# Getting Started: Create Your Project

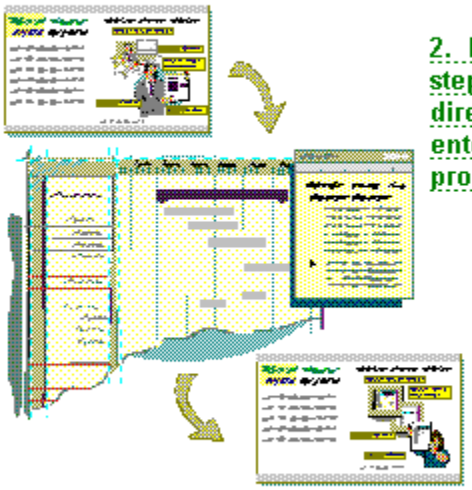
## Welcome!

If you're new to project management or Microsoft Project, you may have many questions about how to accurately track all the details of your work. If you follow the recommended sequence in this tutorial, you will learn how to create your project effectively in Microsoft Project.

To set up your own project, click the procedures in each section of this tutorial in sequence and follow the steps to enter your project data. Click Next to begin.

Or, if you don't have a project you need to begin, select only those lessons that interest you. Click Next to begin.

1. Learn the main steps to create a project.



2. Follow step-by-step directions to enter your project data.

3. After you enter your project data, click Next to go to the next lesson in the tutorial.

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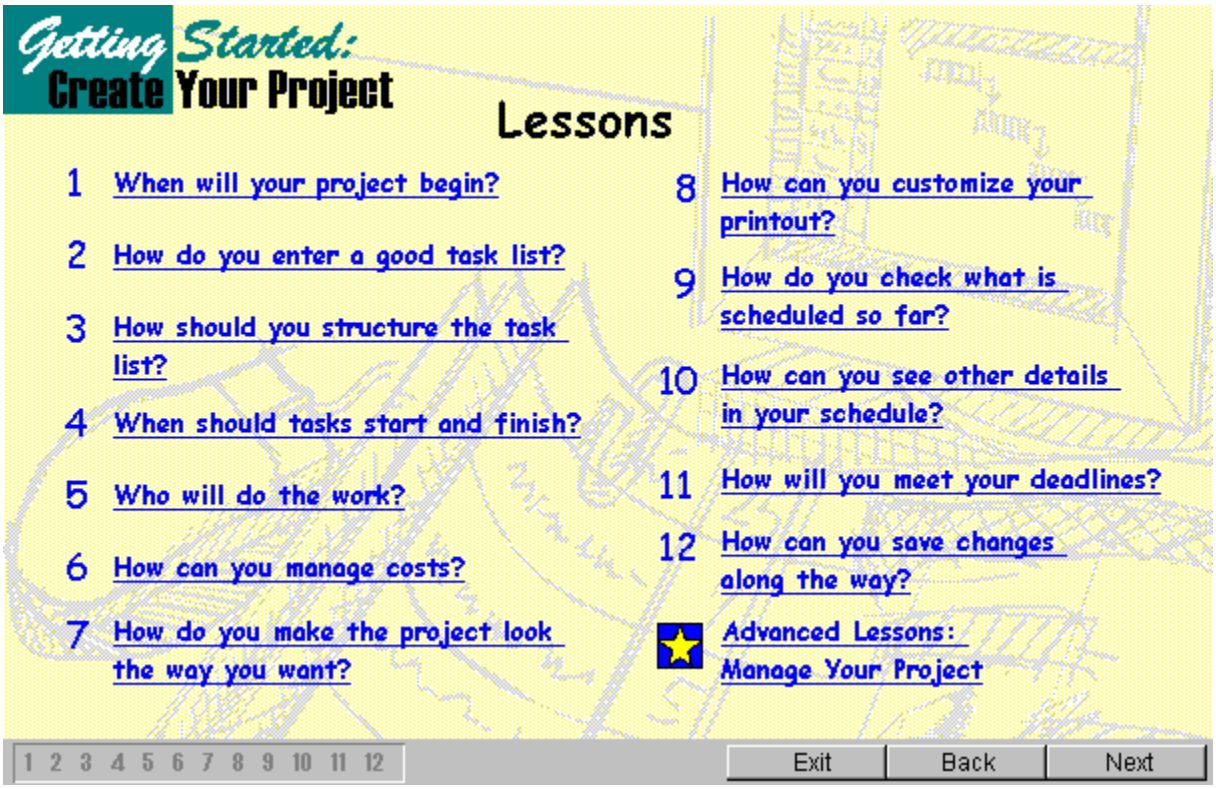
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2 How do you enter a good task list?
3 How should you structure the task list?
4 When should tasks start and finish?
5 Who will do the work?
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Getting Started: Create Your Project

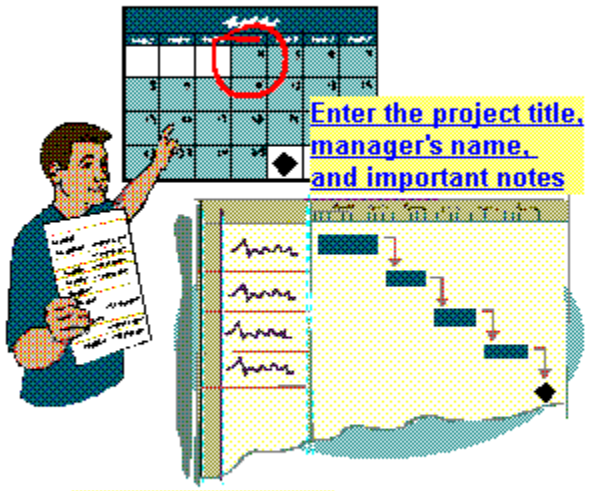
# When will your project begin?

As you sit down to plan your project, you probably have many things in mind. How long is the project going to take? Do you have enough people to do the work? How will you get it all done on time?

Step back for a moment and consider what you need to accomplish. Once you have defined a clear goal, such as "Design and build a new assembly line by January 1," you will know what date to start the project or when it must be finished.

To get your project underway, you should enter either a project start date or finish date and set a work schedule.

