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SEE-HOW guide!



Plain & Simple

Microsoft Project 2013



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Creating and modifying tasks

A key part of managing any project is defining the tasks that need completing. In project management terms this list of tasks is called a Work Breakdown Structure, or WBS. Within the WBS, tasks should be grouped together so that the completion of a group of tasks comprises the completion of a significant piece of work. Tasks are grouped together beneath a summary task that will summarize duration, cost, and work totals for a section or deliverable item of work. Each group of tasks should also have a milestone task associated with it. A milestone task is an indicator of a goal date by which the section of work will be completed.

4

In this section:

- Understanding and setting the schedule mode
- Entering tasks
- Indenting tasks
- Outdenting tasks
- Inserting new tasks into the schedule
- Moving tasks around the schedule
- Moving summary tasks around the schedule
- Deleting Tasks

Understanding and setting the schedule mode

To create a project schedule, you enter tasks and create relationships or dependencies between the tasks. The task durations (length of time) along with their relationships to other tasks establish the timeline for a schedule. The schedules mode defines how the scheduling engine in Microsoft Project 2013

Manually scheduled tasks

When a task is manually scheduled (this is the default setting), you are in complete control of the task duration, start date, and finish date. During the planning phase of a project, the duration, start date, and finish dates can all be blank or may contain textual information. As task durations, start dates, and finish dates change on predecessor tasks, manually scheduled tasks will not be rescheduled in light of these changes. You can use the Manually Scheduled task mode for preplanning a project, and it gives you the ability to develop a schedule using top-down scheduling (where each significant piece of work, or summary task, is then subdivided into more detailed pieces of work).

Auto scheduled tasks




Tasks that are auto scheduled will always have a duration, start date, and finish date, and because task durations, start dates, and finish dates change on predecessor tasks, auto scheduled tasks will be rescheduled to reflect these changes. Auto Scheduling mode is the scheduling mode that was used in earlier versions of Project. It allows for bottom-up planning (where the detail tasks are planned and Project accumulates work and cost data into the summary tasks).

will schedule the task. For any individual task the scheduling mode can be either of the following:

- Manually Scheduled
- Auto Scheduled

You can change the scheduling mode for any task at any time, and the mode is unique per task. Remember that manually scheduled tasks can have incomplete information in the start, finish, or duration values. If the schedule mode of such a task is changed from Manually Scheduled to Auto Scheduled, Project will complete these fields. Both schedule modes may be used within the same project schedule.

The following icons are used to visually represent a task's task mode within Project:

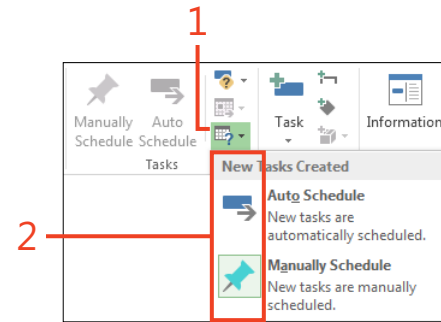
Mode	Icon	Comment
Manually Scheduled		Sufficient data is in the Duration, Start, and Finish fields to fully understand when this task will start and finish.
Manually Scheduled		One or more of the Duration, Start, or Finish fields needs additional information in order to know when the task will start and finish.
Automatically Scheduled		The Duration, Start, and Finish fields always contain sufficient data to know when the task will start and finish.

Define the default schedule mode for a project

- 1 In the Task tab, click the Mode drop-down list.
- 2 Select the schedule mode for new tasks.

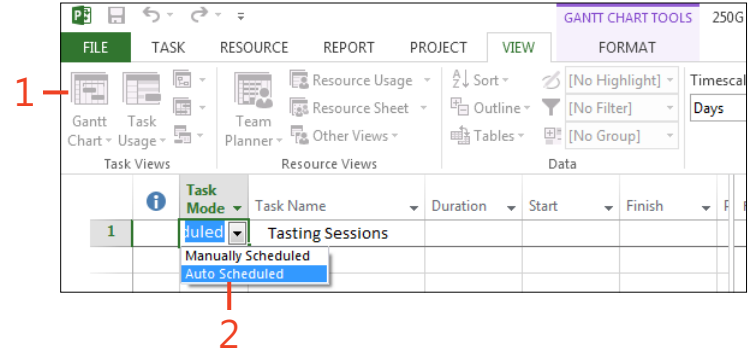
TIP You can set the default schedule mode for all new projects within the scheduling options. To access the schedule options, click File --> Options --> Schedule. You will find them in the scheduling options for this project section.

TIP The schedule mode for new tasks is displayed on the Status Bar and can be changed by clicking the schedule mode on the Status Bar.

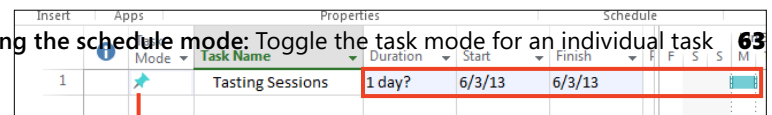
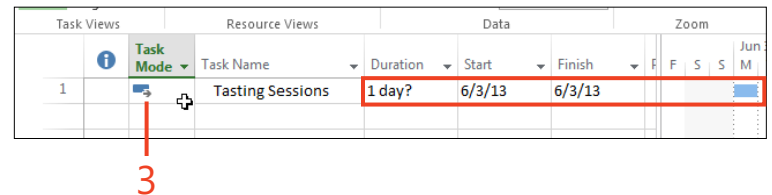


Toggle the task mode for an individual task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view. This view contains the Task Mode column.
- 2 Select the task mode from the drop-down list for the task.
- 3 Hover the pointer over the Task Mode icon to review the task mode.
- 4 Click the Task Mode drop-down list to change the task mode back to Manually Scheduled.



CAUTION Changing task modes from Manually Scheduled to Auto Scheduled can change the dates for the task and can have consequences for other tasks in the plan.

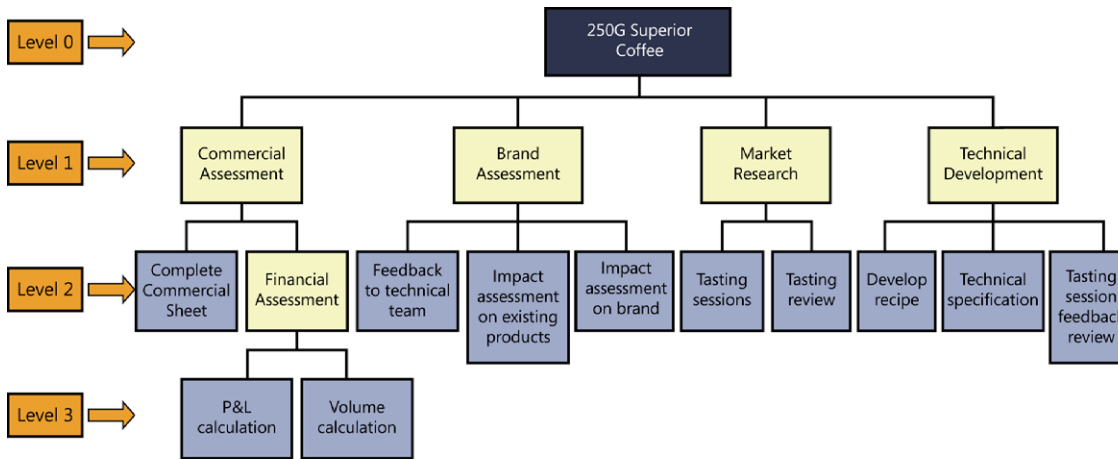


Tasks and the Work Breakdown Structure


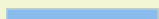


The set of tasks required to complete a project is known as the Work Breakdown Structure (WBS). The WBS places the tasks in a hierarchy and allows the tasks to be logically grouped together. Logical groups of tasks are called Summary Tasks.

