

# **Managing Projects with Microsoft Project 2013**

## **Advanced**

*A manual by Advisicon®  
Helping You Build a Project  
Management Culture*



5411 NE 107th Avenue, Suite 200  
Vancouver, Washington 98662  
Tel 360-314-6702

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# Authors and Versions

The following individuals are recognized for their contributions to this work:

**Author** Tim Runcie, MCP, MCTS, PMP, MVP

**Author** Cindy Lewis, MCTS, MCITP, MCT, PMP, PMI-SP, MVP

**Author** Ellen Lehnert, PMP, MVP, MCT, MCP

**Editor, Designer** Jeff Jacobson-Swartzfager

**Editorial Coordinator** Pam Greensky

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## About Advisicon



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- SharePoint Deployment, Custom WebPart Development, and Training
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# About the Authors

## Tim Runcie, MCTS, MCP, PMP, MVP, Advisicon President



**Microsoft Partner**  
Gold Project and Portfolio Management  
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Tim Runcie, the President of Advisicon, has over 25 years of experience in Information Systems and 15 years in Construction Management. Tim has been recognized by Microsoft as an MVP (Most Valuable Professional) for his outstanding excellence in Office and for his support to technical communities worldwide. He was first recognized as an Access MVP and has continued to gain recognition as a Project Portfolio Manager (PPM) in Enterprise Project, Program and Portfolio Management MVP for his expertise in MS Project, Project Server & SharePoint. This award has to be renewed annually and is extremely competitive. Tim has held this for over 10 years.

Tim has been assisting Project Management Offices and Organizations (PMO's) in leveraging technology like Office Applications, Project, Project Server & SharePoint to meet their business Intelligence and reporting needs. His experience covers all sectors of customer industries such as High Tech, Government, Non-Profit, Private Business, Manufacturing, Construction, Banking, Healthcare and the Information Services or Information Technology industries.

He has focused in consulting, mentoring and training organizations to successfully complete their projects using scarce resources, fixed budgets and interconnected schedules, while leveraging technologies to automate and create powerful visual reports. Tim combines industry best practices, a passion for knowledge transfer, and tools development to optimize Project and Project Portfolio Management processes and to successfully integrate Project Management best practices into organizations' culture.

Tim loves teaching. When not leading or mentoring organizations, he is teaching classes centered on the disciplines and technologies of Project Management. To every project he brings a personal passion for education and a commitment to providing Advisicon's customers with a full set of skills and tools to achieve optimum success.

### **Cindy M. Lewis, MCTS, MCITP, MCT, PMP, PMI-SP**



Cindy is a Senior Project Advisor at Advisicon, Inc. She brings nearly 20 years of experience in scheduling, training and managing large projects. As a professional project manager, Cindy has focused her career on Information Technology projects specializing in company-wide system implementations spanning industries such as architecture, financial, manufacturing, medical, education and high tech. Cindy has in-depth expertise in lifecycle management, organizational project/portfolio process development and management, and customized curriculum development and execution.

Cindy has been a sought-after consultant called on to help numerous companies both locally and across North America to deploy, assist and, if needed, rescue failed Project Server implementations in versions 2002, 2003, and 2007. In Project Server 2010 Cindy has captured complex business requirements and delivered a best in case solution recommending features that derive value for the business and provided consultative training to apply these features immediately. She has deployed Project Server 2010, deployed Proof-of-Concept instances and has directed Project Server 2007 to Project Server 2010 upgrades. Her vast experience includes working with both on-site and cloud based (hosted) solutions.

Her passion is training and leading large groups via both live and virtual classrooms. Courses are delivered several times a month onsite at customer training facilities.

Advisicon is pleased to announce that Cindy received the Most Valuable Professional (MVP) award in Project by Microsoft in 2012. With an estimate of less than 60 people receiving this designation for Project out of the thousands of MVPs awarded worldwide, this is a great testament to her dedication to the scheduling community. She is the second person at Advisicon to receive this award following Tim Runcie. If you haven't seen Cindy, watch for her at the next Microsoft or PMI conference or event. Some of her past duties at these events including giving short presentations, running hands-on labs, working Project kiosks and booths, demoing software, and working at Ask the Experts' events.

**Ellen Lehnert, PMP, MVP, MCT, MCP**



Ellen is a Consultant/Trainer/Implementator for MS Project/MS Project Server. With over 20 years of corporate training and consulting experience, Ellen has taught MS Project over 400 times. In addition to co-authoring this publication she is the author of “Managing Projects using MS Project 2010 desktop” courseware, a contributor and tech editor for many reference books, is a developer for the MS Project 2010 & 2013 certification tests, writes a column for the Microsoft Project User Group (MPUG) newsletter, is a board member Chicago MPUG, and is a frequent meeting speaker. She is the owner of LehnertCS, LLC consulting/training company, [www.lehnertcs.com](http://www.lehnertcs.com) and can be reached at [ellen@lehnertcs.com](mailto:ellen@lehnertcs.com).

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We look forward to hearing from you. Happy learning!



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## Chapter 1

# **Costing, Budgets and Earned Value**

## Overview

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The ability to track costs in Project is an often overlooked capability. To begin the discussion about costs, this chapter will start with a review of what makes up total tasks costs. Next, you will learn how to handle unique cost situations for resources, how to use Project as a budgeting tool, and finally what is needed to take advantage of earned value calculations.

## Review of Total Task Costs

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As a review, the total cost for a task consists of all fixed costs plus all resource costs. Fixed costs are entered one time on the task in the fixed cost field.

To enter a fixed cost:

1. Using your preferred method, select **Gantt Chart** view
2. Click the **View** tab
3. Click the drop-down arrow on **Tables** in the Data group
4. Click **Cost**
5. Enter the fixed cost value



The default table for Gantt Chart view is Entry.

Resource costs include all of the following:

- For a work resource - hourly rate multiplied by a number of hours,
- For a material resource – unit rate multiplied by number of units
- For a cost resource – amount entered at the time of the task assignment

- Overtime costs – if resource hours on a task are specifically entered in the overtime field, the hours entered will be multiplied by the overtime rate and the standard rate will be ignored
- Cost per use - if used on a work or material resource, this cost will be added to the task each time the resource is used



Refer to the Managing Projects with Microsoft Project Introduction book for information on how to enter standard resource costs.



Project assumes prorated cost calculations unless otherwise specified so costs are current based on the progress of the task. This will be important for organizations using Project for earned value management.

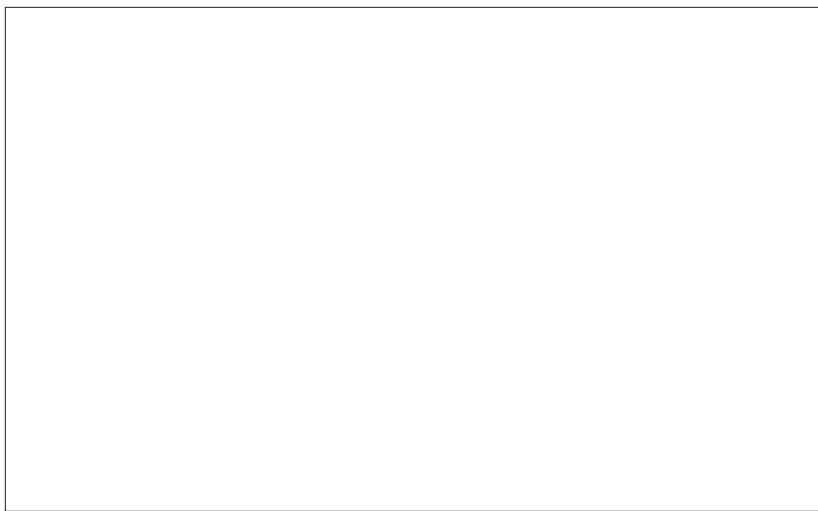
## Setting Alternate Rates for Resources

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In this topic, we will cover alternate rate scenarios for resources. Some organizations bill out resources to another company. In those scenarios, you might need a resource that has different rates depending on the job function they are doing or depending on the contract with the other company. For example, you may have a resource with multiple skills who can perform both engineering work and project management work but each skill needs to be charged at a different rate. Project provides work and material resources between one to five different rates. In addition, each rate has the capability to incorporate a rate increase or decrease on a specific date. For example, you may have given a resource a pay raise in which you need to incorporate this new rate.

To set an alternate rate for a resource:

1. Using your preferred method, select **Resource Sheet** view
2. Right-click on the desired resource name and click **Information**
3. Click the **Costs** tab
4. Click the desired rate table and enter the desired rate(s)
5. Click **OK**



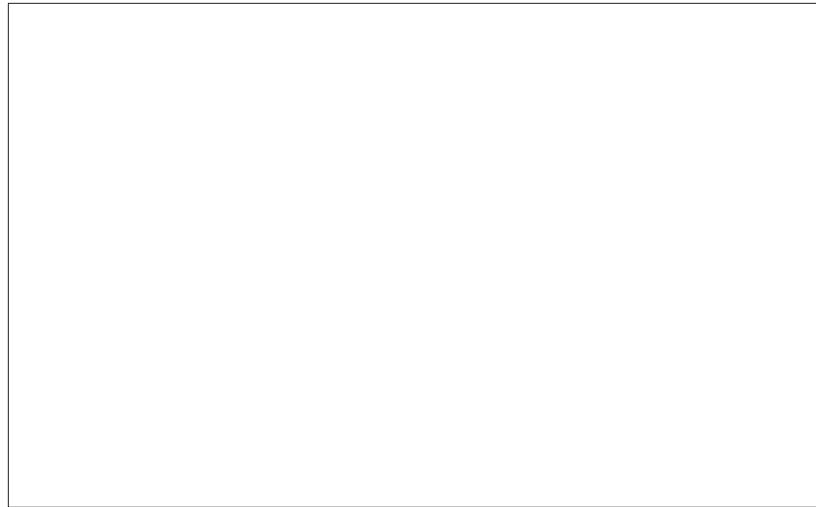
**Figure 1-1** Screen shot needed – picture of Costs tab



Be sure to apply the alternate rate table to the desired task assignment for Project to apply the new costs.

To apply an alternate rate on a task assignment:

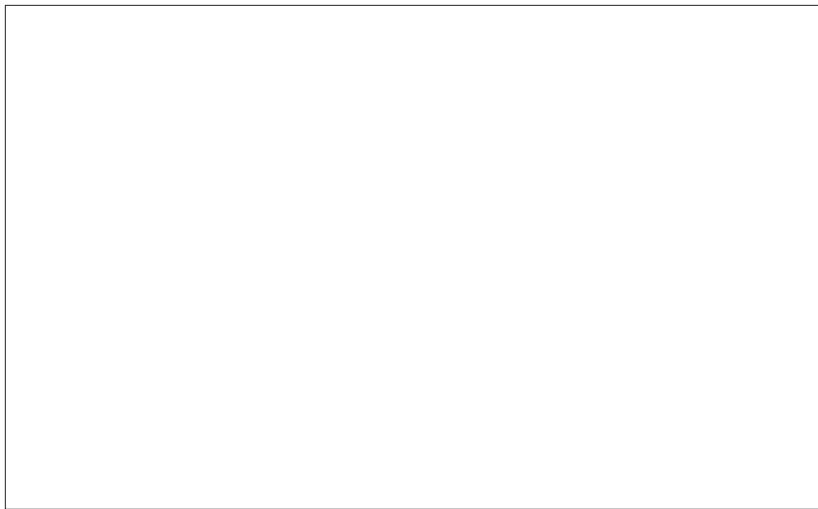
1. Using your preferred method, select **Resource Usage** view
2. Underneath the desired resource, locate the desired task
3. Double-click the task name
4. In **Cost Rate Table**, choose the desired table
5. Click **OK**



**Figure 1-2** Screen shot needed – dialog box when you double click a task in resource usage view.

To set a rate change on a specific day:

1. Using your preferred method, select **Resource Sheet** view
2. Right-click on the desired resource name and click **Information**
3. Click the **Costs** tab
4. Optional - In **Cost Rate Table**, choose the desired table
5. In **Effective Date**, choose or enter the desired date and choose or enter the desired rates
6. Click **OK**



**Figure 1-3** Screen shot – Show a new line in the cost rate table for a resource sheet view.



Project automatically applies the new rate on tasks but historical information is protected.

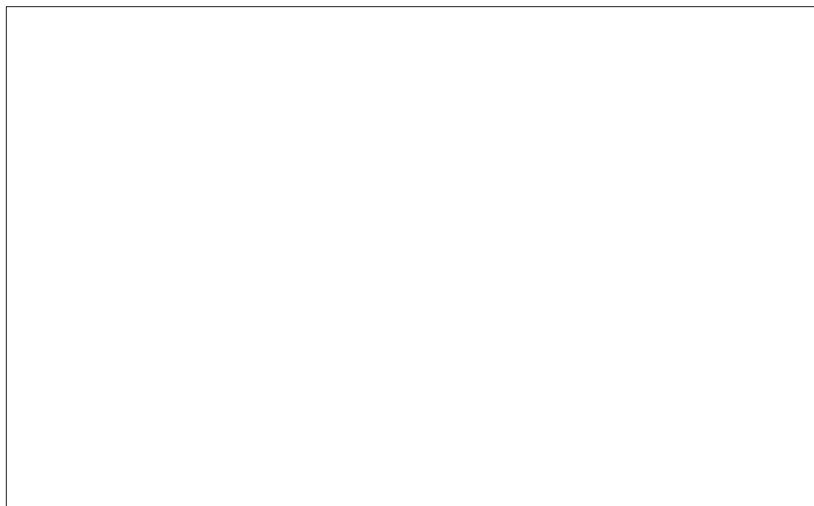
## Creating a Budget Resource

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A budget resource is simply a setting on an existing resource that limits its assignment capabilities to only the Project Summary task. For this reason, it is useful for overall budgeting purposes. Budget resources can be used to budget by cost or by work hours.

To create a budget resource that will be used to create an overall project cost:

1. Using your preferred method, select **Resource Sheet** view
2. Enter a new resource to represent your budget resource (e.g. Budget Cost)
3. In **Type**, choose **Cost**
4. Right-click on the resource name and click **Information**
5. Click **Budget** on the General tab
6. Click **OK**

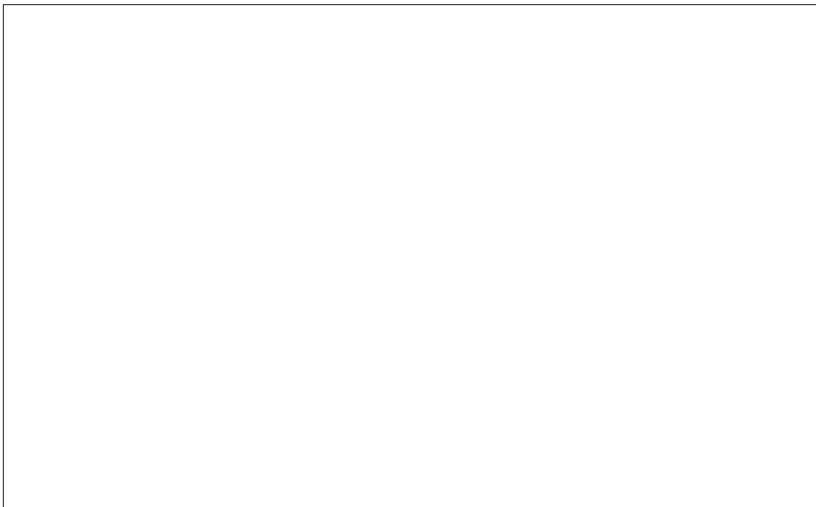


**Figure 1-4** screen shot – show the budget check box on the general tab

To assign a budget resource and enter a cost budget value:

1. Using your preferred method, select **Task Usage** view

2. Click the **Format** tab
3. Click **Project Summary Task** in the Show/Hide group
4. Right-click the task name on Row 0
5. Click **Information**
6. Click the **Resources** tab
7. In **Resource Name** choose **Budget Cost** (or your budget resource name)
8. Click **OK**
9. Click the column heading to the right of Task Name
10. Click the **Format** tab
11. Click **Insert Column** in the Columns group
12. Click **Budget Cost**
13. Enter the budget value in the Budget Cost field



**Figure 1-5** screen shot – task usage view, insert budget cost field, show assignment of budget cost resource



Project automatically spreads the value across the life of the project. If you desire, you could instead zoom in or zoom out the timescale, add the Budget Cost field to the grid, and enter time phased budget values.

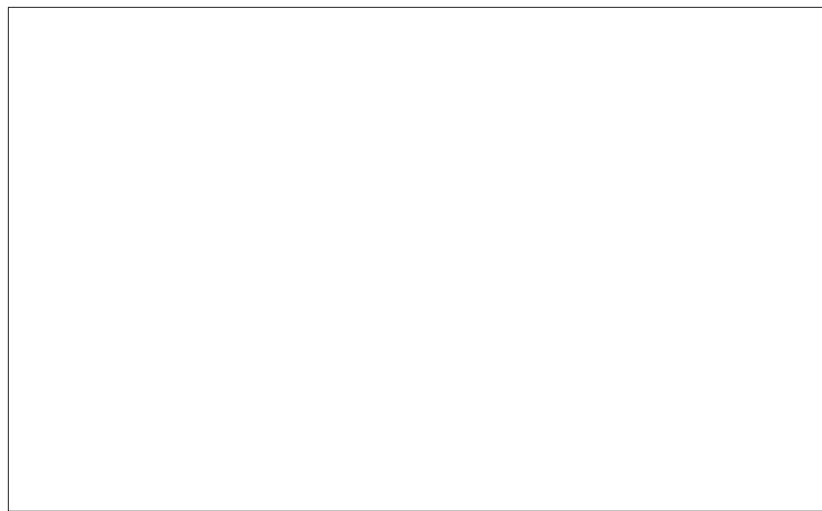
## Creating a Budget Field

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A budget field is using one of Project's open fields to enter budget information. The advantage of using this approach is you can enter a budget at any level of detail desired including summary tasks or detail tasks. You can also choose to enable rollup of budget information to the summary levels. Budget fields can be set to capture either cost or work budget values as desired.

To create a budget field:

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Project** tab
3. Click **Custom Fields** in the Properties group
4. Click the drop-down arrow next to **Type** and click **Cost**
5. Click an available cost field and click **Rename**
6. Enter a friendly name such as **Budget** and click **OK**
7. Optional – choose a **Rollup** option for **Calculation for task and group summary rows**
8. Click **OK**
9. Click a column heading to the right of where you want the budget field to appear
10. Click the **Format** tab
11. Click **Insert Column** in the Columns group
12. Click **Budget** (or your budget field name)
13. Enter the budget value in the Budget field



**Figure 1-6** screen shot – show gantt chart view, entry table with a budget column displayed and a few values entered in it



Whether you use a budget resource or a budget field approach, both can be used to compare against the total cost or total hours of the project.



If you have captured a baseline, include that field as well to provide information about planned cost/work, budgeted cost/work, and actual cost/work.

## Earned Value Reporting

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Earned Value analysis is a method for measuring project performance at a specific point in time. It indicates how much of the budget should have been spent in view of the amount of work done so far, and the baseline cost for the task, assignment, or resource. Earned Value is also referred to as budgeted cost of work performed (BCWP). The Status Date in Project provides the “point in time” marker used in Earned Value measurements.

Earned Value analysis in project requires cost-based information to calculate. Cost-based information is typically generated automatically after resources are assigned and other task costs are entered. Although the schedule will be evaluated by cost, that information will be able to determine if the schedule is ahead or behind. Refer to the rest of this chapter for more information.



Project provides you the earned value for the task based on the percent complete which is entered directly during tracking or calculated based on information provided such as actual duration and remaining duration. If your organization prescribes to another project management technique for earning earned value, you will need to add tasks to your project plan so when a percentage is entered you will receive the expected earned value amount.



Project follows the prorated approach for accrual of earned value which means you will receive earned value at every point of task progress 25%, 50%, 100%. You can change this setting for both resources and fixed costs if you desire.

## Setting Earned Value and Calculation Options

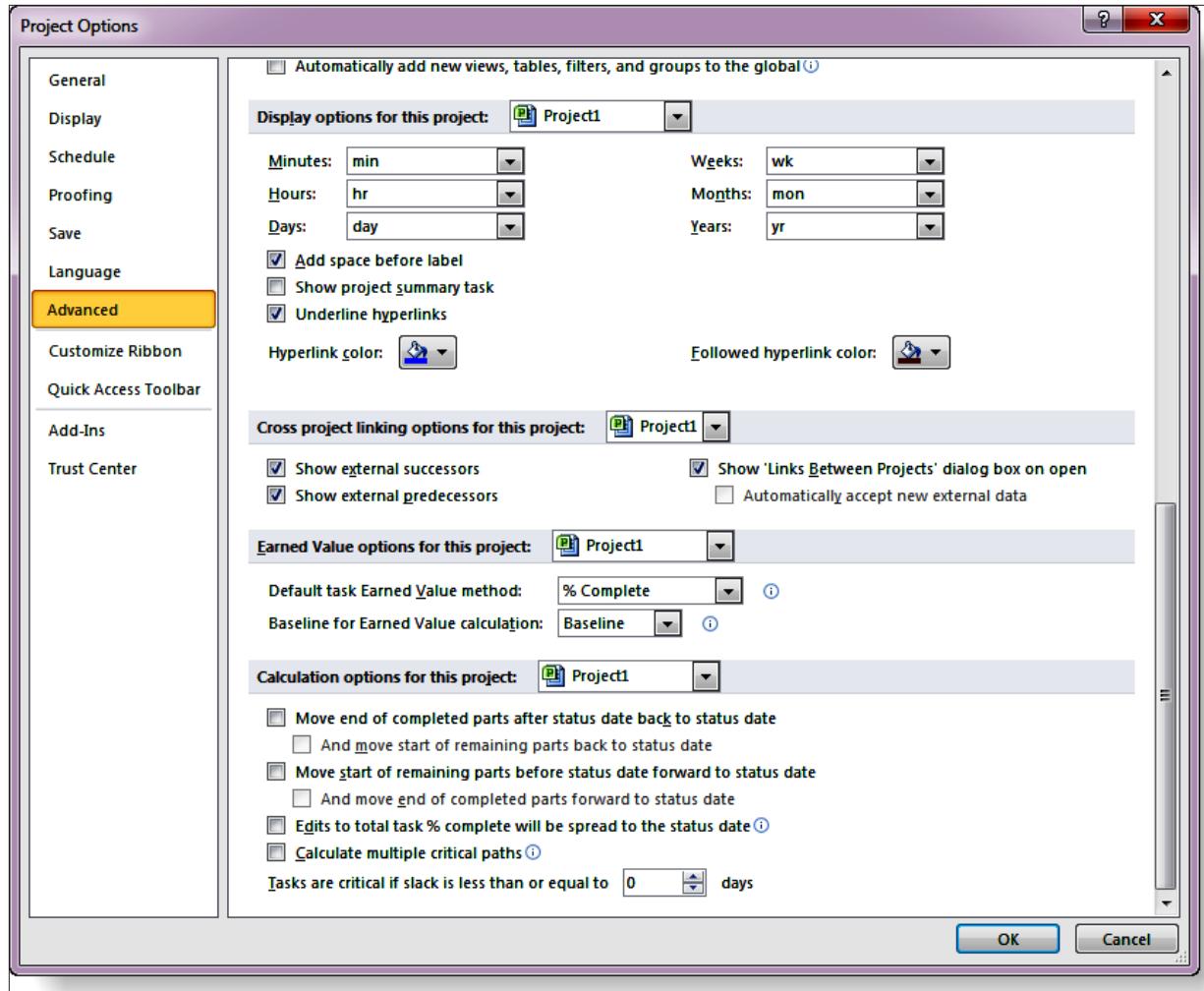
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Options should be set that reflect how you want Project to calculate Earned Value.

To set Earned Value and Calculation Options:

1. Click the **File** tab.
2. Click **Options**.
3. Click **Advanced**.
4. In the **Earned Value options for this project list**, select either **All New Projects** or **Project Name**.
5. In the **Default task Earned Value method** list, select either **% Complete** or **Physical % Complete**.

Since % Complete values are often filled in automatically by Project as a result of other actions, you may prefer to use Physical % Complete so you can enter your own values at any time. Another use for Physical % Complete is that it can be used to keep track of progress on the physical product separate from the task itself (e.g., the task "remodel kitchen" may be listed as 50% complete; however, since the cabinets have not been installed and they are a large component of the kitchen, you may only give a Physical % Complete value of 30%).



**Figure 1-7** Project Options – Earned Value Options

6. In the **Baseline for Earned Value calculation** list, select the appropriate Baseline value.
7. If you have only set one baseline, use Baseline. If you instead want Project to use an alternate baseline, select the appropriate alternate baseline.
8. In the **Calculation options for this project**, select either **All New Projects or Project Name**.
9. Select or clear **Move end of completed parts after status date back to status date**. This means work you completed ahead of schedule

will be properly moved to the left of the status date and placed in the past.



You can apply this option later on a task by task basis as desired instead of turning it on here. Refer to *Moving a Task Until a Resource is Available* on page 29.

10. Select or clear **Move start of remaining parts before status date forward to status date**. This means work that is leftover in the past will be properly moved to the right of the status date and placed in the future.



You can apply this option later on a task by task basis as desired instead of turning it on here. Refer to *Moving a Task Until a Resource is Available* on page 29.

11. Click **OK**.



For the **Calculation options for this project** to work properly, you have to ensure **Split in-progress tasks** under **Scheduling options for this project** is selected in the **Schedule** section of **Options**.

## Why Should I Perform Earned Value Analysis?

When you perform Earned Value analysis, you get reliable answers to key questions such as “Is there enough money left in the budget to complete the project?” and “Is there enough time left in the schedule to finish the project on time?” Earned Value indicators express project progress in terms of cost and schedule. If you want to know whether you’ll run out of money before work on the project is completed (or have a surprise after it’s over) an Earned Value analysis is one way to find the answer.

## How Do I Interpret Earned Value?

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Earned Value indicators that are variances, such as cost variance, can be either positive or negative. A positive variance indicates that you are ahead of schedule or under budget. Positive variances might enable you to reallocate money and resources from tasks or projects with positive variances to tasks or projects with negative variances.

A negative variance indicates that you're behind schedule or over budget, and you need to take action. If a task or project has a negative cost variance (CV), you might have to increase your budget or accept reduced profit margins.

Earned Value indicators that are ratios, such as the cost performance index (CPI) and the schedule performance index (SPI), can be greater than 1 or less than 1. A value that is greater than 1 indicates that the project is ahead of schedule or under budget. A value that is less than 1 indicates that the project is behind schedule or over budget. For example, an SPI of 1.5 means that the project are progressing through the schedule faster than planned and a CPI of 0.8 means that you are spending more money than planned. If both of these conditions exist on the same schedule, this could mean that you are paying a higher rate for more efficient resources who are doing the work faster.

## Which Earned Value Quantities Can I Show in Microsoft Project?

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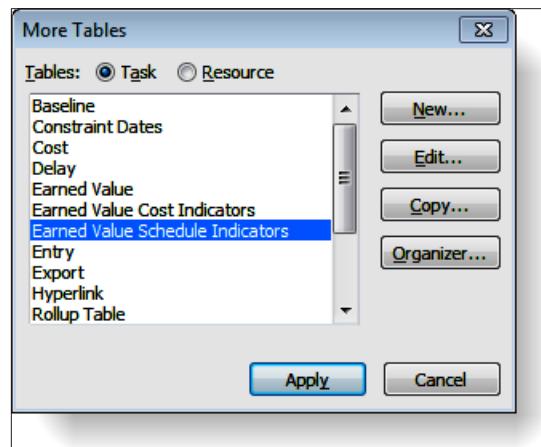
During tracking you may want to display Earned Value information so you can quickly evaluate if you are on schedule and within budget.

There are three tables that provide Earned Value information:

- Earned Value
- Earned Value Cost Indicators
- Earned Value Schedule Indicators

To change to an Earned Value table, complete the following steps:

1. In the **View** tab, **Data** group, click **Tables**.
2. Click **More Tables** from the dropdown list.
3. Select the desired table.
4. Click **Apply**.



**Figure 1-8** More Tables Dialog Box





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## Chapter 2

# Advanced Resource Management

## Overview

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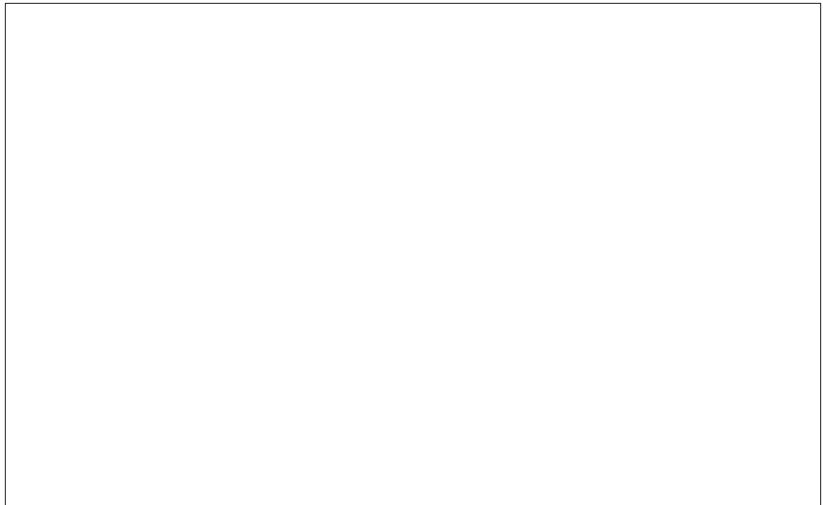
Advanced resource management includes making decisions about resource assignments, altering those assignments, and evaluating resource demands. It also includes making decisions about what resources are critical to your project and what resources can delay their work efforts.

As a review, a resource assignment is attaching one or many resources to one or many tasks in the project plan. The level of detail you involve yourself in for each assignment can vary. For example, you may simply be interested in who does what task or you may be interested in the hours of work assigned to the resource for each day the task is scheduled. When working with resources that are in limited supply, you may need to fine tune resource assignments to resolve resource overallocations. In this chapter we will explore a variety of options that you can choose to apply to your project plan when managing resources.

## Creating a New Resource Assignment (Review)

---

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Resource** tab
3. Click **Assign Resources** in the Assignments group
4. Click the desired task(s)
5. Click the desired resource(s)
6. In the Assign Resources dialog box, click **Assign**



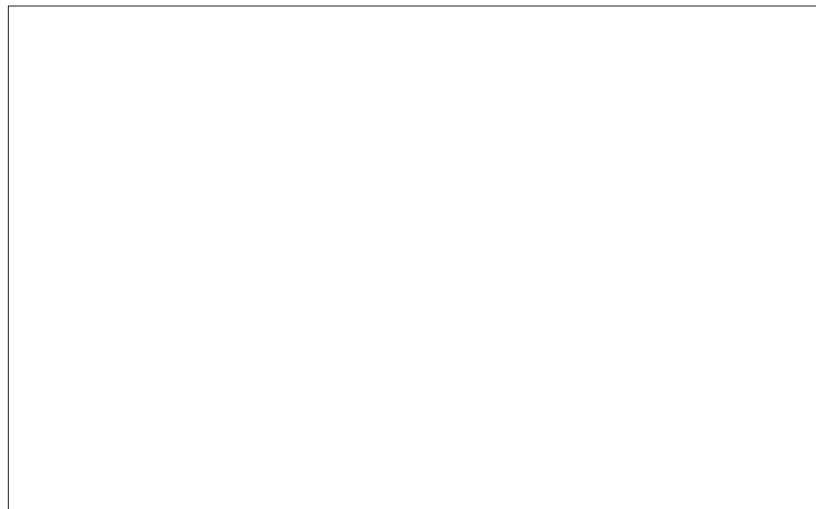
**Figure 2-1** screen shot – Gantt chart view show the assign resource dialog box with a selected resource

## Evaluating Resource Availability Before Making an Assignment

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When creating new resource assignments, Project provides a proactive option to evaluate resource availability before you make an assignment. With this option, when you select the task and use the Assign Resources dialog box, Project automatically uses the Start and Finish date of the task as the date range for the availability of the resource you want to evaluate. Simply entering the desired hours will show you if that resource is available or hide the resource name from the list if the resource is unavailable.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Resource** tab
3. Click **Assign Resources** in the Assignments group
4. Click the desired task
5. In the Assign Resources dialog box, click **Available to Work** and enter the number of hours you need a resource for during the length of the task
6. The resource list will automatically filter and hide work resources that do not have enough capacity during the timeframe of the task



**Figure 2-2** screen shot – show the Assign resources dialog box with available to work checked and some hours entered



Already assigned resources will never hide from the list.



Remember to clear the Available to Work option to list all resources in the Assign Resources dialog box for future task assignments.

## Assigning a Part-Time Resource to a Task

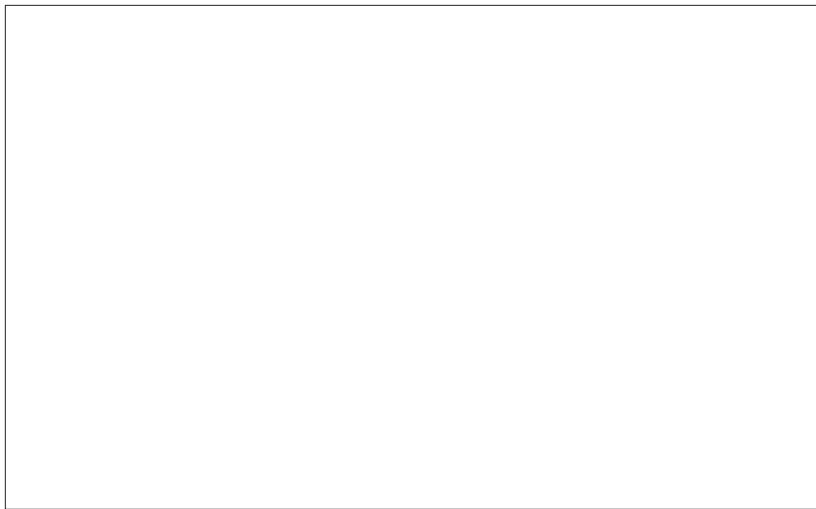
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The current and previous version of Project support alternate approaches for a resource that is available to work part time. You can assign a resource with an alternate assignment units percentage and that will recalculate the task based on the availability (e.g. 50%). You can also assign a resource at 100% and adjust the working hours as needed to reflect a part-time resource.



It is a best practice to choose an approach and remain consistent throughout your schedule to simplify the process of auditing and to make it easier for others to follow your scheduling methodology.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Resource** tab
3. Click **Assign Resources** in the Assignments group
4. Click the desired task
5. For the desired resource, in **Units**, enter the desired percentage (e.g. 50) or hours (e.g. 4h) and press the **Enter** key



**Figure 2-3** screen shot – show the assign resources dialog box and show an assignment with 100% and another assignment where you are entering 4h (before the **enter** key)



Project converts hours entered into units automatically in the Assign Resource dialog box.