**Set the project's start or finish date**



**Enter the project title, manager's name, and important notes**

**Set a work schedule**

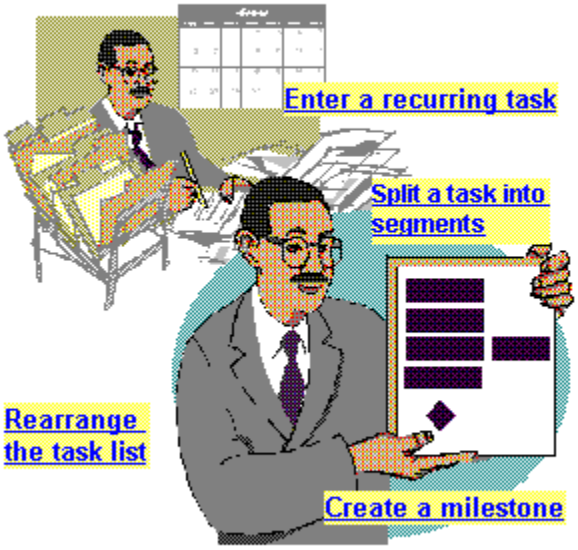
*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

# How do you enter a good task list?

After you define the project's goal, you need to determine all the steps needed to accomplish it, including the major phases and milestones. Start with a brainstorming session, listing all the large chunks of work. Break down each chunk into tasks with single deliverables, group together steps that share processes or should occur near each other in time, and gather duration estimates from reliable sources, such as previous projects.

**Because you need your project to remain flexible, don't enter dates for the tasks at this time.**




*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

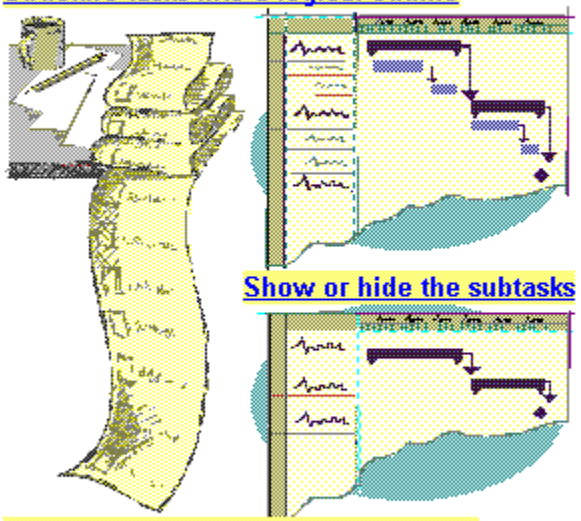
# How should you structure the task list?

When your task list starts to get detailed, you can manage it more easily by organizing it into an outline. Using summary tasks and subtasks makes it easier to understand the project's structure and see how tasks are related.

You can show or hide the subtasks to see an overview of the whole project or to concentrate on specific phases.

By default, Microsoft Project assigns each task an ID number. In addition, you can add work breakdown structure codes to your tasks to communicate the structure of your project in more detail.

**Structure tasks into a logical outline**



**Show or hide the subtasks**



**Add work breakdown structure codes**

*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

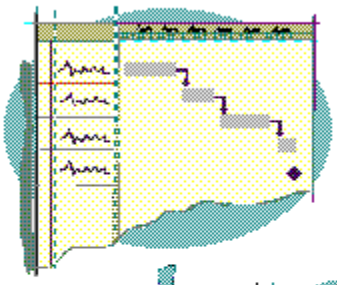
# When should tasks start and finish?

Microsoft Project is a powerful planning tool when you allow it to calculate your schedule. It determines the start and finish dates for tasks when you create dependencies between tasks.

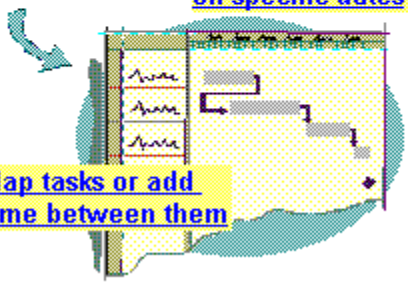
The advantage of linking tasks is that when your tasks change during the planning phase, or later when you track actual progress, the rest of the project will be rescheduled fluidly. If you enter dates yourself, you must figure out how to adjust them yourself.

If the task dependencies aren't detailed enough, you can refine them using constraints, overlap them using lead time, delay them using lag time, and split tasks when work will stop temporarily.

**Sequence the tasks**



**Start or finish tasks on specific dates**



**Overlap tasks or add lag time between them**

*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

# Who will do the work?

Each task in your project has work that must be done. You can manage work on your project most efficiently by assigning resources to tasks and tracking their progress. Using resources, you can manage the costs and work on your project in greater detail. Creating a resource list now will speed up assigning resources because you will know whom you have available to assign to tasks.

When you assign a resource to a task, Microsoft Project calculates the amount of work that resource must do to complete that task. If you add or remove resources, Microsoft Project will calculate how the work is affected and adjust the duration accordingly.

**Create a resource list**

**Assign resources**

**Change a resource's work schedule**

**See to which tasks the resources are assigned**

*Click each underlined link, and then complete the steps.*

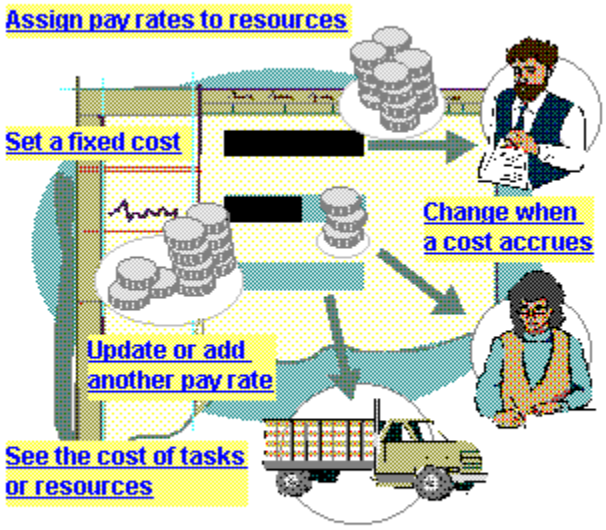
Getting Started: Create Your Project

# How can you manage costs?

Few of us are authorized a blank check. Whether you need to account for each task's expenses or the overall cost of the project, entering rates for a resource's work on tasks or fixed task costs helps you plan because you can see whether you are staying within your budget.