Detail, summary, and milestone tasks

Not all tasks are created equal, and Project has three distinct classifications of tasks to help you plan your schedule:



- Detail Task** Each detail task represents a piece of work that needs to be accomplished in order to complete the project.
- Summary Task** Each summary task represents a section of work, and as such it has one or more detail (or summary) tasks below it. Information (such as duration, work, cost, and other values) are summarized from the detail tasks into the summary tasks.
- Project Header** The Project Header defines the name of the project, and it sits at Level 0. In Microsoft Project, level 0 is also known as the Project Summary Task. Information (such as duration, work, cost, and other values) are summarized up towards the top of the WBS.

Task classification	Representation on the Gantt chart	Comment
Detail task	Manually Scheduled 	A detail task (also known as a normal task in Project) represents a discrete piece of work—for example, Complete Commercial Sheet and P&L Breakdown are two detail tasks.
	Auto Scheduled 	
Summary task		A summary task represents a selection or logical grouping of detail tasks—for example, the Commercial Summary task groups together all of the detail tasks that are necessary to fulfil the commercial aspects of the project.
Milestone task		A milestone task is used to define a point in time and does not represent performable work. Milestone tasks are generally used to highlight and report on critical or important events within the schedule.

4: CREATING AND MODIFYING TASKS

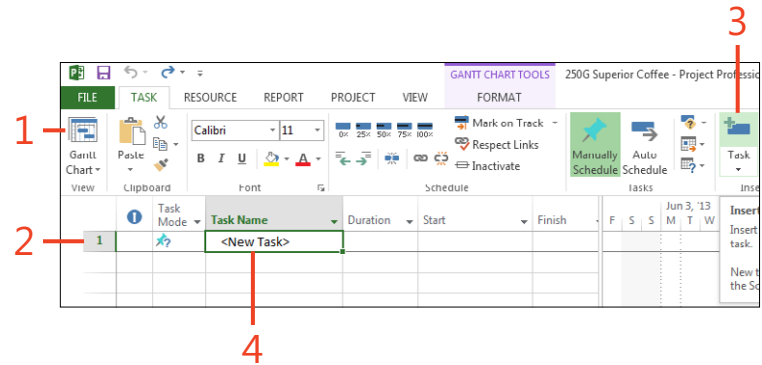
Entering tasks

Entering tasks correctly is one of the most important actions you will do on your project. The list of tasks (detail tasks) should define the sum of the work required to complete the project. Tasks should be grouped together to provide a hierarchy (called

a Work Breakdown Structure, or WBS) for the work using summary tasks, which allows for better organization of the task list. It's best practice for the completion of each grouping of tasks to be represented by a milestone task.

Enter a detail task

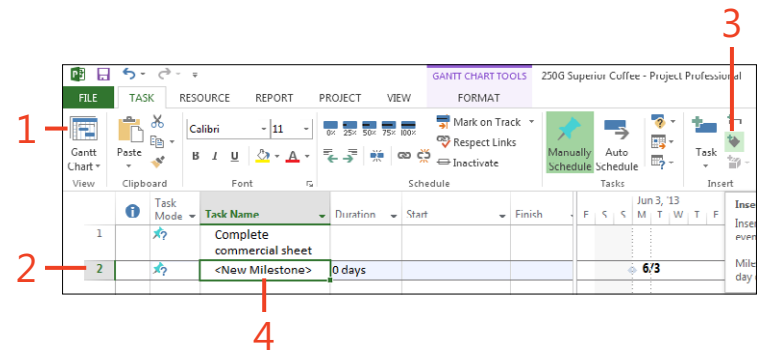
- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Click the row header of the task below where you want the new task inserted (this selects the task).
- 3 Click the Insert Task button.
- 4 Change the name of the task in the table.



TIP You can easily enter detail tasks directly into the table area by typing into the Task Name column.

Enter a milestone task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Click the row header of the task below where you want the milestone task inserted (this selects the task).
- 3 Click the Insert Milestone button.
- 4 Change the name of the milestone task in the table.



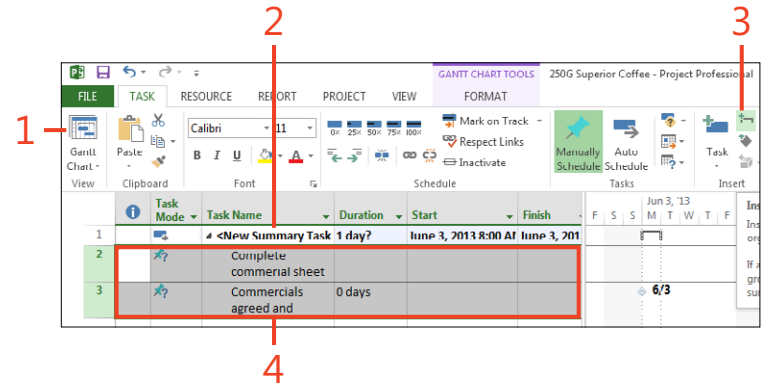
TRY THIS Milestones have zero days duration, so a quick way to create a milestone is to enter a duration of 0 directly in the Duration column in the table.



TIP Use past tense verbs to help name your milestones—for example, "Sign-off completed".

Enter a summary task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Select the tasks that you want to become subtasks of the new summary task.
- 3 In the Task tab, within the Insert group, click the Insert Summary Task button.
- 4 Change the name of the new summary task in the table.



TIP It's easy to visualize the summary tasks because the subtasks within the hierarchy are indented beneath the summary task within the task list.



TIP Summary tasks are always created as Auto Scheduled tasks, and hence their duration will always be equal to the duration of the longest sequence of tasks within their hierarchy. If you want to manually control the number of days duration you require to complete a summary task, change the task mode to Manually Scheduled.

Indenting tasks

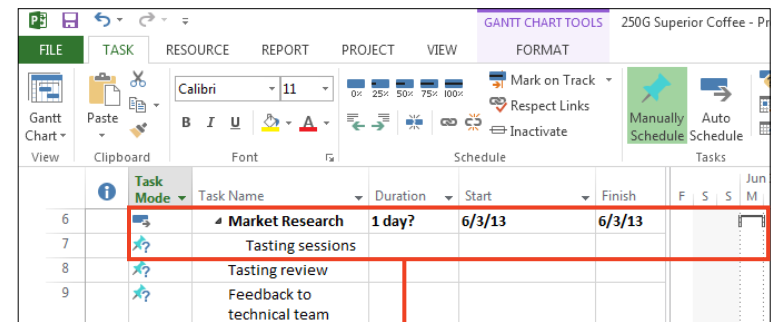
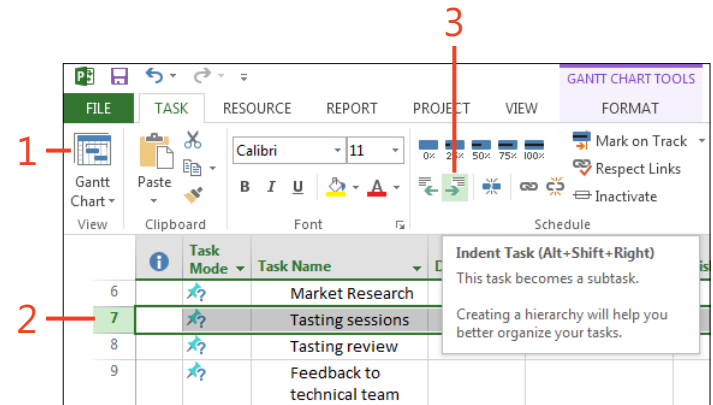
When a task is entered into the schedule, it's placed at the same hierarchy level as the task above it. When you build your WBS, you might need to indent a task so that it becomes a subtask of the task above, which becomes a summary task. A task's specific level is called its Outline Level, and tasks can be indented so that their level changes.

