application menu.

3. Select Workbench Files (*.rmp) from the Save as type drop-down list.

4. Select the Retain Lock check box and click Save.

    Note: This check box is displayed when you select Open Workbench or XML from the Save Type As drop-down.

5. Select File, Close to close the project without saving changes to CA Clarity PPM.

Close and Unlock CA Clarity PPM Projects using Open Workbench

If you are using Open Workbench with CA Clarity PPM and you open a project in read/write mode from CA Clarity PPM, a lock is placed on the project. You can unlock the project so that others can edit it by saving the project back to CA Clarity PPM and then closing it in Open Workbench without saving the project file to your computer or network.

In general, projects are unlocked when you close them in Open Workbench, including when you exit Open Workbench with projects still open in CA Clarity PPM. If you have CA Clarity PPM administrator access rights, you can also unlock projects from CA Clarity PPM.

Note: For more information, see the *Project Management User Guide.*

Unlock and Open Projects from CA Clarity PPM

If you are using Open Workbench with CA Clarity PPM, you can unlock and open a project directly from CA Clarity PPM. You can unlock the project locks to which you hold, and with administrator access rights, you can drop another user's lock. When the user whose lock you drop tries to save the project back to CA Clarity PPM, a message appears letting the user know the project is not locked.

Note: For more information, see the *Project Management User Guide.*

Printing Project Data

Some dialogs provide you with direct access to print project information. Click Print in those dialogs to specify printing options and to print the contents of the dialog.

Select Printer and Print Layout Options

The Print Setup dialog is a standard Windows dialog where you can select a printer and print layout options. The printers that are listed in this dialog are those installed from either Windows Setup or the Windows Control Panel.

To select a printer and print layout options, click Print Setup in the Print section of the application menu. To specify options for the selected printer, click Properties.

Note: To connect to a network printer, click Network.

Use the Print Setup dialog to view the details of a selected printer. You can view:

- Status. Displays the status of the selected printer, such as Ready, Offline, or In Use.

- Type. Displays the type of printer selected.

- Where. Displays where the printer is on the network.

- Comment. Displays more information about the selected printer, such as physical location or type information.

Prepare Pages for Printing

Use the Page Setup option in the Print section to prepare pages when you want to print views.

Follow these steps:

1. Click Page Setup in the Print section of the application menu.

2. Complete the fields in the Margins section.

   Note: The default setting for the left and right margins is 1 inch (2.5 centimeters). The default setting for the top and bottom margins is 1.5 inches (3.75 centimeters). The margins may not be exact. Laser printers cannot print to the edge of the paper, so a margin set to zero starts at 0.25 inches. This unprintable area varies depending on the printer.

3. Select one of the following options in the Page Order section to determine what to print first:

Rows First, then Columns

Prints the rows first and then the columns when multiple pages are required to print the entire view.

Columns First, then Rows

Prints the columns first and then the rows when multiple pages are required to print the entire view.

4. Select the following options in the Center on Page section to determine where to center the text:

Vertical

Specifies whether to center the text top-to-bottom on the printed page.

Horizontal

Specifies whether to center the text side-to-side on the printed page.

5. Select Save Settings as Default and click OK.

Preview Project in a View Before Printing

To preview the project to see how it prints, open the project and click Print Preview in the Print section of the application menu. This option is unavailable when you are printing from a dialog.

Print Projects from Views

You can print a project to which a view is applied. Use the Print dialog in the application menu to print one or more copies of project data from a view. You can also select special printer settings using this dialog. You can print from the spreadsheet and CPM network views. Set print margins to at least 0.75 in. When you print views with the top and bottom print margins set small (less than 0.75 in. in the Page Setup dialog), view data may overwrite the headers and footers.

Note: The Print to file check box in the Print dialog is unavailable when printing graphical views such as the Gantt Chart or CPM views. When printing more than one copy of a document with more than one page, select or clear the Collate check box to define whether to print each document set in the page order.

Chapter 11: Multiple Projects and Subnets

If you are working with multiple projects and they are open, you can calculate separate critical paths for each project and not just for the project that has the longest critical path. To view the critical paths, use the CPM Network view.

This section contains the following topics:

Manage Multiple Projects

You can use Open Workbench to handle multiple projects for department-level management. Project teams typically work on large and small projects simultaneously. To manage departments and organizations, you may often have to manage and control several projects at once. Many of these projects may also share resources.

Open Workbench provides the following methods to manage multiple projects:

- Create master project and subproject relationships (see page 145).

  Create links between one project (master project) and all or any sets of phases, activities, tasks, and milestones in another project (subproject). You can combine any number of subprojects in a master project.

- Create dependency relationships (see page 81) between tasks in the same project or with tasks in different projects.

  Use dependencies to manage the relative timing of tasks. Dependencies give you a greater understanding of your project's work flow, and help to pinpoint weaknesses in the project plans.

Master Project and Subprojects

You can create a link between a project (master project) and a subproject or parts of a subproject, such as a phase, activity, task, or milestone. You can associate any number of projects with a master project by inserting the subprojects into the master project. When you insert a whole subproject into the master project, you can choose to insert it in read/write or read-only mode. In contrast, when you insert a partial subproject into the master project, the subproject is always inserted in a read-only mode.

The ability to establish subproject links means you can create plans, track, and can analyze an individual project in detail while viewing, summarizing, and analyzing the progress of several projects at a higher level. You can use a master project with subprojects to perform top-down planning and to share resource availability across projects.

Keep the following in mind when working with master projects and subprojects:

- Each time you open the master project, Open Workbench retrieves all the required subproject data from the appropriate subproject.

- If you autoschedule the master project, the dates for its read-only subprojects change, but only temporarily. When you save the master project after autoscheduling, the changes you make are not saved in the subproject. Thus, you can autoschedule at the master-project level to do *what-if* scenarios on subprojects, and when you want to apply the changes, open the subproject and autoschedule it directly.

Resource and Role Availability in Master Projects

A resource's *availability* is the amount of time a resource is available and can be allocated to a project. You can allocate resources to subprojects based on the resource's default availability. If you are using Open Workbench with CA Clarity PPM, you define a resource's default availability in CA Clarity PPM. The amount you set as the resource's default allocation to the project in CA Clarity PPM translates as the resource's default availability on the project in Open Workbench.