Entering hours is not recommended for Fixed Work tasks where the task hours have already been provided. An error message may appear.



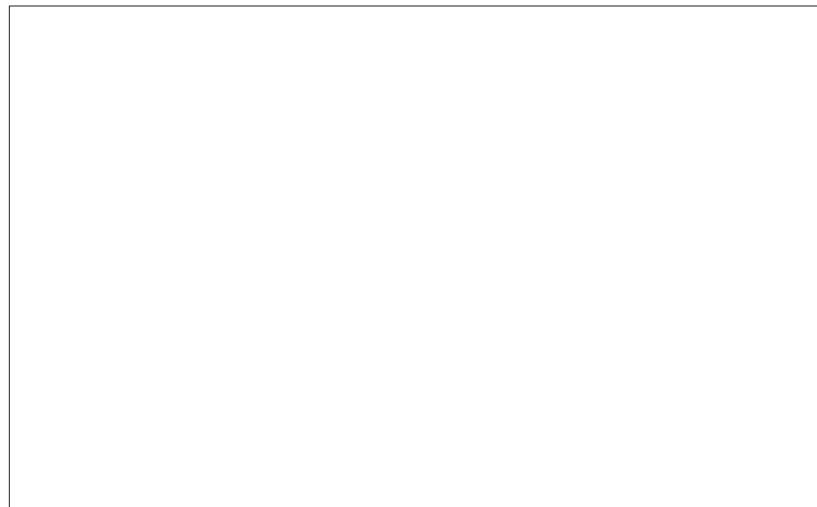
See Chapter 3, *Advanced Work with Task Types* for more information about controlling calculations in Project.

## Setting Overtime Hours on a Task Assignment

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If your schedule uses alternate rates for Overtime, Project needs to know when to apply that rate on a task. Also, if you are fast tracking a Fixed Work task, Project needs to know which resource is working overtime hours to get the task done sooner.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **View** tab
3. Click **Details** in the Split View group and ensure Task Form is displayed in the drop-down list
4. On the Task Form, right-click to bring up alternative views and click **Work**
5. For the desired resource, in **Work**, enter the total hours the resource is working that apply to standard time, in **Ovt. Work**, enter the total hours the resource is working that apply to overtime



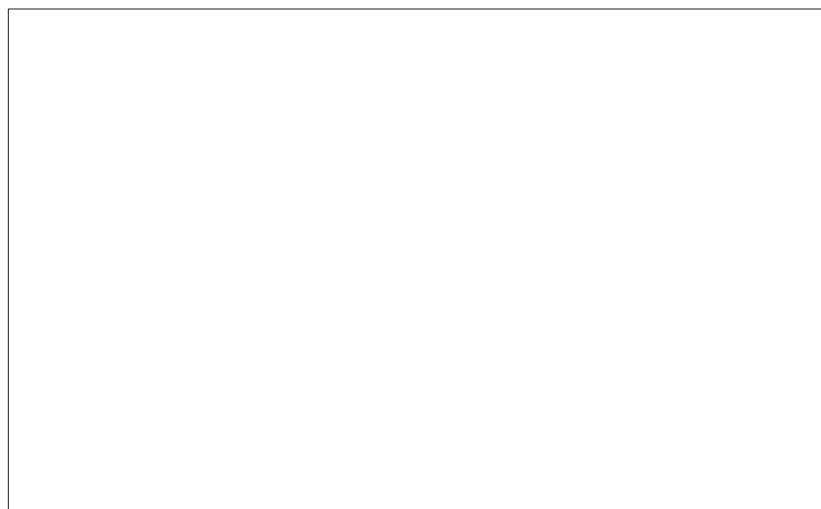
**Figure 2-4** screen shot – show the view illustrated in steps 1–5 and hours entered in work and overtime work

## Shifting Resource Assignments with Delay

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If multiple resources are working on one task, you may have some resources who have a conflict with another task and are therefore unavailable until the task is in progress. Switching the resource to a part-time resource would not solve this problem since that would assume the resource is available the entire timeframe of the task. However, delaying the start of the resource on a specific task and reducing hours (if needed) will eliminate overallocation problems at the beginning of a task.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **View** tab
3. Click **Details** in the Split View group and ensure Task Form is displayed in the drop-down list
4. On the Task Form, right-click to bring up alternative views and click **Schedule**
5. For the desired resource, in **Work**, enter the new total hours the resource is available to work on the task (optional), in **Delay**, enter the delay time before the resource can start.



**Figure 2-5** screen shot – show the view illustrated with the steps 15 and a value in delay and work (work value must be less than total work value for the task)



If you do not reduce the total hours of work for the resource when adding delay time, the length of the task may extend.



See Chapter 3, *Advanced Work with Task Types* for more information about controlling calculations in Project.



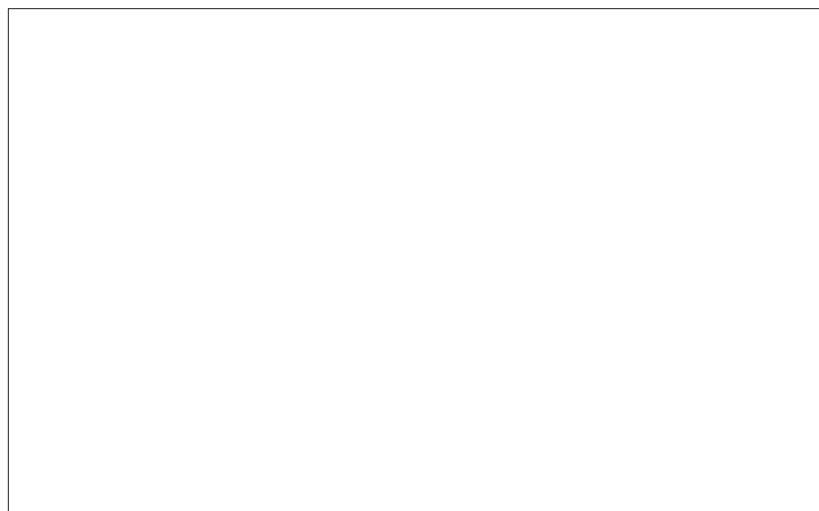
You may also decide to create separate tasks to solve this problem.

## Moving a Task Until a Resource is Available

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If a resource is overallocated or assigned to another project, you might be required to move a task to a new time period before it can be worked on. While there are several approaches to this, below are some steps to incorporate very quick changes to your schedule.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Task** tab
3. Click the desired task
4. Click the drop-down arrow on **Move** in the Tasks group
5. Select the desired move task option.



**Figure 2-6** screen shot – show the move drop down list on the ribbon



Move Task Forward or Reschedule Task are most popular for this scenario.



These techniques create constraints in your schedule. Apply this only if the resource limitation is truly driving your schedule.



If you prefer, you can drag a task in Team Planner view as well.



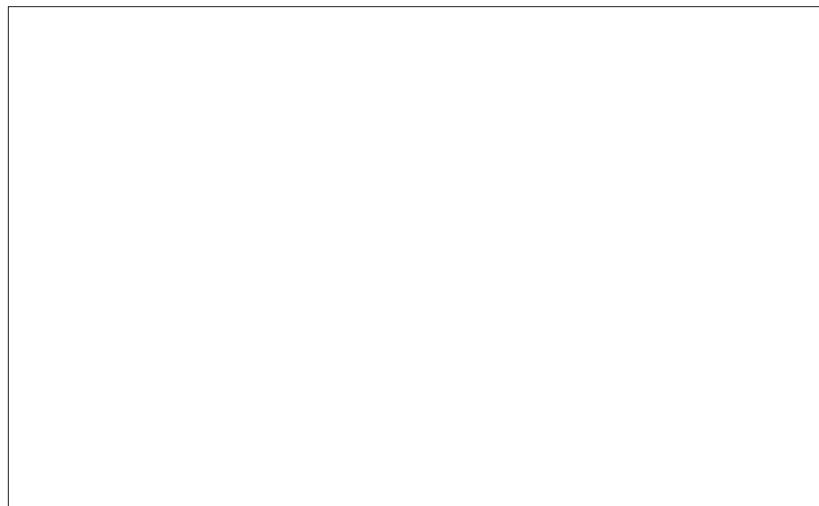
Team Planner view moves the work for that resource only not the entire task.

## Replacing a Resource on a Task in Progress

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Resources often leave a project or have changes in their availability where they can no longer work on a project. A popular scenario is giving remaining work to a new resource. Refer to the following steps to complete this process.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Resource** tab
3. Click **Assign Resources** in the Assignments group
4. Click the desired task
5. Click the name of the resource that is currently assigned in the Assign Resources dialog box and click **Replace**
6. Click the name of the resource who will be finished the task and click **OK**



**Figure 2-7** screen shot – create an assignment and then show the resource replace dialog box



If you view the details of the task in Task Usage view, you will notice that it still shows the previous resource for work that is already completed, but the remaining work for the previous resource is now at zero and all remaining work has been shifted to the new resource.



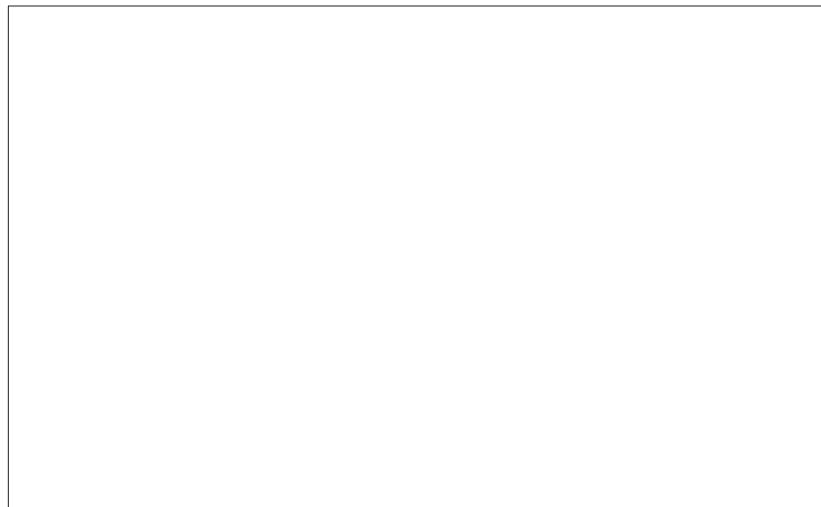
Avoid deleting a resource from an assignment where a task is in progress. You will lose historical information.

## Excluding Tasks From Leveling

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Leveling is a Project feature where tasks are delayed due to a resource conflict. Most projects have tasks that cannot be delayed due to restrictions from the project sponsor, customer, or other reasons. In these instances, you should exclude those tasks from leveling.

1. Using your preferred method, select **Gantt Chart** view
2. Click the **Format** tab
3. Click the column heading to the right of where you will be adding a new field
4. Click **Insert Column** in the Columns group
5. Click **Level Assignments**
6. For the desired tasks, change the drop-down option to No to exclude them from leveling



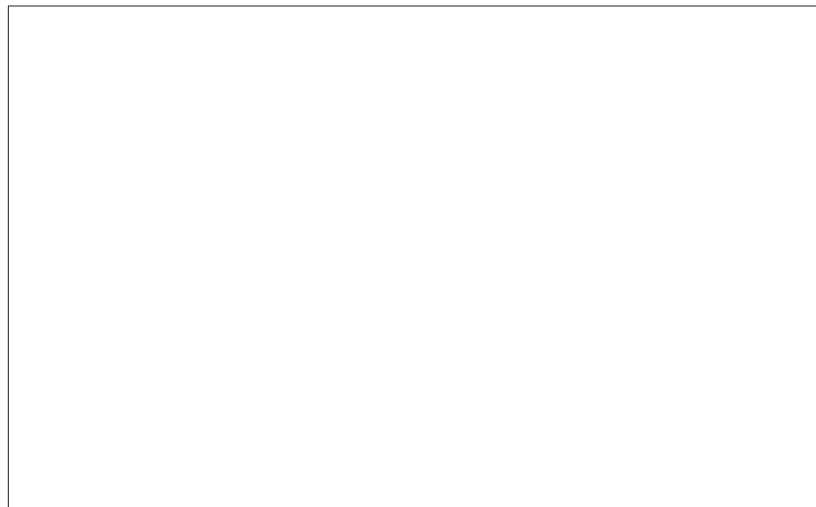
**Figure 2-8** screen shot – show the results of the 5 steps above and screen shot the drop-down list

## Excluding Resources From Leveling

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Even though your project may have resource overallocation issues, you may not want any task work delayed for a particular resource. This could be because you know another resource is being added to your project to assist or because the resource is available more than full time on your project.

1. Using your preferred method, select **Resource Sheet** view
2. Click the **Format** tab
3. Click the column heading to the right of where you will be adding a new field
4. Click **Insert Column** in the Columns group
5. Click **Can Level**
6. For the desired resources, change the drop-down option to No to exclude them from leveling



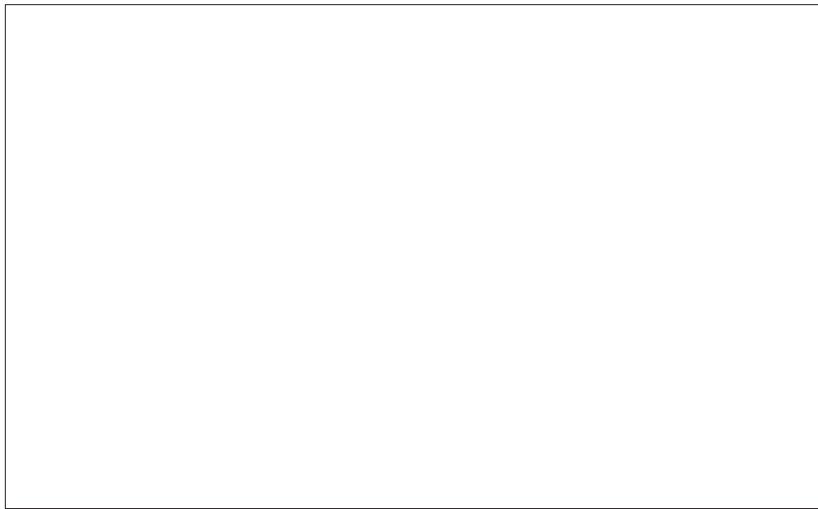
**Figure 2-9** screen shot – show the results of the 5 steps and the drop-dow list options

## Using Task Priorities in Leveling

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For organizations that use leveling, they typically like to fine tune how the leveling feature is applied to specific tasks. Setting task priorities is another way to control leveling which provides a scale of importance for a task over a previous method discussed which involved turning on and off leveling for a task.

1. Using your preferred method, select **Gantt Chart** view
2. Double-click a task
3. Click the **General** tab
4. In **Priority**, choose or enter the desired priority number
5. Click **OK**
6. Repeat as needed for as many tasks as desired.



**Figure 2-10** screen shot – show the priority number in the dialog box



1000 is highest priority in Project. Choose this option for tasks that should not be moved.



Consider using Priority to set tasks that should be selected first for leveling (1 priority) and tasks that should not be selected for leveling (1000 priority). This should reduce the number of tasks you need to manually set a priority number on since all the remaining tasks will be average priority (500 priority).



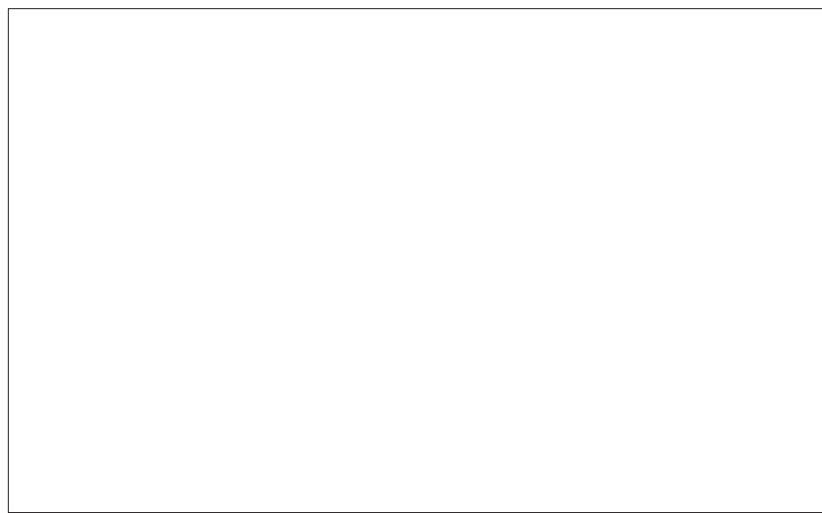
Priorities will only be considered first in leveling if you change the Leveling Options setting for Leveling Order to Priority, Standard.

## Applying a Work Contour

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Project by default applies a flat contour to all resource assignments. This means that work is evenly distributed throughout the life of the task. If a resource is overallocated or to further control resource assignments, you may choose to alter how the hours are spread across the life of a task. A feature called work contouring provides several different options that can be applied to tasks to help alter the work burden on your resources.

1. Using your preferred method, select **Resource Usage** view
2. Double-click the desired task name
3. In **Work Contour**, click the drop-down arrow and choose the desired option
4. Click **OK**



**Figure 2-11** screen shot – show the dialog box and work contour drop-dow list



The name of the contour is supposed to visually remind you of a shape.



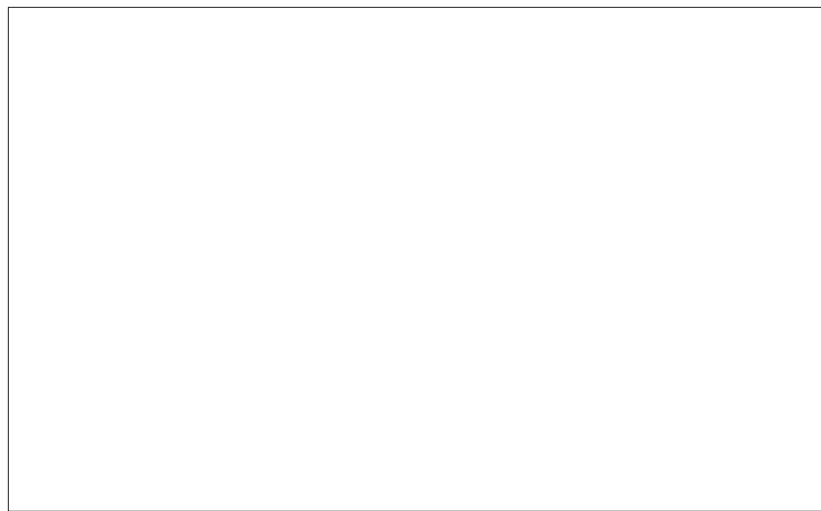
Notice you can pause on the indicator symbol to read a note about the contour that has been applied to the task.

## Advanced Resource Assignment Analysis

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Project provides a number of fields that can help you make informed decisions about resources. Typically project managers and advanced schedulers use either the Resource Usage view or Task Usage view to perform further analysis because of the ability to add summary fields to the table portion of the view (left-side) and detailed time phased fields to the grid portion of the view (right-side).

1. Using your preferred method, select **Task Usage** view
2. Click the column heading to the right of where you will be adding a new field
3. Click the **Format** tab
4. Click **Insert Column** in the Columns group
5. Click the desired field that you want to display a summary for
6. Repeat as needed until all fields are included
7. Right-click on the grid portion of the view (right side)
8. Click an item in the frequently used fields menu to add or hide it from the view
9. Click **Detail Styles** for more options
10. Click the desired field(s) and click **Show** or **Hide** as desired
11. Click **OK**
12. Repeat as needed until all fields are included



**Figure 2-12** screen shot – show the detail styles dialog box



Some fields can only be shown in certain views. Also some fields can only be displayed on the left-side or right-side of the screen.





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## Chapter 3

# Advanced Work with Task Types

## Overview

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Upon completion of this chapter, the participant will be able to:

- Differentiate between max units, assignment units, and peak units.
- List best practices with task types when entering tasks.
- Generate desired value calculations by applying appropriate task type settings.
- Make assignment changes using best practice techniques and recommended views.
- Describe the purpose of peak units and its role in staffing decisions.

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## **Understanding Project's Scheduling Engine**

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Understanding the scheduling engine at work behind the scenes is the most complex component of Project. Many excellent project managers have given up using Project because they get too frustrated using the tool to track and manage their project schedules. The simple fact is that they do not completely understand how Project thinks when it comes to calculating and recalculating duration, work, and units. They become frustrated with the fact that numbers change in an almost random fashion and they are constantly trying to fix the tool, instead of addressing how resources dynamically impact the schedule.

## Mastering Task Types

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In the book *Managing Projects with Microsoft Project 2013: Fundamentals*, you were introduced to the concept of task type and how you should set it to drive calculations in Project. However, a task is not fully calculated until you add resources. This section expands on the resource discussion by differentiating between the different types of units and how to maximize the built-in assignment features to generate results that help you make staffing decisions.

## Max Units, Peak Units and Assignment Units

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The different unit options in Project have different purposes and behave differently from each other when you assign resources. You need to understand max units, peak units, and assignment units to maximize the usefulness of the tool.

**Max Units** – this field is available on the Resource Sheet. It indicates the portion of a resource that you have available on this project. Values 100% or less typically represent the availability of one resource, while values such as 300% may indicate three resources.

**Peak Units** – in Project, Peak Units is displayed sometimes as Peak and sometimes as Peak Units. The word Units is being added where necessary to aid in understanding the function of this field. This field is best displayed in an assignment view such as Task Usage or Resource Usage. The purpose of this field is to show you, during the life of the task, the maximum percentage that will be needed for that resource. Let's say that a resource is assigned on a task 50% on the first day, 100% on the second day, 150% on the third day, and 75% on the fourth day. The Peak Units value would be

150% which is the maximum percentage you will need the resource during the life of the task.

**Assignment Units** – in Project, sometimes Assignment Units will only display as Units. When you assign a resource to a task, you designate how much of that resource you want to apply to the task. If you choose 100%, the resource is working full-time on the task. If you choose 50%, the resource is working part-time. Assignment Units can vary task by task and resource by resource. This field can be viewed in Gantt Chart view by clicking the Information button, on the Task tab or by clicking the Assign Resources button on the Resource tab. Despite the max units value for a resource, you can always assign any percentage of assignment units to a task.



If you have used any prior version of Project, you should take note that the assignment units field does not function as it did in the past. Now if you assign one person full time at 100%, the units of that person will not automatically recalculate when you modify the task. This new functionality ensures your resource assignments remain constant throughout the planning and tracking of your project.



Project initially created in an older version of Project will not apply the new assignment units functionality. You may need to transfer those tasks to a new blank schedule to see proper results.

## Working with Task Types

There are several different approaches to planning the time for your task. One option is to plan the Duration, a second option is to plan the Work, and a third option is to plan both. Task types go hand-in-hand with these options and are the way to control how Project calculates values of specific fields when resources are assigned.

## Best Practices

- Enter a duration value and choose **fixed duration** when you want to make sure that Project never changes the duration value for the task.
- Choose **fixed duration, effort driven on** when you want Project to lock down the duration value, but divide work across available resources.
- Choose **fixed duration, effort driven off** when you want Project to lock down the duration value, but assume each resource must perform the same number of hours of work.
- Enter a work value and choose **fixed work** when you want to make sure that Project never changes the total work value for the task.
- Enter both duration and work values when you want Project to calculate resource units needed to accomplish the task.

## Controlling Calculations During Initial Assignments (application of the formula)

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Entering Duration and Work values and setting the Task Type and Effort Driven settings clearly have an impact on how the scheduling engine drives calculations. Project uses a formula to drive its calculations. The formula is Duration  $\times$  Assignment Units = Work.

Review the following examples to more fully understand how assignments dynamically change the schedule.

## Example 1 – Fixed Duration

The Prepare Facilities task was set to a duration of 4 days. Notice the auto calculation of Work in these illustrations.

### Task Type: Fixed Duration, Effort Driven Off

- With one resource assigned at 100%, the work is calculated to 32 hours.
- The calculation becomes: 4 days [Duration] × 8hrs [Assignment Units] = 32 [Total Work].

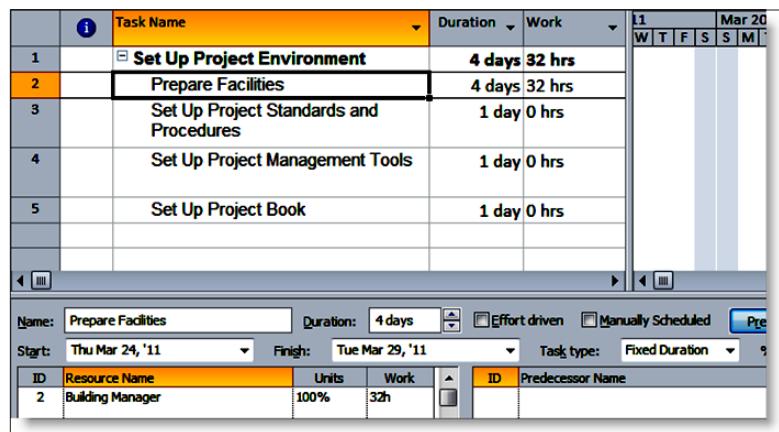
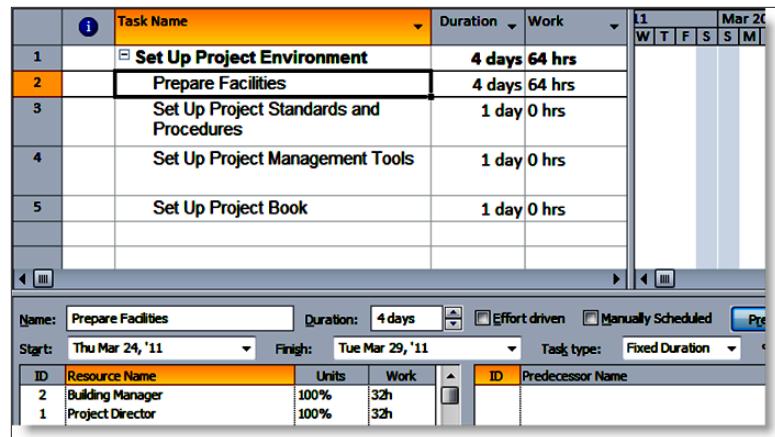


Figure 3-1 Fixed Duration – One Resource Assigned

- If 2 resources are assigned, the work value doubles because you now have 16 hours per day of resources' time going toward the task. So now the work value is 64 hours.
- The calculation becomes: 4 days [Duration] × 16 hrs [Assignment Units] = 64 Hours [Total Work].



**Figure 3-2** Fixed Duration – Two Resource Assigned

#### Task Type: Fixed Duration, Effort Driven On

Fixed Duration, Effort Driven On produces the following result and Peak Units (not visible) is 50% for each resource.

- With Effort Driven factored in Project splits the work between the two resources, resulting in each resource dedicating 4 hours per day (instead of 8 hours) toward the task.
- The calculation becomes:  $4 \text{ days} [\text{Duration}] \times 16 \text{ hours} [\text{effort split between all resources}] = 32 \text{ hours} [\text{Total Work}]$ .

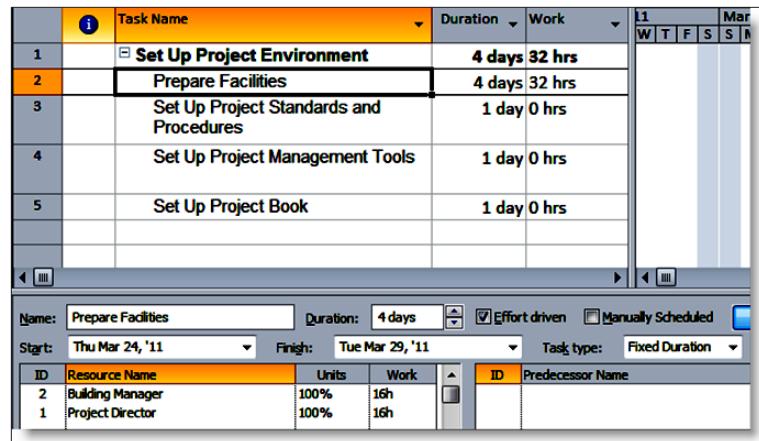


Figure 3-3 Fixed Duration – Effort Driven

## Example 2 – Fixed Work

The Prepare Facilities task was set with a Work value of 24 hours. Notice the auto calculation of Duration in these illustrations.

### Task Type: Fixed Work

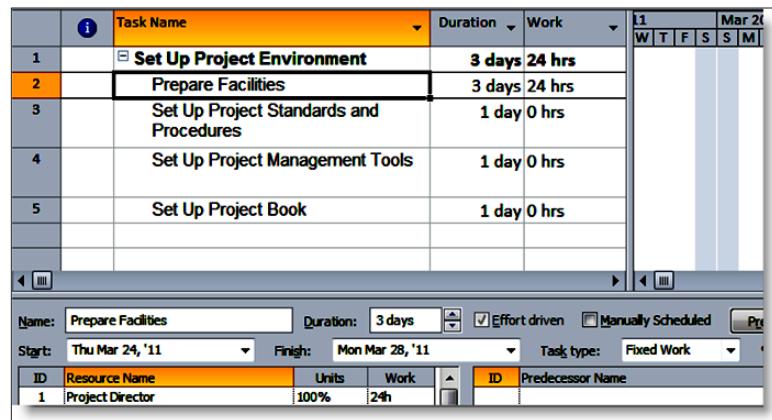


Figure 3-4 Fixed Work – One Resource Assigned

As more resources are added on a Fixed Work, effort-driven task, duration reduces.

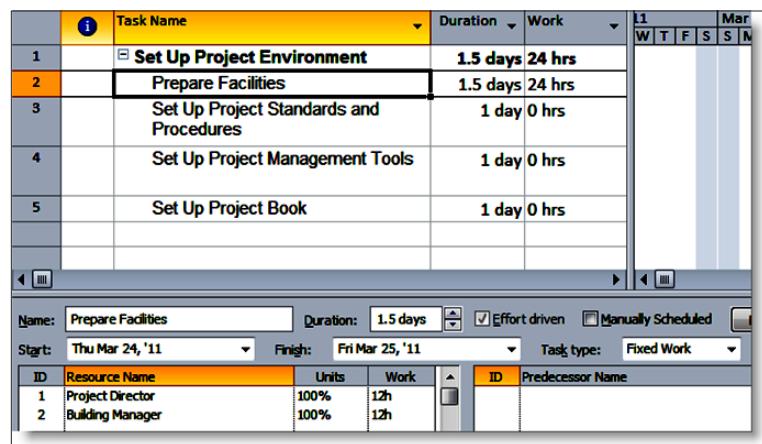


Figure 3-5 Fixed Work – Two Resources Assigned



Since the Fixed Work task type is based on work effort, it is already (in theory) Effort Driven. There is no Effort Driven Off option.

## Example 3 – Planning Both Duration and Work

### Task type: Fixed Duration, Effort Driven On

This is essentially fixing both Duration and Work values.

The Prepare Facilities task has been set with a Duration Value of 4 days and a Work value of 112 hours.

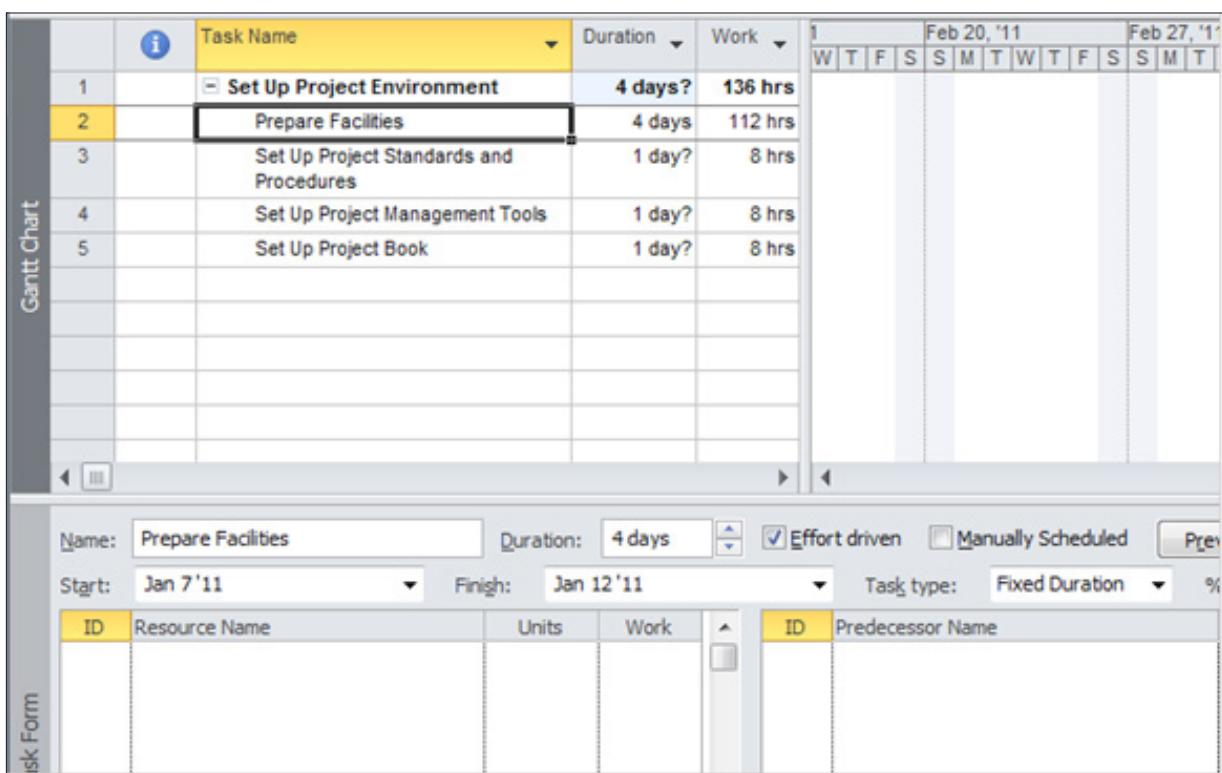


Figure 3-6 Fixed Duration and Work – Table Entry

Given these two values, how many Furniture Movers are needed for this task? After adding the Furniture Movers resource, the results indicate

approximately 3.5 resources. You may want to consider planning for 4 resources to accomplish the amount of work you need done in 4 days.