Indenting tasks can have different consequences depending upon the task mode and, if the task is manually scheduled, whether a duration value has already been entered for the task. The following table explains the different effects that indenting a task might have:

Task status	Indent Effect
Auto Scheduled task	The task becomes a summary task and remains auto scheduled. The start and finish dates are automatically calculated from the earliest start and the latest finish of the subtasks. The duration is automatically calculated as the difference between these two dates.
Manually Scheduled task with no duration	The task becomes a summary task and the task mode changes to auto scheduled. The start and finish dates are automatically calculated from the earliest start and the latest finish of the subtasks. The duration is automatically calculated as the difference between these two dates.
Manually Scheduled task with a duration	The task becomes a summary task and remains manually scheduled. If start and finish dates exist, they are not changed. If they were blank, then they are calculated from the project start date.

Indent a task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Click the task row header to select the task that requires indenting.
- 3 In the Task tab, click the Indent Task button.
- 4 View the indented detail task and summary task.



TIP To see the outline level of the tasks, insert the Outline Level column into the table area. The highest level is 0 (representing the Project Summary Task) and the number of levels is virtually unlimited. The more levels that are created, the more complex the WBS might become.



TRY THIS Use the shortcut key of Alt+Shift+Right to quickly indent a task.

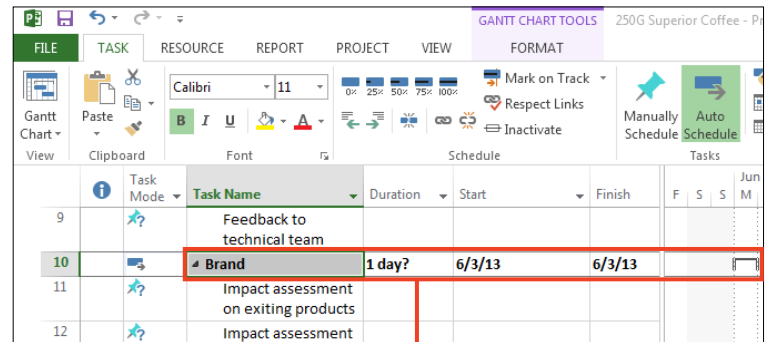
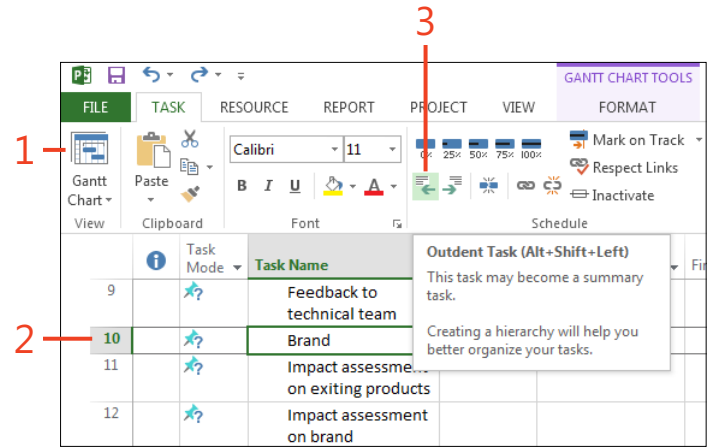
Outdenting tasks

When a task is entered into the schedule, it's placed at the same hierarchy level as the task above it. When you build your WBS, you might need to outdent a task so that it sits at the right level. If there are tasks at the same hierarchical level below the task

that will be outdented, the outdented task becomes a summary task. A task's specific level is called its outline level, and tasks can be outdented so that their level changes.

Outdent a task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Highlight the task that requires outdenting.
- 3 In the Task tab, click the Outdent Task button.
- 4 Review the tasks.



TRY THIS Use the shortcut key of Alt+Shift+Left to quickly outdent a task.

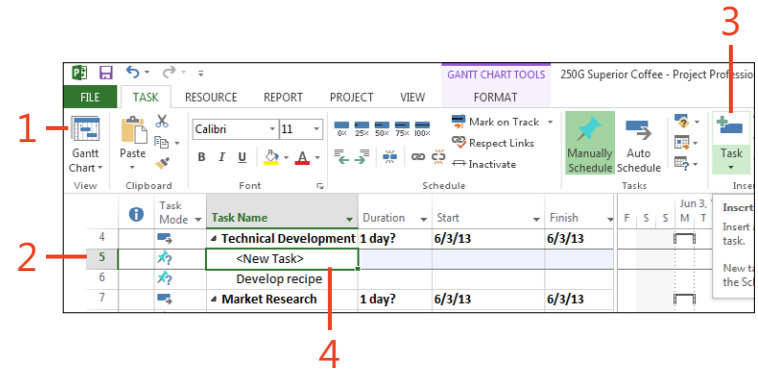
Inserting new tasks into the schedule

Inserting new tasks into the schedule is a very common process, especially during the planning phase, when you are focusing on ensuring that your WBS is complete. Tasks are always inserted

at the same outline level as the task above the insertion point. Therefore, you might need to indent or outdent the new task to adjust it to the required outline level.

Insert a task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Select the task below where you want the detail task inserted.
- 3 Click the Task button.
- 4 Change the name of the task in the table.



TRY THIS Instead of using the Insert Task button, press the Insert key on your keyboard instead or type directly into a blank row in the sheet.

Moving tasks around the schedule

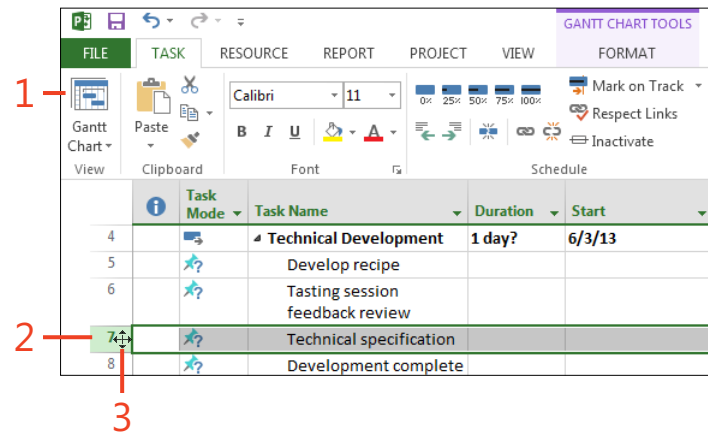
When you initially create the schedule, tasks (or groups of tasks) might not be displayed in the correct order and might need to be moved up or down the task list. It's possible to move individual tasks, a selection of tasks, or a summary task (which moves all the tasks within its hierarchy). You can move a selection of tasks only if they are next to each other.