A resource's default availability on a master project is capped at the highest default availability that is defined on the master's subprojects. When you autoschedule the master project, the resource is not scheduled on the master project over what they can work in a day. For example, if you allocate a resource that has a default availability of 8 hours at 100 percent to three subprojects, when you autoschedule the master project, the resource is allocated between the three subprojects for no more than 8 hours per day.

On the master project, a role's default availability is the sum of the role's default allocation on the master's subprojects. You define a role's default availability at the subproject level. For example, if you allocate a role that has a default availability of 8 hours at 100 percent to three subprojects, when you autoschedule the master project, the role is scheduled on the subprojects for 24 hours per day.

Note: For more information, see the *Resource Management User Guide.*

Set Resource Allocation to Subprojects

To set a resource's allocation to a subproject, edit it at the subproject level. This field is inactive in the master project. You can set the allocation on a subproject in the following ways:

■   If you are using Open Workbench with CA Clarity PPM, you can set the allocation in CA Clarity PPM by creating allocation segments.

■   You can also set a resource's allocation manually by editing the availability in the timescale section of the view. To do this, add the Availability field to a spreadsheet view, such as the Gantt Chart view.

Insert Subprojects into Master Projects

You can insert a whole subproject into your master project using the Open Subprojects dialog. This dialog is a version of the standard Windows Open dialog. The projects that are listed in the dialog are either listed by project ID or by file name, depending on the source of the project.

If you are using Open Workbench with CA Clarity PPM and if you are inserting a CA Clarity PPM project, the project ID displays. If you are inserting an Open Workbench .rmp project file, the file name displays. By default, when you insert subprojects into master projects, they are inserted in read/write mode.

If your master project is linked to an Open Workbench .rmp project file using a subproject association, you cannot save it back to CA Clarity PPM. You cannot insert XML project files into master projects.

Follow these steps:

1.   Right-click anywhere in the view, and click Insert Subproject in the shortcut menu.

2.   Select the file type.

   Note: You cannot insert XML project files into master projects.

3. Click the name of the subproject you want to insert into the master project from the Projects list.

4. Complete the following fields, and click Select:

Open as read-only

Specifies whether you want to add the project, subproject, or subproject task in read-only mode in the master project. When you insert a subproject into a master project in read-only mode, any changes you make to the subproject from the master project are not saved.

Default: Cleared

Note: This check box is only available if you have edit rights to the selected project, subproject, or subproject task. If you opened the master project in read-only mode, this check box is selected and is unavailable.

Create Subprojects

Specifies if you want the ability to create subprojects from the inserted subproject.

Default: Cleared

Note: If you are inserting a partial subproject, this check box is selected and unavailable.

Insert Subproject Tasks into Master Projects

Inserting subproject tasks into a master project allows you to pull out sections of projects and evaluate the work being done by your team across many projects from the master project. You can insert a subproject task into your master project using the Open Subprojects dialog. This dialog is a version of the standard Windows Open dialog.

If your master project is linked to an Open Workbench .rmp project file using a subproject association, you cannot save it back to CA Clarity PPM.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the task and click Insert Subproject in the shortcut menu.

3. Select the file type.

   Note: You cannot insert XML project files into master projects.

4. Click the name of the subproject from the Projects list.

5. Expand the summary level tasks to see and select the task you want to insert into the master project.

6. Complete the following fields, and click Select:

    Open as read-only

    Specifies whether you want to add the project, subproject, or subproject task in read-only mode in the master project. When you insert a subproject into a master project in read-only mode, any changes you make to the subproject from the master project are not saved.

    Default: Cleared

    Note: This check box is only available if you have edit rights to the selected project, subproject, or subproject task. If you opened the master project in read-only mode, this check box is selected and is unavailable.

    Create Subprojects

    Specifies if you want the ability to create subprojects from the inserted subproject.

    Default: Cleared

    Note: If you are inserting a partial subproject, this check box is selected and unavailable.

    Task

    Displays the name of the selected task or summary task.

Insert and Open Subprojects in New Master Project

You can open any project or a set of projects as subprojects in a new master project using the Open dialog. When you open the subprojects, the selected subprojects are inserted into a new unnamed master file. If you are using Open Workbench with CA Clarity PPM, you can save the new master project back to CA Clarity PPM.

Follow these steps:

1. Click Open in the application menu.

2. Select the project you want to open as a subproject.

3. Complete the following fields, and click OK:

    Open as read-only

    Specifies whether to open the selected project without locking it.

    Note: This check box is available if you have edit rights for the selected project. If you have only view rights, the check box is selected by default and unavailable.

    Create Subprojects

    Specifies whether to open the selected project as a subproject in a new master project.

Define Subproject Task Options

Use the Subprojects tab of the Task Properties dialog for a selected subproject or an external task to review or change the subproject options.

Note the following when editing subprojects and subproject tasks in a master project:

- The changes you make to subprojects are reflected at the master-project level when you open the master project next, unless you have both the master and subproject open simultaneously.

- If you inserted the subproject as read-only into your maser project, you can edit its option, but the changes you make cannot be saved.

Follow these steps:

1. Right-click a subproject task in the view and click Modify in the shortcut menu.

2. Open the Subproject tab.

3. Complete the following fields, and click OK:

   Project

   Review the subproject's name.

   Read-only

   Select to display the subprojects as read-only in the master project.

   Note: This field displays as read-only and is unavailable if you inserted the subproject task as read-only.

Identify Subprojects in Master Project WBS

You can identify which tasks in your master project's WBS list are subprojects by the type of icon that displays in the row header. Inside the master project, subprojects appear with a Subproject icon on the proxy task's header to indicate it is a task inside an inserted subproject.

The Subproject icon appears as follows:

Subproject

Specifies a proxy task within an inserted (entire) subproject, as viewed from the master project.

Edit Subproject Access in Master Projects

Use the Subproject tab of the Project Properties dialog to change access to the subproject from read/write to read-only in a master project. When selected, any changes you make to the subproject from the master project are not saved when you close the master project.

Note: This tab only appears on the Project Properties dialog for subprojects that were inserted as an entire project into a master project.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the subproject (proxy task) and click Modify in the shortcut menu.

3. Open the Subproject tab.

4. Clear the Read-only check box, and click OK.

Edit Subprojects from Master Project

If you are working with a master project that contains a subproject, you can edit the subproject's properties only if you inserted the entire project as a subproject into the master project and the subproject's access status is set to *read/write*.

Note: If the access status is set to *read-only*, you can make changes to the subproject from a master project but you cannot save those changes.