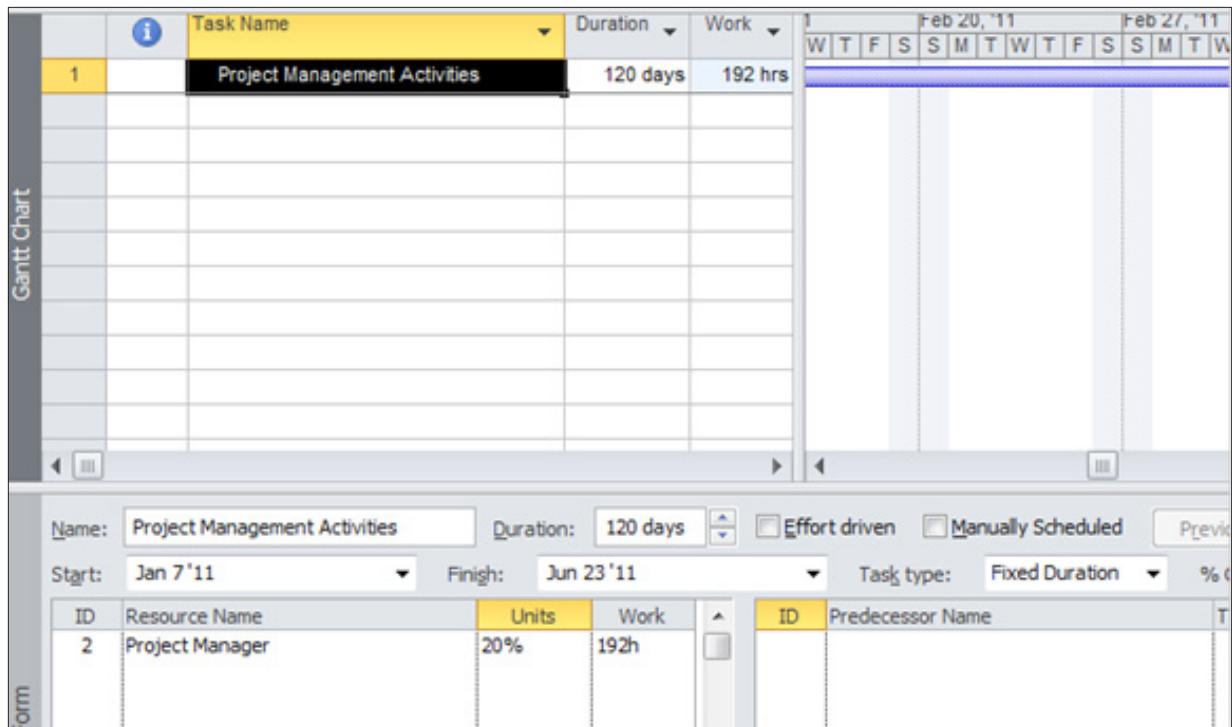
## Example 4 – Fixed Units



You may still control calculations in Gantt Chart view as you did in previous versions; however, there are some added benefits to using alternate views before changing a calculation.

This illustration references an example where you may want to set Fixed Units.

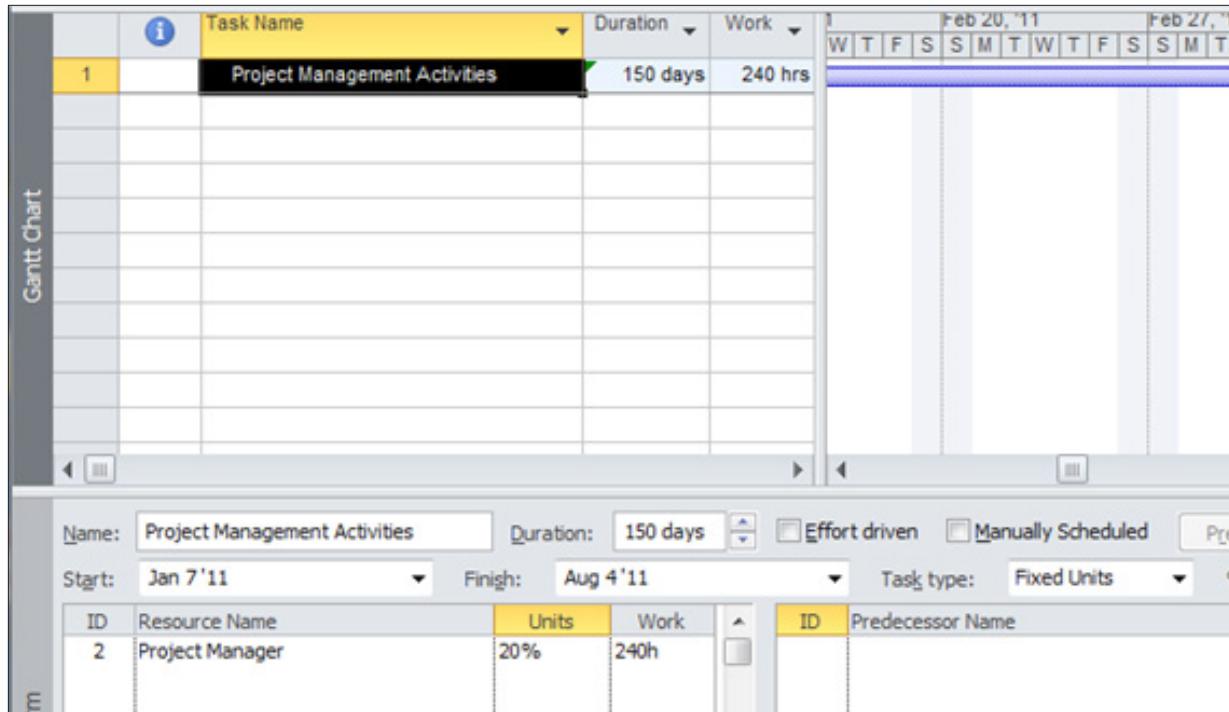
Let's say you have a project manager only available 20% of their time throughout the life of the project.



**Figure 3-7** Fixed Units Entry Table

Due to a change in the project, the overall duration of the project will now be 150 days instead of 120 and you want to ensure that the project manager remains at 20% allocation.

Setting Fixed Units before making the duration change is recommended below to accomplish that result.



**Figure 3-8** Fixed Units – Results for 20% Allocation



Using Fixed Units alters the calculation of Peak Units and can be confusing. It is recommended to use this task type only in the specific occasions where the other task types will not meet the scheduling needs.

Now that you have become more familiar with how an initial assignment generates a calculation, let's look at making changes to assignments, values, and what Peak Units tells us.

## Controlling Calculations During Assignment Changes

Throughout your project there will be changes to things such as scope, resource availability, and funding. These changes may require you to modify tasks that are already fully staffed with resources. In this section, you will discover the best approach for making changes to tasks with existing resource assignments.



Sometimes Peak Units and Assignment Units are the same value, sometimes they are not. Be sure to review Peak Units in either Task Usage or Resource Usage views.

Before making any changes on a task that has resources assigned, switch to the Task Usage view and display Duration, Work, Assignment Units, and Peak Units fields.

Task Name	Duration	Work	Assignment Units	Peak
Set Up Project Environment	4 days	20 hrs		
Prepare Facilities	4 days	20 hrs		
Project Director		10 hrs	63%	31%
Building Manager		10 hrs	63%	31%
Set Up Project Standards	1 day	0 hrs		
Set Up Project Manager	1 day	0 hrs		
Set Up Project Book	1 day	0 hrs		

**Figure 3-9** Task Usage View

Before you make any changes, review your task type and effort driven settings.

## Extending Duration with Same Total Work Hours

You need to extend the duration of a task to give the resources more time to work on other projects, but leave the total hours of work the same:

1. Set the task to **Fixed Work** first.
2. Change the duration from 4 to 8.
3. Observe the change in the Peak Units field.

Task Name	Duration	Work	Assignment Units	Peak
<input checked="" type="checkbox"/> Set Up Project Environment	8 days	20 hrs		
<input checked="" type="checkbox"/> Prepare Facilities	8 days	20 hrs		
<i>Project Director</i>		10 hrs	63%	16%
<i>Building Manager</i>		10 hrs	63%	16%
Set Up Project Standards	1 day	0 hrs		
Set Up Project Manager	1 day	0 hrs		
Set Up Project Book	1 day	0 hrs		

Figure 3-10 Task Usage View

## Increasing Work Hours with Same Duration

You need to keep the duration the same, but put more hours on the task since the task is more complex than originally thought.

1. Set the task to **Fixed Duration** first.
2. Change the work from 20 to 30.
3. Observe the change in the Peak Units field.

Task Name	Duration	Work	Assignment Units	Peak
Set Up Project Environment	4 days	30 hrs		
Prepare Facilities	4 days	30 hrs		
Project Director		15 hrs	63%	47%
Building Manager		15 hrs	63%	47%
Set Up Project Standards and Procedures	1 day	0 hrs		
Set Up Project Management Tools	1 day	0 hrs		
Set Up Project Book	1 day	0 hrs		

Figure 3-11 Task Usage View

Notice what happens if you assign more work hours than what would normally be available based on the duration. Peak Units tells you that you have overallocated the resource. Correcting an overallocation is covered in *Managing Projects with Microsoft Project 2013: Fundamentals*.

i	Task Name	Duration	Work	Assignment Units	Peak
	Set Up Project Environment	4 days	80 hrs		
!	Prepare Facilities	4 days	80 hrs		
	Project Director		40 hrs	63%	125%
	Building Manager		40 hrs	63%	125%
	Set Up Project Standards and Procedures	1 day	0 hrs		
	Set Up Project Management Tools	1 day	0 hrs		
	Set Up Project Book	1 day	0 hrs		

Figure 3-12 Task Usage View with Overallocated Resource

## Adjusting Assignment Units Due to Limited Resource Availability

You want to adjust assignment units because you now have limited availability of your resources.

1. Set the task to **Fixed Duration** or **Fixed Work** first.
2. Change the assignment units.
3. Observe the change in the field you did not fix earlier and the Peak Units field.

Notice the recalculation of work on a fixed duration example.

Task Name	Duration	Work	Assignment Units	Peak
Set Up Project Environment	4 days	16 hrs		
Prepare Facilities	4 days	16 hrs		
Project Director		8 hrs	25%	25%
Building Manager		8 hrs	25%	25%
Set Up Project Standards and Procedures	1 day	0 hrs		
Set Up Project Management Tools	1 day	0 hrs		
Set Up Project Book	1 day	0 hrs		

Figure 3-13 Task Usage View

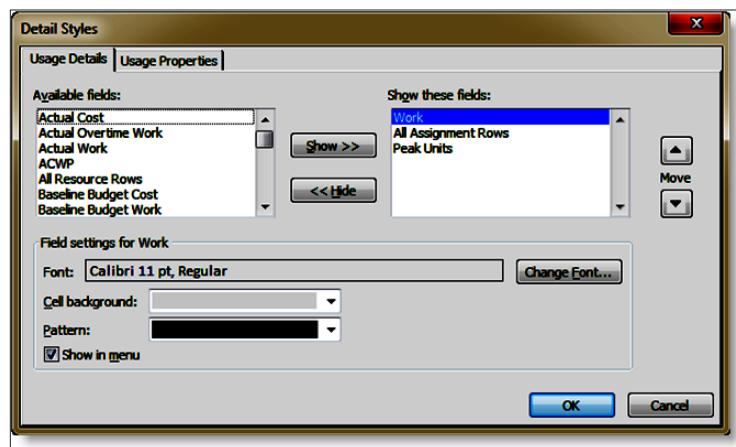
## Using Peak Units for Resource Planning

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Since Peak Units tell you the maximum capacity of a resource over the life of the project, you can use it to alert you of a resource being assigned too much or too little work. When you display the column for Peak Units, you know at a glance the greatest amount of that resource needed for the project; however, it does not indicate overall peaks and valleys across the project. Instead display Peak Units across a time scale to alert you to both high and low points for resources. This will allow you to have more complete information about staffing your project and help you determine if you only need to increase or decrease staff at specific time periods instead of for the entire project.

To configure the Resource Usage view to show Peak Units across a time frame:

1. On the **View** tab, **Resource Views** group, click **Resource Usage**.
2. On the **Format** tab, **Details** group, click **Add Details**.
3. In the **Detail Styles** dialog box under **Available fields**, click **Peak Units**, and click **Show**.
4. Click **OK**.



**Figure 3-14** Detail Styles Dialog

<input checked="" type="checkbox"/> Project Director	16 hrs	Work			16h
		Peak Units			175%
Prepare Facilities	8 hrs	Work			8h
		Peak Units			25%
Set Up Project St	8 hrs	Work			8h
		Peak Units			150%

**Figure 3-15** Overallocated Resources

## Key Points to Remember

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- Max units represent resource availability on the project.
- Peak units represent the maximum portion of that resource you will need over the time frame of the task.
- Assignment units is the portion of the resource preferred on the task (e.g., 50% is a part-time assignment).
- Fixed duration tasks freeze the duration value but calculate work values when resources are assigned.
- Fixed work tasks are always effort driven and they fix the total work value but calculate duration when resources are assigned.
- When you plan both duration and work, resource assignment units will be calculated.
- When making changes on a task with assignments use Task Usage view and display Duration, Work, Assignment Units, and Peak Units.
- Peak units helps you identify high and low points for your resources and can be used in staffing planning.



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## Chapter 4

# Managing Multiple Projects

## Linking Multiple Projects

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When managing more than one project, combining information from several project schedules can be helpful. You can use combined projects to create cross-project links and evaluate how a change in one schedule affects another schedule.

In this chapter we will discuss:

1. Overview of Multiple projects
2. New window feature
3. Linking tasks across projects
4. Analyzing the effects of changing values

## Overview of Multiple Projects

---

Managing more than one project at a time can be challenging. Whether the projects are part of a larger program or separate ventures, combining the information to see a big picture can be valuable. Knowing how the resources are distributed across the projects and the impacts of resource availability on project schedules will give you more information to make better project management decisions.

Project has various capabilities for handling information concerning multiple projects:

**Master Project:** This is the easiest method of handling multiple projects. A project file is created and saved usually with a name inferring that the file will be a Master Project. Other existing projects are inserted into the Master Project file. The inserted projects are called member projects. When the Master Project is opened, the member projects can optionally be opened inside the Master Project. Reporting across the projects is easy with the aid of groups, custom values and filters. Master Projects are very helpful

when managing large projects or managing unrelated projects. Inserted projects may be managed by multiple project managers and all information combined when necessary.

**External links between projects:** A task in one project can be the predecessor of a task in another project. Relationship links can be created across projects using a temporary file created by the New Window function. Links may also be created when project files are opened in a Master Project.

**New Window:** This function is used to combine projects on a temporary basis for reporting across projects or for resource leveling across projects.

**Shared Resource Pools:** Typically resources are not dedicated to one project but are shared over many projects. Using an external resource pool can allow for resource sharing across multiple projects. The ability to see all resource assignments in one place could then be viewed through any of the sharer projects or through the resource pool. Another advantage of using a shared resource pool is that resource availability could be updated in the resource pool and the impact will be seen through the sharer projects. Resource leveling can then be performed across the sharer projects using project priorities.



Resource Pools are covered in detail in Chapter 5, *Working with Resource Pools*.

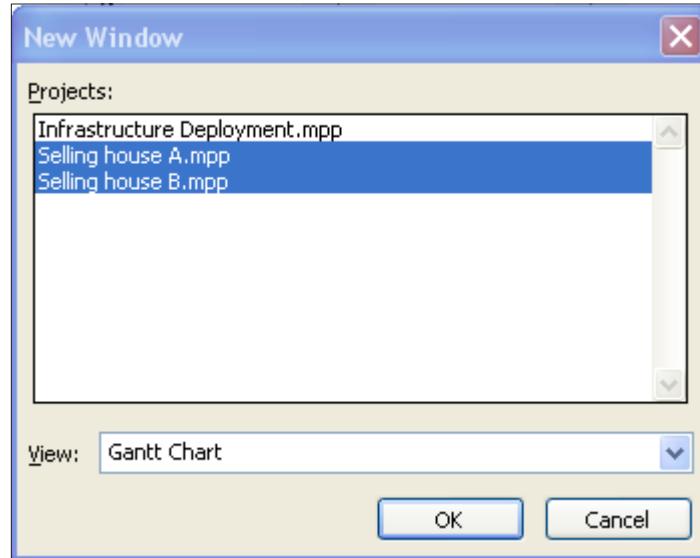
## Using New Window Feature

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Use the New Window feature to combine projects into one window for reporting purposes. The New Window feature will create a temporary window where information from the selected projects may be updated. This view is considered temporary and is not usually saved.

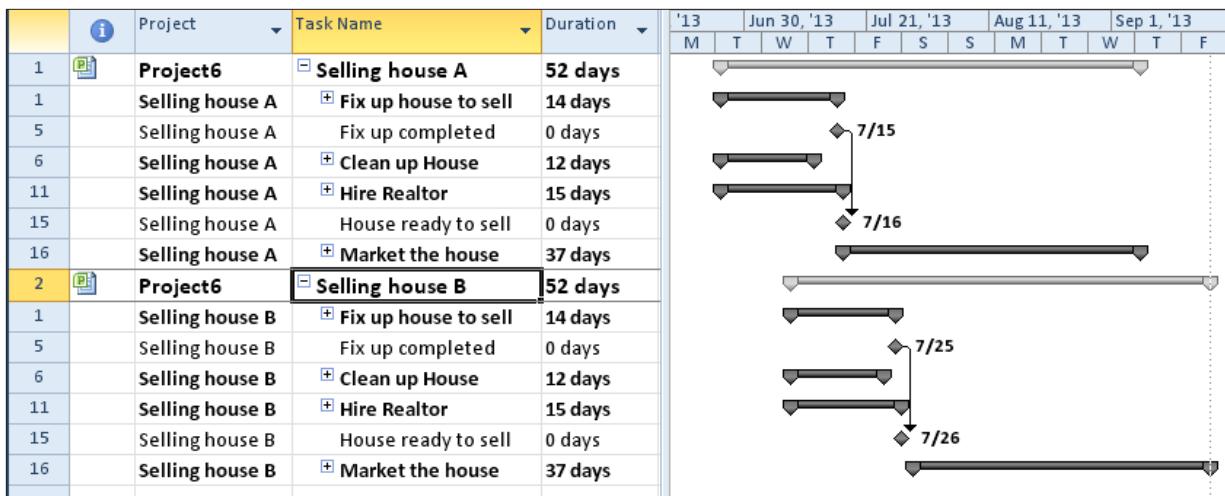
To create a temporary New Window view:

- Open all projects to be combined.
- Click the **View** tab.
- Click **New Window** in the Window group.
- Select the projects you wish to combine.
- Click **OK**.



**Figure 4-1** Combining Projects into a New Window.

Below is an example of projects combined in a new window.



**Figure 4-2** Combined Projects in Gantt Chart View.



Open the projects in the order you desire before using the New Window feature to save time moving the projects around later.

## Linking Across Projects

Tasks in one project might influence when a task in another project may start. Linking tasks from one project to another is a helpful tool to assist with this scheduling challenge. The links between projects are called external dependencies. These dependencies are easily created by opening the projects that contain the tasks to be linked in a temporary window.



The links that are between projects carry direct path file locations. After a link has been created, do not move the files or you will break the link.

To create an external dependency between projects, the projects that

contain the tasks must be open in read-write mode. Follow the previous steps to combine projects into a temporary new window. Once the projects are combined, open the outline level in the projects to view the tasks to be linked.

To create external dependencies:

- Open all projects to be combined.
- Click the **View** tab.
- Click **New Window** in the Window group.
- Select the projects you wish to combine.
- Click **OK**.
- Click the predecessor task from the desired project and then hold the **Ctrl** key and click the successor task in the desired destination project.
- Click the **Task** tab.
- Click **Link the selected tasks** in the Schedule group.

The result is shown below.

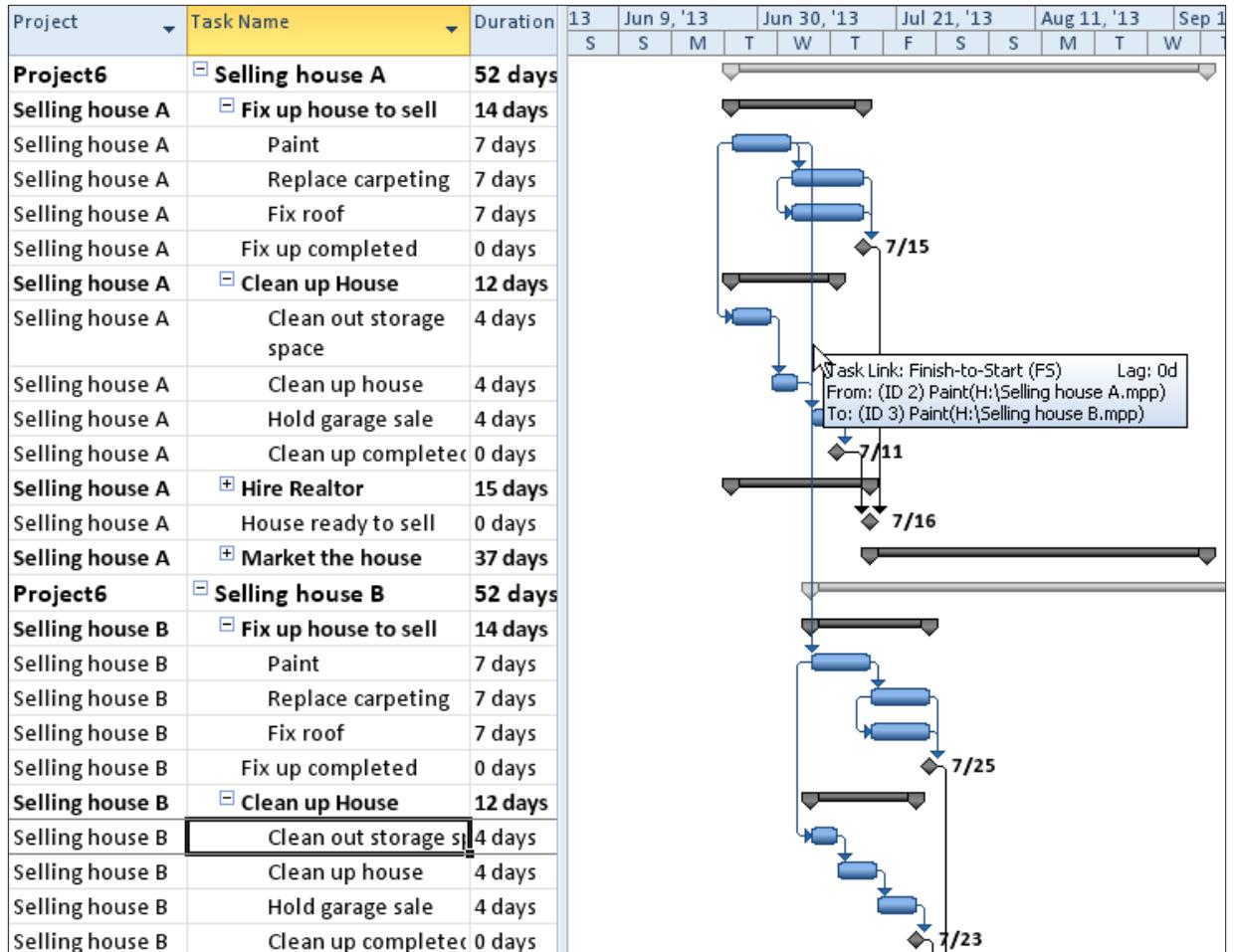


Figure 4-3 Combined Projects with a Cross Project Link.

Once a link is created, close and do not save the temporary file. The relationship has been updated to the member files. Below is the view of the external link in a member file. The link appears as a task but is grayed out.

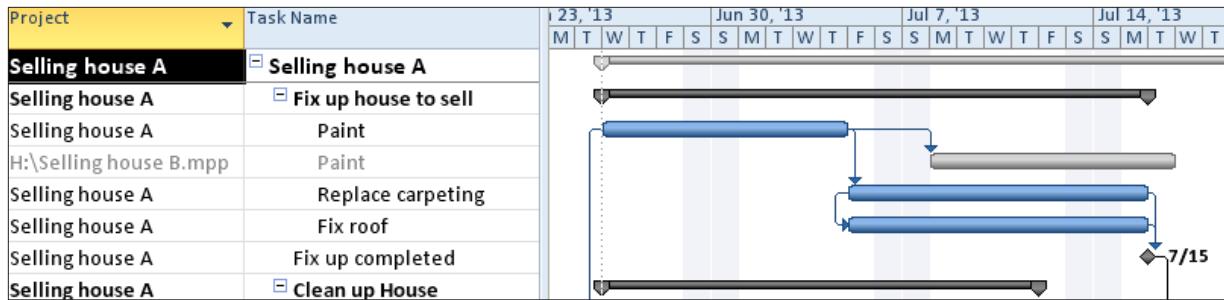


Figure 4-4 External Project Dependency Example.

## Analyzing the Effects of Changing Values

If a change is made in the project which contains the predecessor task, the impact will be seen in the project with the successor task.

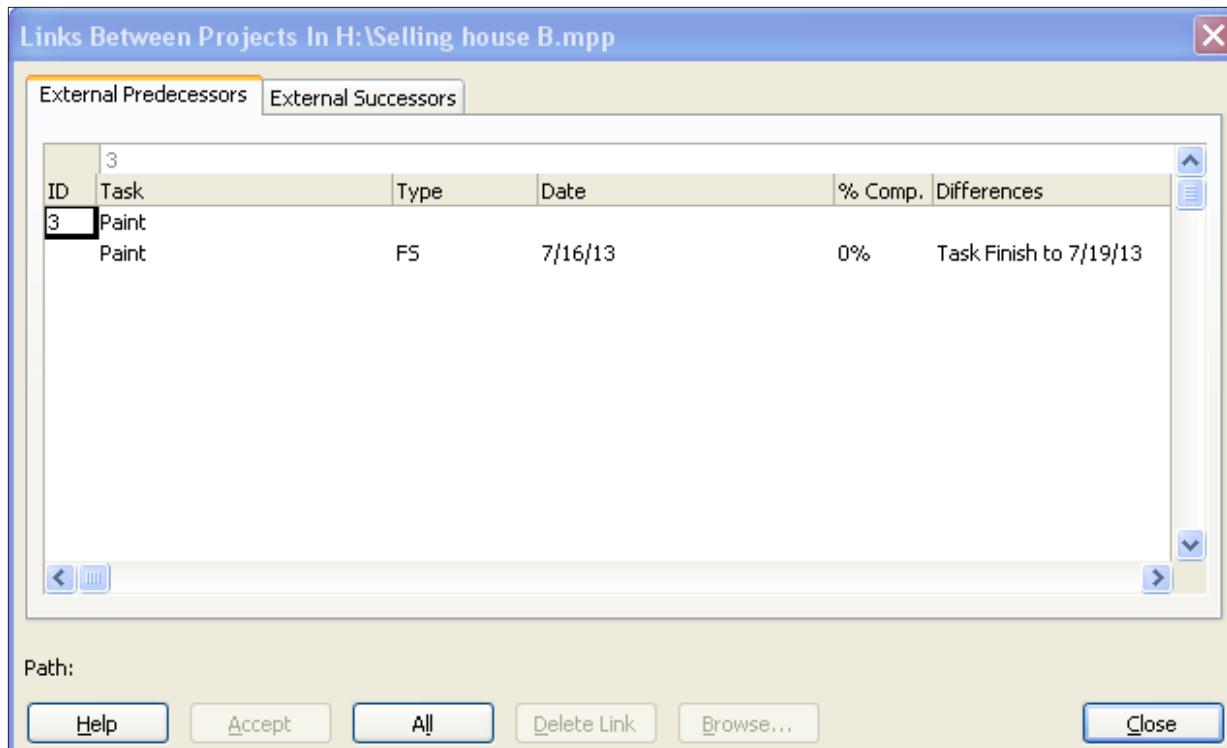


The project containing the successor task does not have to be open at the time of the change.

When you open a project that contains predecessor links to another project, the **Links between Projects** dialog box will appear. This is an alert to let you know there has been a change to your project flowing from an external link.

- To accept the changes, click **All** to accept all.
- To reject the changes, click **Close**.

The **Links Between Projects In** dialog box is shown below:



**Figure 4-5** Links Between Projects Notification Dialog Box.

To view the Links Between Projects In dialog box on demand:

1. Click the Project tab.
2. Click **Links Between Projects** in the Properties group.



You can also choose to accept or delete links individually.



If both projects are open when making a change to a predecessor task involved in a cross project link, the change will be automatically applied.



Accepting all changes is recommended to ensure links between projects are maintained.

## Working with Master and Sub-Projects

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Project managers are usually managing more than one project. When multiple projects are related they are called Programs. Project managers might have other project managers who are helping them manage subprojects related to larger projects. Master Projects are an easy way to work with multiple projects and see the big picture for the entire program when necessary.

In this remainder of this chapter we will discuss:

1. Overview of Master Projects
2. Creating a Master Project
3. Inserting sub-projects

## Overview of Master Projects

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A Master project is a project that contains inserted projects, called sub-projects. The insert projects may be related to a program or a group of unrelated projects.

Some advantages of working with Master Projects include:

- Sub-projects may be maintained by multiple project managers and the results will appear in the Master Project.
- Master Projects contain projects that are actually inserted into a Master file and will remain with the Master file.
- When a Master Project is opened, the sub-projects may also be opened.
- Sub-projects may be inserted in read-only or read-write mode.

- Sub-project data may be linked to the data contained in the Master file.
- Changes made in the Master Project will reflect in the sub-projects.
- Master projects allow for pulling together of multiple projects for reporting.
- Custom objects created may be used across the projects.
- Works well for program management or a project manager managing multiple unrelated projects.

## Creating a Master Project and Inserting Sub-projects

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To create a Master Project:

1. Create a blank project using your preferred method.
2. Click the **Format** tab.
3. Click **Project Summary Task** in the Show/Hide group.
4. Save the project using your preferred method.

 Turn on the Project Summary Task to avoid confusion when viewing the master project versus individual projects.

 Consider using the word “master” in the master project file name.

To insert sub-projects into a Master Project:

1. In the master project file, click in the desired empty row.
2. Click the **Project** tab.
3. Click **Subproject** in the Insert group.
4. Click **Link to Project** checkbox if desired.

5. Click **Insert** for a read-write schedule or Click the drop down arrow on **Insert** and click **Insert Read Only** if desired.



Choose the Link to Project checkbox you want the Master project to update when changes are made to the subprojects.

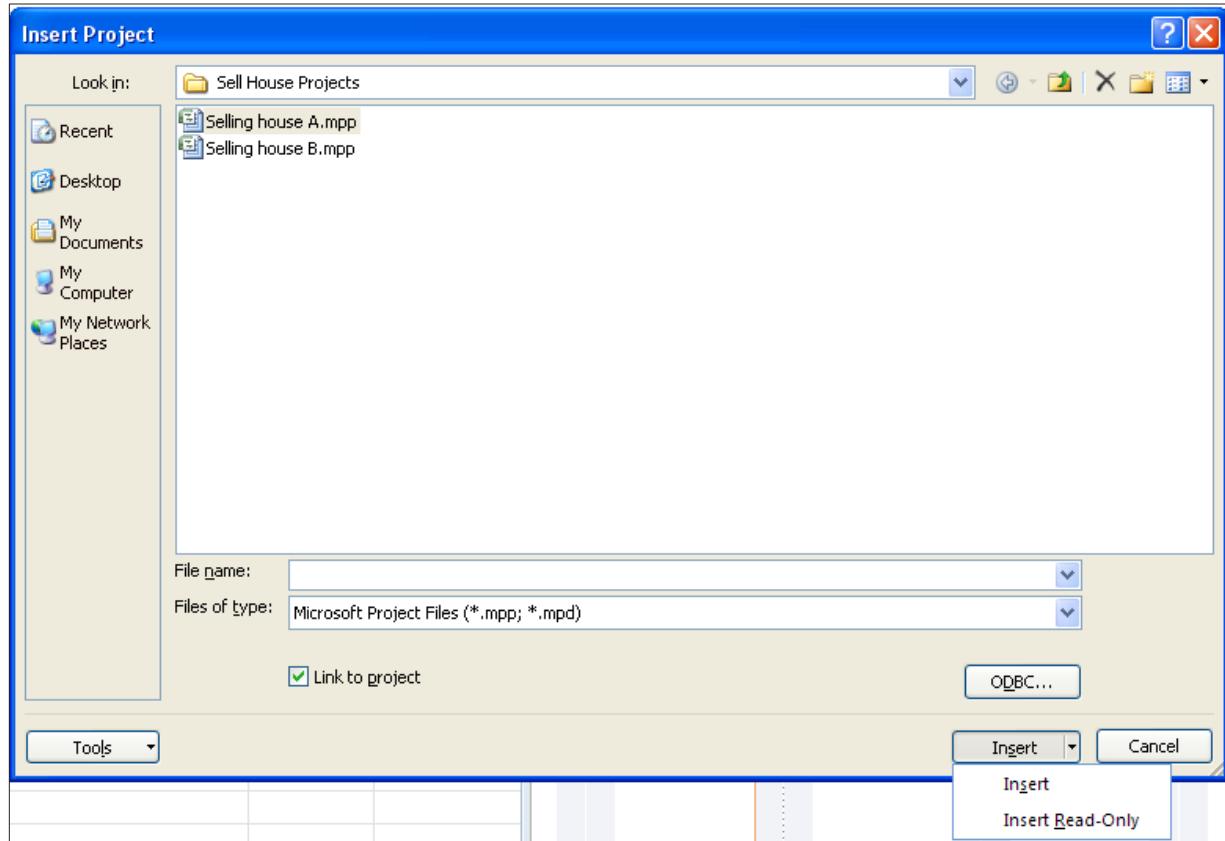


Figure 4-6 Inserting Sub-Projects Dialog Box.

Below is a view with 2 projects inserted. Projects are rolled up to project summary tasks and are not actually opened until the + sign to the left of the project name is clicked. Note the summary bars. The Master project summary bar reflects the combined length of all the sub-projects and the sub-projects indicate the length of the individual sub-project only.



Figure 4-7 Master and Sub-Projects Example.



To remove an inserted project from a Master Project, select the project name, press the **delete** key and approve the deletion.



If a project file will be using an external resource pool, share the pool with the project file before inserting the project into the Master Project.



If inserting projects into a Master Project with existing inserted project open, the new inserted project will result as a sub-project of the open inserted project.





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## Chapter 5

# Working with Resource Pools

## Working with Resource Pools

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External resource pools are an effective means of tracking resource allocations. Most resources will have work assignments that span multiple projects. Sharing resources using an external resource pool will allow for resource availability to be controlled and assignments seen in a single location.

In this chapter we will discuss:

1. What is a resource pool.
2. Creating a resource pool.
3. Sharing resources across multiple projects.
4. Leveling resources across multiple projects.

## What is a Resource Pool

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A resource pool is an .mpp file which contains resource information but does not contain tasks.

Once a resource pool is created, multiple project schedules may share the resources of the external pool. Some of the benefits of sharing resources in this manner are:

- All assignments for projects sharing the resources may be viewed using the Resource Usage view in any member project file.
- Resource assignments may be leveled across multiple projects.
- Project and task priorities may be used during resource leveling.
- The Team Planner View will show assignments across projects (Project Professional or Project Pro for Office 365 versions only).
- Updating resource calendar availability will affect all assignments from projects sharing the resource pool.

Some restrictions are:

- Resource pools are normal read-write files. If multiple project managers try to access the file at the same time the first user will open the resource pool in read-write access and subsequent users will have read-only access.
- Maintaining the resource pool must occur when the resource pool is open in read-write mode. Other users may not have the resource pool open when maintenance occurs.