Move a single task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Select the task by clicking on the task row header.
- 3 Move the cursor over the task row until the four-arrow cursor (the move cursor) appears.

(continued on next page)







When a task is moved within a schedule, its outline level will be changed to equal the outline level of the task that is now immediately above it. Consequently, moving tasks and indenting and outdenting tasks go hand in hand.









Move a single task *(continued)*

- 4 Drag the task to the desired location (a horizontal gray line indicates the current cursor position).
- 5 Review the location of the moved task.

4

	 Task Mode ▾	Task Name ▾	Duration ▾	Start ▾	Finish ▾
4		Technical Development	1 day?	6/3/13	6/3/13
5		Develop recipe			
6		Tasting session feedback review			
7		Technical specification			
8		Development complete			

5

	 Task Mode ▾	Task Name ▾	Duration ▾	Start ▾	Finish ▾
4		Technical Development	1 day?	6/3/13	6/3/13
5		Develop recipe			
6		Technical specification			
7		Tasting session feedback review			
8		Development complete			



TIP You can move multiple tasks by left-clicking on the task row header and dragging the mouse up or down to select the desired rows to move. Once the mouse is released, the move cursor appears and you can then click the mouse to drag the rows to the desired location. Only adjacent task rows can be moved together.

Moving summary tasks around the schedule

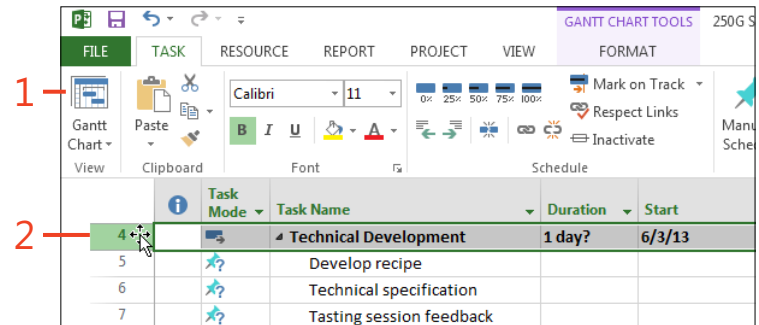
When you initially create the schedule, tasks (or groups of tasks) might not be displayed in the correct order and might need to be moved up or down the task list. The easiest way to change the order of a group of tasks within the list is to move the summary task, which moves all the tasks within the hierarchy.

When a task is moved within a schedule, its outline level will be changed to equal the outline level of the task that is now immediately above it. Consequently, moving tasks and indenting and outdenting tasks go hand in hand.

Move a summary task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view).
- 2 Select the summary task by clicking on the task row header.
- 3 Drag the summary task and all related detail tasks to the desired location (a horizontal gray line indicates the current cursor position).

(continued on next page)



	Task Mode	Task Name	Duration	Start	F	S
4	Summary Task	Technical Development	1 day?	6/3/13		
5	Detail Task	Develop recipe				
6	Detail Task	Technical specification				
7	Detail Task	Tasting session feedback review				
8	Detail Task	Development complete				
9	Summary Task	Market Research	1 day?	6/3/13		
13	Summary Task	Brand	1 day?	6/3/13		
14	Detail Task	Impact assessment on exiting p				
15	Detail Task	Impact assessment on brand				
16	Detail Task	Brand assessment completed				
17	Summary Task	Factory Trial	1 day?	6/3/13		
18	Detail Task	Order product and primary pac				

3

Move a summary task *(continued)*

- 4 Review the location of the moved summary task (and related subtasks).
- 5 If the task requires outdenting, click the Outdent Tasks button in the Task tab.

The screenshot shows the Microsoft Project interface. The 'TASK' ribbon is active, and the 'Outdent Task' button (represented by a left-pointing arrow) is highlighted with a red arrow labeled '5'. A tooltip for this button is displayed, stating: 'Outdent Task (Alt+Shift+Left) This task may become a summary task. Creating a hierarchy will help you better organize your tasks.' In the task table below, the task 'Technical Development' (row 12) is highlighted with a green background and a red arrow labeled '4'. The task table is as follows:

ID	Task Name	Duration	Start	Finish
4	Market Research	13		
8	Brand	13		
9	Impact assessment			
10	Impact assessment on brand			
11	Brand assessment completed			
12	Technical Development	1 day?	6/3/13	
13	Develop recipe			
14	Technical specification			
15	Tasting session feedback rev			
16	Development complete			
17	Factory Trial	1 day?	6/3/13	
18	Order product and primary pac			
19	Run trial			



TRY THIS Moving any task places it at the same outline level as the task immediately above it in the entry table. When moving summary tasks, collapse the summary tasks to hide the subtasks and then move the summary task. Not only will this reduce the amount of indenting and outdenting you might need to do, but also it will reduce the number of tasks you see on the screen, allowing you to concentrate on the summary tasks and therefore reduce the amount of scrolling you might need to do.



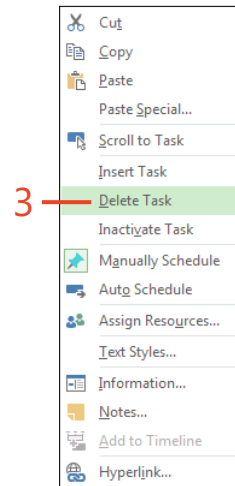
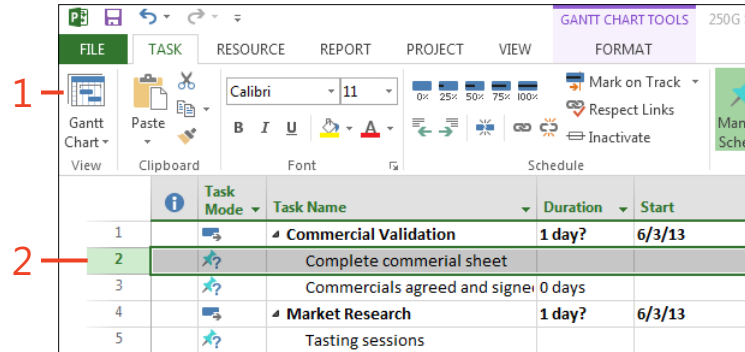
TIP Cut and paste is also an effective method for relocating tasks. To paste the task(s) at the desired location, click the task below where the tasks are to be inserted and click Paste. There is no need to create available lines before pasting the tasks.

Deleting tasks

During the planning phase, tasks that are no longer required can be deleted.

Delete a task

- 1 In the Task tab, click the Gantt Chart button to select the Gantt Chart view (or any task-related view)
- 2 Select the task to delete.
- 3 Right-click the task row and choose Delete Task from the menu.



CAUTION If you delete a summary task, all the tasks within that hierarchy will also be deleted; Project displays a warning to this effect.



TIP If you have accidentally deleted a task, you can click the Undo button on the Quick Access Toolbar to undo the last command.

Setting estimates

After the tasks are entered in the schedule to create the Work Break-down Schedule the next step is to estimate task durations and work values. Duration is defined as the length of time a task will take to complete. Work is defined as the amount of work (number of hours of effort) it will take to complete the task. For each detail task you should consider whether it's best to estimate the duration or the work, or both. Estimating these values correctly is not easy and will result in many adjustments until the values are right for the project.