Follow these steps:

1. Open a view that displays the task detail pane.

2. Right-click the subproject (the proxy task), and click Modify in the shortcut menu.

3. Open the Subproject tab.

4. Click Project.

5. Edit the subproject, and click OK when finished.

6. Click OK.

Print a List of Subprojects from Master Project

Use the Subprojects dialog to print a list of subprojects. You can also use this dialog to review, add, or remove subprojects. To view this page, select Tools, Subprojects.

Delete Subprojects or Subproject Tasks from Master Projects

When you remove a subproject relationship from a master project, you do not delete the subproject. Instead, you delete the link between the projects. You can view a list of existing subprojects and subproject tasks that are associated with the master project in the dialog.

Use the Subprojects dialog to delete subprojects or subproject tasks from master projects. This dialog lists the names of the subprojects (proxy tasks) or subproject task in the Subprojects list. When you select a task in the Subprojects list, the corresponding subproject name displays in the Project field and the task name in the Task field.

Follow these steps:

1. Open the Project ribbon.

2. Click Subprojects in the External group.

3. Complete one of the following steps:

   ■ To delete a subproject task, expand the summary level tasks to select the subproject task you want to delete from the Tasks list.

   ■ To delete the entire subproject, select the subproject (proxy task) you want to delete from the Subprojects list.

4. Click Delete and click OK.

Chapter 12: Create Filters and Sorts

This section contains the following topics:

Create a Filter File

When you create a filter, you can save it to the Open Workbench Library as an .rwf filter file and later apply it to any view. Use the Filter Definition dialog to create or edit filters that are part of and apply to a single view (not saved as .rwf filter files).

Note: You can also access the Filter Definition dialog from the Libraries dialog.

Follow these steps:

1. Open the Project ribbon.

2. Click New Filter in the View group.

3. Enter a name for the filter.

4. Double-click the information folders to display the field names.

5. Drag the field names to the Field column to create a filter.

6. Complete the following information in the Filter grid:

    Compare

    Select the appropriate relationship. For example, Equal, Not Equal.

    Value

    Select or enter the defining criteria.

    And/Or

    Select And or Or to add another row to the filter.

    Note: The data type of the value must correspond to the field name. For example, if the field name is numeric, the value must also be numeric. You can use wildcard characters (* for any number of characters or ? for single characters) to search for substrings within field names.

7. Click Save to close the Filter Definition dialog and to open the Save Filter Definition dialog.

8. Click Save.

9. To apply the filter to an appropriate view, click its name in the Library or select it in the Libraries dialog and click Apply.

Note: To edit a filter, open the Project ribbon, and click Manage Library in the View group. Select the filter in the Filters & Sorts group and click Edit. If the filter you are modifying is not part of a view definition, you can save it as a new filter file.

Create a Sort File

When you create a sort, you can save it to the Open Workbench Library as an .rws sort file and apply it later to any view. Use the Sort Definition dialog to create or edit sort files. These sorts are duplicates of their base views (the view that was current when the sort version was created).

You can apply sorts to views that include the sorting criteria and that are not CPM views. To create or edit sorts and apply them to a single view (not saved as .rws sort files), use the Sort tab of the View Definition dialog.

Follow these steps:

1. Open the Project ribbon.

2. Click New Sort in the View group.

3. Enter a name for the sort.

4. Double-click the information folders to display the field names.

5. Drag the field names to the Field column to create a sort.

6. Complete the following information in the Sort grid:

    Start Column

    Enter the column number at which to start the sort.

    Sort Length

    Enter the number of sort characters.

    Sequence

    Select Ascending or Descending.

7. Click Save.

8. To apply the sort to an appropriate view, click its name in the Library or select it in the Libraries dialog and click Apply.

Note: You can modify an existing sort and can save it as a new sort file. To edit a sort, open the Project ribbon, and click Manage Library in the View group. Select the sort in the Filters & Sorts group and click Edit.

Chapter 13: Display Project Plan Data Using Views

This section contains the following topics:

Views

Views are the means by which you display a project plan and other project data. You can use views to enter project data, add or delete tasks, and otherwise modify a project plan. Open Workbench provides standard views, sorts, filters, and highlights to display, enter, and organize project information.

You can apply views, sorts, filters, and highlights to see different aspects of your project and access specific project information. The Open Workbench window displays a library that contains views which you can apply to projects. The view that is set as the default view is automatically displayed in this window, even if you have not opened a project. If you have not set your default view, this window is blank.

Project data is displayed in views that take the following forms:

- Spreadsheet views (see page 156), which can use Gantt charts to display project status and task relationships graphically. Most of the predefined views in Open Workbench are spreadsheet views.

- Critical Path Method (CPM) Network views (see page 156), which display task relationships and the project's critical path. CPM Network views display in an organizational chart format, with the boxes representing task dependencies rather than organizations.

Both types of views use field names in their definitions to determine what data they display, and both are created in the View Definition dialog. Each type displays project information in a different format.

Spreadsheet Views

A spreadsheet view displays project data in variety of ways. These views can appear as spreadsheets with editable cells. They can also display a Gantt chart that depicts the project schedule and the timing and relationships between tasks.

Depending on the field names used to define the view, spreadsheet view may contain several panes that display different types of project data. For example, a spreadsheet view may display any combination of the following:

- A task detail pane containing editable project data on tasks

- A pane displaying a Gantt chart and a time scale

- A resource detail pane containing editable data on resources that are available for task assignments or that are assigned to tasks

The default Gantt Chart view is available from the Favorites library group.

CPM Network Views

A Critical Path Method (CPM) Network view displays data as a graphical model of tasks and their relationships. Each task is portrayed in a cell which may be linked to other cells in order of precedence. Unlike a spreadsheet view, you cannot enter, sort, or filter data directly in CPM Network views. However, you can create dependency relationships in a CPM Network view and you can edit task properties by opening the Task Properties dialog from the view.

The default CPM Network view is available from the Favorites library group.

View the CPM Network View from the Overview Window

Use the Overview Window to view a specific area of a CPM Network view. You can also select Zoom In from the shortcut menu to make objects in the current view larger, or Zoom Out to make the current view hold and display more data.

Note: The Windows System Font does not scale and may be rendered unreadable by zooming out. One way to solve this is to change the Windows System Font to a scalable one, such as Arial. Another way is to zoom back in and manipulate your window on the CPM display.