Add new resources and maintain resource calendars at the beginning or the end of the work day.

- External resource pools connected by resource assignments are built using a network of links. Once a link is established, the files may not be moved or the links will be broken.



The best use for a shared resource pool is for a limited collection of projects and relatively short list of resources.



Using the shared resource pool feature requires that you maintain a constant location for your files. If you move the files around, the relationship between the project and the shared resource pool will be broken. Each project will then function as an independent file and only resources already assigned will appear in the project.



This feature is not meant for large resource pools with lots of projects. Project Server was designed to handle the complexities associated with enterprise wide resource management across a collection of enterprise projects.

# Creating a Shared Resource Pool

The easiest method to create a shared resource pool is to create a blank project file. The contents of the file will indicate that it is a shared resource pool. Once a blank file has been created, add the resources which will be shared across projects.

To create a resource pool:

1. Create a new blank file using your preferred method.
  2. Navigate to **Resource Sheet** view using your preferred method.
  3. Enter the desired resources that will make up the shared resource pool.
  4. Save the file using your preferred method.

**Figure 5-1** Resource Sheet View.



Name the file with a name that will identify the file as a shared resource pool.



Create a naming convention for your resource list that all project managers will be familiar with such as first name plus last name. This will eliminate confusion when individuals have the same first or last name.



Enter a task in Gantt Chart view that is something like “do not delete” so an individual does not think this is an empty file.

## How to Share Resources across Multiple Projects

After a file is created that will represent the shared resource pool, you need to link that to existing project files. Ideally, projects that will be connecting to a shared resource pool will contain no resources of their own. This is to avoid confusion with resources in the resource pool.



If the same resource name is contained in the project schedule and the shared resource pool, Project will not combine the two resources and will treat them as separate resources.

To share resources using a resource pool:

1. Open the shared resource pool file using your preferred method.
2. Open the project you want to connect to the shared resource pool using your preferred method.
3. Click the **Resource** tab.
4. Click the drop-down arrow on **Resource Pool** in the Assignments group.
5. Click **Share Resources**.
6. Click **Use Resources** and in **From** ensure the name of the shared resource pool is selected.
7. If desired, change the **On conflict with calendar or resource information**.
8. Click **OK**.
9. Repeat this process as many times as necessary to connect additional projects to the shared resource pool.

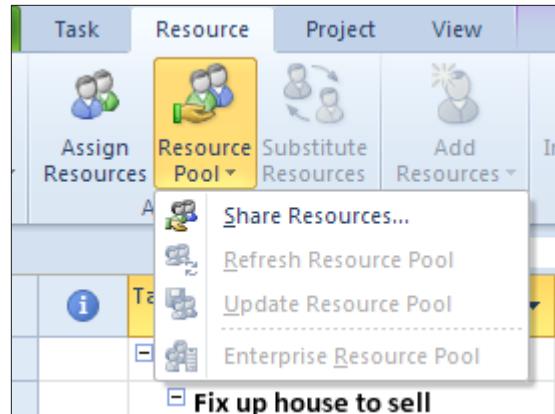


Figure 5-2 Accessing the Shared Resources Feature.



Figure 5-3 Connecting a Project to a Shared Resource Pool.



Pool takes precedence refers to the shared resource pool file while sharer takes precedence refers to the project file.

The resource sheet now contains resources from the pool that was applied to this project. Resource assignments can now be applied using your preferred method.

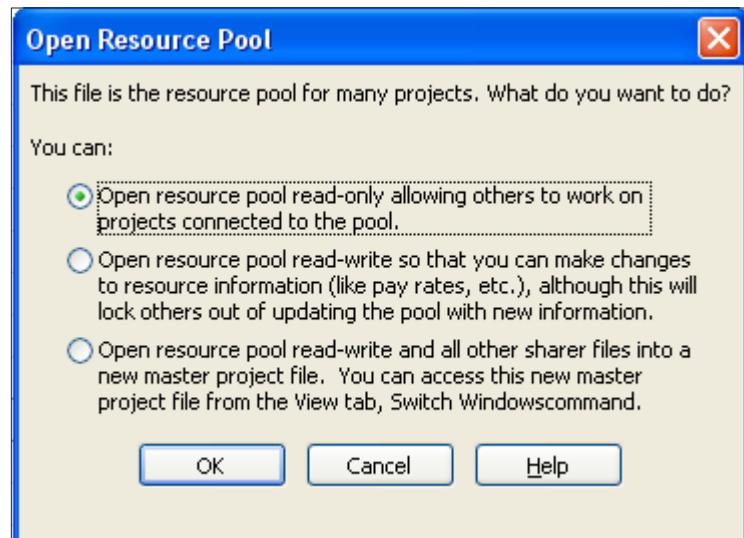
When a resource pool is opened directly, the following Open Resource Dialog box will appear. Project has recognized that the file is a resource

pool file and is asking how you want to open the file. The choices are:

- Open the resource pool read-only
- Open the resource pool read-write for maintenance
- Open the resource pool read-write with all sharer files.



Thoroughly review the choices to ensure you are not locking others out of the ability to do updates unnecessarily.



**Figure 5-4** Prompt Regarding Opening the Resource Pool File.

To detach a project from the resource pool:

1. Open the project you want to disconnect from the shared resource pool using your preferred method.
2. Click the **Resource** tab.
3. Click the drop-down arrow on **Resource Pool** in the Assignments group.
4. Click **Share Resources**.
5. Click **Use Own Resources**.
6. Click **OK**.



Project will provide a copy of those resources that have assignments into the newly disconnected project file but will exclude resources that have not been assigned.

## Viewing Resource Usage in the Resource Pool

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Once assignments have been made using the shared resource pool, combined project assignments can be viewed using the Resource Usage View and the Team Planner View.

In the view below, the Project column has been inserted to clarify the project source for similarly named tasks. On the right side of the view the resource availability column has been added. The timeline has been set to a per week level.

To view the Resource Usage View:

1. Using your preferred method select **Resource Usage** view.

Project	Resource Name	Work	Details	September			
				8/11	8/18	8/25	9/1
Resource pool	Realtor	592 hrs	Work	80h	80h	80h	80h
			Rem. Avail.	0h	0h	0h	0h
Selling house B	Realtor Hired	40 hrs	Work				
			Rem. Avail.				
Selling house B	Hold Open House	16 hrs	Work	16h			
			Rem. Avail.				
Selling house B	House on the market	240 hrs	Work	24h	40h	40h	40h
			Rem. Avail.				
Selling house A	Realtor Hired	40 hrs	Work				
			Rem. Avail.				
Selling house A	Hold Open House	16 hrs	Work				
			Rem. Avail.				
Selling house A	House on the market	240 hrs	Work	40h	40h	40h	40h
			Rem. Avail.				

**Figure 5-5** Resource Usage View of a Shared Resource Pool.

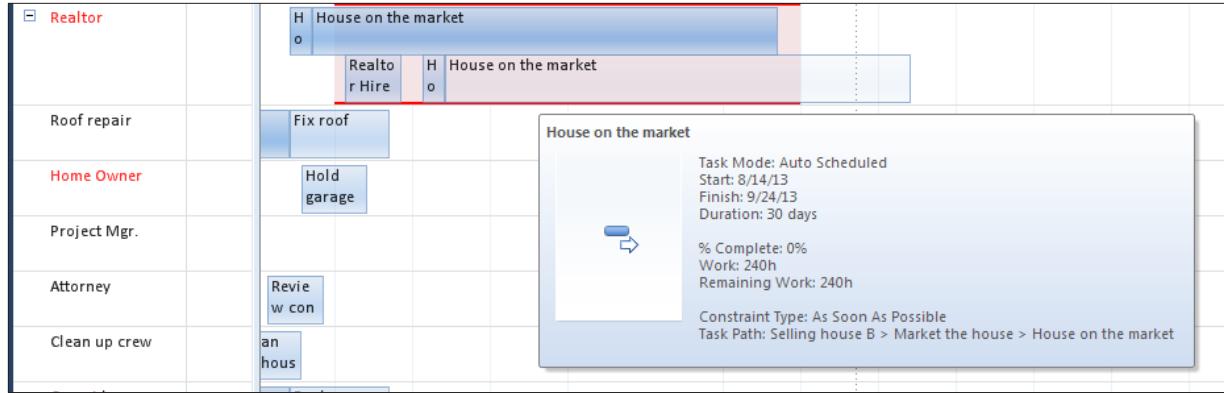
For Project Professional or Project Pro for Office 365 users the Team Planner View is a helpful source to see assignments from multiple projects on one screen. The Team Planner View is a resource based view and unfortunately the project column cannot be added. To view the source of the task for an assignment, hover your mouse pointer over the task and a pop up window will appear and provide more details including the name of the project.



This view could also be used to level resources across multiple projects.

To view Team Planner View:

1. Using your preferred method select **Team Planner** view.



**Figure 5-6** Team Planner View of a Shared Resource Pool.

## Leveling Resources across Projects

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Resource leveling can occur across open projects sharing the same resource pool. When leveling occurs, priorities at the project level may be set to give one project priority for resources over another project.

To level resources using the New Window feature:

1. Open all the projects to be combined.



Be sure to choose Open resource pool to see assignments across all shared projects when prompted.

2. Click the **View** tab.
3. Click **New Window** in the Window group.
4. Select the projects you want to combine.

5. Click **OK**.



Do not select the resource pool file since you do not want Project to treat this as a project.

6. Optional – Double-click the summary row for the project name and click the **General** tab to adjust the project's priority number.



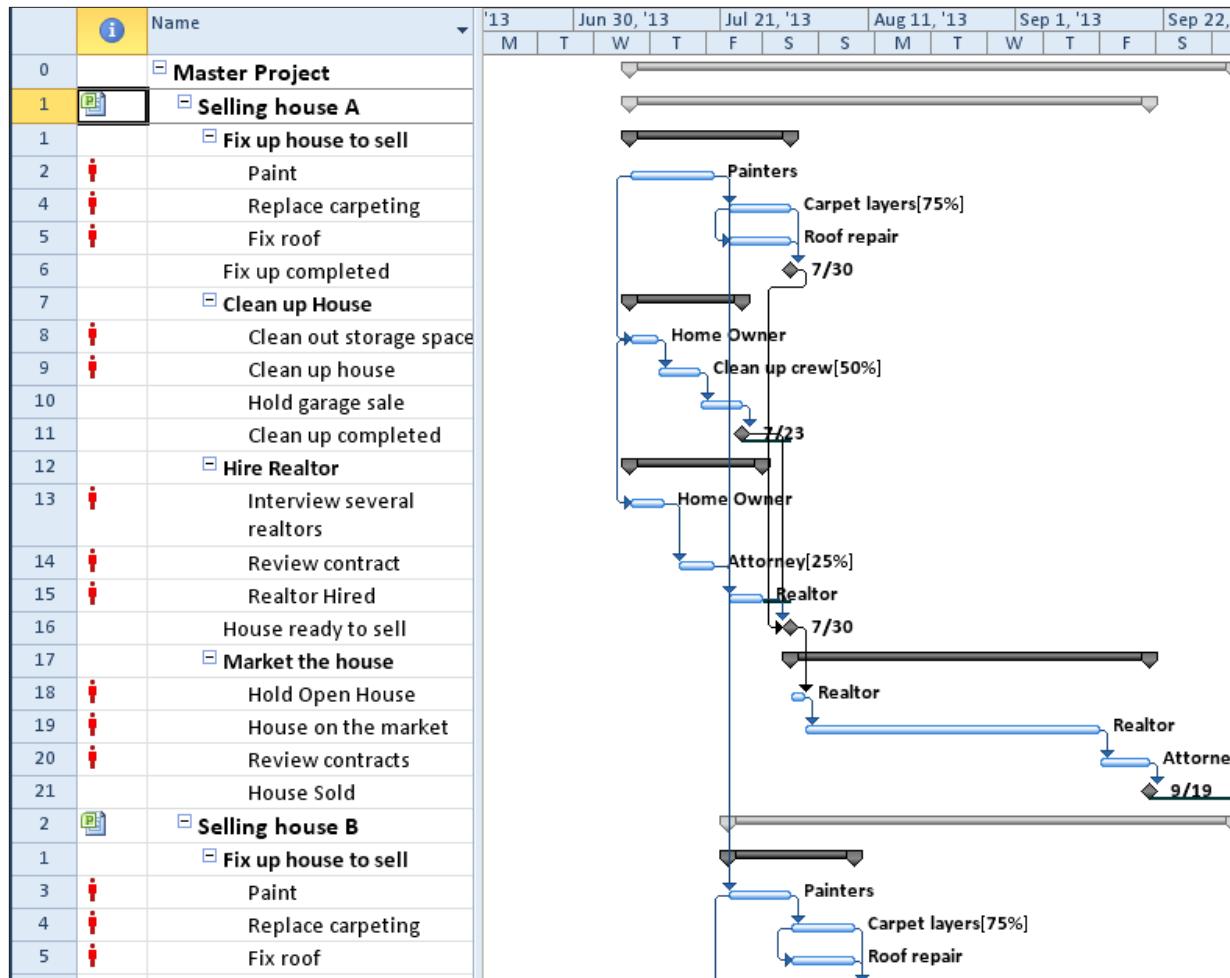
1000 is the highest priority, 500 is medium priority, and 0 is lowest priority in Project. A project with 1000 will not be delayed while a project with a 0 priority will be the first project delayed.

7. Optional – Click the **Resource** tab, click **Leveling Options**, click **Priority, Standard** in the **Leveling Order** drop-down list to direct Project to consider priority numbers first, click **OK**.
8. Click the **Resource** tab.
9. Click **Level All** in the Level group.
10. Optional – Using our preferred method navigate to **Leveling Gantt** view to evaluate the changes made.



You should ensure that the projects that you intend to have involved in leveling are open in read write mode.

Below is the Leveling Gantt view before leveling the work assignments. Note the red indicators in the Indicator column indicating overallocated tasks:



**Figure 5-7** Master Project with Resources Overallocated in a Shared Resource Pool.

The result of the resource leveling is shown below. The Leveling Gantt view will illustrate pre-leveled status and after leveled status. Resource overallocations that have been solved will no longer show a red overallocation indicator.

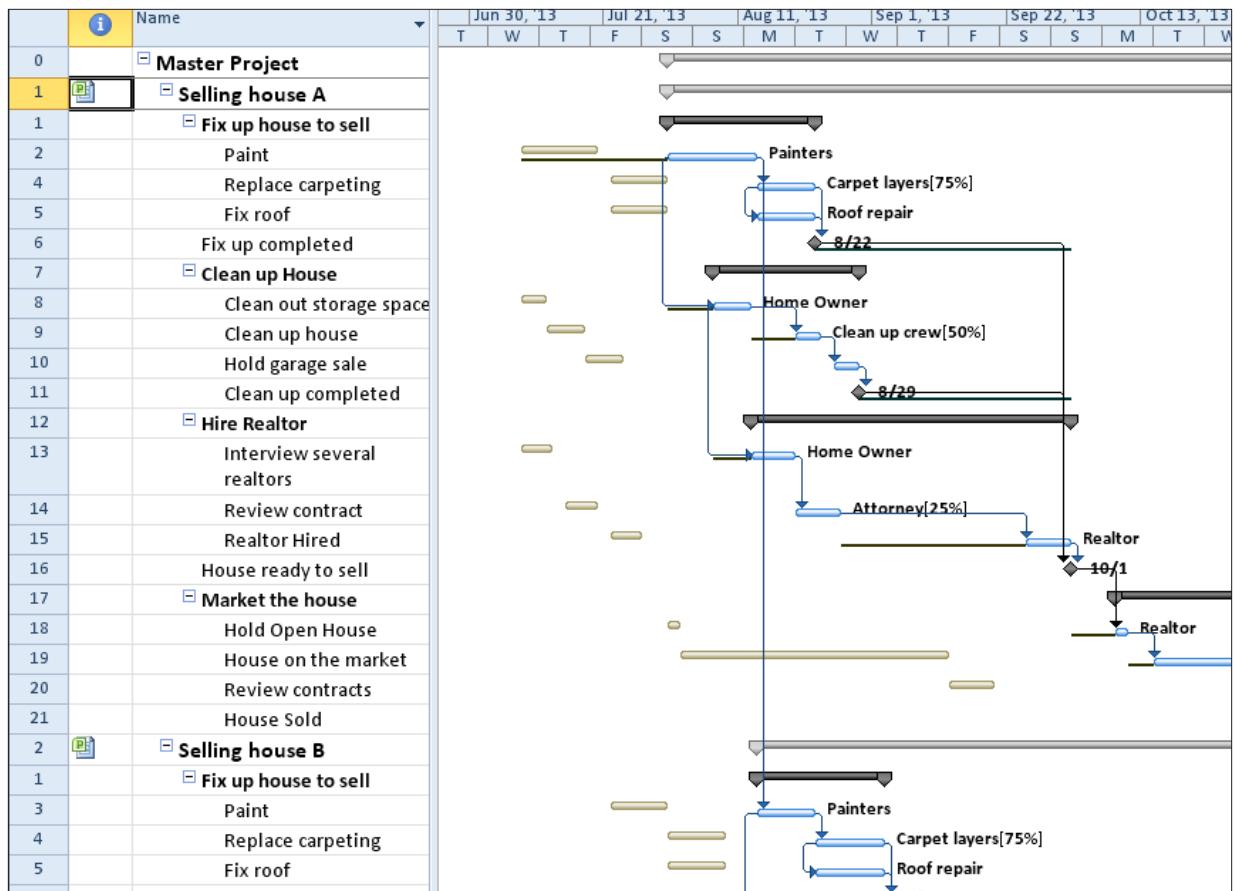


Figure 5-8 Master Project After Resource Leveling.





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## Chapter 6

# Customizing Project Features

## Overview

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The customizing features of Project 2010 will help to fine tune your version of Project to meet your needs. Perhaps you would like to add a button to a ribbon or create a custom field to hold data required for your project. You might need to know what is occurring next week or need specific formatting on a Gantt chart. These can all be created using the customization features of Project.

In this chapter, we will discuss:

1. Customizing the ribbon.
2. Exporting/Importing customized ribbons.
3. Customizing views.
4. Retaining customized objects using the Organizer.
5. Creating custom objects.

## Customize User Interface

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The ribbon interface and the Quick Access Toolbar are ways to navigate through Project features. Both can be customized to meet individual needs. Ribbon bars may also be imported/exported across project schedules and users.

In this chapter, we will discuss:

1. Customizing the Quick Access Toolbar.
2. Customizing ribbons.
3. Exporting/Importing ribbons.

## Customize Quick Access Toolbar

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The Quick Access Toolbar is a small collection of commands in the upper left corner of Project that provides quick and easy access to your frequently used commands. The default functions are: Save, Undo, and Redo buttons. Additional commands can be added using the drop-down arrow on the right side of the bar. Other options available are to move the bar under the ribbon or select icons from a list of popular suggested icons.

Below is a view of the Quick Access Toolbar.



**Figure 6-1** PLACEHOLDER

To add a command from the menu to the Quick Access Toolbar:

1. Click on the drop-down arrow on the right side of the Quick Access Toolbar.
2. Click the desired command.

3. Repeat as needed.

In the view below, the customization options have been displayed and “Open” has been selected to be added to the Quick Access Toolbar.

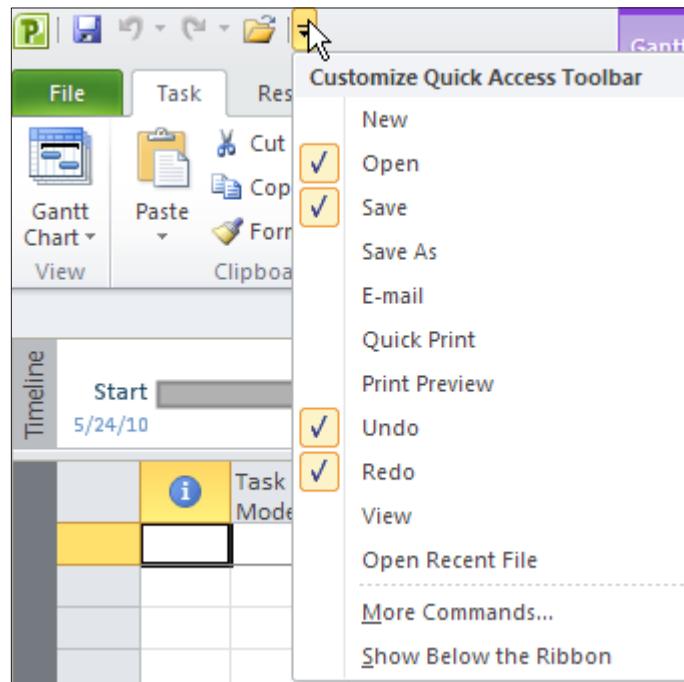


Figure 6-2 PLACEHOLDER

The view below shows the result of adding the Open icon the Quick Access Toolbar:

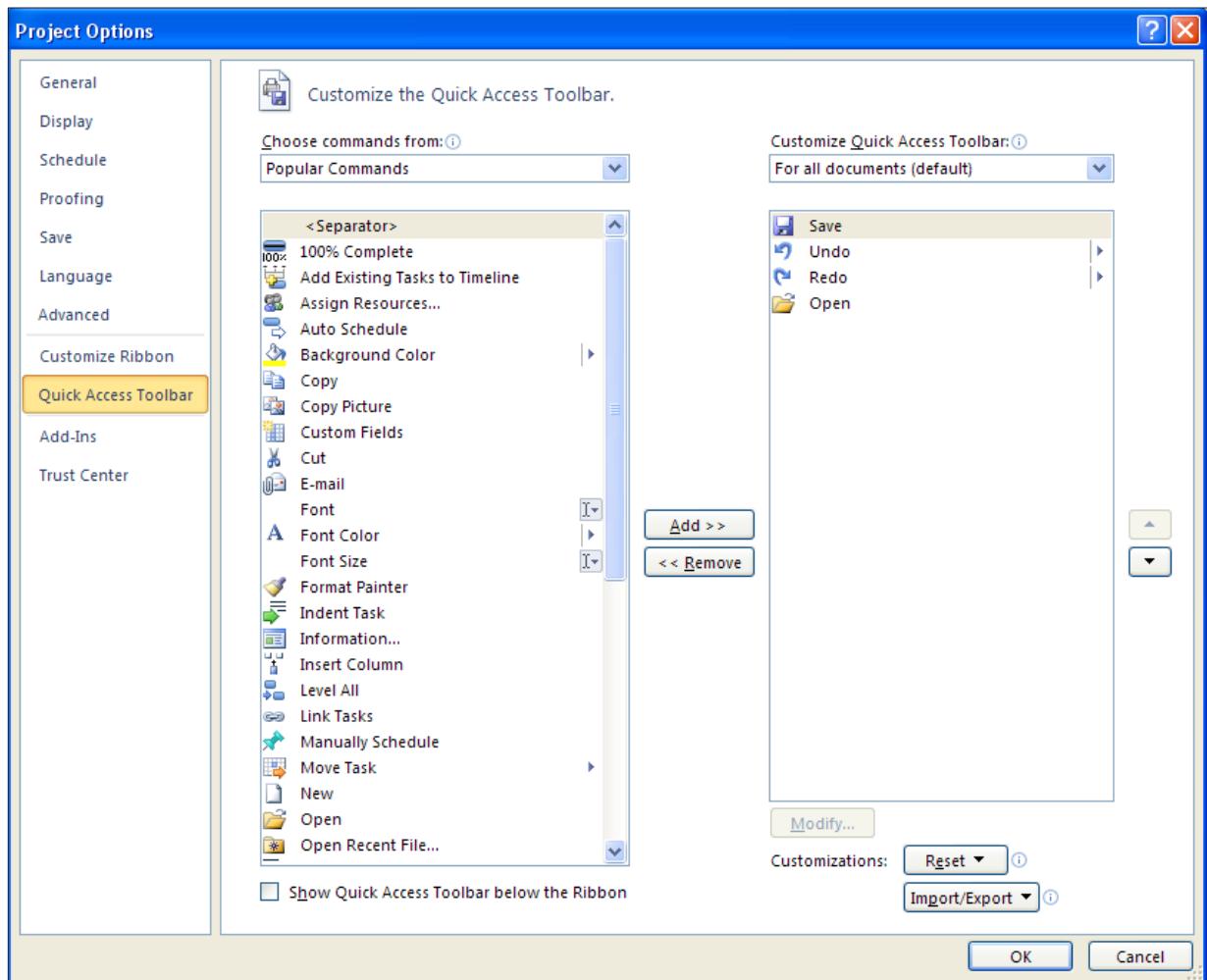


Figure 6-3 PLACEHOLDER

To add other commands not shown on the Quick Access Toolbar:

1. Click the drop-down arrow to the right of the Quick Access Toolbar.
2. Click **More Commands...**.

3. Optional – change the option in the **Choose commands from** drop-down list.
4. Click the desired feature on the left and click **Add**.
5. Repeat as needed until all features have been added.
6. Optional – click the desired feature on the right and click the **Move Up** or **Move Down** arrows to position the feature.
7. Repeat until all features are organized as desired.
8. Click **OK**.



**Figure 6-4** PLACEHOLDER



The Quick Access Toolbar default can be restored by clicking Reset and confirming you wish to do so.

More command choices are available in the drop down list in the **Choose commands from:** box and selecting from **Commands Not in the Ribbon** or **All Commands** options. Note the choices in the view below.



Figure 6-5 PLACEHOLDER

Some helpful icons to add to the Quick Access Toolbar include:

- New
- Open
- Print Preview or Quick Print

- Status date
- Scroll to task
- Task Entry View and other frequently used views
- Show Outline
- View, table, filter, grouping galleries

The drop down menus for view, group, filters, and tables can also be added to the Quick Access Toolbar in the upper left hand corner of the screen. The instructions below are the steps to add the Filter drop down menu to the Quick Access Toolbar. Adding other galleries will use similar steps. Many of the ribbon icons may be added to the Quick Access Toolbar using this method.

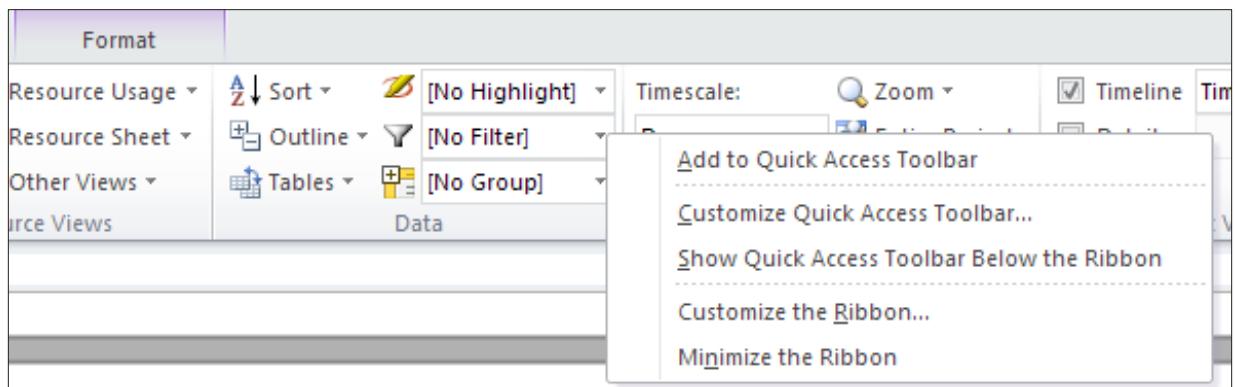
To add a drop down menu (gallery) to the Quick Access Toolbar:

1. Click the **View** tab.
2. Right-click on a desired drop-down menu that you want to add to the Quick Access Toolbar (e.g., Timescale).



Be sure to right-click on the title for the drop-down, not the drop-down itself.

3. Click **Add to Quick Access Toolbar**.



**Figure 6-6** PLACEHOLDER

The drop down menu for filters on the Quick Access Toolbar are shown

below:

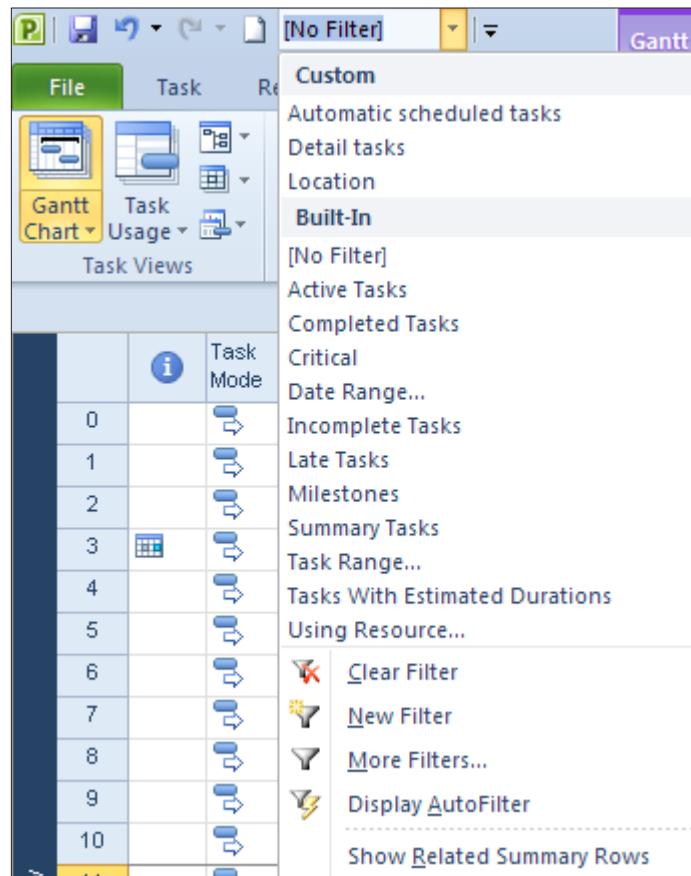


Figure 6-7 PLACEHOLDER



Individual items in a drop down menu cannot be added to the Quick Access Toolbar but the options at the bottom (Clear Filter, New filter, More Filters, Display Autofilter) are available. Right click on the selection and select Add to Quick Access Toolbar.



To remove buttons from the Quick Access Toolbar, right click on the button and select the remove option.

## Customizing the Ribbon

Each ribbon contains sections of related function icons. Icons from an existing section or group cannot be modified or deleted. When icons are added to the ribbon, a new section will be added to contain the additional icons. Additional tabs may also be created.



A new group or tab must be added to the ribbon before new commands can be added.

To create a new group within an existing ribbon:

1. Click the drop-down arrow to the right of the Quick Access Toolbar.
2. Click **More Commands**.
3. Click **Customize Ribbon**.
4. On the right, click the desired main group tab.
5. Click **New Group**.

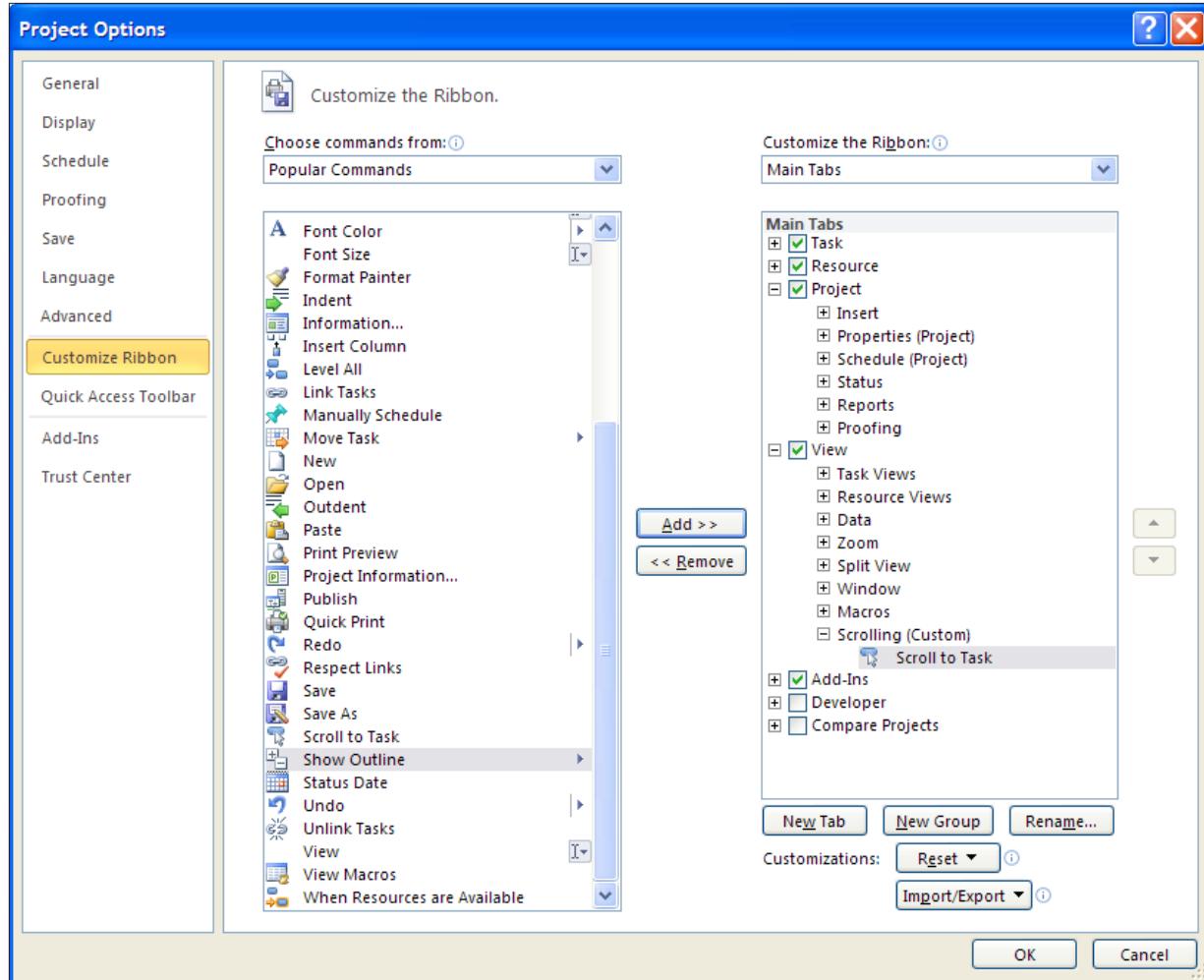


New Group (Custom) will be created and highlighted for you.

6. Click **Rename**.
7. Click the desired symbol, enter the desired name.
8. Click **OK**.
9. Optional – change the option in the **Choose commands from** drop-down list.
10. Click the desired feature on the left and click **Add**.
11. Repeat as needed until all features have been added.
12. Optional – click the desired feature on the right and click the **Move up** or **Move down** arrows to position the feature.
13. Repeat until all features are organized as desired within the new group.
14. Click **OK**.