5

In this section:

- Entering duration estimates for detail tasks
- Entering duration estimates for summary tasks
- Entering work estimates
- Marking tasks that need an estimation review

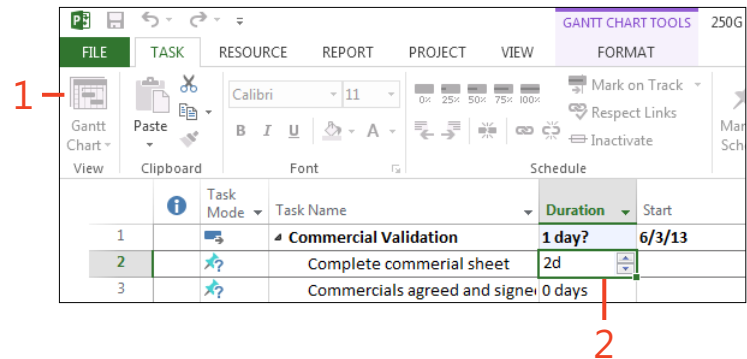
Entering duration estimates for detail tasks

The duration estimate is an estimate of how long between the start of a task and the finish of the task the task will take. Durations are entered by default in days, but they can also be entered in minutes, hours, weeks, or months. If a task is not dependent on the hours worked per day, such as curing concrete, then the duration should be entered as elapsed time; elapsed time is considered waiting time.

Enter duration estimates

- 1 In the Task tab, click the Gantt Chart view.
- 2 Enter the duration in the Duration column (for example, 2d, which means 2 days).

For all tasks, Microsoft Project calculates the duration end date for the task based upon the working time as defined in the project calendar. A two-day duration task that starts on a Friday will typically end on the following Monday (because by default Saturday and Sunday are nonworking days).



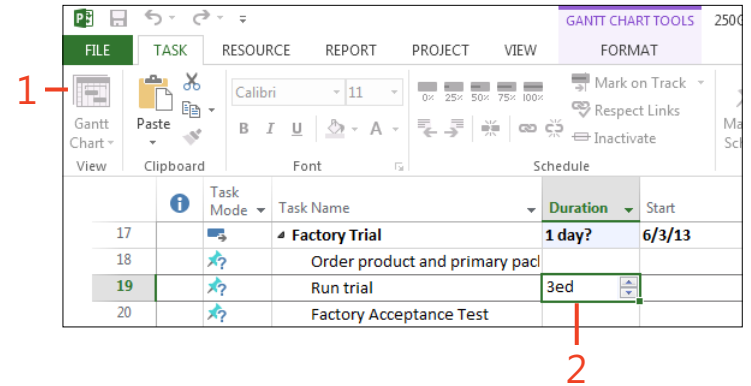
TIP When you press Return, the value 2d is converted to 2 days. You may enter values in minutes (m), hours (h), days (d), weeks (w), or months (mo).



TIP Set a task with a duration of zero days to quickly convert the task to a milestone.

Enter elapsed duration estimates

- 1 In the Task tab, click the Gantt Chart view.
- 2 Enter the duration with e in front of the units (for example, 3ed).



TIP When you press return, the value 3ed is converted to 3 edays. You may enter elapsed duration values in minutes, hours, days, weeks, or months.



TIP Elapsed time ignores any nonworking time defined on the calendar.

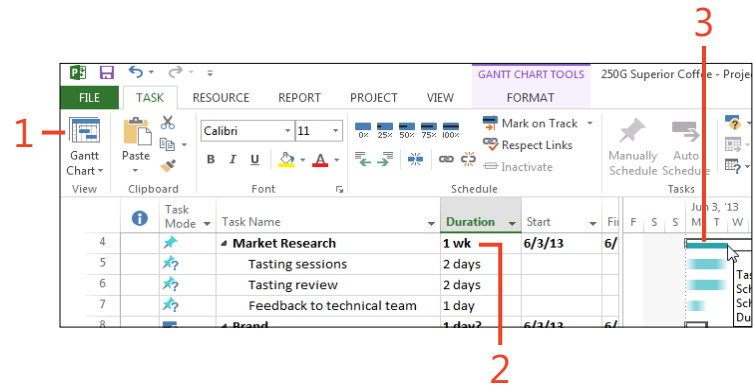
Entering duration estimates for summary tasks

You can enter duration estimates against summary tasks; doing so will change the summary task into a manually scheduled task if it isn't already. If you are doing top-down planning or have been given a specific duration during which you must complete a phase or a set of tasks, then you might want to enter a duration against a summary task. The duration entered effectively

becomes the "duration budget" for the task and by means of the Gantt chart, Project displays whether you are under or over this duration budget. This is a very useful feature when you are decomposing a high-level summary task into multiple detail tasks.

Enter a duration estimate for a summary task

- 1 In the Task tab, click the Gantt Chart view.
- 2 Enter the duration against the summary task.
- 3 Review the change on the Gantt chart.



CAUTION Entering a duration for a summary task changes it to a manually scheduled task; this might have consequences later if task dependencies have been created between a subtask of this summary task and other auto scheduled tasks.



TIP If you want to remove the duration estimate for a summary task and have the duration calculated from the subtasks, change the task mode for the summary task to auto scheduled.

Entering work estimates

The work estimate is the estimate of the total amount of man days or hours required to complete the task. Entering work estimates is useful when you have a budget in terms of number of days or hours of a resource's time that you have access to or when you have a monetary budget which can then be expressed in a number of days (for example, \$5,000 equates to 10 man days at \$500 per day).

Entering a work estimate is also useful if you know that the task is relatively short but that the resource that will perform the

task has a longer period of time to complete it. For example, the work required is half a day (or four hours), but the task will require five days of duration for it to be completed.

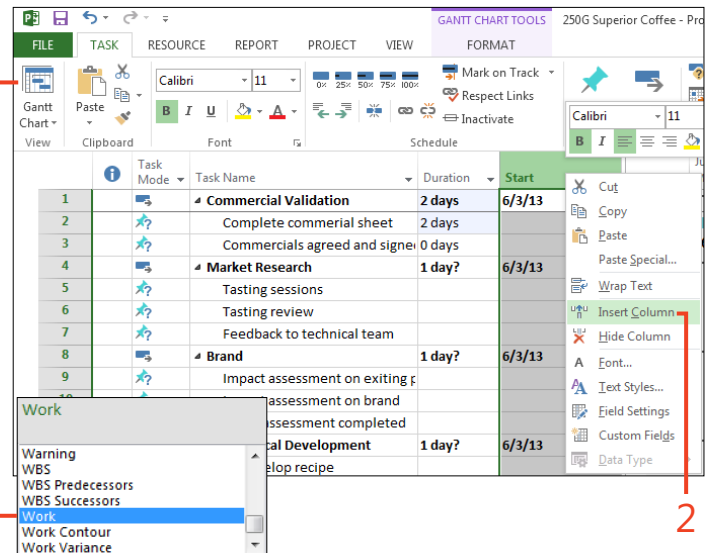
Work estimates can be entered only on detail tasks, and the values are rolled up and summarized for each summary task.

Before a work estimate can be entered for a task, the work column needs to be inserted into the table, and once it's inserted it will remain visible until it's hidden.

Enter the work estimates

- 1 In the Task tab, click the Gantt Chart view.
- 2 Right-click the Start column title and select Insert Column.
- 3 Select the Work column from the drop-down list.
- 4 Enter the work values for the detail tasks.

	Task Mode	Task Name	Duration	Work
1		Commercial Validation	2 days	8 hrs
2		Complete commercial sheet	2 days	8 hrs
3		Commercials agreed and signed	0 days	0 hrs



TIP To enter work in hours, just enter the number of hours. You may enter values in minutes (m), hours (h), days (d), weeks (w), or months (mo).