Follow these steps:

1. Open the CPM Network view.

2. Right-click and click Panning Overview in the shortcut menu.

3. Drag the dotted square over the miniature CPM cells.

   The area within the cell scrolls into view in the current window.

Create a View

Use the Layout tab on the <u>View Definition</u> (see page 157) dialog to create views. The list of field names from which you can create your view displays in the grid on the left. The layout selection grid displays columns for each field name added to the view. You can insert and remove columns as needed. You can also format the cells in a column, such as defining the cells character width and alignment.

The view's name displays at the top of the view after the project name and on the header when you print the view. The view status displays at the bottom of the view if you have the Display Status Bar option selected on the General tab of the Options dialog.

To create a view, first define the layout and then describe the view. The views you create are saved as .rwv view files.

View Definition Dialog

Use the View Definition dialog to create and edit the view layout, define the view, define the sort data, and to define filters for views. You can add fields and columns that help you better analyze or track project data.

To open the View Definition dialog, open the Project ribbon, and click New in the View group. This dialog has the following tabs:

- <u>Layout</u> (see page 157)

- <u>Description</u> (see page 158)

- <u>Sort</u> (see page 159)

- <u>Filter</u> (see page 160)

Define the Layout of a View

The Layout tab on the View Definition dialog displays a list of fields that appear as columns in a view. You can insert, remove, and format columns using this tab. The Layout tab displays the following information folders:

- Task Information

- Resource Information

- Project Information

- Highlights Information

You can perform the following tasks using this tab:

- Insert a column. Select the column in front of where you want the new column to appear and press the Insert key on your keyboard.

- Remove a column. Select the column and press the Delete key on your keyboard.

- Format the cells in a column. Click one of the cells in the column and click Format Cell to apply formatting options to the cells (see page 168).

Follow these steps:

1. Open the Project ribbon.

2. Click New in the View group.

3. Double-click the information folders to display the field names.

4. Select and drag the field name into cells in the layout selection grid.

   For example, double-click the Task Information folder, and then double-click the Description subfolder. Drag the field name Short Name to a cell in the grid. To replace an existing field cell, drag the field to that cell. To add the field as a new cell in the grid, drag it to an empty cell.

Define the Description of a View

Use the Description tab on the View Definition dialog to define the view.

Note: You cannot sort or filter Critical Path Method (CPM) Network views. However, you can zoom in, zoom out, and use the Panning Overview option to focus on a smaller window of dependencies. The Panning Overview option appears when you right-click on a dependency box in a CPM view.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Open the Description tab.

5. Complete the fields. The following fields require explanation:

   View Type

   Defines the view type.

   Values:

   - Spreadsheet. Displays data in a table format.

   - CPM. Displays data as a graphical model of tasks and their relationships.

   Default: Spreadsheet

Level of Analysis

Specifies the WBS level that you want to display in the view. Data rolls up from the task level to the level selected. For example, if you select Activity, the view contains activity and phases, but not tasks and milestones.

Values: Task, Project, Phase, Activity, and WBS Level

Resource LOA

Indicates whether you can see consolidated data on resources. This field is used with the filter tool. If you filter a view for a specific resource and select this check box, you can see only information for that resource in the view. If you clear this check box and filter on resources, only the associated tasks are filtered out and not the assignments.

Name

Defines the name of the view. The name displays at the top of the view after the project name, and on the header when printing the view. If you create a new view, and do not populate the name field, the name field automatically populates with the file name when you save it.

Author

Defines the name or the resource designing the view or managing the project.

Default: CA Clarity PPM

View Status 1

Defines the status of the current view.

View Status 2

Defines the status of the current view.

Notes

Enter any notes that are related to the view definition, such as situations in which the view can be useful, or suggestions on how to modify the view for further analysis.

6. Click OK.

You can edit the fields and columns in an existing view. After you have edited the view, you can overwrite the previous view settings or can save your changes as a new view. While you can save a view to any library group, you can save it to the Favorites library group if you use it often.

Set Up Sorts for Views

You can create sorts as part of a view, or as separate elements that you can apply to the current view. The sorts you create as part of a view are saved and applied with the view. If you create a sort file, you can add it to your library file and can apply it to any window.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Open the Sort tab.

5. Double-click the information folders to display the field names that are associated with the current view.

6. Drag the field names to the Field column to create or edit a sort.

7. Complete the following columns in the Sort grid section. The following fields require explanation:

   Start Column

   Enter the column number at which to start the sort.

   Sort Length

   Enter the number of sort characters.

   Sequence

   Select Ascending or Descending.

8. Click OK.

Set Up Filters for Views

You can create filters as part of a view, or as separate elements that you can apply to the current view. The filters you create as part of a view are saved and applied with the view. If you create a filter file, you can add it to your library file and can apply it to any window.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Open the Filter tab.

5. Double-click the information folders to display the field names that are associated with the current view.

6. Drag the field names to the Field column to create or edit a filter.

7. Complete the following columns in the Filter grid section. The following fields require explanation:

   Compare

   Select the appropriate relationship. For example, Equal to or Greater.

   Value

   Select or enter the defining criteria.

   And/Or

   Select from And or Or to add another row to the filter.

   Note: The data type of the value must correspond to the field name. For example, if the field name is numeric, the value must also be numeric. You can use wildcard characters (* for any number of characters or ? for single characters) to search for substrings within field names.

8. Click OK.

Apply Filters to Views

You can refine the content of a view by selecting and applying filtering criteria that defines what project, task, or resource information to display. You can apply filters to any spreadsheet view, but not to a CPM view.

You can create filters that are part of a view definition or applied separately from a view. When you define a filter in the View Definition dialog, it is considered to be part of the view's definition. This filter is applied to projects every time you apply the view. If you create a separate filter, you can add it to your library and can apply it to any open project. Later, you can remove these filters from the view.

You can apply filters to views that include the filtering criteria and that are not CPM views. The following procedure explains how to apply a filter to a view.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select your filter in the Favorites folder, and click Apply.

Add Field Names on Views

Field names are the building blocks of views, sorts, filters, and highlights. They represent either distinct data fields or calculated values that are used in Open Workbench. When you add field names to a view definition, you define the project data that is displayed in the view and how the view is constructed.

Field names are listed by category on the left side of the Layout, Sort, and Filter tabs on the View Definition dialog, and on the left side of the Sort Definition, Filter Definition, View Highlights, and Find dialog. Icons appearing on the list match rows on the grids of each dialog. In many cases, when you open a folder you can match field names to their section on the grid.