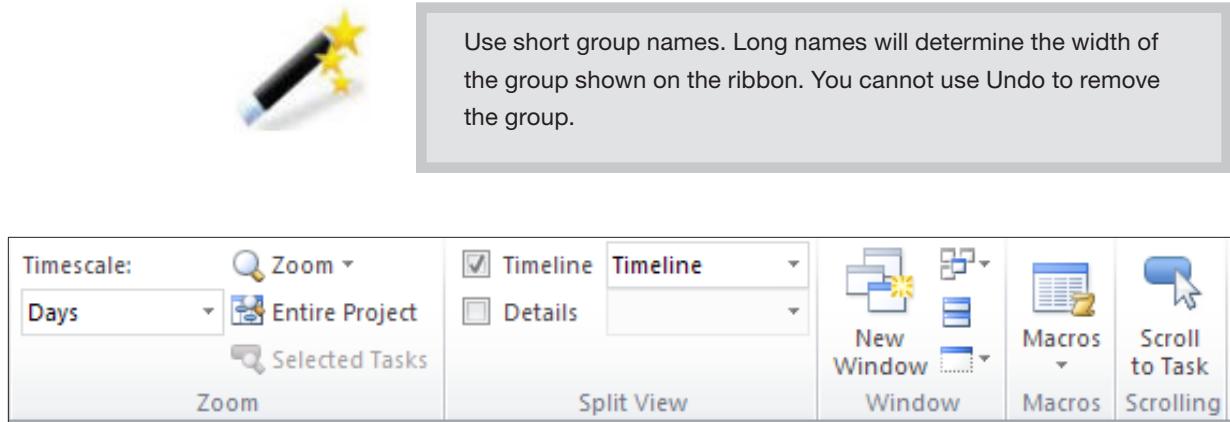
You would follow a similar process for creating a new tab. Simply replace the New Group step with New Tab.



**Figure 6-8** Customizing the Ribbon by Adding a New Group to an Existing Tab.

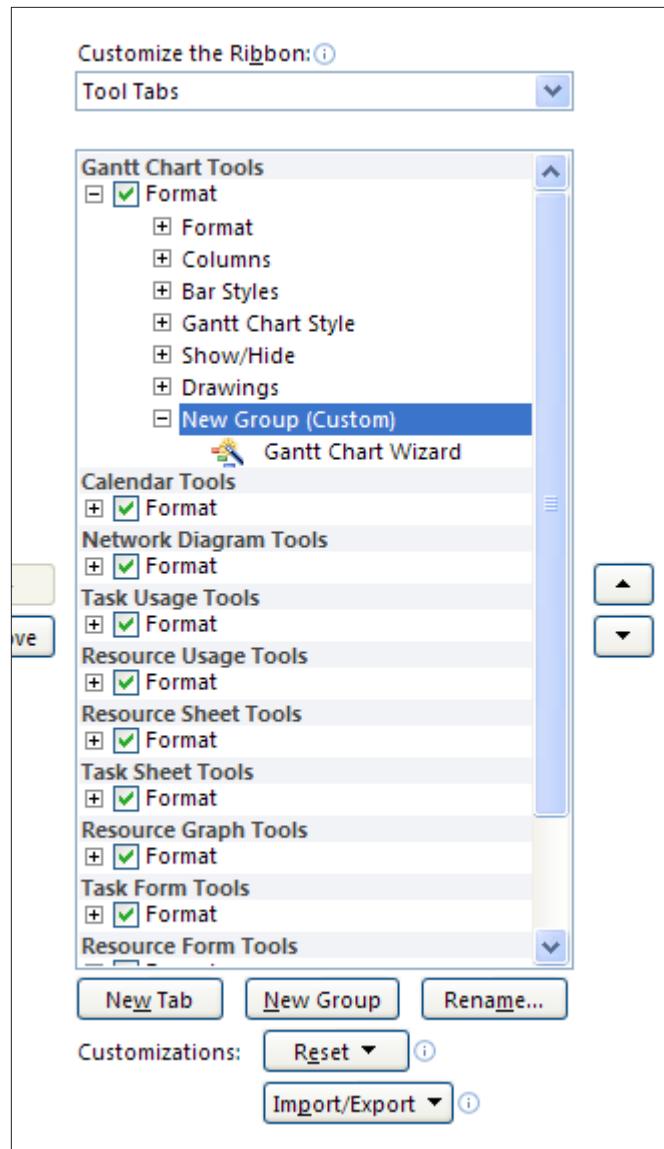
On the left of the box are Popular Commands and the existing ribbons are shown on the right. On the right side click a plus to expand and view the details of the bar. Each section can be expanded further to view the commands within. These sections or groups are standard and cannot be changed. An entire group of commands may be deleted (right click on the command title for option) from a ribbon but not an individual command.

The result of the group and icon addition is shown below. When the mouse pointer hovers over the icon button, help will be available the same way it is available for the other icons.



**Figure 6-9** Ribbon Tab Showing a Newly Added Customized Group.

The Format tab content will change based on the view which is displayed. This is often referred to as a context sensitive tab. These unique Format tabs may also be customized and are highlighted below. Click on the choices under “Customize the ribbon” on the right side and select “Tool Tabs” to display the format bars available for customization. In the view below, a new group has been added to the Format tab available when Gantt Chart view is displayed.



**Figure 6-10** Working with Context Sensitive Tabs Also Called Tool Tabs.

The result of adding this new group and icon to the context sensitive Format tab in Gantt Chart view is shown below:

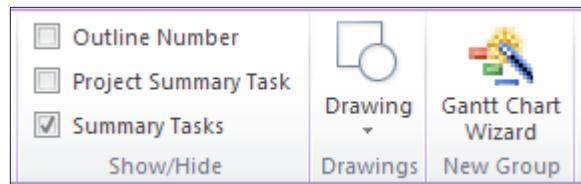


Figure 6-11 PLACEHOLDER



Ribbon bars can be restored to their default settings at any time using the Reset button. You can also choose to reset customizations on all ribbons or selected ribbons only.

## Exporting / Importing the Customization File

Customizations made to the ribbons and Quick Access Toolbar, remain with your installation of Project. The customization values will be able to be accessed by all projects on your computer. Sharing your customized configuration with others is easy and advantageous for organizations with a desire to standardize their settings. Backing up the customized configuration is also recommended to avoid loss of data. The configuration may be exported to a file which may be imported by other users or used if re-installation of your software is necessary.

When the customizations are exported, they are exported to a default file name **Project Customizations.exportedUI**. This file may be used to reload your settings in the future or other users may use this file to import settings for their copy of Project.

To export all customization of a file:

1. Click the drop-down arrow to the right of the Quick Access Toolbar.
2. Click **More Commands**.
3. Click the Drop-down arrow on **Import/Export** and click **Export all customizations**.

4. Choose the desired directory location for the file.
5. Click **Save**.
6. Click **OK**.

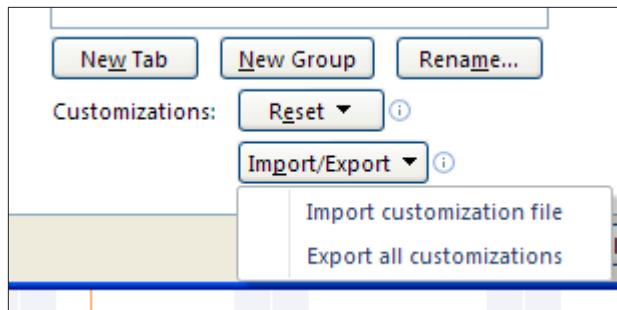


Figure 6-12 PLACEHOLDER

To import a customizations file:

1. Click the drop-down arrow to the right of the Quick Access Toolbar.
2. Click **More Commands**.
3. Click the drop-down arrow on **Import/Export** and click **Import customization file**.
4. Choose the desired directory location for the file.
5. Click **Open**.
6. Click **OK**.



Importing customizations will overwrite any changes to the Ribbon or Quick Access Toolbar for this copy of Project.

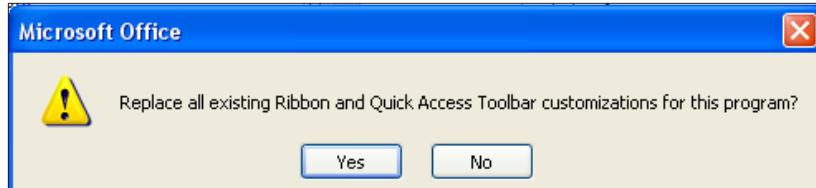


Figure 6-13 PLACEHOLDER

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## Customizing Formats and Views

---

All views in Project can be customized and formatted to help communicate your project schedules to stakeholders. A wide range of flexible features are available to assist the project manager in this effort. While formatting seems like a simple process, there are unique features available to reduce time needed to format the schedule. This section of the chapter will discuss those techniques.

In this section of the chapter we will examine:

1. Overview of custom formats and styles.
2. Customizing Gantt charts.
3. Customizing the Timeline view.

---

## Overview of Custom Formats and Styles

---

Almost every aspect of a view can be modified and changed. From the text font to the colors of the timeline grid, almost every element is format ready. Because of this extensive formatting capability, you will need to choose how much of a view should be formatted and when to individually make a format change versus when to globally make a format change.

View changes are maintained within that view. When switching from one view to another, formatting in previous views will not appear in the newly displayed view. This allows you the flexibility to format each view differently based on its intended audience.



If your organization does not have a formatting standard for Gantt Chart view, it is best to limit your format changes so they enhance the communication of your schedule versus over formatting which might create confusion.



One of the advantages of Project Server is the organization can globally control enterprise views but still allow personal custom views by each schedule owner.

## Copying a View

---

You may desire to keep the original look of a view provided by Project but create a copy of that view that you can customize. Since a view consists of numerous elements or objects, you will also need to decide if you will need to copy those objects as well.

For example - Gantt Chart view consists of the Entry table without any custom filters or groups applied. If you choose to make a copy of the Gantt Chart view, you will still be using the original Entry table. If part of your customizations include adding or hiding fields in the Entry table, you may want to create a copy of the Entry table and apply it to your newly copied Gantt Chart view.

To Create a Copy of the Entry Table:

1. Using your preferred method, display Gantt Chart view.
2. Click the **View** tab.
3. Click the drop-down arrow on **Tables** in the Data group.
4. Click **More Tables**.
5. Click **Entry** and click **Copy**.
6. Type the desired name for the table.
7. Click **Show in Menu**.
8. Make any field changes as needed.
9. Click **OK**.
10. Click **Cancel**.



Show in Menu will ensure your custom table is available in short-cut menus in Project.

To Create a Copy of Gantt Chart View and Apply a Newly Copied Table:

1. Click the **View** tab.
2. Click the drop-down arrow on **Other Views** in the Task Views group.
3. Click **More Views**.
4. Click **Gantt Chart** and click **Copy**.
5. Type the desired name for the view.
6. In the drop-down list for table, choose the newly created custom table.
7. Click **Show in Menu**.
8. Click **OK**.
9. Click **Apply**.



You are now ready to make formatting changes that will not alter the Gantt Chart view and Entry table that came with Project.



The following feature is on by default so custom created objects are available in other projects as well: **Automatically add new views, tables, filters, and groups to the global**.

## Customizing Gantt Chart View

Project has a wide variety of customizations that can be applied to its views. You should become familiar with these options and learn their most appropriate use. In this section of the chapter, you will learn about the most frequently customized views - Gantt Chart and Timeline and how to most efficiently format them.

Project formatting for text and bars may not be as you would expect. There are clearly features in Project that do not simulate how you apply that same feature to Excel. For example, in Excel you can make a change to a selected cell and then later on include that cell in a selected group and make further changes. In Project, once you can modify an individual cell or Gantt bar, you cannot change that item when you do a group change.



Changing the formatting of an individual cell or the formatting of an individual Gantt bar in Project is creating a permanent exception to that item. It will no longer change with global formatting changes.

To quickly format the Gantt bars, you can use one of the available pre-defined styles.

1. Using your preferred method select **Gantt Chart** view.
2. Click the **Format** tab.
3. Click the desired style from the Gantt Chart style gallery in the Gantt Chart Style group.



Ensure that the style you pick is acceptable for individuals who might have color blindness that will need to review your schedule.

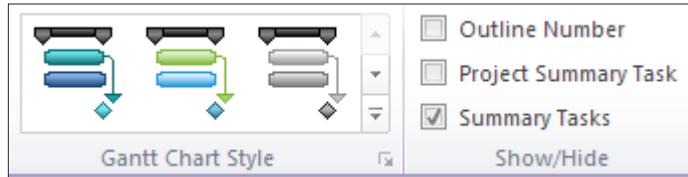


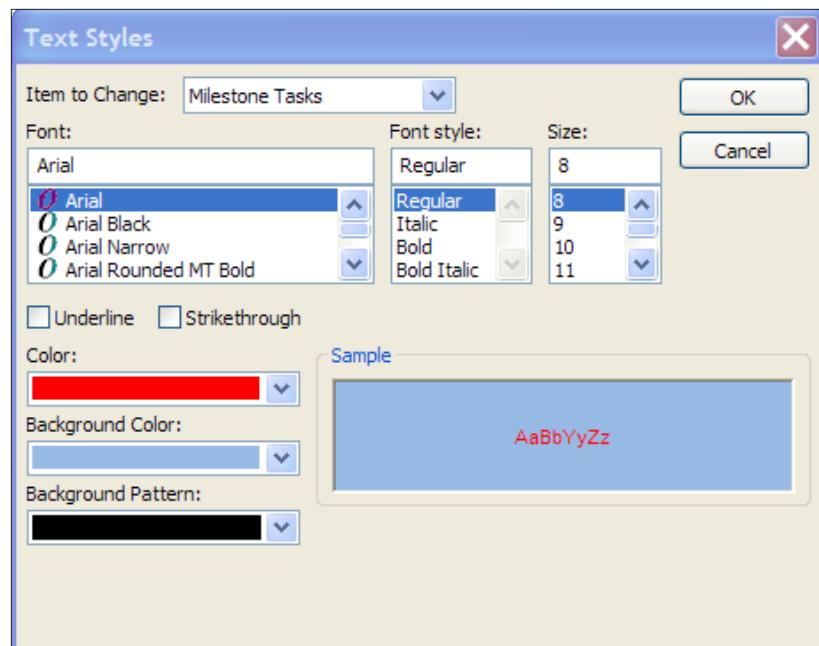
Figure 6-14 Keep this pic but update it with 2013

## Text styles

The main advantage of text styles is you can globally apply a change to a particular type of text throughout a view. For example, you can switch all Summary tasks to a larger font and all milestone tasks to bold and red. With just a few clicks you can alter your formatting setting and it will be reapplied to all those text items. This is much quicker than individually selecting each text item.

To apply formatting based on a type of text item:

1. Using your preferred method select **Gantt Chart** view.
2. Click the **Format** tab.
3. Click **Text Styles** in the Format group.
4. Click the drop-down arrow on **Item to Change** and choose the desired text type.
5. Make any formatting changes as desired.
6. Click **OK**.



**Figure 6-15** Changing the Test Styles for all Milestone Tasks.

## Bar Styles

Bar Styles provide a similar option to text styles because you can globally change the look of bars including colors, patterns, and text displayed to the right or left of a bar.

To apply formatting based on a type of Gantt bar:

1. Using your preferred method select **Gantt Chart** view.
2. Click the **Format** tab.
3. Click the drop-down arrow on **Format** in the Bar Styles group.
4. Click **Bar Styles**.
5. Select the desired bar item to change in the upper portion of the dialog box.
6. Make any formatting or text changes as desired.
7. Click **OK**.

## Gridlines

Behind every view is a grid that runs both vertically and horizontally.

Depending on the view, you may have options to change the display of those gridlines including the ability to show or hide them and change the color or pattern of them.

To modify gridlines:

1. Click the **Format** tab.
2. Click **Gridlines** in the Format group.
3. Make any desired changes.
4. Click **OK**.

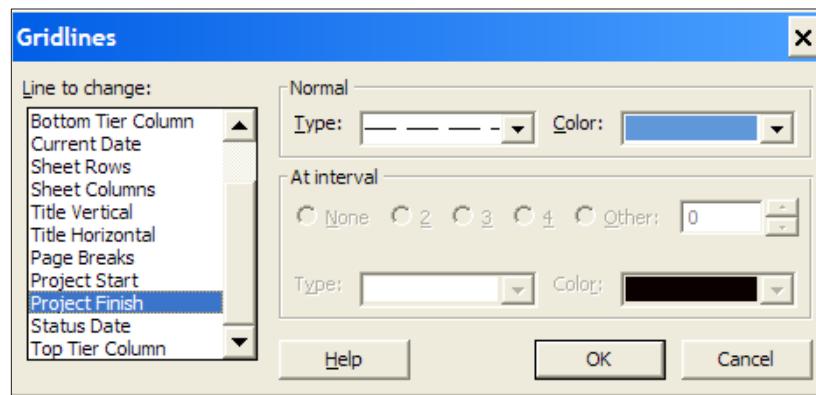


Figure 6-16 PLACEHOLDER

Suggested uses for gridline formats are:

- Status Date
- Current date
- Project Start date
- Project Finish date

## Layout

Layout is very helpful in customizing several features shown in Gantt chart views.

1. Click the **Format** tab.
2. Click **Layout**.
3. Make any desired changes.
4. Click **OK**.

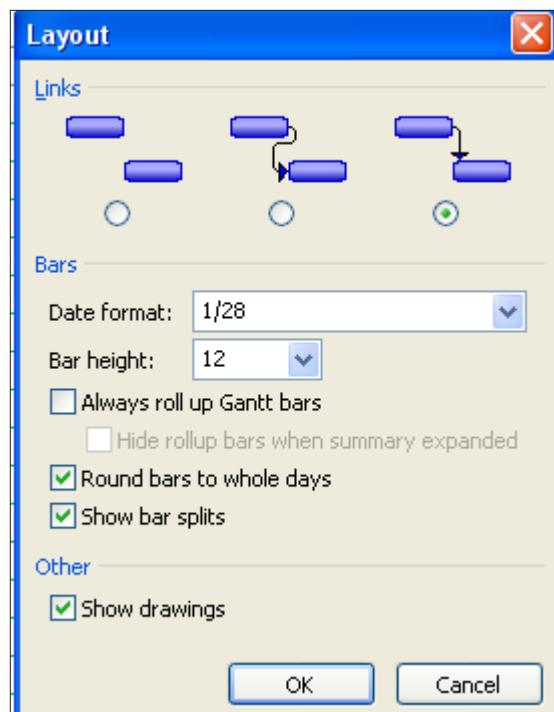
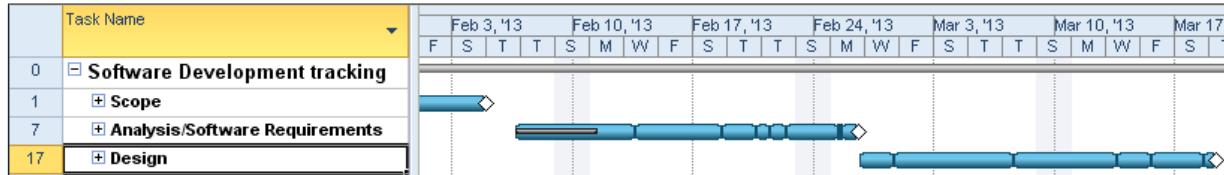


Figure 6-17    PLACEHOLDER

- **Links** - used to change the look of the link lines or turn them off.
- **Date format** - used to change the date format on the Gantt chart and will not affect the date shown in the tables.
- **Bar Height** - used to adjust the Gantt bars.
- **Always roll up Gantt bars** – used to roll up the Gantt bars when the outline level is collapsed, roll up the Gantt bars (example of rolled up bars is shown below).
- **Round bars to whole days** – used to make very short tasks more visible.
- **Show bar splits** - used when you have split tasks. Split tasks will also appear during tracking.
- **Show drawings** – drawing tools are located on the Format tab. Text boxes and arrows may be drawn on Gantt charts. Use this option to hide the drawings when needed.



**Figure 6-18** PLACEHOLDER



Using the Gantt Chart Wizard, you can reset the Gantt chart formatting to its default settings. Gantt Chart Wizard must be added to a ribbon before you can use it. The Gantt Chart Wizard contains several additional formatting styles.

## Customizing Timeline Views

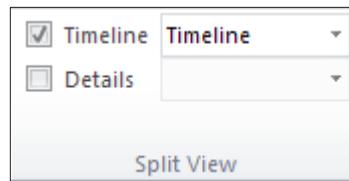
The purpose of the Timeline view is to display project tasks using a timeline format and export the view to other applications such as Word, Excel, Outlook and Powerpoint.

Gantt Chart with Timeline is the default view in Project 2010. This view is a split screen with the Timeline view on the top and the Gantt Chart View on

the bottom.

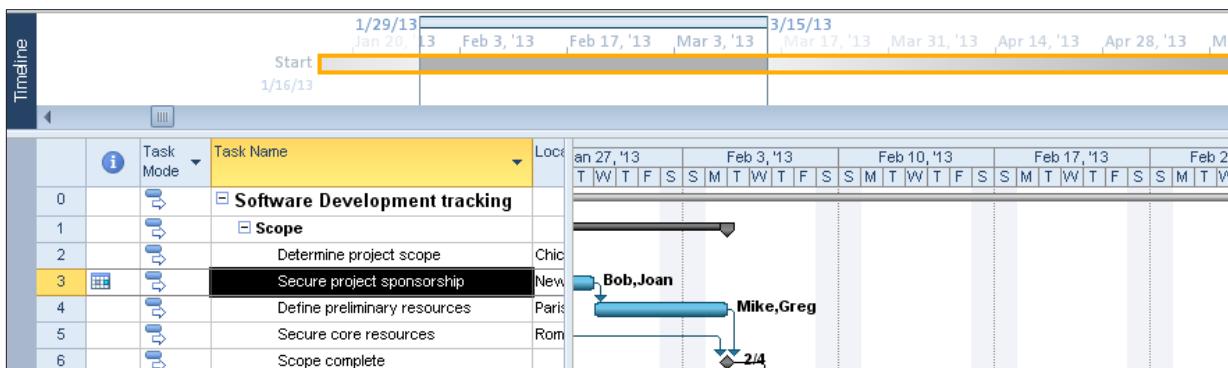
To turn Timeline view off/on:

1. Click the **View** tab.
2. Select or deselect the checkbox for **Timeline** in the Split View group.



**Figure 6-19** PLACEHOLDER

Below is a view of the default Timeline view. The Timeline view is showing the information for the project summary task. The length of the timeline represents the duration of the project. There is a timeframe window open in the middle to highlight a specific timeframe:

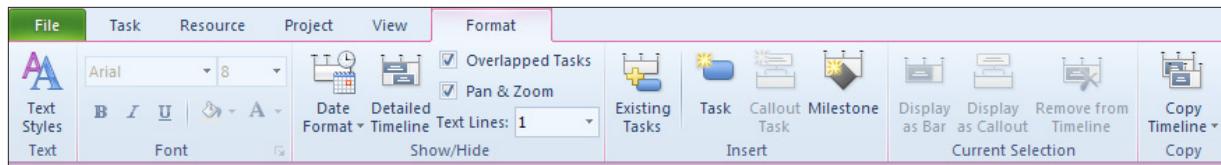


**Figure 6-20** PLACEHOLDER

To format or add more data to the Timeline view:

- Click inside the Timeline view window
- Click on the Format tab

Below is a view of the Timeline format bar. Use the buttons on this bar to add additional tasks and format the Timeline view.

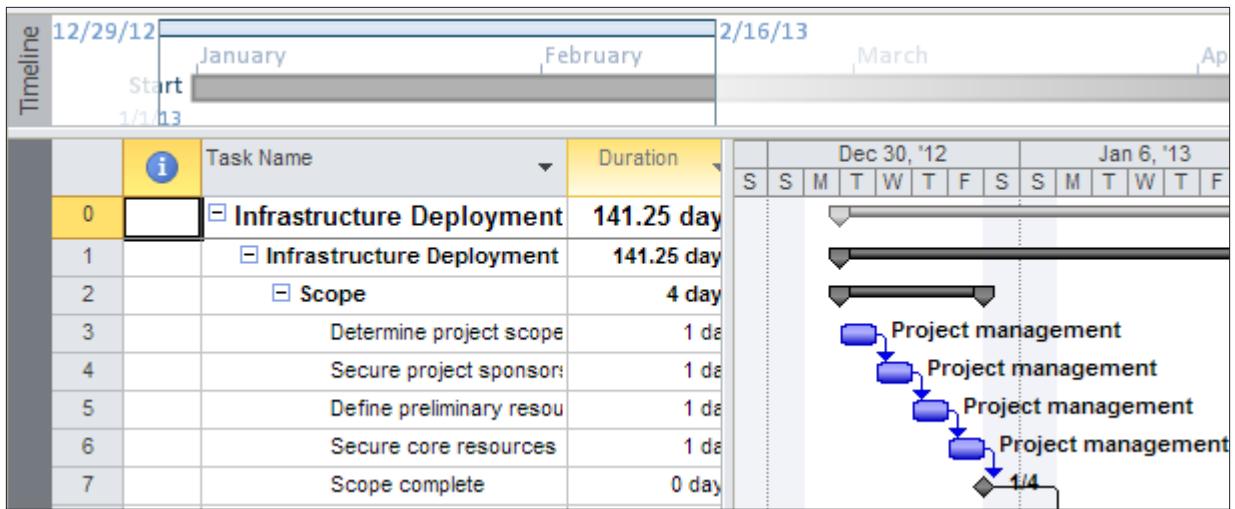


**Figure 6-21 PLACEHOLDER**

Within the Timeline view there is a timeframe window highlighted in the diagram below.

- The Timeframe window may be dragged left and right to emphasize different timeframes of the project schedule. The Gantt bars will adjust as the timeframe window is moved.
- Change the timeframe window by clicking in the timeline view and clicking the zoom slider in the lower right corner of the screen.
- The time density of the Timeline view does not have to match the time density of the Gantt Chart View.
- To turn on and off the Timeframe window, click the Pan & Zoom button on the Format bar.
- Use the Date format button on the Format bar to format the dates in the Timeline view.
- Use the Detailed Timeline button to show task names and dates in the view.

The view below shows the standard Timeline view with the Gantt chart view below. The Timeframe window is highlighted:



**Figure 6-22** PLACEHOLDER

Adding additional tasks to the Timeline view will help build a better picture of your project. Tasks can be individually included to the Timeline view via the Task Information dialog box under the General tab. Double click a task to display the Task Information dialog box.

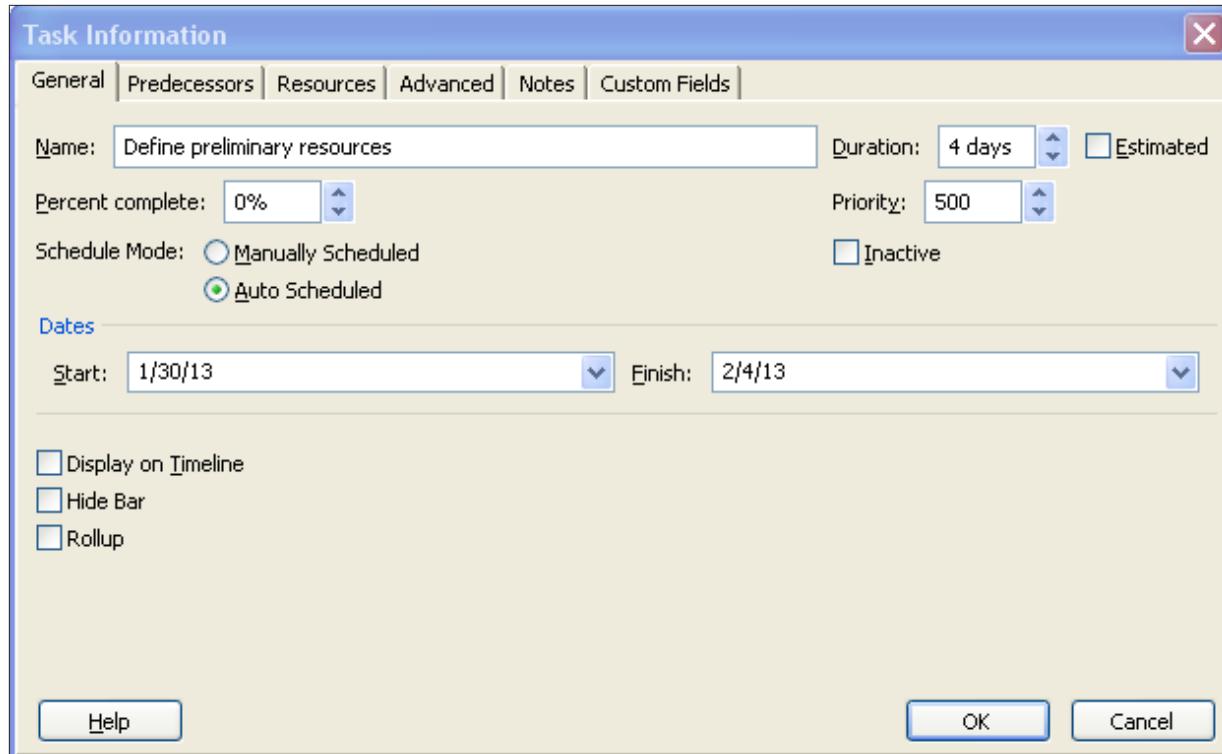


Figure 6-23 PLACEHOLDER

The timeline format bar has several command buttons that will help flag tasks for inclusion into the Timeline view. Clicking the Existing Tasks button will display a list of all tasks for a project where you can scroll through and select the tasks you want displayed in the Timeline view.

To add tasks to the timeline view using the Existing Tasks button:

- Click **Existing Tasks**
- Using the check boxes, select the tasks to add
- Click **OK** to close.

See below for an example of the Existing Tasks choice list. It is easy to tell the difference between summary and detail tasks:

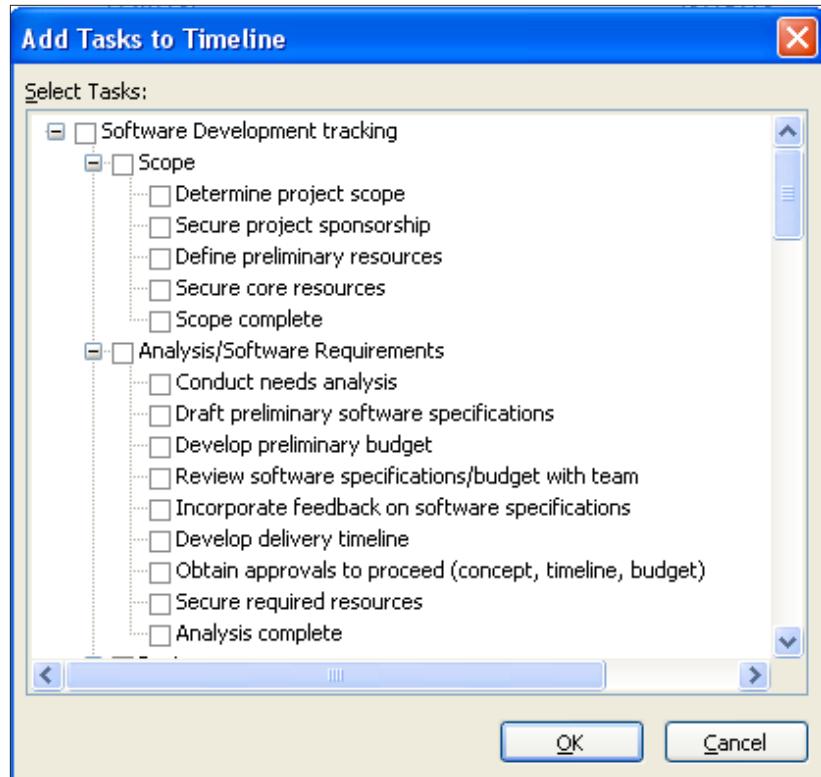


Figure 6-24     PLACEHOLDER

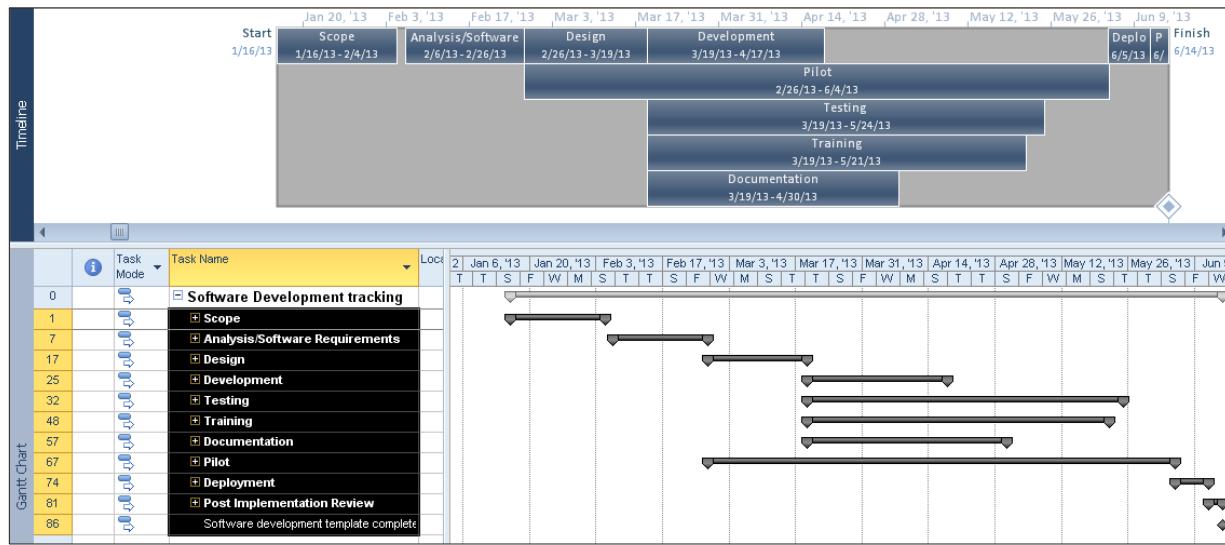
The timeline view should be planned carefully to create a meaningful report. Too much information can confuse the reader. Consider creating a high level tasks report that shows sections of work planned to be completed within timeframes. Below is a view where outline Level 1 tasks have been added to the Timeline view.

To add Outline Level 1 tasks (Summaries) to the Timeline view:

1. Using your preferred method select **Gantt Chart** view.
2. Click the **View** tab.
3. Click the drop-down arrow on **Outline** in the Data group.
4. Click **Outline Level 1**.
5. Select the displayed tasks.
6. Right-click on the select and click **Add to Timeline**.

The Timeline view below, displays Outline Level 1 Summary tasks only and

the Gantt chart displays the same Outline Level 1 Summary tasks.