CAUTION Do not enter work for summary or milestone tasks.

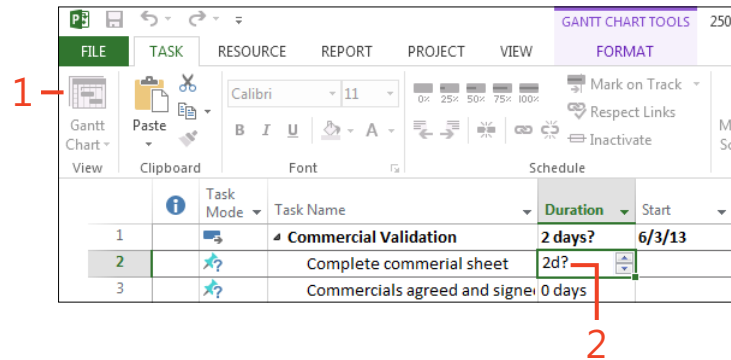
Marking tasks that need an estimation review

The process of estimation is often an iterative procedure, so it might take several reviews of an estimate before you feel that it's right for the project. To help with this process, Project allows you enter durations as estimated by placing a ? after the duration units. For example, 5d? equates to an estimated duration of five days. Both automatically scheduled and manually scheduled

tasks can have estimated durations. However, the estimated flag (denoted by the ? in the Duration field) will be removed for a manually scheduled task when both the start date or finish date is modified. Automatically scheduled tasks, once set with an estimated duration, remain as estimated until the task duration is altered, whereupon the ? disappears.

Mark a task with an estimated duration

- 1 In the Task tab, click the Gantt Chart view.
- 2 Enter the duration estimate with a ? in the Duration column.



TIP You can also set the task to be estimated by choosing the Estimated check box in the General tab in the Task Information dialog box. Double-click a task to access the box.



TIP Automatically scheduled tasks have an estimated duration of one day (1d?) by default.

Linking the tasks

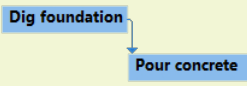
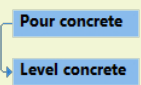
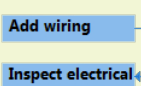
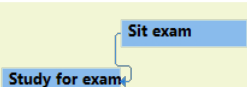
Tasks within a project are often dependent upon one another—for example, the completion date of one task determines when another can start. Tasks linked by a dependency are called either a predecessor task (the driving task) or a successor task (the driven task). These links between tasks are called dependencies, and there are four types: Finish to Start, Start to Start, Finish to Finish, and Finish to Start. The default dependency type is Finish to Start.

6

In this section:

- Linking dependent tasks
- Changing the dependency type
- Unlinking tasks
- Adding a lag or lead time to a dependency
- Displaying task paths

6: LINKING THE TASKS

Dependency Type	Example	Description
Finish to Start (FS) dependency		The default dependency type is Finish to Start. The finish date of the predecessor task drives the start date of the successor task. For example, if you have two tasks, "Dig foundation" and "Pour concrete," the "Pour concrete" task cannot begin until the "Dig foundation" task is complete.
Start to Start (SS) dependency		The start date of the predecessor task drives the start date of the successor task. For example, if you have two tasks, "Pour concrete" and "Level concrete," the "Level concrete" task cannot begin until the "Pour concrete" task begins.
Finish to Finish (FF) dependency		The finish date of the predecessor task drives the finish date of the successor task. For example, if you have two tasks, "Add wiring" and "Inspect electrical," the "Inspect electrical" task cannot be completed until the "Add wiring" is completed.
Start to Finish (SF) dependency		The start date of the predecessor task drives the finish date of the successor task. For example, if you have two tasks, "Revise for exam" and "Sit exam," the "Revise for exam" task will not finish until the "Sit exam" task starts. If the "Sit exam" start date moves, the finish date for my revision also moves.

Each dependency can have a lag time or lead time associated with it. Entering a lag time will delay a task; entering a lead time will cause tasks to overlap.

The effect of linking tasks on schedule data

Linking tasks creates a dependency between the two linked tasks, and Microsoft Project will try to schedule the tasks as a direct consequence of the dependency. Exactly what Project can schedule depends upon the task mode (Auto Scheduled or Manually Scheduled) and the existing data in the Duration, Start, and Finish fields (schedule data).

Linking dependent tasks

Linking tasks together creates a dependency network and starts to show you the order in which the tasks should be completed to successfully manage the project. It's best practice to try and minimize the complexity of links, although, having said that, each nonsummary task in the plan should have both a predecessor (except for the task that represents the start of the project) and a successor (except for the task that represents the finish of the project). When you begin to link tasks, try and think about the dependency type because you might need to change it from the default (Finish to Start) to one of the other types.

A single task could have just one predecessor, but in some cases it may have two or more.

Two columns can be used to display the dependency within a table: the Predecessors column and the Successors column. The columns display the Task ID of the relevant Predecessor/Successor. The Task ID is an identifying number that Project automatically assigns to each task when it's created, and you can see it in the row header.

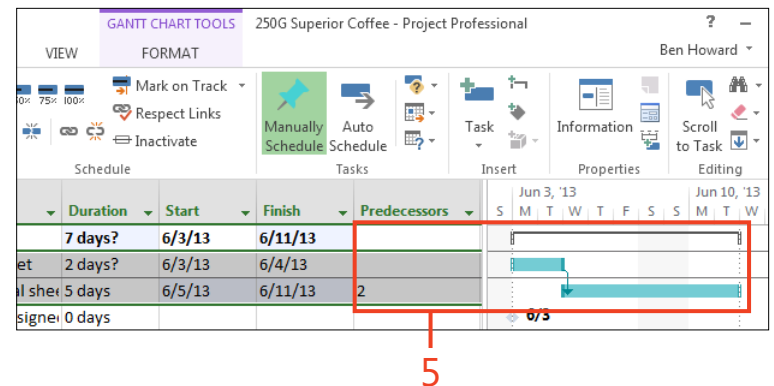
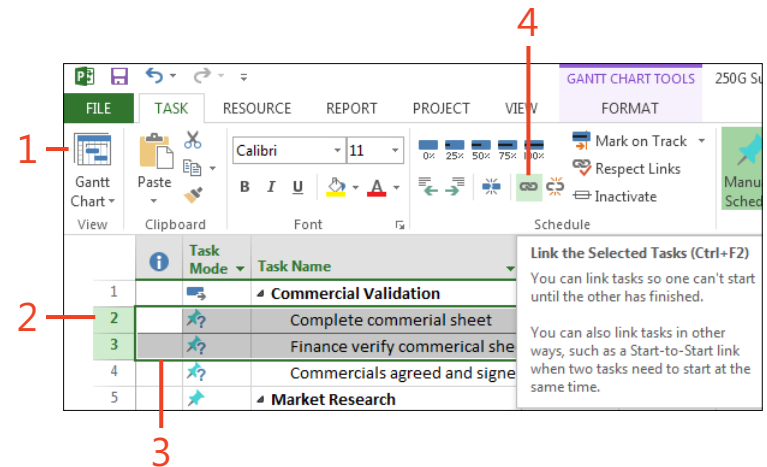
In order to create the dependency, you should view the Gantt chart with the entry table because this view contains both the Task ID and the predecessor columns.