Microsoft Project offers flexibility when planning costs. You can choose to accrue costs over the span of a task or at the beginning or end. You can enter per-use and overtime rates for resources and even plan for giving raises at a later date.

When you've entered cost information for tasks and resources, you can save a budget and compare it with actual costs as they accrue.




*Click each underlined link, and then complete the steps.*

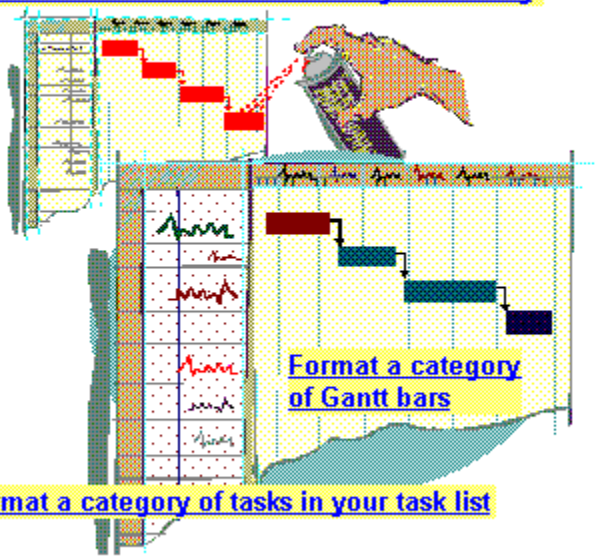
Getting Started: Create Your Project

# How do you make the project look the way you want?

When you're working with a large task list, it can be difficult to focus on the areas that concern you. To emphasize just what you need to see, you can customize the formatting of both the task list and the Gantt bars.

To concentrate on what's important, you can format categories of information, such as highlighting all tasks that must be finished by a certain date. You can also format directly specific information you want to focus on, such as making certain tasks bold or display in a different font. Category formatting is flexible when data changes. Formatting tasks directly won't change if you change the data later.

**Use the GanttChartWizard for easy formatting**




**Format a category of tasks in your task list**

*Click each underlined link, and then complete the steps.*

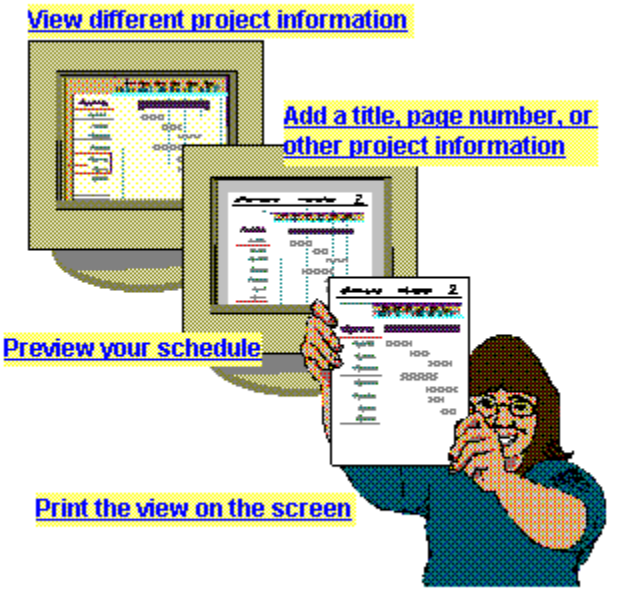
Getting Started: Create Your Project

# How can you customize your printout?

After you've entered the basic information about your project, you may want to print it and review the plan.

To make it easy to identify your project, you can add headers, footers, and page numbers. If you want to review certain areas of the plan, you can change to another view, customize the view to show only the information you need, and print it.

Before you print, check how it will look on screen with Print Preview.



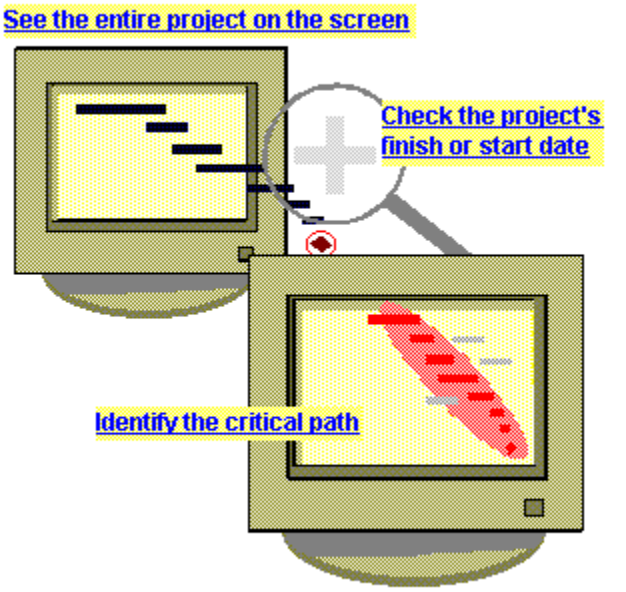

*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

# How do you check what is scheduled so far?

After you've finished entering the basic data for your project, review it to see if it's in line with your expectations. Will you meet your deadlines? If not, examine the tasks leading up to those milestones and make sure you have scheduled them efficiently.

You will see that there's an important pattern in the chart. The project's start and finish dates are connected by a series of tasks which must be completed on time for the project to finish on schedule. If any of the tasks on the critical path is late, the project's finish date will slip. If these critical tasks don't make sense, make whatever adjustments are necessary to keep the project on schedule.

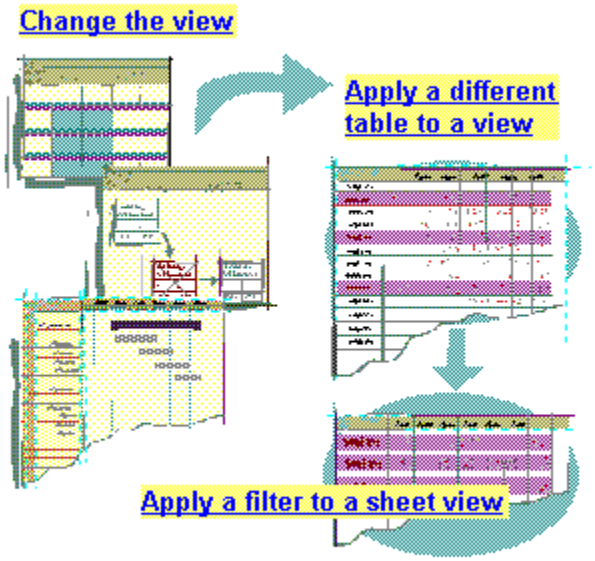



*Click each underlined link, and then complete the steps.*

# How can you see other details in your schedule?

A typical project contains too much data to view all the details at one time. To help you see the type of information that concerns you, Microsoft Project displays tasks and resources in separate views designed to show different details. When you switch views, you aren't changing the information itself. You are just changing what is shown on the screen at that time.