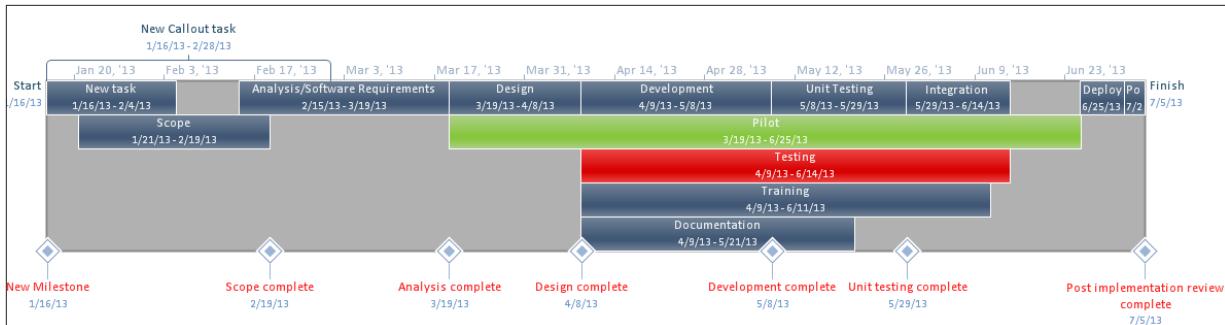
**Figure 6-25** PLACEHOLDER

Milestone can also be added to the Timeline view.

To add a milestone to the Timeline view:

1. Using your preferred method select **Gantt Chart** view.
2. Click the **View** tab.
3. Click the drop-down arrow on **Filter** in the Data group.
4. Click **Milestones**.
5. Select the displayed tasks.
6. Right-click on the select and click **Add to Timeline**.

The diagram below displays Outline Level 1 tasks with milestones added:

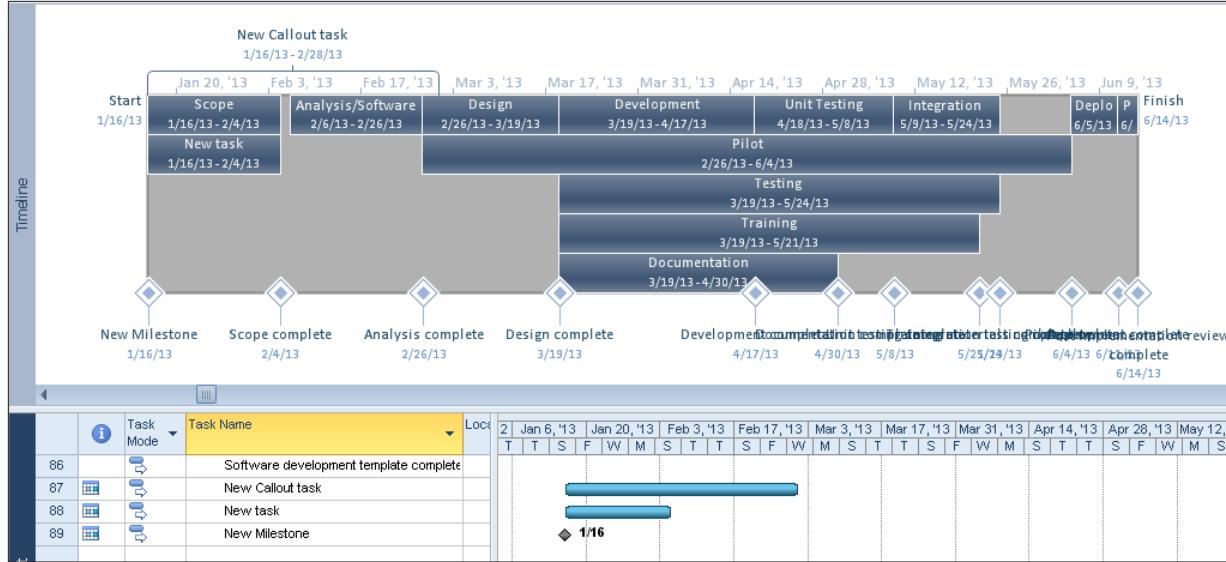


**Figure 6-26** PLACEHOLDER

Tasks may be added to the project using the Timeline view format bar. When adding tasks using these buttons, the tasks will be added to the end of the project schedule and will start on the first day of the project or the current date depending on the scheduling option. The choices are:

- Adding a new task to the timeline
- Adding a new callout task to the timeline
- Adding a new milestone to the timeline

Below is a view showing a new task, a new callout task and a new milestone added to the timeline and the project schedule. The lower half of the view shows the tasks added to the Gantt Chart view. Callout tasks are originally placed above the timeline spanning the timeframe of the task. After they are created, they may be dragged to alternate locations within the Timeline View.



**Figure 6-27** PLACEHOLDER

To display an existing task as a callout task:

- Click on a task in the Timeline view
- Click **Display as a Callout**

To display a Callout task as a bar:

- Click on the Callout task
- Click **Display as Bar**

To remove tasks from the Timeline view using the Timeline format bar:

- Click the task in the Timeline view
- Click **Remove from Timeline**

Tasks may be formatted and highlighted as necessary. Text styles and format buttons are available on the Timeline format bar. Tasks may change the colors of the timeline bars is helpful when highlighting information.

To export a Timeline view to Outlook, Excel, Word, or Powerpoint to the

clipboard:

1. Click in the **Timeline** view
2. Click **Copy timeline**
3. Select copy choice:
  - a. For email
  - b. For presentation
  - c. Full size
4. Navigate to destination
5. Click **Copy**

**Best Practice:** Too much information results in a hard to read Timeline view. Select what is important and what will convey your message. The view will become more meaningful and will result in a useful reporting tool.

## Working with the Organizer

---

Fields, tables and views are in Project 2010 are called objects. Creating objects is easy and can be very powerful. Creating objects is a way of getting the information you need from your unique project schedules. Objects may be created for one specific project schedule or may be saved for reuse in other projects. To retain objects they must be copied into the Global.mpt using a tool called the Organizer.

In this lesson, we will talk about:

1. What is an object.
2. What types of objects are available.
3. Define settings for using the Organizer.
4. Sharing objects between projects.

## What is an Object & What Objects are Available

---

A project schedule might have tasks occurring in different locations. Reporting tasks by location would help to communicate information regarding the project more accurately. To allow for this type of reporting a task field could be created to contain the location information. The created field is called an Object.

An object is an element of Project 2010 which can be standard to Project 2010 or is custom created for use in a project schedule. Standard objects which are contained in Project 2010 may be altered as needed and saved. Once an object is created or a standard object changed, objects may be available for use in one unique project schedule or can be shared for use in other projects. Objects may be copied between project schedules to enable sharing among projects and other Project 2010 users. All objects

are stored in the Global.mpt file that was created when Project 2010 was installed.

Available Objects:

**Table 6.1** PLACEHOLDER

Object	Available for
<b>Filters</b>	Resource and Task
<b>Groups</b>	Resource and Task
<b>Import/Export Maps</b>	Both
<b>Tables</b>	Resource and Task
<b>Reports</b>	Both
<b>Views</b>	Resource and Task
<b>Calendars</b>	Project level
<b>Modules (Macros)</b>	Both
<b>Fields</b>	Resource and Task

Best uses for objects:

- Calendar – create it once and apply to future projects.
- Establishing a standard process for project schedules.
- Project managers can use the same value fields to collect common data.
- Projects may be combined and data reported across multiple projects.
- Creating unique values that apply to an individual project.
- Creating standardized reports for use with all projects.



A custom view may be a combination of a customized table, filter and group. Reports may contain tables and filters. Tables may contain fields. All pieces of the custom object must be copied individually using the Organizer into the Global.MPT. Project 2010 is not aware of dependent objects. All children objects must be copied for the parents to function.

## Define Settings in Organizer

When objects are created using Project 2010, they will be placed either in the global value for the project file in which they were created or in the Global.mpt file. A new display option in Project 2010 allows objects to be automatically added to the local Global.mpt. Some objects such as import/export maps and macros (modules) will automatically be placed in the Global.mpt.

To display the Display options:

- File → Options → Advanced

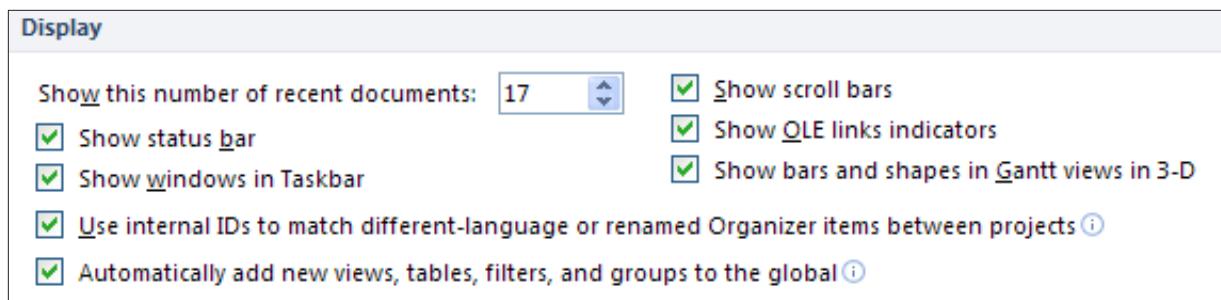


Figure 6-28 PLACEHOLDER

## Using the Organizer to Share Objects

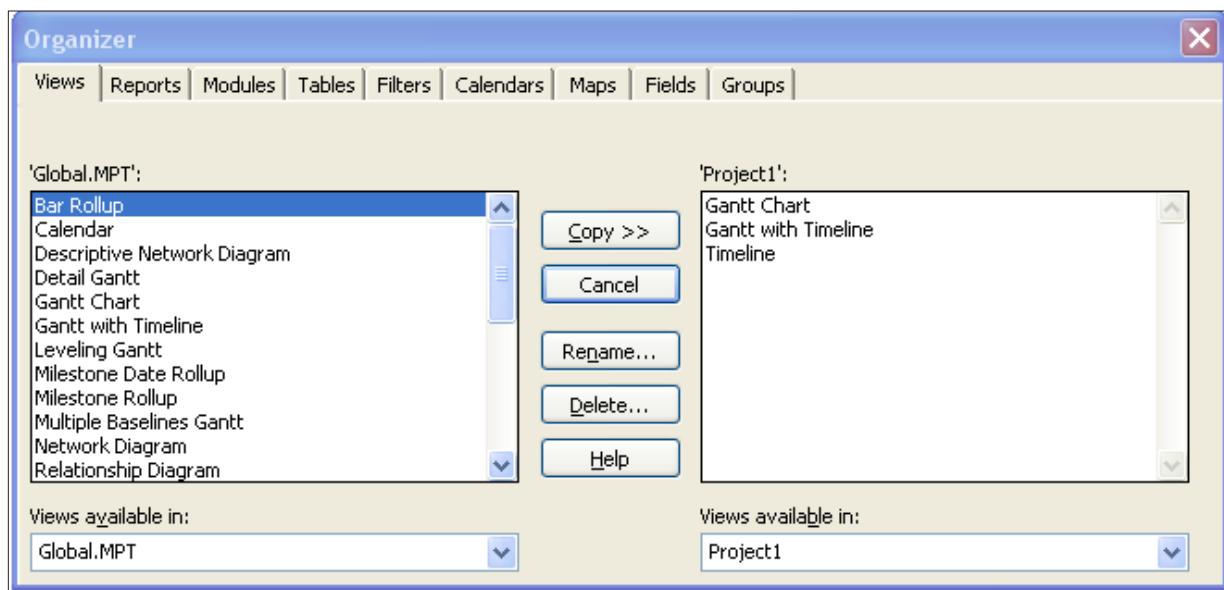
Across the top of the Organizer dialog box are multiple tabs for the different types of objects used by Project 2010. The box to the left displays all Global.MPT values and the box to the right displays values specific to the open project file. Use the organizer to copy objects between projects or into the local Global.MPT file.

To display the Organizer:

- File → Info → Organizer

To copy an object from a particular project schedule to the Global.MPT:

- Click on the object in the pane to the right
- Click **Copy** to copy the object to the Global.MPT on the left



**Figure 6-29** PLACEHOLDER

The two “Views available in” boxes at the bottom of the Organizer box will

allow for selecting objects from alternate open project schedules.



The Organizer is also used to rename and delete objects from Project 2010.

## Creating Custom Objects

---

Objects offer the Project Manager significant flexibility for creating customized and meaningful project reports. Each project is different and objects may be created for one unique project or copied using the Organizer for use in existing and future projects.

In this Lesson, we will discuss:

1. Creating custom fields.
2. Creating custom filters.
3. Creating custom groups.
4. Creating custom tables.
5. Creating custom views.

## Creating a Custom Field

---

Project 2010 provides over 100 fields in the Task and Resource data sections that are available for use by the project scheduler. Customized or free-use fields are available in different data types. When creating a customized field, the type of data stored in the field and how the field will be used will determine the data type selected.

Below is a list of the customizable fields available in Project 2010. The same set of fields is available in both the Task and Resource data sections:

**Table 6.2 PLACEHOLDER**

Field name	Field type	Number of available fields
<b>Text1- Text 30</b>	Text	30
<b>Duration1 – Duration10</b>	Time	10
<b>Number1 – Number 10</b>	Numeric	10
<b>Date1- Date10</b>	Date	10
<b>Finish1 – Finish10</b>	Date	10
<b>Start1 – Start10</b>	Date	10
<b>Flag1 – Flag10</b>	Yes/No	10
<b>Cost1 – Cost 10</b>	Monetary value	10
<b>Outline1 – Outline10</b>	Hierarchical structure - Text	10

Custom fields are very flexible and can contain one or more of the following traits:

- Lookup table
- Formula
- Graphical indicators
- Data

To create a custom field, follow the steps below. In this example, a custom field called Location will be created with a lookup table.

To display the Custom Fields dialog box:

- Project → Custom Fields
  - OR -
  - Right click any field name and select **Custom Fields**
- The following Custom Fields dialog box will appear:
- Type: Select **Text**
  - Select one of the unused fields available



A field that has been used will display the name the field was changed to.

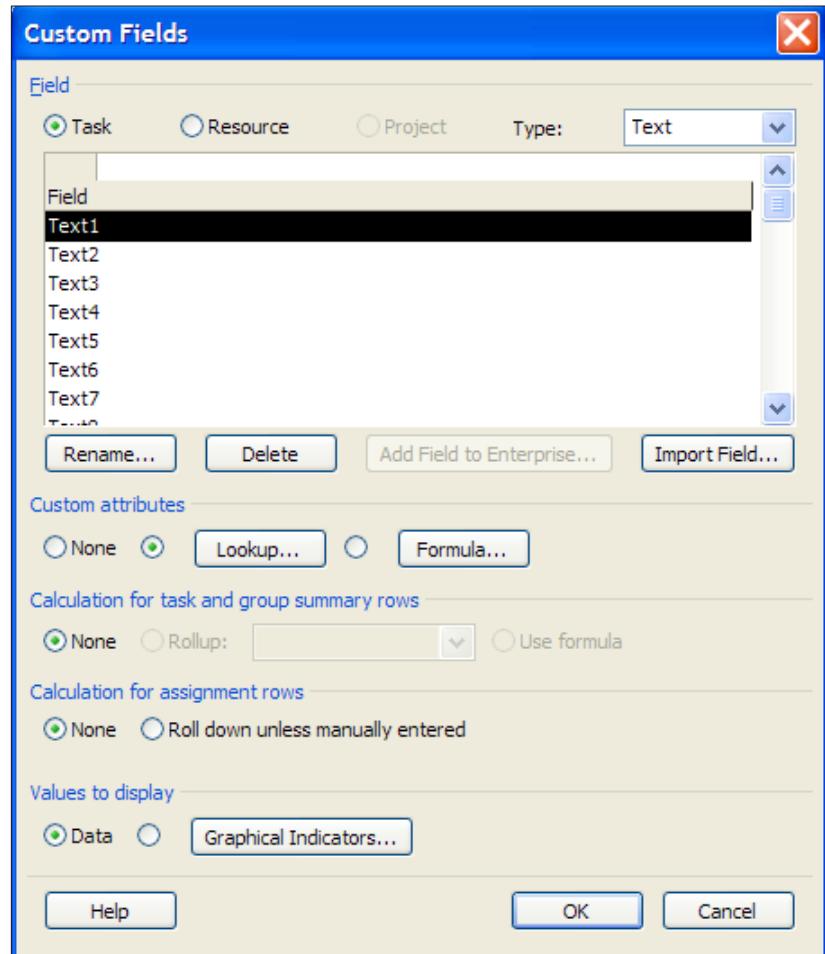


Figure 6-30 PLACEHOLDER

- Click **Rename**
- Type **Location**  
NOTE: Field names must be unique
- Click **OK** to close



Figure 6-31 PLACEHOLDER

When a field is renamed, the old name will be shown following the new name in parenthesis. When using the field either name may be used to refer to the field.

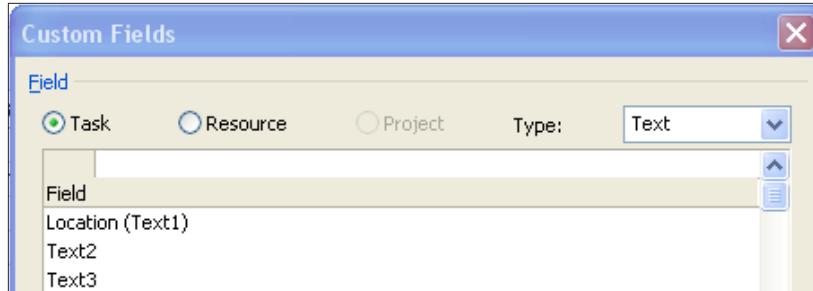


Figure 6-32 PLACEHOLDER

The next steps will create the Lookup table used to standardize the data entered into the Location field. Several values have been added in the view below:

- Click **Lookup** (box below will appear)
- In the value column on the left, enter the Lookup table values – repeat to complete the list
- In the description on the right enter a description for the Lookup table value (optional)
- Check box to set one of the values as a default value (optional)
- Click radio button to sort the list (optional)

- Check box to allow user to add values to the list (optional)
  - Click **Close** to close
  - Click **OK** to close the Custom Fields box



Lookup tables may be imported from other projects or imported between task fields and resource fields.

**Figure 6-33** PLACEHOLDER

To use the newly customized field above, insert the field into a Task table.

A pull down list is now available to access the Location lookup table of values. The result is shown in the view below:

Task Name	Location	Duration
Software Development tracking		108 days
Scope		14 days
Determine project scope	Chicago	2.5 days
Secure project sponsorship	New York City	5.5 days
Define preliminary resources	Paris	4 days
Secure core resources	Rome	5 days
Scope complete		0 days
Analysis/Software Requirements		14 days
Conduct needs analysis	London	5 days
Draft preliminary software specificati	London	3 days
Develop preliminary budget		2 days
Review software specifications/budg		4 hrs
Incorporate feedback on software sp		1 day
Develop delivery timeline		1 day
Obtain approvals to proceed (concep		4 hrs
Secure required resources		1 day

Figure 6-34 PLACEHOLDER

To save the newly created field for use in existing and future projects:

- File → Info → Organizer
- Fields tab
- Click on the Location field in the right pane
- Click **Copy** in the middle to copy the object into the Global.mpt in the left pane

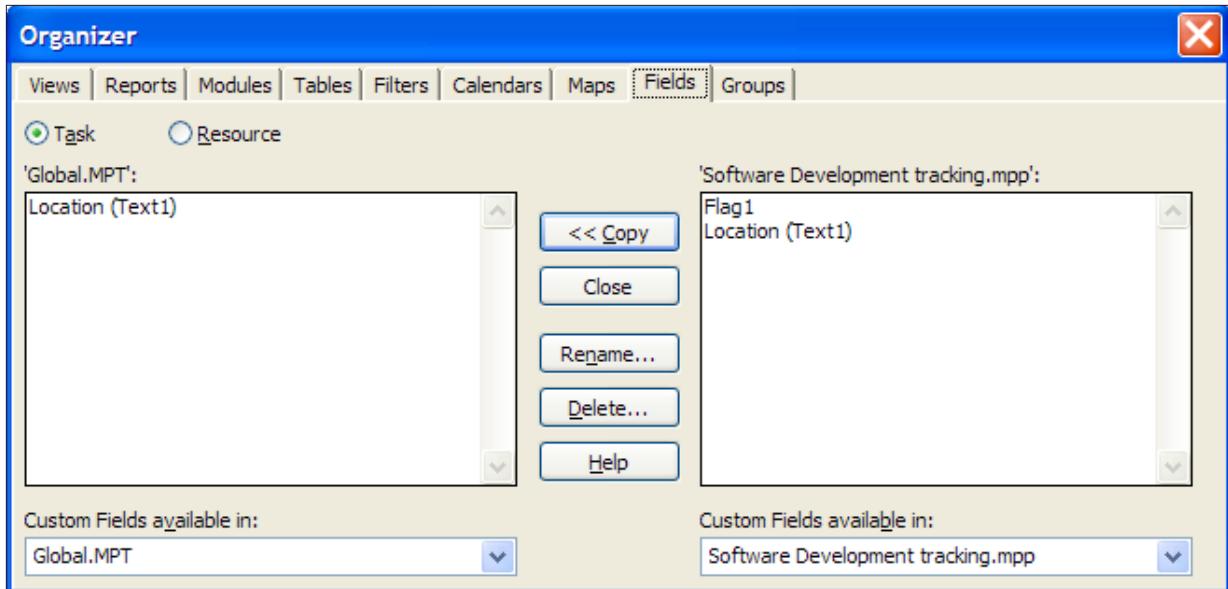


Figure 6-35 PLACEHOLDER



The Task Information box and the Resource Information box contain tabs called “Custom Fields”. Accessing the custom fields through the information boxes will display all custom fields available in either of the data sections and offer an easy access point.



Not all custom field capabilities could be addressed in the framework of this course. Formulas are very helpful for calculating values between fields. Graphic indicators may be used to create stop light reports. Further information on custom field values can be found in a complete Microsoft Project 2010 reference book.

## Creating a Custom Filter

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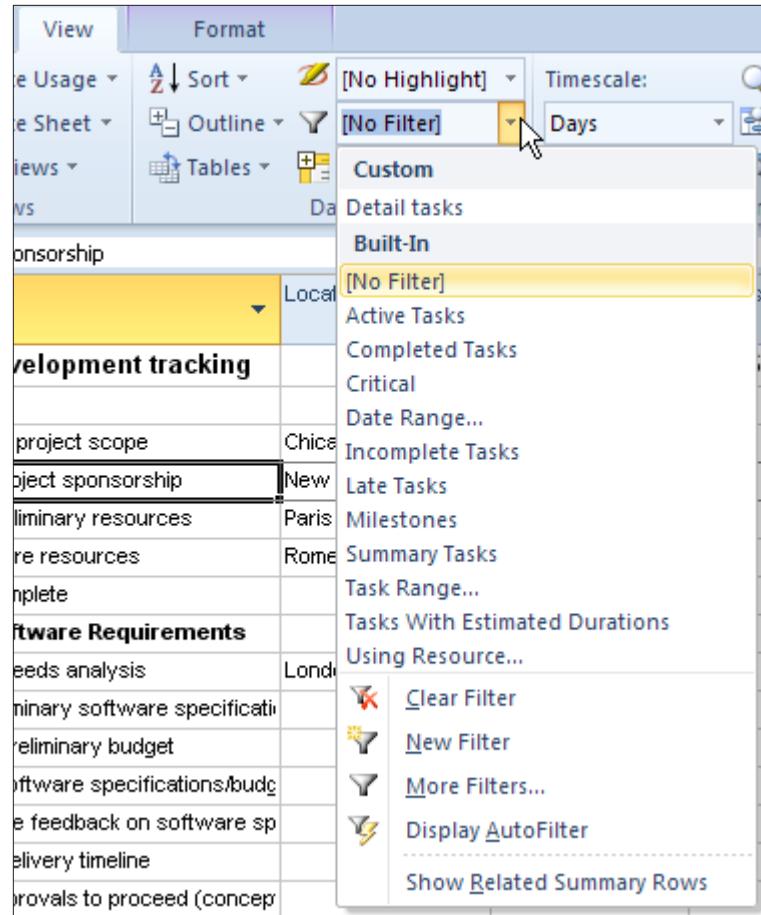
Filters offer a useful means of filtering out unwanted data, thereby retaining only the data you need to see. As part of the standard software Project 2010 contains with over 30 standard filters. Filters can be applied to tables, reports and views to return specific data for reporting purposes. Custom filters can also be created using standard or customized fields.

With the numerous built-in filters available in Project 2010 it is a good practice to verify the standard filters before creating a new custom filter to see if the filter you require has already been provided.

In the following example, a filter will be created to filter for automatic scheduled tasks:

To create a custom filter:

- **View → Filter → New Filter**



**Figure 6-36** PLACEHOLDER

The Filter definition box will appear, shown below. The following entries are made:

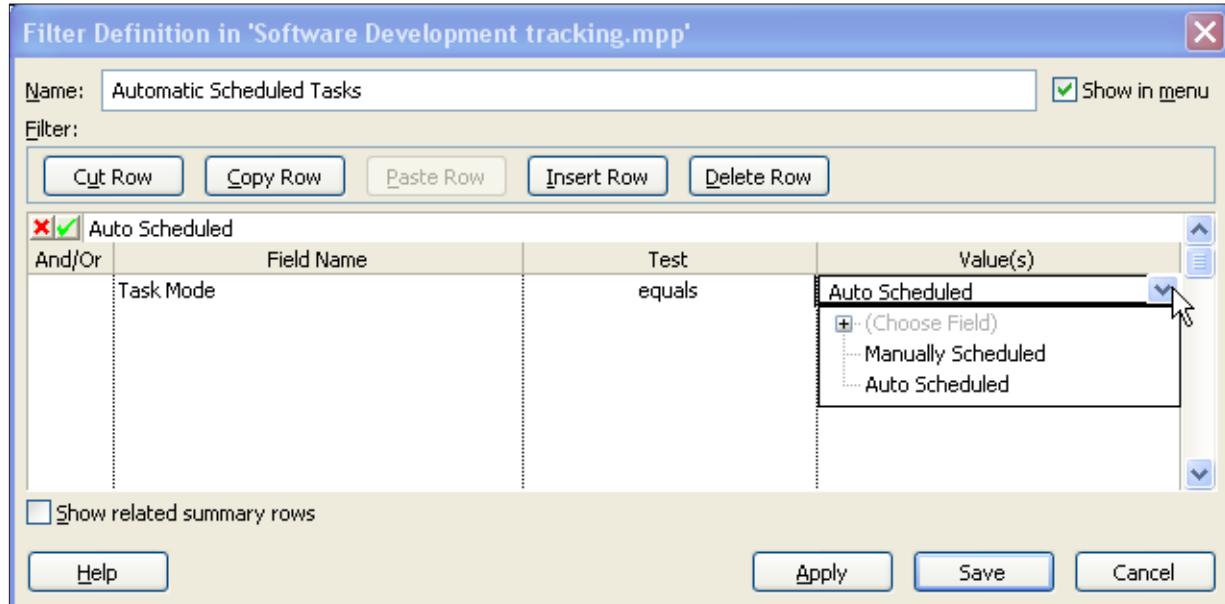
**Table 6.3** PLACEHOLDER

Field	Entry
Name	Automatic Scheduled Tasks
Show in the menu	<input type="checkbox"/> Check to turn on

**Table 6.3 PLACEHOLDER**

Field	Entry
<b>Field name</b>	Task Mode
<b>Test</b>	Equals
<b>Value</b>	Auto Scheduled
	Save

The completed box is shown below:

**Figure 6-37 PLACEHOLDER**

Created custom filters are added to the list of Custom filters in the filter drop down selection box. Click on the new filter to apply it. F3 key or Clear Filter to remove the applied filter and reset the data to the pre-filtered state.

The new filter entry is shown below:

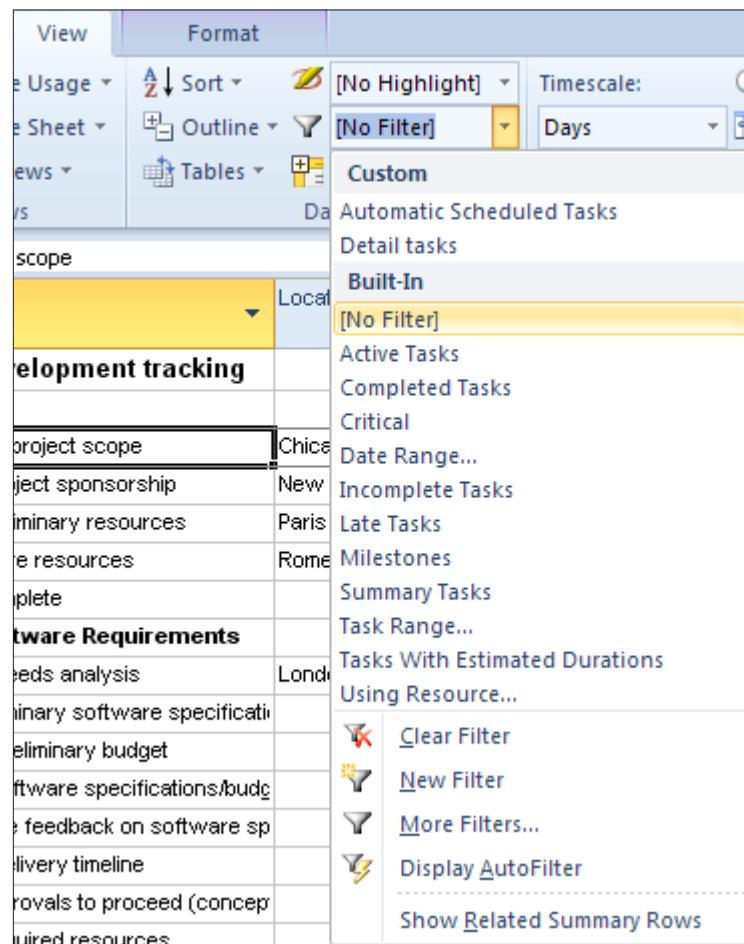


Figure 6-38 PLACEHOLDER

## Creating a Custom Group

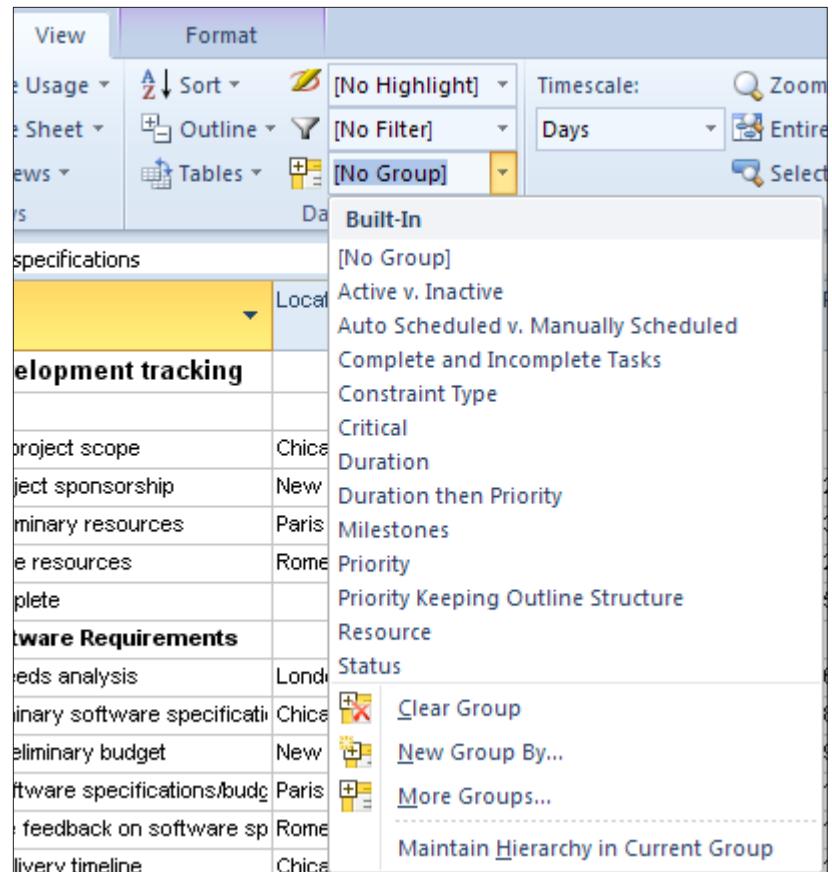
---

Categorizing tasks, resources or assignments by specific column values is called Grouping. As discussed earlier, Project 2010 provides many standard groupings. Custom groupings may be created using custom or standard fields. Groups can use up to 10 levels of detail.

To create a custom group:

In the following example, a group is created using the Location field from the previous lesson.

- **View → Group → New Group by**



**Figure 6-39** PLACEHOLDER

The following entries are shown in the view below.