The following are all ways to link dependent tasks:

- Drag from one task to another on the Gantt chart or Network Diagram.
- Select tasks to be linked and use the Link The Selected Tasks button in the Task tab.
- Highlight the tasks to be linked and press CTRL-F2.
- Use the Predecessor tab in the Task Information dialog box.
- Enter the Task ID directly in the Predecessor column or Successor column, or both.

Link dependent tasks

- 1 In the Task tab, click the Gantt Chart view.
- 2 Select the predecessor task (task 2 below) by choosing the task row header.
- 3 Select the successor task (task 3 below) by Ctrl-clicking on the task row header.
- 4 In the Task tab, click the Link the Selected Tasks button.
- 5 Review the result of the link in the Predecessors column and the Gantt chart.



CAUTION Adding a predecessor task to any task can change the finish and start dates for that task, regardless of whether the task is Manually Scheduled or Auto Scheduled. However, removing the predecessor from a Manually Scheduled task will not change the dates.



CAUTION It's best practice not to link summary tasks. Instead, link detail tasks within the summary task and think about creating and linking a milestone to represent the completion of the summary.

Changing the dependency type

The default dependency type is Finish to Start, and although this is the most common dependency used, it's likely that you will need to use the other dependency types, especially when starting one task can lead to the start of one or more other tasks or when the finish of one task can lead to the finish of several other tasks. For example, in a software development project, I can start the testing two weeks after the coding has started. This is known as a Start to Start dependency, and to model it correctly I would add a two-week lag to the testing task (remember that a lag is a period of waiting time).

When a dependency type is not the default (Finish to Start), the dependency type is displayed in the Predecessor and Successor columns, in addition to the Task ID. The dependency type is abbreviated to their initials, so a Start to Start dependency is denoted as SS. For example, if the predecessor to a task is Task ID 2 and the dependency type is Start to Start, I would see the value 2SS in the Predecessor column for the task.

The following table summarizes the dependencies and their abbreviations:

Type	Abbreviation
Finish to Start	FS
Finish to Finish	FF
Start to Start	SS
Start to Finish	SF

The following are all ways to change the dependency type:

- Double-click the link in the Gantt chart and change the dependency type.
- Edit the dependency type directly in the Predecessor column or the Successor column, or both.
- Use the Predecessor tab in the Task Information dialog box to change the dependency link.

Change a dependency type using the Predecessor column

- 1 Click in the Predecessor cell of the task whose dependency you want to modify.
- 2 Enter the Task ID and the dependency in the cell.
- 3 Review the result of the link in the Gantt chart.

	Duration	Start	Finish	Predecessors	Jun 3, '13							Jun 10, '13		
					S	M	T	W	T	F	S	S	M	T
	7 days?	6/3/13	6/11/13											
heet	2 days?	6/3/13	6/4/13											
ical sheet	5 days	6/5/13	6/11/13	2										
nd signed	0 days													

1

	Duration	Start	Finish	Predecessors	Jun 3, '13							Jun 10, '13			
					S	S	M	T	W	T	F	S	S	M	T
	7 days?	6/3/13	6/11/13												
et	2 days?	6/3/13	6/4/13												
l sheet	5 days	6/5/13	6/11/13	2SS											
signed	0 days														

2

	Duration	Start	Finish	Predecessors	Jun 3, '13							Jun 10, '13			
					S	S	M	T	W	T	F	S	S	M	T
idation	5 days?	6/3/13	6/7/13												
mmercial sheet	2 days?	6/3/13	6/4/13												
y commercial sheet	5 days	6/3/13	6/7/13	2SS											
agreed and signed	0 days														

3



CAUTION Changing the dependency type can change the schedule length.



TRY THIS You can also change the dependency type by double-clicking on the dependency link in the Gantt chart. This opens up the Task Dependency dialog box, allowing you to view the associated tasks and change the dependency type.

Unlinking tasks

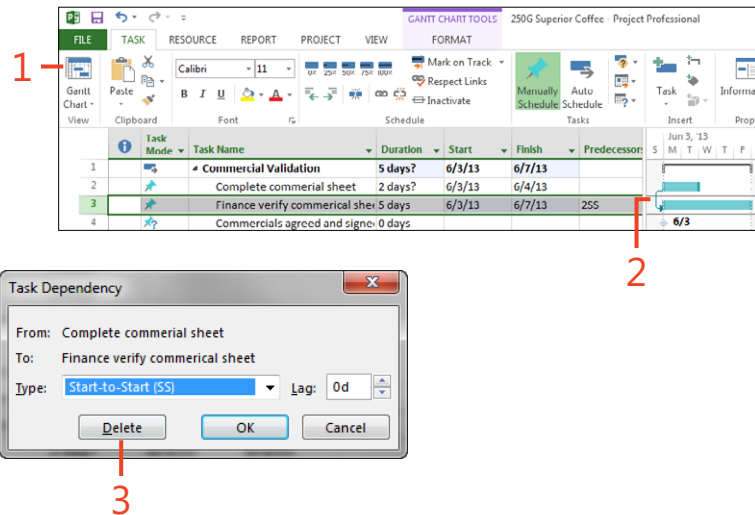
As you create and modify your project schedule, chances are you will need to remove existing links and create new ones. You unlink tasks by deleting the links. The following are ways to delete links:

- Double-click the link in the Gantt chart to open the Task Dependency dialog box.

Unlink a task using the Task Dependency dialog box

- 1 In the Task tab, click the Gantt Chart view.
- 2 Double-click the dependency link in the Gantt chart.
- 3 Click the Delete button.

- Edit the Predecessors column, the Successors column, or both.
- Select the tasks to be unlinked and use the Unlink button in the Task tab.
- Use the Predecessor tab in the Task Information dialog box to set the link to None.



CAUTION Unlinking automatically scheduled tasks changes the start date of the successor task. However, the start date of manually scheduled tasks does not change.



TIP To remove all predecessors and successors to a task, select the task and click the Unlink Tasks button  in the Schedule group in the Task tab.

Unlink a task using the Task Dependency dialog box *(continued)*

- Review the result of deleting the link in the Predecessors column and the Gantt chart.

	Duration	Start	Finish	Predecessors	Jun 3, '13						
					S	M	T	W	T	F	S
rcial Validation	5 days?	6/3/13	6/7/13								
lete commercial sheet	2 days?	6/3/13	6/4/13								
ce verify commercial she	5 days	6/3/13	6/7/13								
ncials agreed and signe	0 days										6/3

4

Adding a lag or lead time to a dependency

In a project, sometimes we need to wait between the end of one task and the start of another. In Project we can enter a number of days to represent this waiting period. This is called a lag. Conversely, we might be able start a task even before its predecessor has finished. Project calls this lead time, and this can also be entered as a number of days. An example of a lag would exist in a construction project, where we might need to wait for a week for plaster to dry before it can be painted.

Not only can the lag and lead times be expressed as a duration value (for example, 5 days), but they can also be expressed as a percentage of the predecessor's duration (for example, 50%).

In Project, a lead time is entered as a negative number of days—for example, entering -2 defines a lead time of two days

(essentially a lead time is entered as a negative lag time).