Use the Layout tab on the View Definition dialog to assign a field name to a view. The fields that are available for you to add to the view are displayed in bold. When you click on an unavailable field or folder, the Add Fields Feedback status bar at the bottom of the View Definition dialog provides an explanation. Additionally, in cases where you can drag a field name onto a cell, when a cell is selected, fields that are allowed in that location display in bold.

The following information folders display a list of all of the available fields you can add to views:

Task Information

Contains field names that comprise the body of the view; they are displayed in the task detail pane.

Note: Column headings are automatically entered when you add the Task and Resource Detail field names to the grid. You can change a heading name by editing it in the column.

Resource Information

Contains resource-specific field names and summary information by resource that displays in the resource detail pane or the task detail pane.

Project Information

Contains project-specific field names.

Highlight Information

Contains highlighting options that you can use to highlight field names used in a view.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Double-click the information folders to display the field names.

5. Complete one of the following steps:

    ■   Select field names and drag them onto cells in the grid.

    ■   Enter a field name in a grid cell. The field name must be preceded by **=**.

    ■   Place the cursor in a cell, and double-click a field name.

    ■   Place the cursor in a cell, and then select a field name and press the Insert key on your keyboard.

    Note: When you add a field to a blank column, a new column automatically appears to the right of that column.

6. Click OK.

Save Views

Use the Save View Definition dialog to specify the name of the view, its directory, and the library file where you want to save the active view. You can save the modifications you make to a view as a new view, or you can replace the current view with your modified view.

Follow these steps:

1. Open and edit the current view.

2. Open the Project ribbon.

3. Click Save in the View group.

4. Click one of the following options:

    Create

    Creates a new view without altering the existing view.

    Replace

    Replaces the view with your changes.

5. Complete the fields in the Save View Definition dialog.

    Note: The Library Group determines the view's placement on the library. When you save a view, a file name is assigned to the view using the following convention: filename.rwv.

6. Click OK.

Open Workbench Library

An Open Workbench library is a .rwl library file that stores view library data, including the names of library groups that categorize views, sorts, and filters. The library stores all of the Open Workbench's predefined views, highlights, filters, and sorts, as well as those that you create in the library groups. Libraries also store the paths to and names of views, sorts, and filters that appear in the library groups.

You can use the library to:

- Edit the properties and display attributes of existing views.

- Add (see page 164) new library groups and views.

- Create and edit filters (see page 153) and sorts (see page 154).

- Apply filters and sorts to any view (see page 166).

Use the Libraries dialog to create library groups and to view the folder layout of the library. The following library groups are available by default:

- Favorites. Contains the Gantt Chart, CPM Network, and Phase Level Gantt standard views.

- Planning. Contains the WBS Definition, Dependency Definition, and Resource Assignment standard views.

- Executing. Contains the Schedule and Dependency Status standard views.

- Controlling. Contains the Status Update, Unused Availability, Variance Analysis, Revise Schedule standard views.

- Filters & Sorts. Contains the Clear Filters, Clear Sorts, Key Tasks, Sort by Resource, and Pending ETC standard views.

Add a New Library Group

Library groups define the group or folder in the library where you access views. The changes you make in the library group affect the library after you close the Library dialog. Up to 32 groups can display on the shortcut bar library. When you open a group, all of its associated views, sorts, and filters appear.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the Groups folder and click Add.

4. Click OK.

Change Items in the Library Groups

Use the Libraries dialog to create groups and add views and filters to them. Changes you make in the library affect the library after you close the Library dialog.

Note: You must have appropriate user rights to change items in the Corporate View Library. Changes to the Corporate View Library affect all of its users.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Change the following in the library:

   Groups list

   Select the groups or expand a group and select a view, sort, or filter.

   Location

   Displays the directory path and file name for the selected view, filter, or sort.

Add Views, Filters, or Sort Files to the Library Groups

Use the Open dialog to add new views, filters, or sorts to a library group. Sort and filter files are views with sorting or filtering criteria specified. You can also define sorting and filtering criteria within a view definition as part of the view definition file.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select a group and click Add.

4. Select the file name from the File name drop-down list:

   View Definition (*.rwv)

   Adds a new view to the group.

   Sort Definition Files (*.rws)

   Adds a new sort to the group.

   Filter Definition Files (*.rwf)

   Adds a new filter to the group.

5. Select a path and file name and click Open.

Apply Views, Sorts, or Filters to Library Groups

The following procedure explains how to apply views, sorts, or filters to a library group.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the groups or expand a group and select a view, filter, or sort.

4. Click Apply to apply the selected view, filter, or sort to the current window.

5. Click OK.

Edit Views, Sorts, or Filters in Library Groups

The following procedure explains how to edit views, sorts, or filters in a library group.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the groups or expand a group.

4. Select a view, filter, or sort and click Edit.

5. Edit the view, filter, or sort, and click OK.

Add Views to Library Groups

The following procedure explains how to add a view to a library group.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the groups or expand a group.

4. Select the view you want to add to the library and click Add.

5. Click OK.

Remove Groups, Views, Filters, or Sorts from the Library Groups

The following procedure explains how to remove views from a library group.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select groups or expand a group and click Remove.

4. Click OK.

Manage Views

You can manage views in the following ways:

- Insert and Delete Rows in Views (see page 167)

- Apply Filters to Views (see page 161)

- Apply Formats to Cells in Views (see page 168)

- Apply Views to Projects (see page 169)

- Remove Field Names or Columns from Views (see page 170)

Insert and Delete Rows in Views

Inserting a row in a view provides you with a way to add data to a specific place in a project. However, when you delete rows from a view, make sure they do not contain data you will need later in the project. To insert a row, select a row header button, and then press Insert on your keyboard. To delete a row, select a row header button, and then press the Delete key on your keyboard.

Important! If you delete a row you did not intend to delete, you can recover it by choosing Undo from the Edit menu.

Apply Formats to Cells in Views

Use the Formatting Options dialog to apply formats to a cell in a view.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Select the cell to format and double-click the cell or click Format Cell.

5. Define the following information. The following fields require explanation:

   Note: Settings and options that do not apply to the data in the selected cell are disabled.

   Width

   Defines the numeric value for the width of the column (in pixels). The default width varies with each field name. You can change the column width in the view by dragging a column divider left or right.

   Decimals

   Specifies the number of decimal places for data in the cell.

   Values: 0, 1, or 2

   Alignment

   Specifies the alignment of data in the cell.