- Name: **Location**
- Show in menu: **Checkmark**
- Group by: **Location**
- Click **Save** to close

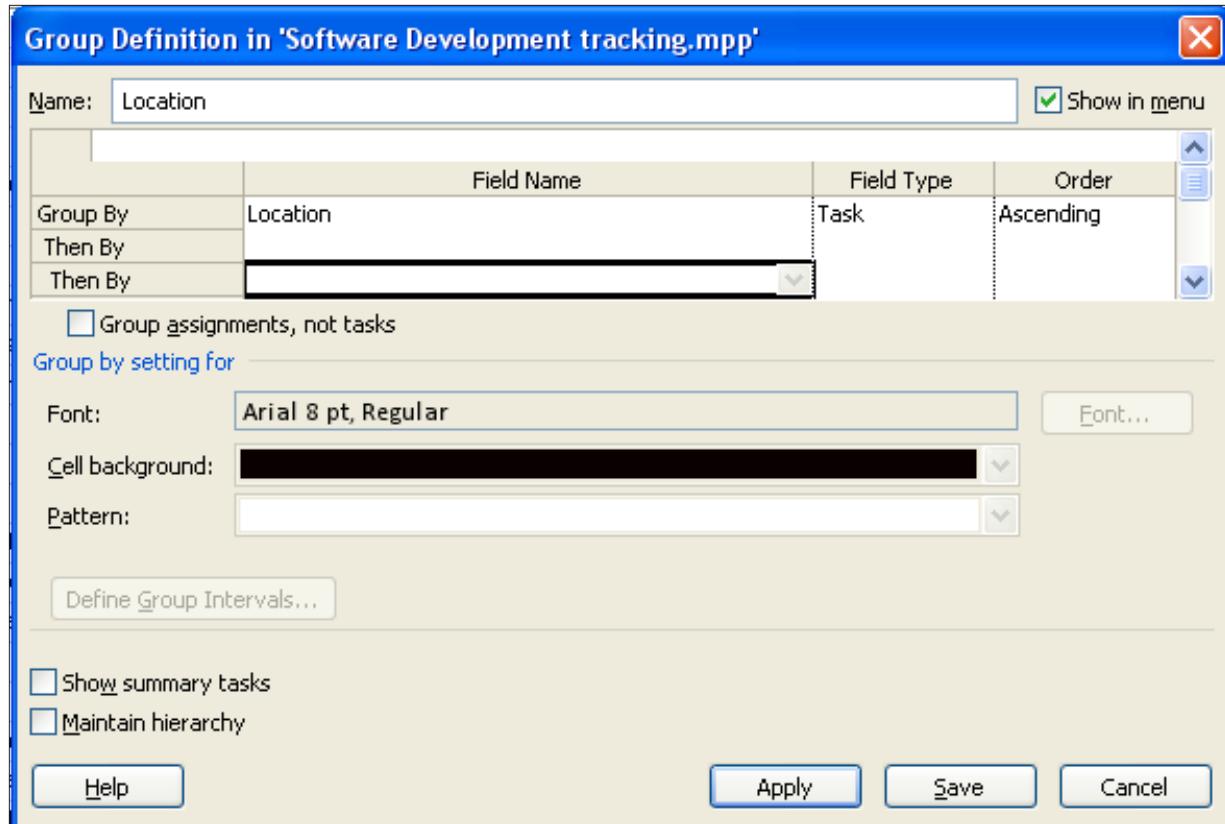


Figure 6-40 PLACEHOLDER

The resulting grouping is shown below:

Task Name	Location	Start	Finish	Predecessors	Resource Names
☒ No Value		2/4/13	6/14/13		
☒ Chicago		1/16/13	3/13/13		
Determine project scope	Chicago	1/16/13	1/22/13		Bob,Cathy
Draft preliminary software specifications	Chicago	2/13/13	2/18/13	8	Cathy,Ed
Develop delivery timeline	Chicago	2/22/13	2/25/13	12	Mike
Develop prototype based on functional spec	Chicago	3/7/13	3/13/13	19	Cathy
☒ London		2/6/13	2/13/13		
Conduct needs analysis	London	2/6/13	2/13/13	6	Cathy,Mike
☒ New York City		1/22/13	2/25/13		
Secure project sponsorship	New York City	1/22/13	1/29/13	2	Bob,Joan
Develop preliminary budget	New York City	2/18/13	2/20/13	9	Mike
Obtain approvals to proceed (concept, financial)	New York City	2/25/13	2/25/13	13	Bob,Mike
☒ Paris		1/30/13	2/26/13		
Define preliminary resources	Paris	1/30/13	2/4/13	3	Mike,Greg
Review software specifications/budget	Paris	2/20/13	2/21/13	10	Mike,Cathy
Secure required resources	Paris	2/25/13	2/26/13	14	Mike
☒ Rome		1/16/13	2/22/13		
Secure core resources	Rome	1/16/13	1/24/13	2SS	Mike,Fran
Incorporate feedback on software specification	Rome	2/21/13	2/22/13	11	Cathy

Figure 6-41     PLACEHOLDER



The option to show the summary tasks is turned off. When the grouping is removed, the summary tasks will be displayed.

To remove an applied grouping and reset data to a pre-grouped state:

- View → Groups → No Group or Clear Group

A grouping by Start or Finish date is very helpful for focusing on short-term timeframes, particularly for large schedules or schedules with multiple parallel paths.

To create a grouping by Start date for per week time intervals:

- View → Group → New group by

Enter the following values:

- Name: **Start by Week**
- Group by: **Start**
- Click **Define Group Intervals**

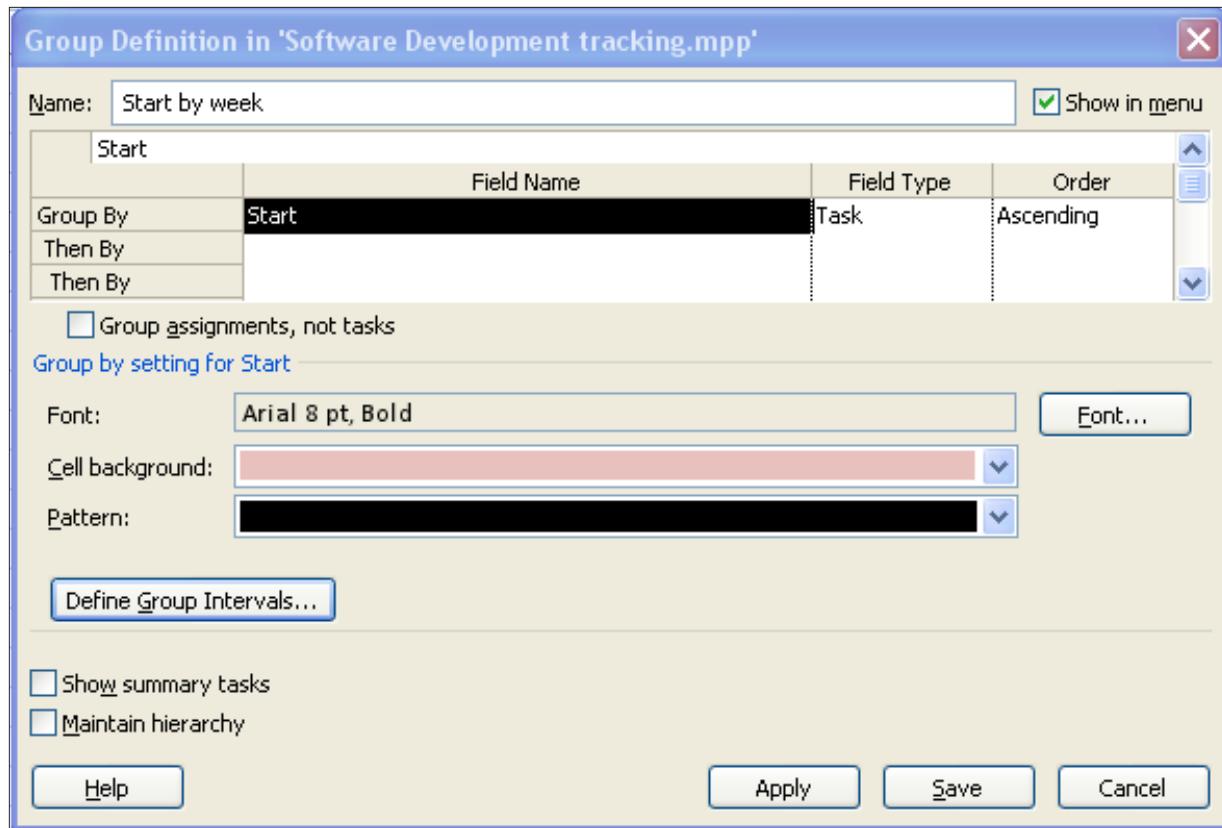


Figure 6-42 PLACEHOLDER

Select:

- Group on: **Weeks**
- Group Interval: **1 (weekly)**  
Note: Selecting 2 would result in bi-monthly grouping of the data
- Click **OK** to close
- Click **Save** to close Group Definition dialog box

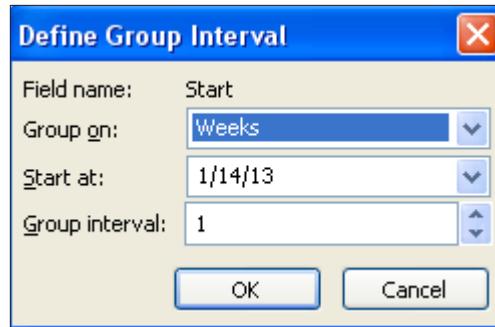


Figure 6-43 PLACEHOLDER

An example of a weekly grouping is shown below

Task Name	Location	Start	Finish	Predecessors	Resource Names
<b>Start: 1/14/13 - 1/20/13</b>		<b>1/16/13</b>	<b>1/24/13</b>		
Determine project scope	Chicago	1/16/13	1/22/13		Bob,Cathy
Secure core resources	Rome	1/16/13	1/24/13	2SS	Mike,Fran
<b>Start: 1/21/13 - 1/27/13</b>		<b>1/22/13</b>	<b>1/29/13</b>		
Secure project sponsorship	New York City	1/22/13	1/29/13	2	Bob,Joan
<b>Start: 1/28/13 - 2/3/13</b>		<b>1/30/13</b>	<b>2/4/13</b>		
Define preliminary resources	Paris	1/30/13	2/4/13	3	Mike,Greg
<b>Start: 2/4/13 - 2/10/13</b>		<b>2/4/13</b>	<b>2/13/13</b>		
Scope complete		2/4/13	2/4/13	5,4	
Conduct needs analysis	London	2/6/13	2/13/13	6	Cathy,Mike
<b>Start: 2/11/13 - 2/17/13</b>		<b>2/13/13</b>	<b>2/18/13</b>		
Draft preliminary software specifications	Chicago	2/13/13	2/18/13	8	Cathy,Ed
<b>Start: 2/18/13 - 2/24/13</b>		<b>2/18/13</b>	<b>2/25/13</b>		
Develop preliminary budget	New York City	2/18/13	2/20/13	9	Mike
Review software specifications/budget	Paris	2/20/13	2/21/13	10	Mike,Cathy
Incorporate feedback on software speci	Rome	2/21/13	2/22/13	11	Cathy
Develop delivery timeline	Chicago	2/22/13	2/25/13	12	Mike
<b>Start: 2/25/13 - 3/3/13</b>		<b>2/25/13</b>	<b>3/7/13</b>		
Obtain approvals to proceed (concept, tim	New York City	2/25/13	2/25/13	13	Bob,Mike
Secure required resources	Paris	2/25/13	2/26/13	14	Mike
Analysis complete		2/26/13	2/26/13	15	
Review preliminary software specificatio		2/26/13	2/28/13	16	Cathy
Develop functional specifications		2/28/13	3/7/13	18	Cathy
Identify test group		2/26/13	2/27/13	16	Mike
Develop software delivery mechanism		2/27/13	2/28/13	68	

Figure 6-44 PLACEHOLDER

To collapse the weeks and summarize the report (shown below):

- View → Outline → Outline Level 1

Task Name	Location	Start	Finish	Predecessors	Resource Names
Start: 1/14/13 - 1/20/13		1/16/13	1/24/13		
Start: 1/21/13 - 1/27/13		1/22/13	1/29/13		
Start: 1/28/13 - 2/3/13		1/30/13	2/4/13		
Start: 2/4/13 - 2/10/13		2/4/13	2/13/13		
Start: 2/11/13 - 2/17/13		2/13/13	2/18/13		
Start: 2/18/13 - 2/24/13		2/18/13	2/25/13		

Figure 6-45 PLACEHOLDER



Using the weekly grouping and displaying the Cost table will provide weekly cost totals.



Creating a grouping by Finish date will show which tasks are scheduled to complete in timeframes by week. This will provide an easy way to know when tasks will need status checking.

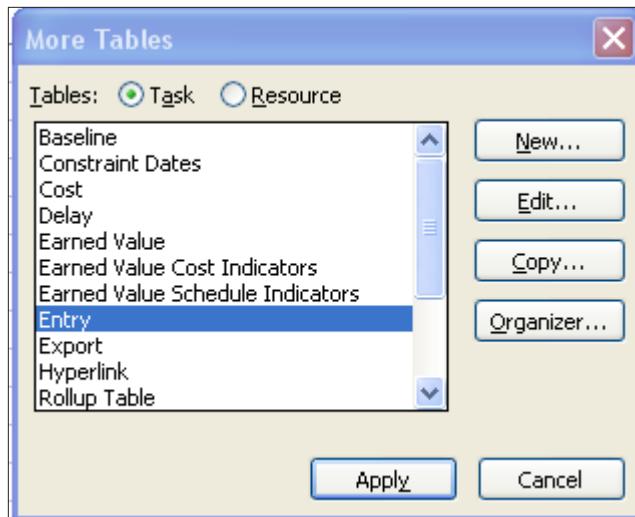
## Creating a Custom Table

Tables are the foundation for views and reports. Project 2010 contains multiple tables for tasks and resources based on topic areas. Consider these standard tables as topical starting points and are intended to be customized by users to their needs. Columns may be added and deleted as necessary for reporting or data input.

Best Practice: copy a table and make changes to the copy

To copy a table:

- **View → Tables → More tables**
- Select a table
- Click **Copy**



**Figure 6-46** PLACEHOLDER

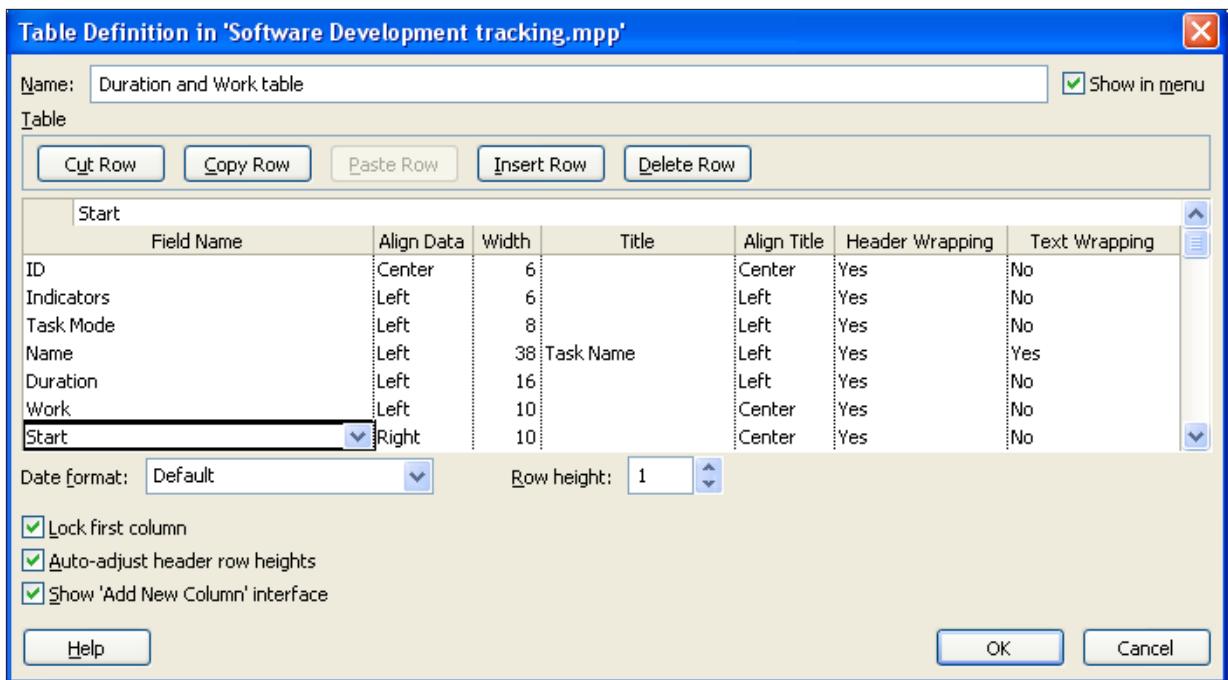
In the example below, a copy of the Entry table will be altered. The Predecessor column will be deleted and the Work column added. In addition, the Start column will be resized to 10 characters. The following table shows the keystrokes to accomplish these changes. The completed view is shown below:

**Table 6.4** PLACEHOLDER

Field	Action
Name	Duration and Work Table
Show in menu	Check on
In the field name column, click on Predecessors	Click Delete row
In the field name column, click on Start	Click on Insert row, click on “Wo”, select Work

**Table 6.4 PLACEHOLDER**

Field	Action
<b>Click on the width for the start column</b>	Change 16 to 10
<b>Click OK</b>	Close the box

**Figure 6-47 PLACEHOLDER**

Below is the table view as defined above:

		Task Mode	Task Name	Duration	Work	Start	Finish	Resource Names
0			Software Development tracking	108 days	1,808 hrs	1/16/13	6/14/13	
1			Scope	14 days	240 hrs	1/16/13	2/4/13	
2			Determine project scope	2.5 days	32 hrs	1/16/13	1/22/13	Bob,Cathy
3			Secure project sponsorship	5.5 days	64 hrs	1/22/13	1/29/13	Bob,Joan
4			Define preliminary resources	4 days	64 hrs	1/30/13	2/4/13	Mike,Greg
5			Secure core resources	5 days	80 hrs	1/16/13	1/24/13	Mike,Fran
6			Scope complete	0 days	0 hrs	2/4/13	2/4/13	
7			Analysis/Software Requirements	14 days	184 hrs	2/6/13	2/26/13	
8			Conduct needs analysis	5 days	80 hrs	2/6/13	2/13/13	Cathy,Mike

Figure 6-48 PLACEHOLDER

Project 2010 provides a new method of creating tables. When columns are added to standard tables, the resulting table could be saved.

To save a table that has had columns added:

- View → Table → Save Fields as New Table

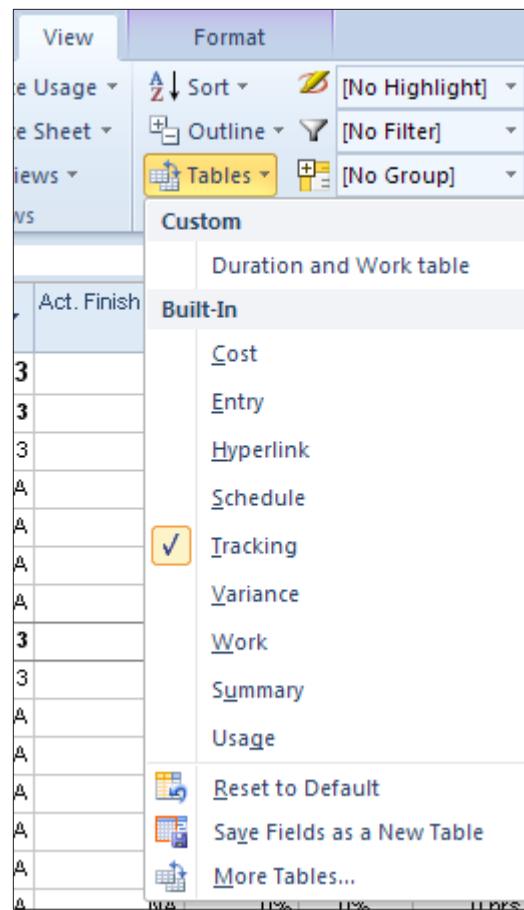


Figure 6-49 PLACEHOLDER

- Select **Update Current Table** or **Save as New Table**
- Enter new table name
- Click **OK** to close



Figure 6-50 PLACEHOLDER



Changes made to tables will be reflected in the table definition. If the value ##### appears in a column it will indicate that the column content exceeds the width of the column. Double click between the column headings to auto adjust the width of the column to the width of the contents of the columns.

## Creating a Custom View

---

Project 2010 provides the ability to create views to put appropriate information in front of the project manager as needed. Views can be created from copies of existing views or new views may be created. To avoid overwriting an existing view, make a copy of a view and use the copy for edits. In the More Views box below, note that a Copy button is provided on the right side of the box for this purpose. Filters, groups and tables can be incorporated into custom views. Split screen or single views may be created.

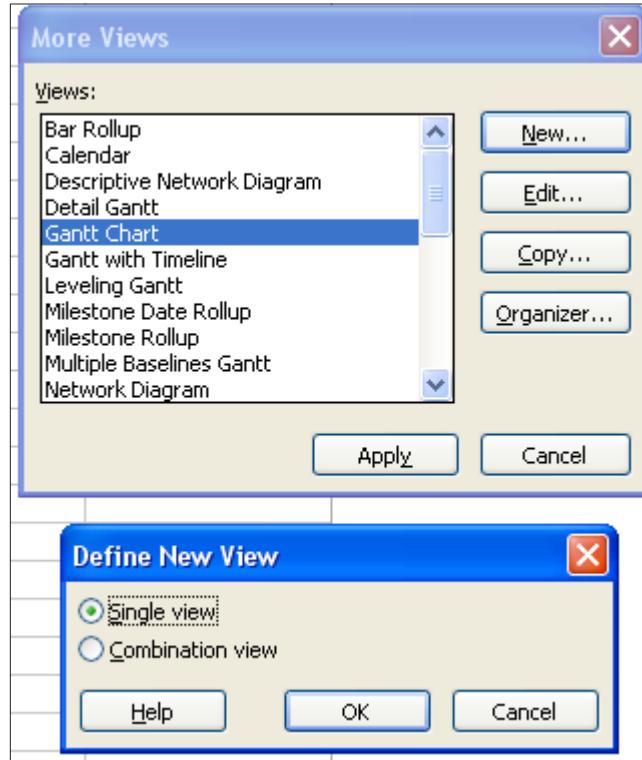


View names must be unique

To create a new single view:

- **View (Resource or Task) → Gantt Chart → More Views**
- Click **New**

- Select **Single** or **Combination view** (split screen)
- Click **OK**



**Figure 6-51** PLACEHOLDER

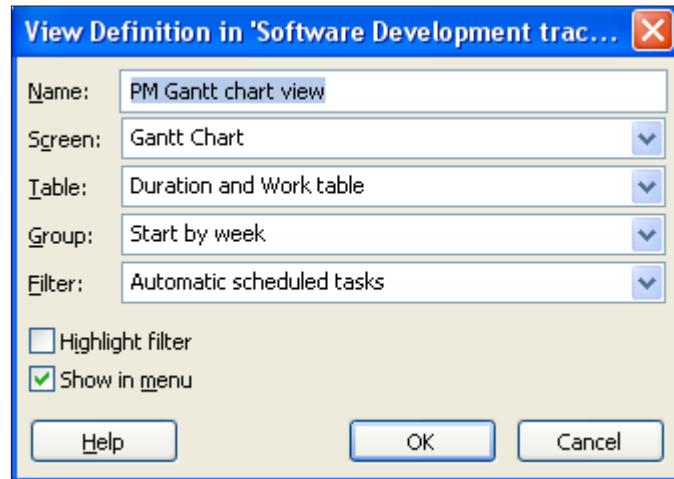
The following field values were entered in the view below:

**Table 6.5** PLACEHOLDER

Field	Object
Name	PM Gantt chart view
Screen	Gantt Chart
Table	Duration and Work table

**Table 6.5 PLACEHOLDER**

Field	Object
<b>Group</b>	Start by week
<b>Filter</b>	Automatic scheduled tasks
<b>Show in menu</b>	New view will appear in the short menu for views

**Figure 6-52 PLACEHOLDER**

The result of the “Show in the menu” option is shown below:

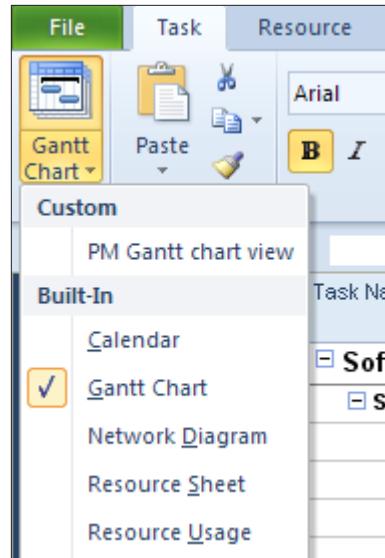


Figure 6-53 PLACEHOLDER

The resulting view will appear as shown below:



Figure 6-54 PLACEHOLDER

## Summary

---

The customizing features of Project 2010 are extremely flexible and are limited only by the Project Manager's imagination. Use these objects to create customized data for an individual project or complete processes for an organization. Store the objects in one project schedule, use for all your project schedules or share with other users. Deciding what information is required will be harder than defining the objects themselves.

In this Module, we discussed:

1. Customizing the ribbon.
2. Export/import customized ribbons.
3. Customizing views.
4. Retaining customized objects using the Organizer.
5. Creating custom objects.



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## Chapter 7

# Customizing Reports and Dashboards

## Lesson 3: Working with Visual Reports

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Visual reports are graphical type reports that are available in Project 2010. These reports are defined using a template in Project 2010 and use either a Visio PivotDiagram or Excel PivotTable technology to generate the final report. Once a report is generated, changes and fine-tuning of the report can be performed through Visio or Excel.

Since Visual Reports use Pivot table technology, knowledge of Pivot tables is helpful for the project manager to gain the greatest benefit from these reports.

In this lesson we will discuss:

- Overview of Visual Reports
- The Anatomy of Pivot Tables
- Viewing a Visual Report
- Creating a Visual Report template

## Overview of Visual Reports

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Visual Reports are reports based on dimensions and measures that produce graphs using Pivot Tables. Pivot Tables will be discussed in the next lesson. When a Visual Report is run, an On-line Analytical Processing (OLAP) cube of data is built based on the metrics stated in the specifications for the Visual Report. After the cube is built, Project 2010 connects to either Visio or Excel to display the report. If an Excel-based report is selected, the report will be based on Pivot Tables. If a Visio-based report is selected, a Visio Pivot Diagram will be produced.

Once a report is generated, it can be manipulated as a Pivot Table and

tailored to fit your needs. Types of manipulations include expanding and contracting outline levels, changing field values, selecting options, adding totals and changing the appearance of graphs. After the Visual Reports are generated, they can be saved or published to a reporting website.

Project 2010 provides multiple Visual Report definition templates found in the Visual Reports - Create Report dialog box. Options are available to filter the Excel templates from the Visio templates. All templates are contained in the All tab within the dialog box.

Sub tabs are provided for various report categories, and contain the following report options:

**Table 7.1** Task Summary Tab

Report	Content	Excel or Visio
<b>Critical Tasks status report (Metric)</b>	Work and Work remaining for critical and non-critical tasks.	Visio
<b>Critical Tasks status report (US)</b>	Work and Work remaining for critical and non-critical tasks.	Visio

**Table 7.2** Resource Summary Tab

Report	Content	Excel or Visio
<b>Resource remaining work report</b>	Work, Remaining Work, total Work for work resources.	Excel

**Table 7.3** Assignment Summary Tab

Report	Content	Excel or Visio
<b>Resource status report (Metric)</b>	Work and Cost values per resource.	Visio
<b>Resource status report (US)</b>	Work and Cost values per resource.	Visio
<b>Task status report (Metric)</b>	Work and percent of work completed by WBS level.	Visio
<b>Task status report (US)</b>	Work and percent of work completed by WBS level.	Visio

**Table 7.4** Task Usage Tab

Report	Content	Excel or Visio
<b>Cash flow report</b>	Timephased task cost data.	Excel

**Table 7.5** Resource Usage Tab

Report	Content	Excel or Visio
<b>Cash flow report (Metric)</b>	Baseline Cost vs Actual Cost over time by resource type.	Visio
<b>Cash flow report (US)</b>	Baseline Cost vs Actual Cost over time by resource type.	Visio

**Table 7.5** Resource Usage Tab

Report	Content	Excel or Visio
<b>Resource Availability report (Metric)</b>	Total capacity, Work and remaining availability per resource	Visio
<b>Resource Availability report (US)</b>	Total capacity, Work and remaining availability per resource.	Visio
<b>Resource cost summary report</b>	Resource costs per resource type.	Excel
<b>Resource work availability report</b>	Work and remaining availability over time.	Excel
<b>Resource work summary report</b>	Work, Actual Work and Remaining Availability per resource.	Excel

**Table 7.6** Assignment Usage Tab

Report	Content	Excel or Visio
<b>Baseline Cost Report</b>	Compares Baseline Cost, Actual Cost and Cost.	Excel
<b>Baseline Report (Metric)</b>	Baseline, Actual Work and Cost over time.	Visio
<b>Baseline Report (US)</b>	Baseline, Actual Work and Cost over time.	Visio

**Table 7.6 Assignment Usage Tab**

<b>Report</b>	<b>Content</b>	<b>Excel or Visio</b>
<b>Baseline Work Report</b>	Baseline Work, Baseline Cost, and Actual Work.	Excel
<b>Budget Cost Report</b>	Budget Cost, Baseline Cost, Cost and Actual Cost.	Excel
<b>Budget Work Report</b>	Budget Work, Baseline Work, Work, Actual Work.	Excel
<b>Earned Value Over Time Report</b>	Timephased – Actual Cost of Work performed, baseline values and Earned Value.	Excel

## Anatomy of a Pivot Table

To understand Visual Reports, some understanding of Pivot Tables is helpful. Pivot Tables are flexible tables based on measures and dimensions. The information below is an overview of a Pivot Table based report. Additional information regarding Pivot Tables can be found in any Excel reference book, through software Help, or online.

In the table below, sales data from The Chocolate Company shows that sales of different products have occurred in multiple locations. The Chocolate Company also keeps track of the customer type and products sold. We might want to know total sales by customer type, product or location. Pivot Tables have the flexibility to process any of these report requests quickly.

The data below is the source data that will be used to generate the Pivot Table:

**Table 7.7** Chocolate Company Sales

Customer	Customer type	Location	Product	Quantity in bars	Price
<b>Customer A</b>	Retail	Chicago	Dark	48	120
<b>Customer B</b>	School	Rome	Milk	24	60
<b>Customer C</b>	Vending	Sydney	White	12	30
<b>Customer D</b>	Retail	Chicago	Dark almonds	36	45
<b>Customer E</b>	School	Rome	Milk almonds	48	120
<b>Customer F</b>	Vending	Sydney	White peanuts	24	60
<b>Customer G</b>	Retail	Chicago	Dark	12	30
<b>Customer H</b>	School	Rome	Milk	36	45
<b>Customer I</b>	Vending	Sydney	White	48	120
<b>Customer J</b>	Retail	Chicago	Dark almonds	24	60
<b>Customer K</b>	School	Rome	Milk almonds	12	30
<b>Customer L</b>	Vending	Sydney	White peanuts	36	45
<b>Customer M</b>	Retail	Chicago	Dark	48	120

In the view below, a Pivot Table has been created using the above data. The data below is consolidated to show sales by Customer type:

**Table 7.8** PLACEHOLDER

Customer Type	Sum of Price
Retail	480
School	180
Vending	90
Wholesale	135
<b>Grand Total</b>	<b>885</b>

In the next example, the table was changed to show sales by Location:

**Table 7.9** PLACEHOLDER

Location	Sum of Price
Chicago	375
Rome	255
Sydney	255
<b>Grand Total</b>	<b>885</b>

In the next example, sales by Product:

**Table 7.10 PLACEHOLDER**

Product	Sum of Price
<b>Dark</b>	270
<b>Dark almonds</b>	105
<b>Milk</b>	105
<b>Milk almonds</b>	150
<b>White</b>	150
<b>White peanuts</b>	105
<b>Grand Total</b>	885

Pivot Tables are easily changed to create the type of report necessary for your reporting needs, based on the values contained in the Pivot Table data. Visual Reports will be used to create the Pivot Diagram or Pivot Table but the project manager will need to customize the generated report.

## Viewing Visual Reports

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Project 2010 comes with built in Visual Report templates to report on cost, work and resource data. Having a specific goal in mind for the type of report you want will help generate more meaningful report data.

To open the Visual Reports – Create Report dialog box:

- Project → Visual Reports

To create a report:

- Select any report.
- Change timeframe for assignment (usage) data.
- Click **View**.

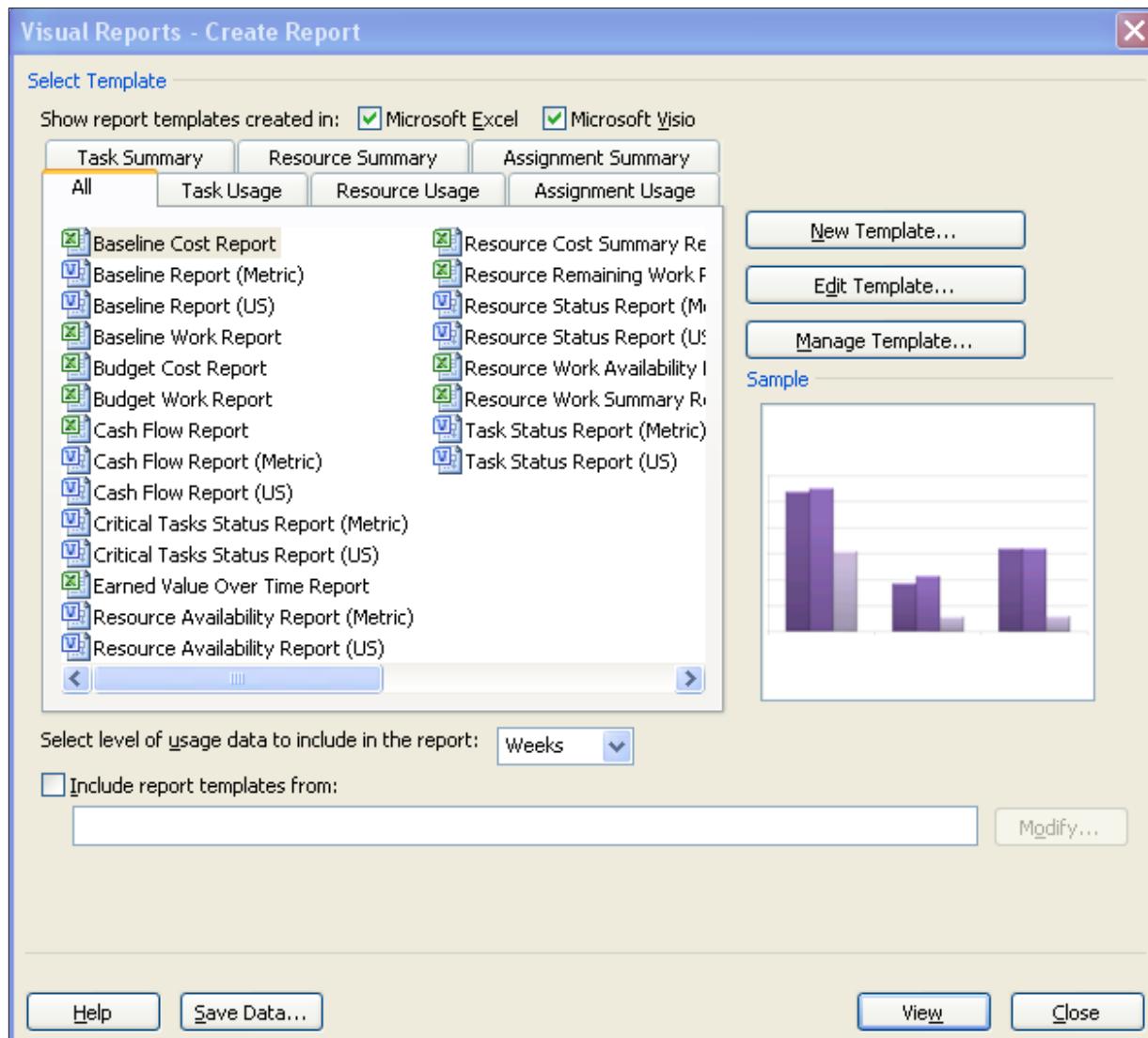


Figure 7-1 PLACEHOLDER

The report will generate by creating an OLAP cube and will open either Visio or Excel. In the generated Pivot Table select the data to be viewed on the report. Notice that the data viewed on the table can also be viewed in chart format.

Options are available for saving the generated OLAP cube or creating an Access database from the data by clicking the Save Data... button.

## Creating Visual Report Templates

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Creating customized Visual report templates will allow inclusion of customized fields in Visual Reports. Standard templates can also be edited to include or exclude selected data.

To edit a standard template:

- Project → Visual Reports.
- Select any report.
- Click **Edit**.
- See instructions for field choices below.

To create a new Visual report template:

- Project → Visual Reports.
- Click **New Template**.