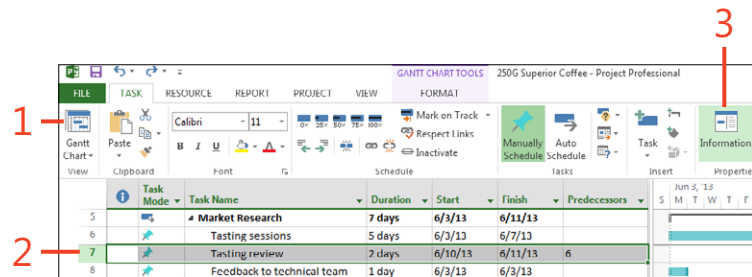
The following are ways to add a lag or lead time:

- Double-click the link in the Gantt chart and enter the lag or lead time.
- Edit the lag or lead time directly in the Predecessor column, the Successor column, or both.
- Use the Predecessor tab in the Task Information dialog box to enter the lag or lead time.

Add a lag time by using the Task Information dialog box

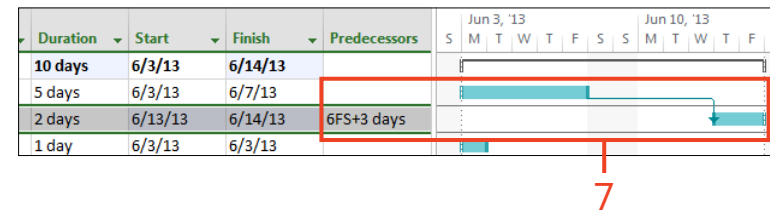
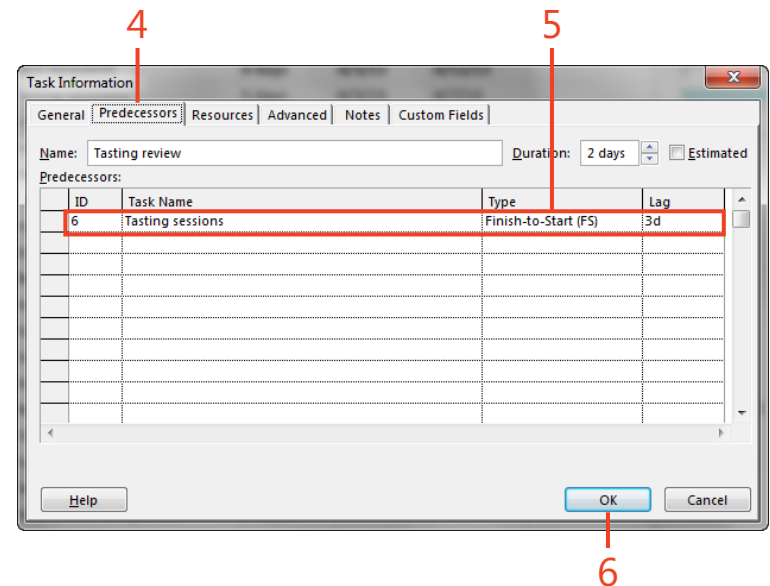
- 1 In the Task tab, click the Gantt Chart view.
- 2 Select the successor task by choosing the task row header.
- 3 Click the Task Information button in the Task tab.

(continued on next page)



Add a lag time by using the Task Information dialog box *(continued)*

- 4 Click the Predecessors tab.
- 5 Select the predecessor to modify and type in the lag time.
- 6 Click OK.
- 7 Review the result of entering the lag time in the Predecessors column and on the Gantt chart.



TRY THIS To create a lag based upon the predecessor's duration, enter a lag time as a percentage (for example, 50%). Then change the duration of the predecessor task and you will see the lag time change for the successor task.

Displaying task paths

Trying to unravel the complexity of a large project plan can be quite difficult, especially with multiple links between tasks and links that might even disappear from the screen. Microsoft has created a new feature called the Task Path that highlights the successors and predecessors in the schedule. The highlighting is displayed in the Gantt chart, and as the user scrolls through the list of tasks, the relevant task paths are highlighted in the Gantt chart, allowing you to see how the selected task fits into the overall schedule. Even more impressive, Project allows you to select multiple tasks, thereby highlighting the task path for several tasks at once.

If a task has multiple predecessors, one or more of those predecessors will directly affect the scheduling of that task; these predecessors are called driving predecessors because they

determine (or drive) when the task starts or finishes. Similarly, when a task has multiple successors, one or more of the successors' start or finish dates will be directly affected (or driven) by the task. These successors are called driven successors because the selected task determines exactly when the successor task is scheduled to occur.

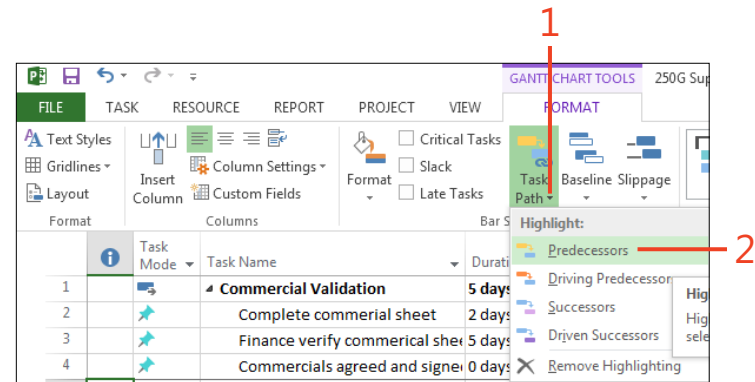
The following items can be highlighted using the Task Path. It's possible to have several items selected at once.

- Predecessors
- Driving predecessors
- Successors
- Driven successors

Display the task path for both predecessors and successors

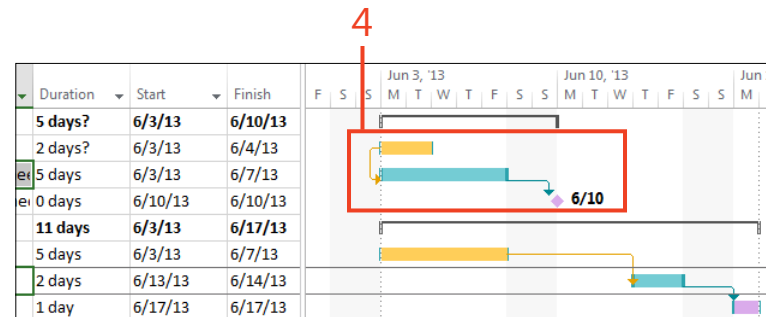
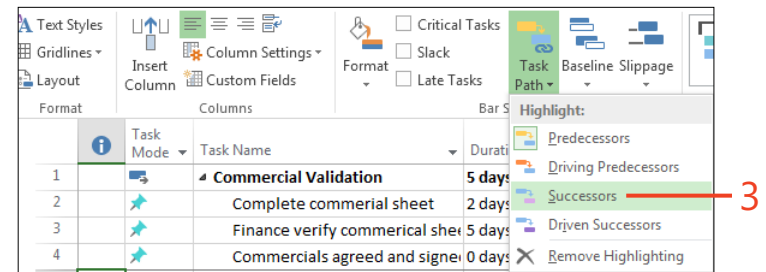
- 1 In the Format tab, choose the drop-down menu icon on the Task Path button.
- 2 Choose Predecessors.

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Display the task path for both predecessors and successors *(continued)*

- 3 Choose the drop-down menu icon on the Task Path button again and choose Successors.
- 4 Select one or more tasks in the entry table and review the highlighted task paths in the Gantt chart.



TIP Use the cursor keys to move up and down the table to review the predecessors and successors for each task in the Gantt chart.



TIP Add the Driving Predecessors to the Quick Access Toolbar to quickly turn this feature on or off.