When you need to view different groupings of information, such as the costs related to each task, you can switch the tables applied to the views. When you need to focus only on specific categories of information, you can use a filter to see only the tasks sharing that common characteristic, such as all tasks completed before a certain date.




*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

# How will you meet your deadlines?

Once you've examined your project in detail, you are ready to make adjustments to tasks so you can meet your desired finish date. Pay special attention to critical tasks because any changes to those tasks affect the finish date.

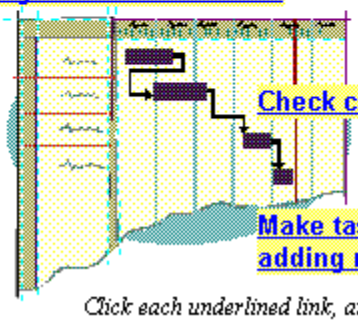
Every project has slack where some tasks can be late without affecting others. Use this slack to schedule work on other tasks. Can a task begin early? Use lead time. Is there a date on which a task absolutely must start? Add a constraint. Do you have some overworked resources when others are free? Reassign resources to shorten tasks.

You can always try to squeeze the project into a little less time, but be sure to leave some slack in the schedule to use later.

**Check task dependencies**

**Find slack in the schedule**

**Overlap tasks or add lag time between tasks**



**Check constraints on tasks**

**Make tasks shorter by adding more resources**

*Click each underlined link, and then complete the steps.*

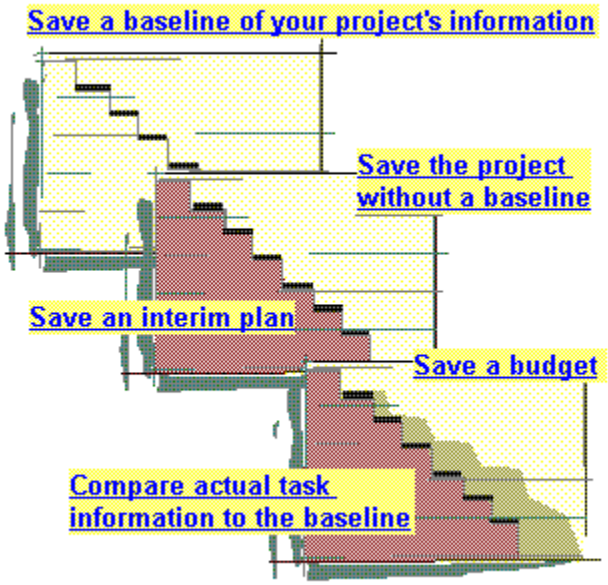
Getting Started: Create Your Project

# How can you save changes along the way?

When you've finished entering task, resource, and cost information for your project, you may want to save a snapshot of your original plan, called a baseline. You can also save the project without a baseline if you want to change information in your preliminary plan later.

To save checkpoints of actual progress on the project, you can save an interim plan and compare changes to your baseline plan.

Once the project is underway, you can enter actual information and compare the real data to the baseline.




*Click each underlined link, and then complete the steps.*

Getting Started: Create Your Project

# Congratulations!

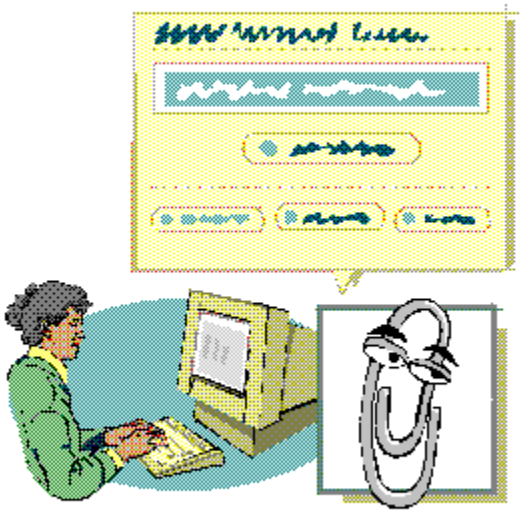
Now that you've set up your first project, you can get started working on your own. When you have questions, you can find help by asking the Assistant.