Visual Reports – New Template dialog box opens:

- Select Application: Visio or Excel.
- Select Data Type (destination for completed template).
  - Task Usage
  - Resource Usage
  - Assignment Usage
  - Task Summary

- Resource Summary
- Assignment Summary

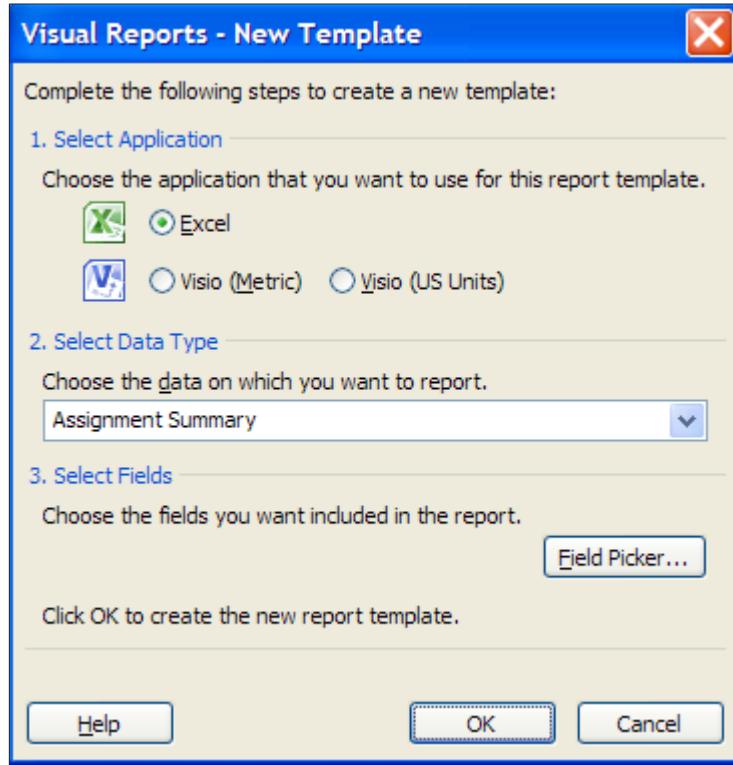
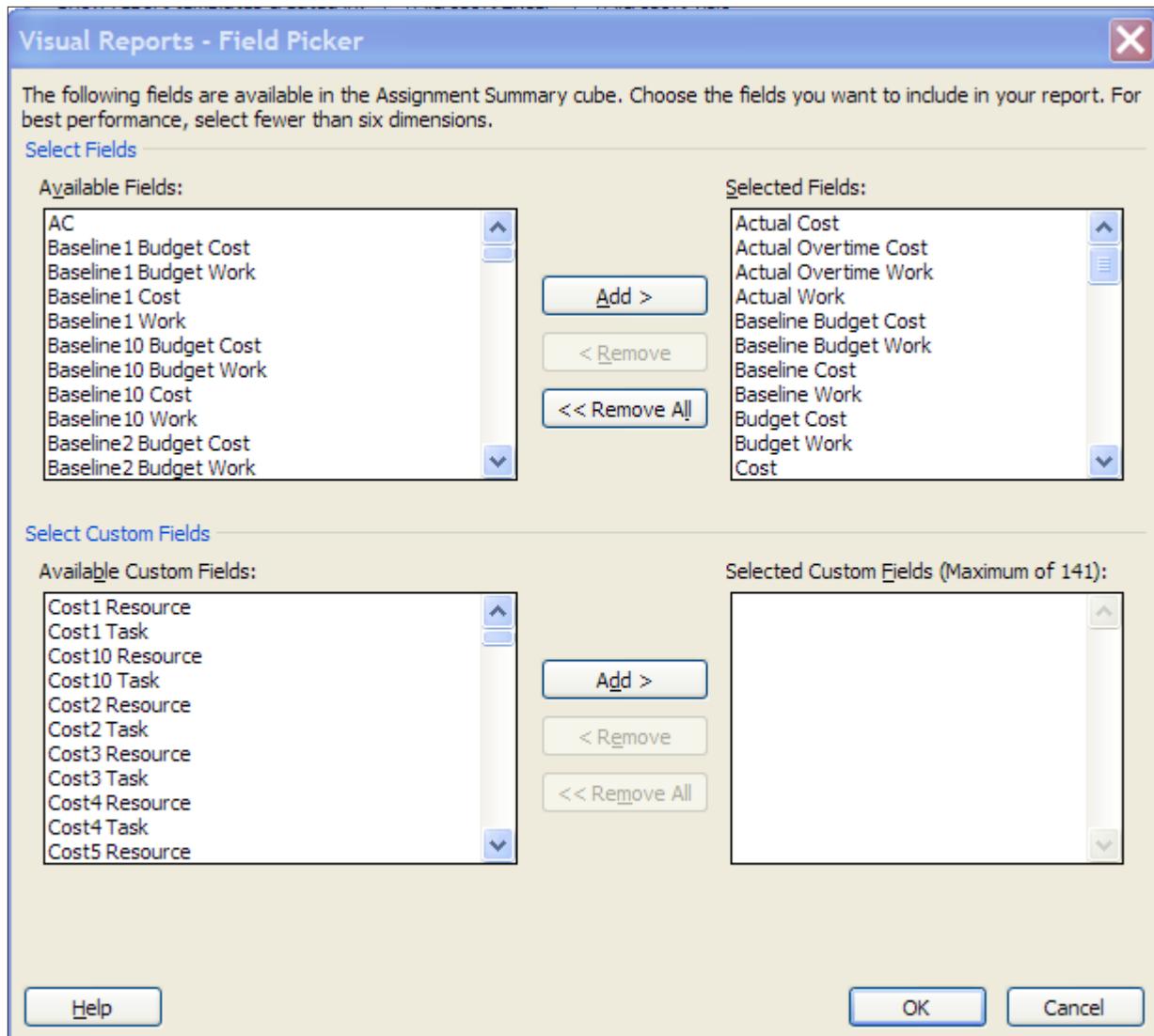


Figure 7-2 PLACEHOLDER

- Click on the **Field Picker** button.
- Add and remove fields from the report:
  - Select fields to add to the report on the left side and click Add.
  - Select fields to remove from the report on the right side and click Remove.
- Click **OK** when field selection is completed.
- Click **OK** to create the new template.

**Figure 7-3** PLACEHOLDER

An OLAP cube will be generated and the will open in either Excel or Visio.

To save the template:

- In either Excel or Visio click the Office button → Save As .
- Give the template a name and leaving the template file extension of .xltx for Excel or .vsd for Visio.

- Click **OK** to create and save the template.

The following message will appear when an Excel template is created:



**Figure 7-4** PLACEHOLDER

- Click Yes to refresh or create new data when the template is run.

The new template will be added to the list of already available Visual Report templates. In the example below, a new template called New Visual Report Template was created.

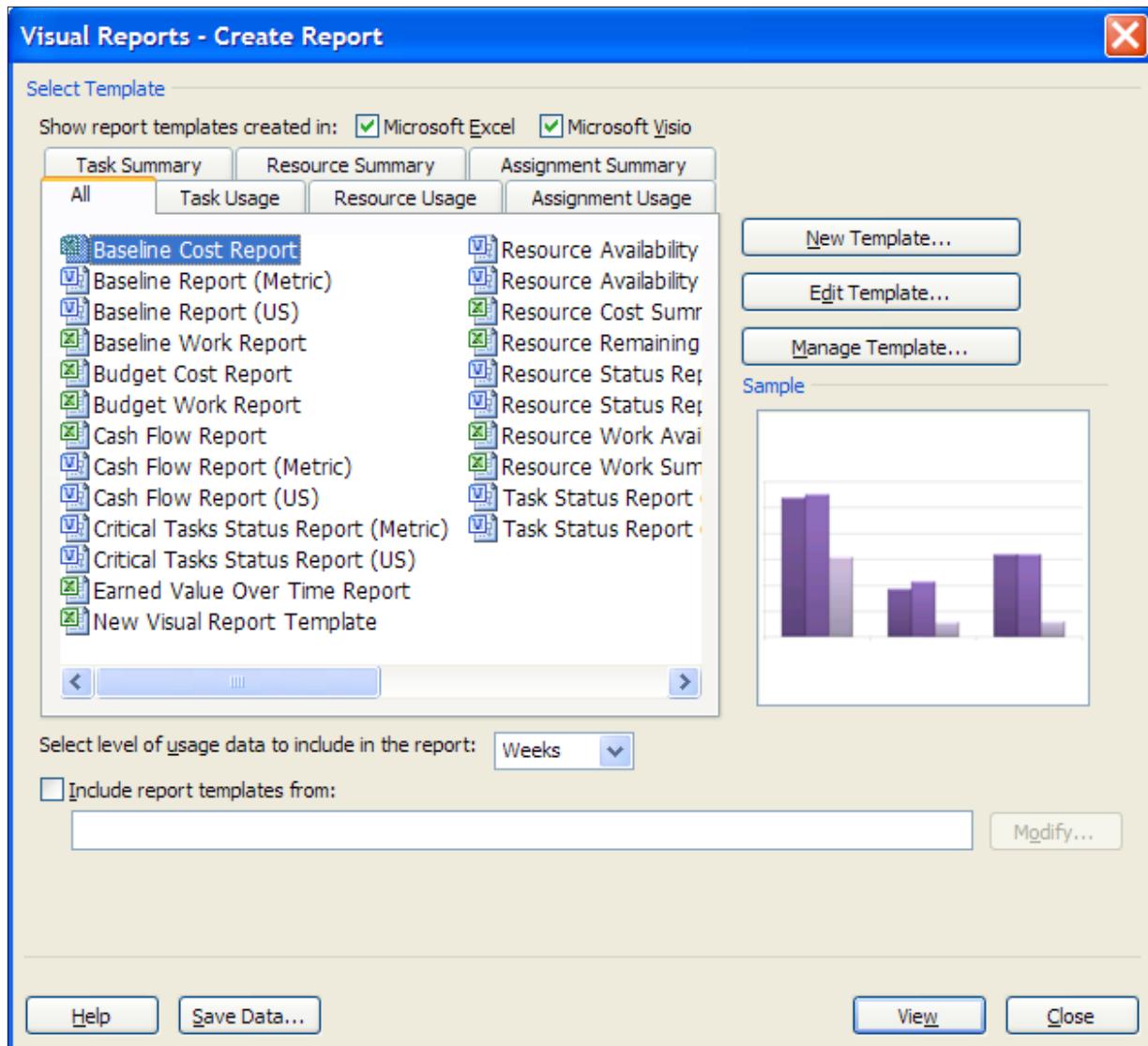


Figure 7-5 PLACEHOLDER

To rename or delete an existing template:

- Click the template to be renamed or deleted.
- Click **Manage Template**.
- Right-click the file.
- Select **Rename** or **Delete**.

## Dashboard reports

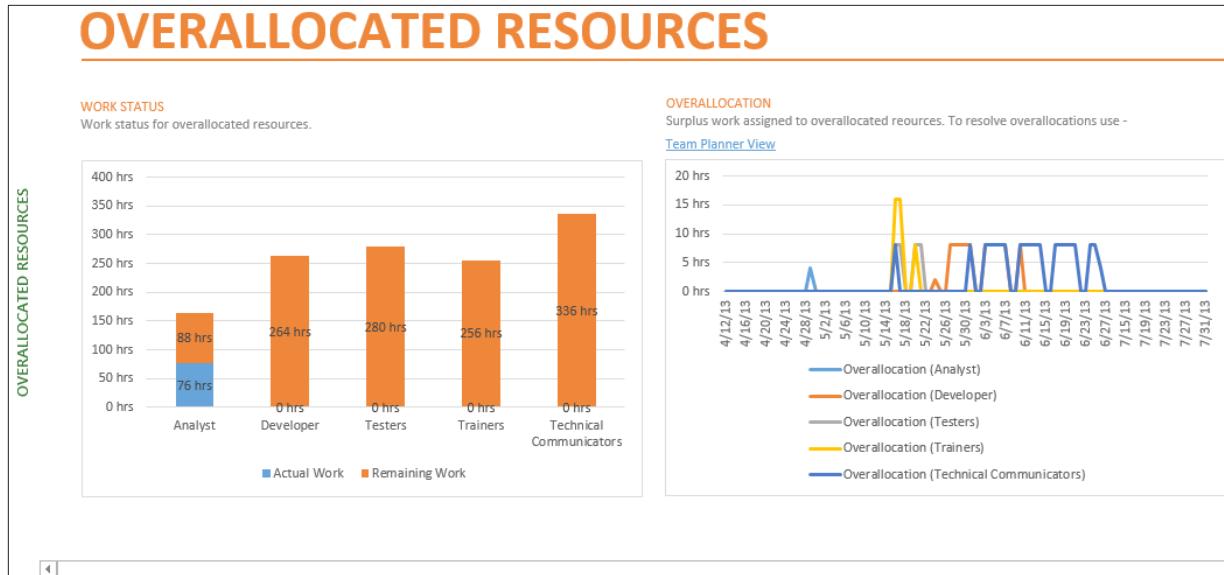
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### What are Dashboard Reports?

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Dashboard reports are reports that display project data in tabular and graphic form. Each report displays different data and can be customized to tailor the reports for each user's needs.

Below is an example of the Overallocated Resources Dashboard Report. Note that there are 2 charts each representing different resource data. The chart on the left represents Actual work v Remaining Work. The chart on the right is displaying resources that are Overallocated at the day level. Each of these reports may be altered to adjust the chart type, chart elements and details of the display data.

**Figure 7-6** PLACEHOLDER

## Data included in the Dashboard Reports

Dashboard Reports contain data relating to project progress, variance calculations, and critical path. Below are listed some of the data which are included in the reports. If you are not using the data needed to populate the reports, the reports will not display properly.

Some of the data needed for the reports includes the following project data values:

- Task Duration, Cost and Work.
- Resource Cost and Work.
- Baseline comparison.

- Status date.
- Status field: Late, On Time, Future

See below for a list of the Dashboard Reports and the data which is represented on each report. Use this as a guide to decide which reports would be useful for you.

## Reports that come with MS Project 2013

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Table 7.11 PLACEHOLDER

Included in Reports Section	Report Name	Data Shown on Report
Dashboard	Burndown	1) Remaining Cumulative Work v. Baseline Remaining Cumulative Work for active tasks; 2) Number of tasks completed and number left to be completed
	Cost overview	1) Cumulative Percent Complete, Cumulative Cost; 2) Remaining Cost, Actual Cost and Baseline Cost; 3) Cost outline summary level 1 tasks

**Table 7.11** PLACEHOLDER

Included in Reports Section	Report Name	Data Shown on Report
	Project overview	1) Percentage complete of Outline level 1 tasks; 2) List of milestones and target dates; 3) Late tasks – tasks that are past due
	Upcoming Tasks	1) Work Percent complete is less than 100%, tasks starting within 5 days of system date; 2) Tasks starting soon list
	Work Overview	1) Remaining cumulative Work, Remaining Cumulative Actual Work, Baseline Remaining Cumulative Work; 2) Baseline work, actual work, remaining work at outline level 1; 3) Actual work v remaining work by resource and 4) Remaining availability by resource
<b>Resources</b>	Overallocated Resources	1) Actual work v Remaining work; 2) Hours assigned to overallocated resources
	Resource Overview	1) Remaining work, Actual work, Baseline work; 2) Percent work completed by resource; 3) Remaining work assigned by resource

**Table 7.11 PLACEHOLDER**

<b>Included in Reports Section</b>	<b>Report Name</b>	<b>Data Shown on Report</b>
<b>Costs</b>	Cash flow	1) Cost v Cumulative Cost, Cost Variance – Project Summary level; 2) Outline level 1 summaries Remaining cost, Actual Cost, Cost and Earned Value
	Cost Overruns	1) Task Cost Variance; 2) Resource Cost Variance
	Earned Value Report	1) Actual cost of work performed, Baseline cost of work performed, Baseline cost of work scheduled; 2) Cost Variance, Schedule Variance; 3) Cost Performance Index (CPI), Schedule Performance Index (SPI)
	Resource Cost Overview	1) Resource Remaining Cost, Actual Cost, Baseline Cost; 2) Cost distribution over resource types; 3) Cost details at the resource level
	Task Cost Overview	1) Cost status – Actual Cost, Remaining Cost, Baseline Cost; 2) Costs spread out amongst tasks based on their status (On Schedule, Late, Future); 3) Cost Details – outline level 1

**Table 7.11** PLACEHOLDER

Included in Reports Section	Report Name	Data Shown on Report
<b>In Progress</b>	Critical Tasks	1) Chart – On Schedule, Late, Future 2) Table task level critical tasks
	Late Tasks	1) Chart – On Schedule, Late, Future; 2) Table task level – tasks that are late compared to status date.
	Milestone Report	Late Milestones, Milestone up next and Completed Milestones
	Slipping Tasks	1) Remaining Cumulative Work, Remaining Cumulative Actual Work; 2) Task list for tasks where finish date are past the baseline finish date.

## To Display a Dashboard Report

1. Click on the **Reports** tab
2. Click on a Report Category: **Dashboards, Resources, Costs, In Progress**
3. Click on a Report to display

To change parameter values displayed on a Dashboard Report:

1. Click on the **Reports** tab
2. Click on a Report Category: **Dashboards, Resources, Costs, In Progress**
3. Click on a Report to display
4. Click inside of a graph. Options will appear on the right side of the view.
5. Change options as necessary. Close by options by clicking on the X in the upper left corner of the options box.
6. Other changes may be made by clicking on formatting changes on the Design ribbon which will appear when a Report is selected.



Changes to Dashboard Reports will be remembered within the file.



Clicking on the **Page Breaks** button will display the page breaks as for printing the report. The separate report graphics and tables may be dragged to different pages for printing purposes.



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## Appendix A

### Certification Tests

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## MS Project 2013 Certification Tests – 74-343 and 74-344

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To support Microsoft Project 2013 and Microsoft Project Server 2013 software Microsoft has developed certification tests which are offered through Prometric. These tests have been developed to test the user's in-depth knowledge and usage of both of these software packages.

### What Tests are Available?

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- 74-343 – Managing Projects with Microsoft Project 2013
- 74-344 - Managing Programs and Projects with Project Server 2013

Entering “MS Project 2013 Test” into <http://Bing.com> will give you quick links to the Microsoft test site for both of the above tests.

### Award for Passing the Tests

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Microsoft awards certifications for passing the exams. For passing either or both of the above exams the candidate will be awarded the MCTS or Microsoft Certified Technology Specialist award. This award is under the canopy of the MCP or Microsoft Certified Professional awards. The successful candidate can add these initials (either MCP or MCTS) after their name on business cards and the designation can be added to the candidates resume. As part of the award you may also download a certificate for

framing.

## What is Measured?

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The two tests have very similar formats and standards. Both tests are designed to measure how well the user understands the software and can apply that knowledge using best practices for MS Project.

Microsoft provides test objectives for both tests which were used to develop the tests. The test objectives are included at the end of this section and they are available on the test details website. The objectives are an indicator as to the topics which were included on the test.

## Languages

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As of June 6th, 2013 the test is only available in English.

## How the Test Works

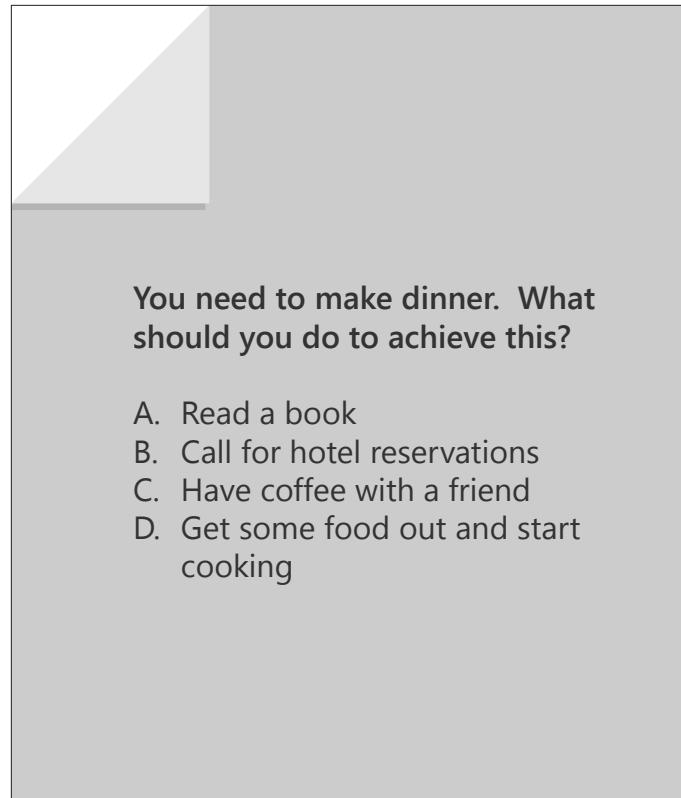
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At the start of the test 74-343 test you will see a screen that will tell you that the test contains 54 questions and you are allowed 2 hours and 15 minutes to take the test. The 74-344 test contains 52 questions with a

similar time allotment. You will then answer some questions regarding your current experience and knowledge level using MS Project 2013 or MS Project Server 2013. There is also an optional tutorial for taking the test. The survey and tutorial do not take away from the time allocated to take the test.

Most of the questions are multiple choice formatted questions. There are a few questions where you will need to place answers in the order in which you would perform an operation.

The question style is from the point of view of problem solving. The questions are real usage situation oriented for how you would use the software. You will be given a problem condition and asked to supply the best resolution for the situation. An example of this type of question would be:



**Figure A-1** Example question.

## Study Tips

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- Start with the test objectives provided at the end of this appendix. If the topic is in the objectives it will be on the test. Make sure you understand the topics and can apply them to scheduling situations.
- Seek out and learn the new features of the 2013 software as this information is usually part of the tests.
- You will be asked questions regarding the best practices of using MS Project and MS Project Server – what is the best way to accomplish an objective. Usually a good reference book will include many of these concepts. Any reference book which includes the test objectives (which is most of the books) will be a helpful study tool.
- Contained in the *Managing Projects with Microsoft Project 2013: Advanced* and *Managing Projects with Microsoft Project 2013: Fundamentals* books there are best practices sections. Reviewing these sections will be helpful.
- If possible self-taught candidates would be better prepared if they took a substantial class. Reviewing the class content directly after the class while it is fresh in your memory will be helpful.
- Ask questions to clarify concepts. Ask your instructor or post a question on the Microsoft Technet site (<http://Technet.Microsoft.com>) in the MS Project section. Specify that the question is in regard to 2013. There are other newsgroups available where questions may be posted.
- Last minute cramming will not work for these tests. They will be testing your knowledge of using the software. Having managed projects using MS Project 2013 or Server will be your best teacher.
- Know the standard software: views, tables, options, choices on menus, and choices in selection boxes, location of data, use of filters, groupings, existing reports, etc.

## Registering to Take the Test

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The Prometric registration site is at [www.Prometric.com](http://www.Prometric.com).

Before starting your registration if you do not have a Prometric account, create one. Click on Log In.

When you are at the Prometric website, click on:

1. **Locate a test center**
2. Select **Country**. Select **State/Province** (if applicable) There might be limited availability in some areas. Click **Next**.
3. Client – Select **Microsoft**.
4. Program – Select **Microsoft (070, 071, 074, MBX)**, click **Next**.
5. The page which starts with “Welcome to the Microsoft Certification Program” will contain some links. One of the links is titled “**Second Shot Offer**”. Click on this link.  
At times you can obtain a code which will allow for a second shot at the test if you do not pass the first time. This offer is not always available but it is worth a try to see if it is currently available. If it is available, you will be given a code which must be entered when you sign up and pay for taking the test. You will not be able to take advantage of the second shot offer at a later time. If you entered the second shot code and failed the test, contact Prometric for your retake certificate. Click **Next** when ready.
6. Select the test you would like to take. At the writing of this article 74-343 and 74-344 are only offered in English. It will be translated into other languages in the future. You will also notice that the cost is \$150.00 (USD) to register for the test.
7. Select your testing location
8. Sign into Prometric and complete the registration.

## Taking the test

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- It is suggested by Prometric that you arrive at the test facility at least 20 minutes before the scheduled test time. You will be required to empty your pockets and check your coat, backpack, computer, purse, etc. You are only permitted to take your glasses and any writing materials they give you into the testing room. No food or drink is allowed.
- Keep your eye on the upper right corner of the screen at the countdown clock. Space your time out to make sure you can answer all of the questions. A question not answered is a wrong answer. You will have approximately 2 minutes and 22 seconds per question for the 74-343 test. The 74-344 test is a little less time.
- Read the questions carefully. Understand what the question is asking you before you read the answer choices. You will be in a better frame of mind to select the correct answer.
- Keep a positive attitude throughout the whole test and try to stay relaxed. If you start to feel nervous take a few deep breaths to relax.
- Some multiple choice questions will require more than one answer to fulfill the complete answer for a question. Make sure you supply all answers necessary to satisfy the requirements of the question.
- You can flag questions to return and review them at the end of the test before you indicate that you are finished taking the test. If a question is confusing or you are not sure of the answer, flag the question to return to it later.
- Most of the Prometric centers provide a desk with computer and divider walls between candidates. Others in the room will be taking other types of tests different from your test. Do your best to focus on your test and ignore others. Do not talk to other candidates in the room.
- At the end of the test you will have an opportunity to comment on the quality and content of the questions. These comments will be allowed only AFTER you have indicated that the test is completed. During this time you will not be able to change any of your answers.

## **Test Objectives for Microsoft Project 2013 Desktop Test – 74-343**

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### **Skills Being Measured**

This exam measures your ability to accomplish the technical tasks listed below. The percentages indicate the relative weight of each major topic area on the exam. The higher the percentage, the more questions you are likely to see on that content area on the exam.

The information after “This objective may include but is not limited to” is intended to further define or scope the objective by describing the types of skills and topics that may be tested for the objective. However, it is not an exhaustive list of skills and topics that could be included on the exam for a given skill area. You may be tested on other skills and topics related to the objective that are not explicitly listed here.

### **Initialize a Project**

- Create a new project.
  - This objective may include but is not limited to: creating a template from a completed project, creating a project from an existing template, existing project, SharePoint task list, or Microsoft Office Excel workbook
- Create and maintain calendars.
  - This objective may include but is not limited to: setting working or non-working hours and days for calendars, setting a base calendar, resource calendar, and hours per day, applying calendars to project, task, and resource levels
- Create custom fields.

- This objective may include but is not limited to: creating basic formulas, graphical indicator criteria, lookup tables, and task and resource custom fields
- Customize option settings.
  - This objective may include but is not limited to: setting default task types, manual vs. auto-scheduling, project options, calendar options, customized ribbon and quick access toolbar

## Create a Task-Based Schedule

- Set up project information.
  - This objective may include but is not limited to: defining project start date, applying calendars and current date, entering project properties, displaying the project summary task on a new project
- Create and modify a project task structure.
  - This objective may include but is not limited to: creating and modifying summary tasks and subtasks, rearranging tasks, creating milestones, creating manually scheduled tasks, outlining, setting tasks as active or inactive
- Build a logical schedule model.
  - This objective may include but is not limited to: setting date constraints, deadlines, dependencies, links, duration equations, effort-driven tasks, and formulas, choosing a task type
- Create a user-controlled schedule.
  - This objective may include but is not limited to: entering duration, setting or changing the task mode (manual or auto), displaying warnings and suggestions, using estimated durations and user-controlled summary tasks
- Manage multiple projects.
  - This objective may include but is not limited to: creating a shared resource pool, connecting to a resource pool, creating links between projects, resolving conflicts between linked projects, working with master projects and sub-projects, summarizing data in master projects

## Manage Resources and Assignments

- Enter and edit resource information.
  - This objective may include but is not limited to: entering and editing max units, resource types, resource rate table, cost per use, availability, resource group, generic resources, and cost resources
- Create and edit resource assignments.
  - This objective may include but is not limited to: using task forms, assigning multiple resources, assigning resources to tasks using units that represent part-time work, editing assignments
- Manage resource allocation.
  - This objective may include but is not limited to: viewing task and resource usage, viewing availability across multiple projects, changing assignment information, leveling, replacing resources
- Manage resource allocations by using Team Planner.
  - This objective may include but is not limited to: displaying current resource allocations and assignments, managing unassigned tasks, resolving resource conflicts, leveling resource overallocations, substituting resources
- Model project costs.
  - This objective may include but is not limited to: entering and assigning resource-based costs (work, material, cost), cost per use, fixed costs, accrual method, applying a resource rate table

## Track and Analyze a Project

- Set and maintain baselines.
  - This objective may include but is not limited to: using multiple baselines, baselining an entire project, baselining selected tasks, updating a baseline
- Update actual progress.
  - This objective may include but is not limited to: updating percentage completion, actual or remaining duration, actual work, remaining work, status date, current date, actual start and actual

finish, using actual work and usage views, rescheduling uncompleted work, cancelling an unneeded task

- Compare progress against a baseline.
  - This objective may include but is not limited to: using date variance, work variance, cost variance, and task slippage, showing variance of the current plan against baseline (tracking Gantt), selecting a view to display variance
- Resolve potential schedule problems.
  - This objective may include but is not limited to: displaying warnings, suggestions, and task drivers by using Task Inspector and Task Path, identifying resource overallocations
- Display Critical Path information.
  - This objective may include but is not limited to: viewing the critical path in single or master projects, viewing total slack, displaying progress against baseline or deadlines

## Communicate Project Information

- Apply and customize views.
  - This objective may include but is not limited to: using auto-filter, applying views, grouping, filtering, highlighting, creating and managing tables, sorting, customizing views, sharing a view with Organizer
- Share data with other applications.
  - This objective may include but is not limited to: importing data from Excel, exporting data to Excel, attaching documents or linking hyperlinks to supporting information, copying and pasting timeline and reports to other Office Web Apps, creating and generating visual reports in Excel and Microsoft Visio, exporting a timeline view to e-mail
- Configure and display reports and dashboards.
  - This objective may include but is not limited to: reporting progress status, saving to PDF or XPS, displaying Gantt information, schedule, or timeline, displaying data based on date range, creating built-in dashboards and reports, changing and customizing built-in dashboards and reports, copying pictures, working with cumulative fields

- Connect and share data with SharePoint.
  - This objective may include but is not limited to: syncing to SharePoint, sharing plans and getting updates through SharePoint, sharing project plans through SharePoint (bi-directional sync of tasks, progress, and timeline elements), collecting actual progress from a team through SharePoint
- Extend Project 2013.
  - This objective may include but is not limited to: acquiring Apps from the Office Store, saving files in SkyDrive, acquiring templates from Office.com, automating frequent tasks with Visual Basic for Applications (VBA)

## **Test Objectives for Microsoft Project Server 2013 Test – 74-344**

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### **Skills Being Measured**

This exam measures your ability to accomplish the technical tasks listed below. The percentages indicate the relative weight of each major topic area on the exam. The higher the percentage, the more questions you are likely to see on that content area on the exam.

The information after “This objective may include but is not limited to” is intended to further define or scope the objective by describing the types of skills and topics that may be tested for the objective. However, it is not an exhaustive list of skills and topics that could be included on the exam for a given skill area. You may be tested on other skills and topics related to the objective that are not explicitly listed here.

## Create Enterprise Projects and Portfolios

- Define strategic alignment.
  - This objective may include but is not limited to: defining business drivers, creating multiple driver prioritizations, analyzing consistency ratio, rating projects against business drivers, determining primary cost constraints, determining resource constraints
- Optimize portfolios.
  - This objective may include but is not limited to: setting project dependencies, creating a portfolio analysis, reviewing and modifying prioritizations in an analysis, forcing projects in and out of analysis, determining hired resources, comparing and running simulations for project portfolio selection, adding additional constraints
- Create a new enterprise project.
  - This objective may include but is not limited to: creating a project by choosing a specific project type and going through a workflow, creating a Microsoft SharePoint task list project, creating SharePoint item lists for ideation and requests, using workflow approvals, importing projects through Project Professional, creating and managing project schedules using Project Web App, saving and checking in projects
- Create a program with master projects and sub-projects.
  - This objective may include but is not limited to: inserting sub-projects, creating cross-project task dependencies, creating a temporary master project, calculating sub-project summary fields, displaying a master project in Project Web App

## Plan Enterprise Projects and Resources

- Manage resources and teams.
  - This objective may include but is not limited to: editing resources with Project Web App, editing resources with Project Professional,

creating team resources, creating team assignments, adding a team task to a task page or timesheet, mapping resource roles (Portfolio analysis)

- Build a resource plan.
  - This objective may include but is not limited to: building a team for a resource plan, building a resource plan for a project, setting resource utilization, using committed vs. proposed assignments
- Build a project team.
  - This objective may include but is not limited to: building a Project Team through Project Professional, building a Project Team through Project Web App, replacing generic resources, working with proposed assignments, importing a team resource plan
- Resolve resource overallocations across projects.
  - This objective may include but is not limited to: using leveling tools, using Team Planner, Task usage, and Resource Center availability views, evaluating how SharePoint task list projects impact availability
- Baseline enterprise projects.
  - This objective may include but is not limited to: setting a protected baseline, setting a baseline from Project Web App, setting a baseline from Project Professional, clearing a baseline, copying a baseline

## Track and Collaborate on an Enterprise Project

- Select a tracking method.
  - This objective may include but is not limited to: using percent complete, hours per period, actual work remaining, freeform, done, and not done fields
- Manage task assignments.
  - This objective may include but is not limited to: publishing assignments, selecting a status manager, selecting an assignment owner, setting the published values for individual tasks
- Update tasks and timesheets.
  - This objective may include but is not limited to: submitting and recalling timesheets, inserting and removing tasks, reassigning

tasks, updating Task Status from SharePoint My Tasks, submitting updates from My Tasks

- Approve tasks and timesheets.
  - This objective may include but is not limited to: accepting task updates from tasks or timesheets, viewing impact of updates on a project, rejecting updates, approving and rejecting timesheets, managing delegations
- Update a project schedule.
  - This objective may include but is not limited to: rescheduling uncompleted work, updating cost resources, publishing schedule changes, utilizing task update history, updating schedules with protected user updates, closing tasks for updates

## Manage Configurable Enterprise Objects

- Customize Project Web App views and reports.
  - This objective may include but is not limited to: creating a portfolio report using Microsoft Excel, creating dashboards, copying and editing views, setting default views, renaming field names, grouping, filtering, and sorting views
- Manage and extend Project Online and Project Server.
  - This objective may include but is not limited to: creating and managing enterprise project templates, defining enterprise custom fields, defining Project Server workflows, defining enterprise global objects, extending with Office Store apps, adding social elements
- Manage risks, issues, and deliverables.
  - This objective may include but is not limited to: adding risks and issues, adding documents, adding deliverables, setting a dependency on a deliverable, synchronizing deliverables with projects, linking related items
- Customize a project site.
  - This objective may include but is not limited to: adding Document Library, adding Lists, adding Calendar, adding Folders, modifying site layout, creating program (master-sub) structure using subsites

Best of luck to you on the tests.