   Values: Left, Center, or Right

   Units/Format

   Defines the unit or format for the data in the cell.

   Values: Days, Hours, Percent (of total availability), or As Is

   Note: The *As Is* option allows you to report mixed units of measure in a view.

   Period Unit

   Defines the period unit for the data in the cell. You can set the default period unit from the Defaults tab on the Options dialog and selecting an option for Unit of Measure.

   Values: Per Day, Percent, or Per Period (for tabulated elements only).

6. Select the options in the Options section. The following options require explanation:

   Protect

   Defines whether to make the field read-only and prevent other users from changing the data. Some cells are always protected.

   Default: Cleared

   Blank if Zero

   Defines whether to make the field appear blank if its value is zero.

   Default: Cleared

   Column Totals

   Defines whether to show the total for all the values in a column in a separate pane. Date totals represent the earliest or latest date in the range, depending on the field. For example, the total for Start date is the earliest date in the range.

   Default: Cleared

   Tabulate

   Defines whether to arrange data in a tabular format.

   Default: Cleared

   Note: The default is cleared unless there is another tabulated field name in the same column.

   WBS Indent

   Defines whether to indent tasks based on the Work Breakdown Structure levels.

   Default: Cleared

7. Click Time Scale to specify how time scales appear in a view.

8. Click OK.

Apply Views to Projects

You can apply views to a project in the following ways:

- Display a single view of the project by applying a view that replaces the current view.

   To display one view of a project, from the Library, open a group and click a view.

■ Display multiple views of a project simultaneously. When you open a new view for a project, a separate window for each view appears. This is helpful when you want to see different aspects of the same project and want to easily switch between views.

To display multiple views of the same project, in the Library, right-click a view icon and select New Window from the context menu.

Remove Field Names or Columns from Views

The following procedure explains how to remove field names and columns from the current view.

Follow these steps:

1. Open the Project ribbon.

2. Click Manage Library in the View group.

3. Select the view from the Libraries dialog and click Edit.

4. Perform one of the following steps and click OK:

    ■ Select the column and press the Delete key on your keyboard.

    ■ Select the field and press the Delete key on your keyboard.

5. When prompted, you can:

    ■ Override the old view with your changes, or

    ■ Save your changes as a new file that you can apply later to other views.

Configure a Gantt Chart

For Percent Complete to display correctly when rolled up to the activity or phase levels, first set a baseline. Select the Pct Complete option from the % Displayed drop-down list in the Gantt dialog. Also assign the billing rates to the resources in the Resource Properties dialog. All dates that are displayed in the Gantt chart are equally distributed along its width.

The following procedure explains how to see baseline data and how to modify the Gantt chart.

Follow these steps:

1. Open a view that displays a Gantt chart.

2. Double-click the Gantt chart.

3. Complete the fields in the Gantt Bars section. The following fields require explanation:

   % Displayed

   Displays a bar that indicates the percent of the work.

   Values:

   - Pct Expend. Displays the percentage of work that was expended on the task versus the estimated amount of work.

   - No Pct. Does not display any percentages.

   - Pct Complete. Displays the percentage of work that has been completed to date.

   - Act Thru. Displays the percentage of actuals posted against a task to date, versus the estimated actuals.

   Baseline

   Specifies whether to display the baseline bars beside the task progress bars. When selected, the Stacked check box is enabled.

   Float

   Specifies whether to display bars indicating the amount of float in tasks. *Float* is the number of days that initiation or completion of a task can be delayed without adversely affecting the project finish date. Float is calculated using the following formula: Late Start - Early Start.

   Stacked

   Specifies whether to superimpose baseline data on the existing project data.

   Show Dependencies

   Specifies whether to display dependencies. When selected, you can view and edit dependency relationships directly in a Gantt chart.

   Freeze Gantt Bars

   Specifies whether to prevent users from manually extending or shortening the Gantt bars on the Gantt chart.

   Show Summary Task Progress

   Specifies whether to show summary task progress.

   Discontinuous

   Select to display bars indicating breaks in task-related work, such as holidays and weekends.

Filter segments less than

Defines the maximum number of days to filter segments.

4. Complete the fields in the Display Dates section. The following fields require explanation:

Width

Defines the width of the Gantt chart in pixels.

Today's Date

Specifies whether to use the current system date as the Gantt chart's display date.

Project Start

Specifies whether to use the start date of the first task in the project as the Gantt chart's display date.

As-of Date

Specifies whether to use the As-of date as the Gantt chart's display date.

Note: Enter this date on the Advanced tab on the Project Properties dialog (see page 57).

Project Finish

Specifies whether to use the finish date of the last task in the project as the Gantt chart's display date.

Holiday

Specifies whether to use nonwork days as the Gantt chart's display date.

Pending Finish

Specifies whether to use the end of the current time period as the Gantt chart's display date.

5. Click OK.

Chapter 14: Change View Display Colors

You can change the colors that are used to separate data appearing in spreadsheet views. Specifically, you can change the colors of the horizontal and vertical separation lines, and the background colors of rows appearing in views. This feature does not affect any highlight settings you may use to display data in views.

Changes that you make to the view display colors affect all open views and are applied to all projects you open during subsequent Open Workbench sessions. A view can display horizontal and vertical lines in color, or not at all, and display rows with background colors alternating line-by-line or object-by-object. Also, when selecting view display colors, you can use a standard color palette or you can create a custom color palette.

You can redefine the colors that are used to display views any number of times. However, when you edit and apply a new view color definition, you lose the previous color definition.

This section contains the following topics:

Define View Display Colors

You can define the display colors for groups and for horizontal and vertical lines. For each group, select a color from the color palette. For horizontal and vertical lines, select a color from the color palette, or click None if you do not want lines to display.

Follow these steps:

1. Click Preferences in the application menu.

2. Open the Display tab.

3. Click the down arrows to select color for the lines in the Horizontal Lines and Vertical Lines sections. Select None to turn off the lines.

   Note: The default color for the horizontal line is Light Grey. The default color for the vertical line is Dark Grey. Click the up arrow to close the drop-down list.

4. Select the background colors.

   Default: White

5. Select one of the following options in the Alternate Colors By section, and click OK:

- Select Object if you want row colors to alternate object-by-object. Depending on a view's definition, an object can contain many rows of information. For example, a task may display its name and list all of its resource assignments.

- Select Line if you want background colors to alternate line-by-line.