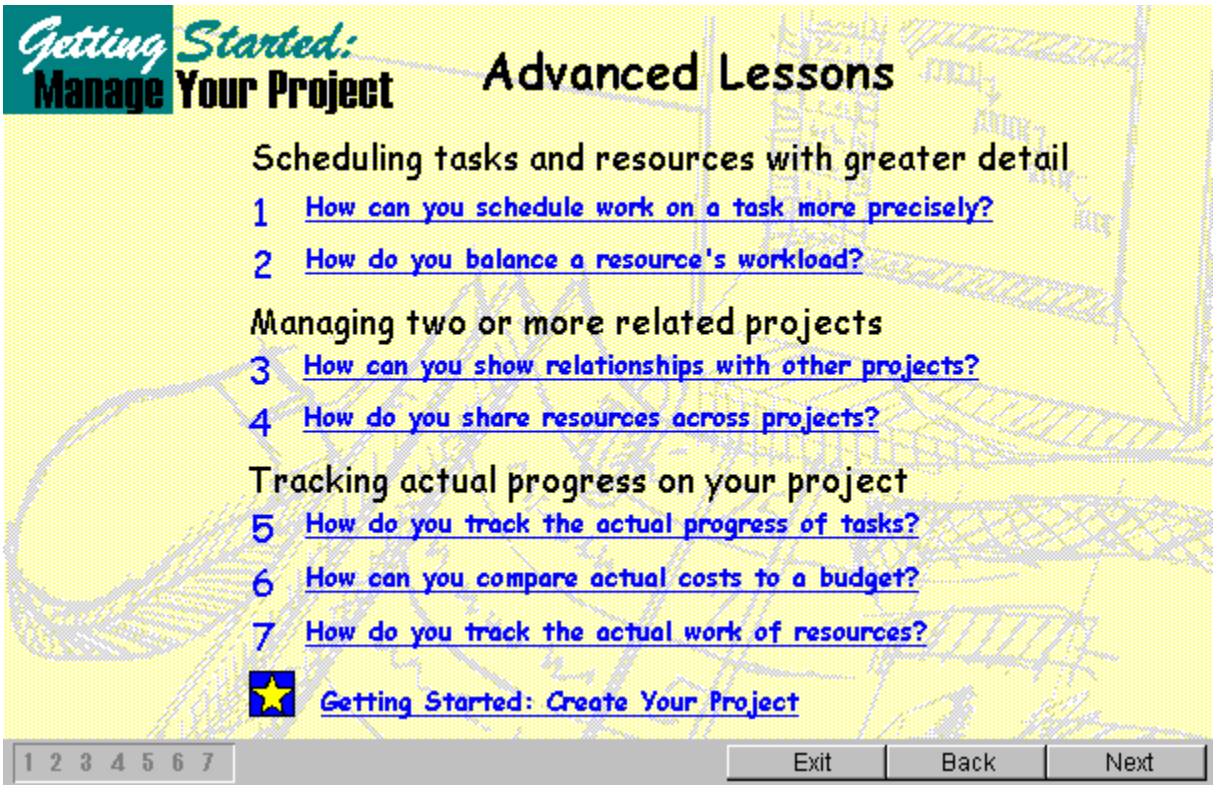
Or, you can review the information in:

**Quick Preview**
an overview of what Microsoft Project can help you accomplish

**Microsoft Project 101: Fundamentals**
a short course in project management

**Getting Started: Manage Your Project**
advanced lessons




Getting Started: Manage Your Project
Advanced Lessons
Scheduling tasks and resources with greater detail
1 How can you schedule work on a task more precisely?
2 How do you balance a resource's workload?
Managing two or more related projects
3 How can you show relationships with other projects?
4 How do you share resources across projects?
Tracking actual progress on your project
5 How do you track the actual progress of tasks?
6 How can you compare actual costs to a budget?
7 How do you track the actual work of resources?
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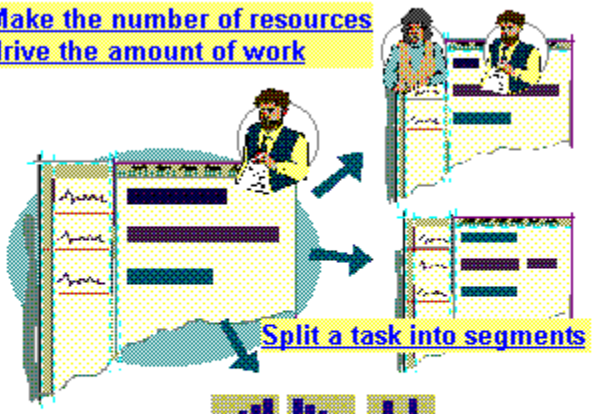
Getting Started: Manage Your Project

# How can you schedule work on a task more precisely?

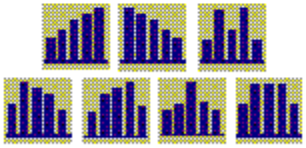
You can fine-tune resource assignments in several ways. You can make the number of resources determine the amount of work on a task, rather than the duration. This may help you see how much work is needed on a task based on how many resources are available to work on it.

If work on a task will be done incrementally, you can show when a resource will stop and start work again by splitting the task into segments. Also, you can show how much time per day a resource will work on a task using different preset patterns, such as a late peak or a bell.

**Make the number of resources drive the amount of work**



**Split a task into segments**



**Schedule work in uneven increments**

*Click each underlined link and then complete the steps.*

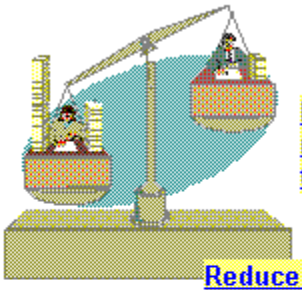
Getting Started: Manage Your Project

# How do you balance a resource's workload?

After you have assigned resources to your tasks, check your schedule for resources that have too much or too little work. If some resources are overallocated, see if adding more resources to an assigned task or reassigning a task will give you the results you want.

If no other resources are available to help, you can change the specific working days and hours when resources are available to work.

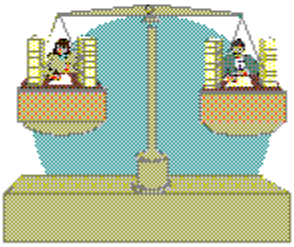
If you can't solve the overallocations by changing resource assignments, you can delay tasks assigned to an overworked resource until a later opening in the schedule, or simply reduce the amount of work for tasks.



**Find overallocated resources and their task assignments**

**Reduce a resource's work**

**Reassign work to another resource**



**Delay a task**

**Change a resource's working days and hours**

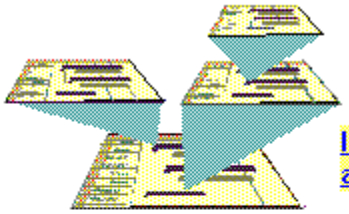
*Click each underlined link, and then complete the steps.*

Getting Started: Manage Your Project

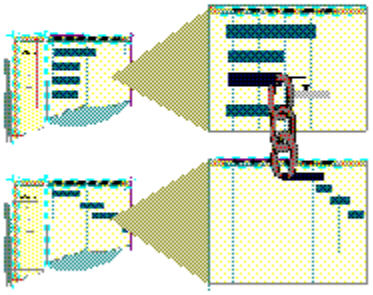
# How can you show relationships with other projects?

If you manage more than one project or an individual project that is part of a larger plan, you can consolidate them into one file to help you see and manage all the information at one time. You can insert a project into any level of another project's outline to reflect how the projects relate to each other in the real world.

When you're working with multiple projects, some tasks in your project may depend on tasks in another project. You can simply link tasks between the individual files to update both files when changes occur. You can also link tasks across projects in a consolidated project or between separate projects.



**Insert a project into an existing project**



**Create a dependency between tasks in different projects**

*Click each underlined link, and then complete the steps.*

Getting Started: Manage Your Project

# How do you share resources across projects?

You can use the same resources in different projects and view and update resource information across all the projects. When you're working with multiple projects that use the same resources, you can create a resource pool through which all the projects can share their resources.

Or, if you only need to borrow resources from one other project, you can use the other project's resources in your project simply by specifying from which file to assign them. When you no longer need to share resources across the files, you can go back to using only the resources in your project.

**Create a resource pool**

**Use another project's resources in your project**

**Update the resource pool**

**Review resource assignments in all projects**

*Click each underlined link, and then complete the steps.*

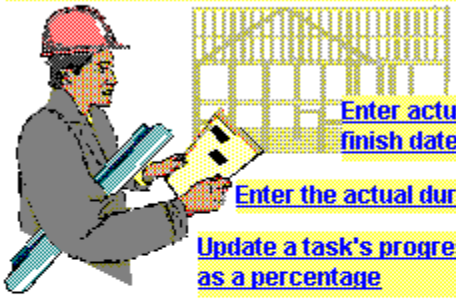
Getting Started: Manage Your Project

# How do you track the actual progress of tasks?

Once you've set up your project and work has begun, you can keep track of actual start and finish dates, the tasks' percentage complete, and actual work. Tracking actuals shows you how changes affect other tasks and, ultimately, the project's finish date. This detailed information can also give you real data to plan future projects.

You can enter the actual information that's easiest for you to gather and Microsoft Project will calculate the other details. For example, if you enter 50 percent complete for a task with a 9-day duration, the remaining duration will be calculated as 4.5 days. But if you enter the remaining duration as 2 days, Microsoft Project will calculate the task as 78 percent complete.

Check if tasks are progressing according to plan



Enter actual start and finish dates for a task

Enter the actual duration of a task

Update a task's progress as a percentage

See if tasks have more or less work than planned

Update actual work on a daily basis

*Click each underlined link, and then complete the steps.*

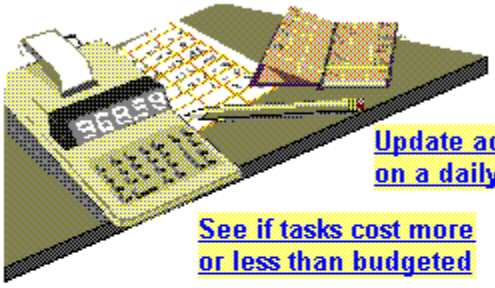
Getting Started: Manage Your Project

# How can you compare actual costs to a budget?

Once the project is underway and costs are accruing, you may want to track various types of information, such as cost overruns in a phase of your project or how much a particular resource cost you on a certain day. Or, you may simply need to see how much total cost has accrued based on actual task information.

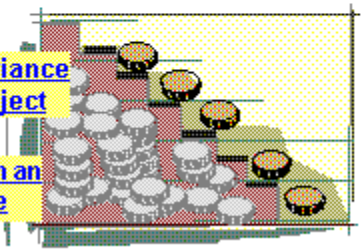
Tracking costs for your project can help you see where changes need to be made to finish your project on time and within your budget. You can also use this information to plan budgets for future projects.

Enter actual costs for a task



Update actual costs on a daily basis

See if tasks cost more or less than budgeted



See the cost variance of the entire project

Analyze costs with an Earned Value table

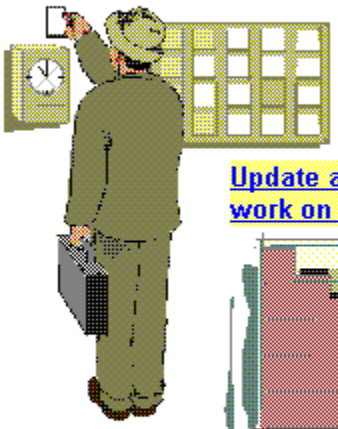
*Click each underlined link, and then complete the steps.*

Getting Started: Manage Your Project

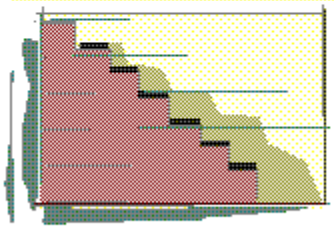
# How do you track the actual work of resources?

If you're managing a team of people on your project, you may need to track how much work each resource completes on a task-by-task basis, or cumulatively for the project. Then you can compare the planned and actual amounts of work per resource. This can help you keep track of your resources' performance and help you to plan workloads for future projects.

**Enter the total actual work done by a resource**



**Update a resource's actual work on a daily basis**



**See the variance between a resource's planned and actual work**

*Click each underlined link, and then complete the steps.*

**Learn the main steps to create a project**

This tutorial is arranged as a series of lessons that will teach you the main steps involved in creating a project. Use the Table of Contents or click **Next** to read about each step.

**Follow step-by-step directions to enter your project data**

From each lesson in this tutorial, you can click the titles underlined in blue to follow step-by-step directions for entering your data. The step-by-step directions will float on top of your project as you work in Microsoft Project. Click **Lesson** to return to the lesson when you are finished with that step.

**After you enter your project data, click Next to go to the next topic in the tutorial**

When you have completed the step-by-step directions that apply to your project data, click **Next** to move on to the next lesson in the tutorial.

## Set the project's start or finish date

The first steps in creating a schedule are creating a new file, designating a project start date or finish date, and entering other general project information. If you don't enter a project start date or finish date, Microsoft Project automatically uses the current date as the start date. For more information about scheduling from a finish date, click .

1 Click **New**  on the **Standard** toolbar.

2 Enter a start date or a finish date.

- To enter a start date, type or select the date on which you want to start your project in the **Start date** box. Or, if you are unsure of the date, you can choose a day from the drop-down calendar in either box.
- To enter a finish date, click **Project Finish Date** in the **Schedule from** box, and then type or select a finish date from which to schedule your project in the **Finish date** box.

**Tip** If your plans change, you can change your project information at any time by clicking **Project Information** on the **Project** menu.