Customize Colors

When you customize display colors, all open views use those colors. Use the Display tab of the Options dialog to turn horizontal and vertical lines display on or off, select line and background colors from the color palette, and add new colors to the palette.

Add Colors to the Color Palette

The colors you add to the color palette are available for use by all groups. Use the Display tab of the Options dialog to add colors to the palette.

Follow these steps:

1. Click Preferences in the application menu.

2. Open the Display tab.

3. Select a group and click the down arrow against Color.

4. Click Other.

5. Perform one of the following steps:

- Select a color from the Basic colors palette.

- Select a color from the Basic colors palette, and then use the color matrix on the right side of the dialog to edit the color.

- Click Define Custom Colors to create an entirely new color, and then use the color matrix on the right side of the dialog to edit the color.

  Note: This button is disabled if you are already viewing custom colors.

6. Click Add to Custom Colors and click OK.

7. Click OK.

Chapter 15: Highlights

Highlights are fonts, colors, symbols, and patterns you can define to highlight project data. Open Workbench offers various highlights that you can use to make views and printed reports easier to read, analyze, and understand. You can define highlights for:

- Cells in the CPM views

- Data appearing in the spreadsheet views

- Gantt chart bars and symbols

You can create any number of highlights and highlight conditions. You can create duplicate highlight conditions. Open Workbench applies highlights in the order that is listed in the Highlight Condition dialog. When duplicate highlight conditions exist, the last condition that was entered is the one that is applied to the view.

While you can create and save many highlight files, you can apply only one (the default highlight file) to open projects. If you create multiple highlight files, you can specify which one to use by changing the default location and file name of the highlight file.

This section contains the following topics:

Create Highlights

When inserting field names in the Type of Element column, insert them into a cell on a row that already displays a highlight format you want applied. You can insert the same field name multiple times into different rows in the Type of Element column. Each occurrence of a field name appears differently when you display a project, depending on the highlight condition that is applied.

To highlight project data, first select the field names to highlight.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Double-click the Task Information, Resource Information, and Project Information folders to display the field names.

4. Select the field names that are part of the highlighting criteria and drag them into cells in the Type of Element column.

5. Define the highlight conditions (see page 177) under which you want to see the highlight applied to this information.

6. Define the highlight font settings (see page 178) to define how you want the information to look.

Define the Highlight Settings

Use the View Highlights dialog to define or edit the highlights properties of the view.

Best Practice: To apply new highlights to a project, set the path and file name of the new .RWH file on the Locations tab of the Options dialog.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Define the list of field names. Double-click item icons to display object names. Select a field or object to see the highlights that are associated with it.

4. View the highlight settings in the following columns:

   Type of Element

   Defines the element to which the highlight is applied.

   Sample

   A graphic display of the highlight that is applied to the data. Double-click the Sample column to select the font attributes or if it is a Gantt field, to display the Gantt Symbol and Color Settings dialog.

   Conditions

   Defines the conditions in which the highlight is applied to the element. Double-click the Conditions column to define the conditions.

5. Click OK.

6. Complete one of the following steps:

   ■ Save the current highlights (.rwh) file.

   ■ Save the modified settings in a new highlights file.

Define the Highlight Conditions

Use the Highlight Conditions dialog to specify the possible conditions for a field name and highlight combination.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Double-click the Task Information, Resource Information, and Project Information folders to display the field names.

4. Double-click the field name for which you want to change highlights.

5. Double-click the Conditions cell for the field name.

6. Double-click the item icons to display field names that are associated with the current view. Select a field to see the highlights that are associated with it. Drag field names to the Field column to begin creating or editing a view highlight.

7. Complete the information in the Highlight grid:

   Field

   Drag a field name to this column. This field name can be a different from the element type.

   Compare

   Specify if the field name is equal or not equal to the value you select or enter in the Value column.

   Value

   Enter a value or select a value from a drop-down list.

   And/Or

   Select And or Or to add additional conditions in subsequent lines.

8. Click OK.

Define Highlight Formats

When you define highlight conditions, it is important to define the highlight's appearance. Format highlights when you want information to be displayed using specific fonts, styles, or colors, or when you want to assign a color to cells that display project data.

You can apply custom colors to fonts, Gantt symbols, and CPM highlights. If you use text-based field names in a highlight, you can choose how the fonts are displayed using the Font dialog. A preview box displays to show you how the text appears when the highlight applies.

Define the Highlight Font Setting

Use the Font dialog to set font and background attributes for a particular highlight.

Follow these steps:

1. Double-click the Sample cell of the field name in the View Highlights dialog.

2. Select the font appearance in the Font dialog.

3. Select color using one of the following methods:

   ■ Select a color from the palette.

   ■ Click Other to add a custom color (see page 174) to the palette.

4. Select one of the following options in the Color section. The following fields require explanation:

   Foreground

   Select to set the foreground (text) color of the highlight.

   Default

   Select to use the default font color for the foreground (text) of the highlight. The default is the foreground color used for window text in your Windows desktop color scheme. To change your color scheme, see the *Microsoft Windows User's Guide*.

   Background

   Select to set the background color of the highlight.

   Default

   Select to use the default background color for the highlight. The default is the background color used for window text in your Windows desktop color scheme.

5. Click OK.

Define the Gantt Symbol and Color Settings

If you use Gantt field names in a highlight, you can choose how the Gantt bars are displayed. Use the Gantt Symbol and Color Settings dialog to determine how bars, lines, column heading blocks, and other design objects appear in a Gantt chart view.

A preview box displays how the Gantt bar appears when the highlight is applied. When defining Gantt bar symbols and color settings, you can define them to match a highlight condition, and then override the settings with other symbols and color settings for the bar when a different condition is met.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Double-click the Highlight Information folder and select a Gantt view

4. Scroll to find a Gantt element, and double-click the Gantt element sample, such as a bar.

5. Complete the following steps:

    a. Select Symbol, Pattern, and Color from the Left Endpoint group to use to display the left endpoint of the Gantt bar.

    b. Select Symbol, Pattern, and Color from the Center Bar group to use to display the body of the Gantt bar.

    c. Select Symbol, Pattern, and Color from the Right Endpoint group to use to display the right endpoint of the Gantt bar.

    d. Select the Default Color check box to apply the default color (black) to the selected end point or Gantt bar color when the highlight condition is met.

    e. Select the Black Border check box to draw a black border around a Gantt bar or endpoint.

    f. Select the Draw Border check box if you want a border around the Gantt bar.