## Strategies for scheduling from a finish date

If you have an absolute deadline that cannot be moved or you're uncertain when your project will begin (for example, if you're receiving work from another source that could be delayed), then you may find it useful to schedule from a finish date.

0 As you work with your project scheduled from a finish date, you should be aware of differences in the way Microsoft Project handles some activities:

- When you enter tasks in a project scheduled from a finish date, Microsoft automatically assigns the As Late As Possible constraint. You should set other constraints only when necessary.
- If you change your project to schedule from a finish date, and it was previously scheduled from a start date, you will remove all leveling delays and leveling splits from tasks and assignments.
- If you drag a Gantt bar to change the finish date of a task, Microsoft Project automatically assigns a Finish No Earlier Than constraint.
- If you use automatic leveling to reduce resource overallocations in your project, Microsoft Project will add leveling delay after a task, rather than before a task.

## Enter the project title, manager's name, and important notes

Each project has a unique set of ingredients: the tasks involved, the people who do them, and the project goal that they hope to achieve. To help you remember and communicate important details, you can enter information about the project and refer to it or print it when needed.

1. On the **File** menu, click **Properties**.
2. On the **Summary** tab, enter the information for your project such as the people who will manage the project and maintain the project file, the project goal, any known limitations that may make it difficult to reach that goal, and other general project notes.

   **Tip** You can choose to print this information when you print your project file.

## Set a work schedule

You can change the working days and hours for your project calendar to reflect the work schedule for everyone working on your project. You can specify regular nonworking days and hours (such as weekends and evenings), as well as special days off (such as holidays).

1. On the **Tools** menu, click **Change Working Time**.
2. To change the entire calendar, select each weekday at the top of the calendar.

   To change a single day, select the date on the calendar.
3. Click **Nonworking time** for days off, or **Working time** to change the hours worked.
4. If you clicked **Working time** in step 3, type the times you want work to start and end in the **From** and **To** boxes.

## Enter tasks and their durations

A typical project consists of a series of interrelated tasks, the building blocks of your schedule. A task should represent a significant amount of work with a clear deliverable, but still be short enough to track its progress regularly and identify problems early. As a guideline, tasks should be between 1 day and 2 weeks long. But you can enter a duration in minutes (such as 30m), hours, days, or weeks, whichever is most accurate. Enter tasks in the general order in which they will occur. You can rearrange, delete or add new tasks later, if necessary.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** In the **Task Name** field, type a task name.

**3** Press ENTER.

**4** In the **Duration** field, type the amount of time in minutes (such as 30m), hours, days or weeks. Enter smaller increments such as a half day as .5 days. Microsoft Project uses durations to calculate the amount of work to be done on the task. You can revise these estimates later, if necessary.

**Note** Don't enter dates in the Start and Finish fields. Microsoft Project will calculate the start and finish dates based on how the tasks are related with task dependencies you enter.

**Tip** You can add a note to a task that contains information, such as detailed explanations, assumptions, or where the task originated. In the **Task Name** field, select the task, and then click **Task Notes**  . Type your information in the **Notes** box.

## Enter a recurring task

You can set up a recurring task to occur daily, weekly, monthly, or yearly. You can also specify the duration of each occurrence, when the task will occur, and for how long or how many times it should recur. Recurring tasks are useful for repetitive tasks that occur at regular intervals, such as weekly meetings. You can edit the fields of an individual occurrence of a recurring task without affecting the other occurrences.

1. In the **Task Name** field, select the row above which you want to insert a recurring task.
2. On the **Insert** menu, click **Recurring Task**.
3. In the **Name** box, type the task name.
4. In the **Duration** box, type the duration of a single occurrence of the task.
5. Under **This occurs**, click the interval at which the task will recur.

   The option you click determines whether the **Daily**, **Weekly**, **Monthly**, or **Yearly** options are displayed.
6. Under **Daily**, **Weekly**, **Monthly**, or **Yearly**, specify the task frequency.
7. Under **Length**, type a date in the **From** box and type a date in the **To** box, or type the number of times the task will occur in the **For occurrences** box.

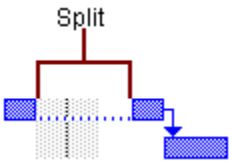
   If you don't enter a date in the **From** box, Microsoft Project uses the project start and finish dates to determine the number of occurrences.

**Note** Tasks are automatically renumbered after you insert a task.

**Tip** To view all occurrences of a recurring task, click  next to the main recurring task.

## Split a task into segments

You can split a task so that the task is interrupted, and then resumes later in the schedule. This is useful when you need to stop work on a task temporarily to work on another task. Splitting a task into parts is not the same as entering a recurring task scheduled to occur at regular intervals, such as a staff meeting.




1 Click **Split Task**  .

2 Move the pointer over the task bar you want to split, and then click on the task bar where the split should occur.

**Tip** You can create a longer split by clicking and dragging the task bar to the right.

**Note** If you drag a portion of a split task so that it touches another portion, you will remove the split.

## Rearrange the task list

As you create your task list, you will probably want to rearrange some tasks and break down large tasks into smaller tasks. You can add new tasks, delete unnecessary tasks, or move tasks to a better location. As you fine-tune your task list, you will probably discover some tasks that summarize the work of smaller tasks. When you reach this point, your task list needs a hierarchical structure, and you are ready to move on to the next stage of creating your project.

**1** In the **ID** field, select the task you want to copy, move, or delete.

- To select a row, click the task ID number.
- To select a group of adjacent rows, hold down **SHIFT**, and then click the first and last ID numbers of the group.
- To select several nonadjacent rows, hold down **CTRL,** and then click the task ID numbers.

**2** To move the task, click **Cut**  .

To copy the task, click **Copy**  .

To delete a task, press DELETE.

**3** In the **ID** field, select the rows where you want to paste the selection.

**4** Click **Paste**  .

If there is information in the destination row, the new rows will be inserted above the destination row.

**Tip** To add a task between existing tasks in a sheet view, click **New Task** on the **Insert** menu, and then type the name of the task in the **Task Name** field. Tasks are renumbered automatically after you insert a new task.

## Create a milestone

A milestone is simply a task you use to identify significant events in your schedule, such as the completion of a major phase. When you enter a duration of zero days for a task, Microsoft Project displays the milestone symbol ◆ on the Gantt Chart at the start of that day.