6. Click OK to save your changes.

Edit CPM Symbol and Color Settings

Use the CPM Highlight Symbol dialog to determine how bars, lines, column heading blocks, and other design objects appear in a selected CPM view. The following procedure explains how to design settings for the CPM view objects.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Double-click to expand the Highlight Information folder and select a CPM View.

4. Double-click the CPM object's sample cell and not a text sample.

5. Select Pattern and Color to apply to the CPM box in the CPM Highlight Symbol dialog.

6. Click OK.

Remove Highlights

If you do not want to highlight any project data, clear the default highlight file location. The default highlight file and location is set on the Locations tab of the Options dialog.

Delete Highlights

The following procedure explains how to delete a highlight.

Follow these steps:

1. Open the Project ribbon.

2. Click Colors and Shapes in the View group.

3. Select the row for the highlight you want to delete, and press the Delete key on your keyboard.

4. Click Save.

Glossary

Availability

A resource's *availability* is the amount of time a resource is available and can be allocated to a project.

Baseline

A *baseline* is a snapshot of the project schedule taken earlier in the project that you can later use to measure project progress against earlier estimates of project progress.

Category

Use *Categories* to select and filter different groups and classes of tasks, notes, or resources in the view.

Critical Path

Critical path is a set of tasks in a project for which any delay or expansion lengthens the project or causes project deadlines to slip. The critical path determines the project's earliest finish date.

Autoschedule uses the critical path value to determine the tasks that drive the project deadlines and constraints.

Critical Task

Critical tasks have a float of zero or less; therefore, when a critical task is delayed, the project finish date or other deadlines are affected.

Dependency

A dependency provides you with a means of ordering the relationship, timing, and logical sequence between a task within the same project (internal dependency) or between a task in your project and a task that is external to the project (external dependency).

Dependency Type

Dependency Type is the constraint you place on the detail task or milestone's start or finish date.

You can create the following types of dependencies to establish the relationship between the start and finish dates of dependent tasks:

- Finish-Start. The predecessor task's finish date determines the successor task's earliest possible start date. With this dependency type, the successor task cannot start until its predecessor task finishes.

- Finish-Finish. The predecessor task's finish date determines the successor task's earliest possible finish date. With this dependency type, the successor task cannot finish until its predecessor task finishes.

- Start-Start. The predecessor task's start date determines the successor task's earliest possible start date. With this dependency type, the successor task cannot start until its predecessor task starts.

- Start-Finish. The predecessor task's start date determines the successor task's earliest possible finish date. With this dependency type, the successor task cannot finish until its predecessor task starts.

Dependency Violation

A *dependency violation* is a dependency link that has been improperly set.

Duration

Duration is the length of time, in business days, a task requires from conception to completion, including the start and finish dates.

Earned Value Analysis (EVA)

Earned Value Analysis (EVA) is a statistical operation that compares the project's present actuals against what was planned. For example, it may compare the length of time a task would take, according to a baseline budget plan, with the actual length of time it took. EVA is also called *Performance Measurement*.

Estimate To Complete (ETC)

Estimate To Complete (ETC) is the estimated time for a resource to complete an assignment.

Fixed Duration

A *fixed duration* task is a constrained task that must finish in a specific amount of time. Fixed-duration tasks are constant and are not driven by resource assignments. A fixed-duration task is also called a time-constrained task.

Float

Float is the number of days that a task's initiation or completion can be delayed without adversely affecting the project finish date. Float is calculated using the following formula: Late Start - Early Start

Global File

The *Global File* is the default location of global settings, such as calendars, resource files, and note categories.

Global Resources

Global resources are those resources that are available to you to staff on projects when you are using Open Workbench with CA Clarity PPM. You can select a team of resources from a list of global resources and make them available to your project. The global list displays roles and resources to which you have booking rights.

Highlights

Highlights are the fonts, colors, symbols, and patterns you can define for highlighting project data.

Key Task

A *key task* is a task that you consider being of key importance to the project. When you mark a task as a key task, its status does not impact any other Open Workbench behavior.

Lag

Lag is the predetermined amount of time between the start and/or finish time of two tasks in a project plan.

Lag Type

Lag Type is the unit of measure for the value you enter for lag. You can specify lag in terms of time or percent. Choices are Daily or Percent.

Percentage of duration is usually based on the length of the predecessor task. However, if you specify the dependency type as Finish-Finish, the percentage of duration is based on the length of the successor task.

Library

An Open Workbench *library* is a .rwl library file that stores view Library data, including the names of library groups that categorize views, sorts, and filters. Libraries also store the paths to and names of views, sorts, and filters that appear in the library groups.

Loading Pattern

A *loading pattern* defines how work is spread across the duration of a task. The loading pattern for a resource defines how resource assignments are used to complete tasks when you recalculate the task duration and you autoschedule your project. You have the following patterns available to help replicate how team members work on tasks.

Negative Lag

Negative Lag is the amount of time or percentage of task duration in which two tasks can be simultaneously in process in a project plan.

Notes

Notes let you record project-specific information for yourself or for other staff members.

Pending Estimate

A *pending estimate* is the pending state of ETC until a resource's project manager accepts or rejects the new value. You can edit the ETC, though you should only change it if you complete the assignment ahead of schedule or if you need more hours.

Project Status

A *project status* shows the results compared to the project plan. Status is determined in terms of costs, resources, deliverables, and whether the project is started, not started, or complete. In Open Workbench, a status indicator reflects the status of a project, or for a program, the status of its component projects.

Resources

Resources are people that are required to make sure a project is completed on time. Resources are assigned to project tasks.

Roles

Roles are generic resources that represent the job responsibilities of the resources assigned to a project. A role defines the work function while a resource identifies the individual who performs that role. Examples of roles include project manager, programmer, and business analyst.

Subnets

Subnets are a set of tasks in a project that have dependencies among themselves. During Autoschedule, you can choose to calculate and display separate critical paths for each subnet and for each task that does not have dependencies.

Task Priority

The *task priority* controls the order in which tasks are scheduled during autoschedule, subject to dependencies and task and resources constraints. Autoschedule, therefore, schedules tasks with higher priority ahead of tasks with lower priority.

Variable Duration

A *variable duration* task is a constrained task that can change when you autoschedule your project. Variable-duration tasks depend on the availability and the number of assigned resources. A variable-duration task is also called a resource-constrained task.

Views

Views are the means by which you display a project plan and other project data.