1. In the **Duration** field, select the task you want to change, and then type **0 days**.
2. Press ENTER.

**Tip** You can also mark a task as a milestone without changing the duration. Click **Task Information**  , click the **Advanced** tab, and then select the **Mark task as milestone** check box.

## Structure tasks into a logical outline

After you have entered your task list you may discover that some tasks actually summarize the work of smaller tasks. You can establish a hierarchy to accurately reflect how they are interrelated. An outline helps you organize your tasks into summary tasks and subtasks. By default, summary tasks are bold and subtasks are indented underneath them. A summary task's start and finish dates are determined by the start and finish dates of its earliest and latest subtasks.

1. On the **View Bar**, click **Gantt Chart**  .
2. In the **Task Name** field, select the task you want to indent or outdent.
3. Click **Indent**  to indent the task or click **Outdent**  to outdent the task.

**Tips**

- If you need to create a new task to make a summary task, click **Insert Task** on the **Insert** menu.
- You can indent or outdent a task quickly with the mouse. Position the pointer over the first letter of the task name. When the pointer changes to a two-way arrow ↔, drag right to indent the task or drag left to outdent the task.
- To undo outlining, outdent all subtasks until all your tasks return to the same outline level.

## Show or hide the subtasks

In an outline, you can show or hide the subtasks of a summary task. By showing or hiding all subtasks, you can quickly display or hide all tasks on all outline levels in your entire project.

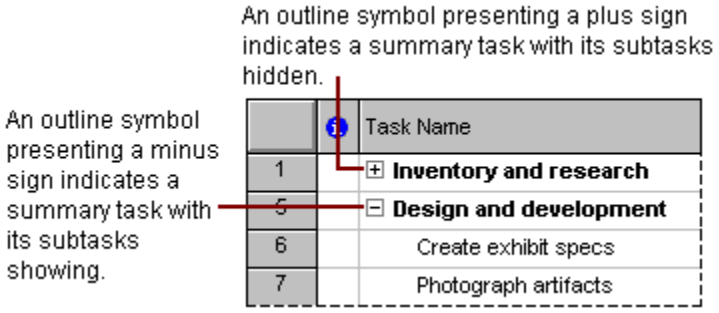
1. In the **Task Name** field, select the summary task containing the subtasks you want to show or the subtasks you want to hide.
2. Click **Show Subtasks** to show the subtasks or click **Hide Subtasks** to hide the subtasks.

   To show all subtasks, click **Show All Subtasks**.

   To hide all subtasks, select the entire sheet view by clicking the ID column heading (the left-uppermost field in the Gantt Chart) and click **Hide Subtasks**.

**Tips**

- You can also show and hide subtasks by clicking the summary task's outline symbol. Outline symbols indicate whether a summary task has subtasks displayed or does not have subtasks displayed .




- You can easily rearrange project phases in your outlined schedule. When you move or delete a summary task, you automatically move or delete all the subtasks associated with it.

## Add work breakdown structure codes

Built-in outline numbers are used as the default work breakdown structure (WBS) codes in Microsoft Project. You can add your own numbering system to the tasks in your schedule by changing the default outline numbers to your custom WBS codes in the WBS field.

1. Select the indicators column.
2. On the **Insert** menu, click **Column**.
3. In **Field name**, select **WBS**.
4. In the **WBS** column, type the code you want to assign to the tasks.

**Notes**

- WBS codes don't change built-in outline numbers.
- Because WBS codes aren't automatically calculated between summary tasks and subtasks, you'll need to enter them for each individual task.
- Unlike built-in outline numbers, WBS codes are not automatically updated when you add, move, delete, or rearrange tasks. You'll have to adjust your WBS codes manually.

## Sequence the tasks

After you've decided what the order of your tasks should be, you're ready to sequence them by linking related tasks. For example, some tasks may need to finish before a successor task. Others may depend on the start of a predecessor task.

1 On the **View Bar**, click **Gantt Chart**  .

2 In the **Task Name** field, select two or more tasks you want to link.

3 Click **Link Tasks**  .

**Notes**

- If you're linking tasks using multiple selections, select the tasks in the order in which you want them to be linked.
- To see more of the task bars in your chart, click **Zoom Out**  .
- Microsoft Project creates a finish-to-start task link by default. You can change this task link to start-to-start, finish-to-finish, or finish-to-start.

 How?

- If you want to unlink tasks, select the tasks you want to unlink in the **Task Name** field, and then click **Unlink Tasks**  . The tasks will be rescheduled based on any links to other tasks or constraints.

## Change a task dependency

Microsoft Project assigns a finish-to-start task dependency when you link tasks. But there are other ways that tasks can be sequenced: start-to-start, finish-to-finish, or finish-to-start. If one of these dependencies better models your tasks, change the dependency type.

**1** Double-click the link line of the tasks you want to change.


The **Task Dependency** dialog box appears. If the **Bar Styles** dialog box appears, you didn't click precisely on the task link and need to close this dialog box and click on the task link again.

**2** In the **Type** box, click the task link you want.

**Tip** A simple finish-to-start link does not work in every situation. Microsoft Project provides additional types of task links so you can model your project realistically. For example, when two tasks need to start at the same time, you can create a start-to-start link. When tasks need to finish at the same time, you can use a finish-to-finish link.

## Start or finish tasks on specific dates

You can schedule tasks most effectively by entering task durations, creating dependencies between tasks, and then letting Microsoft Project calculate the start and finish dates for you. Only when tasks must start and finish on specific dates should you add an inflexible constraint to a date and have Microsoft Project calculate the task duration.

1. In the **Task Name** field, select the task you want, and then click **Task Information**  .
2. Click the **Advanced** tab.
3. In the **Type** box, click a constraint type.
4. If you selected a constraint other than **As Late As Possible** or **As Soon As Possible**, type a constraint date in the **Date** box.

**Note** If you type a start date for a task or drag a Gantt bar to change the start date, Microsoft Project sets a Start No Earlier Than (SNET) constraint based on the new start date. If you type a finish date for a task, Microsoft Project automatically assigns a Finish No Earlier Than (FNET) constraint.

## Overlap tasks or add lag time between tasks

After you've sequenced tasks by linking them, you can overlap or delay certain tasks to more accurately model how the work will be done. In Microsoft Project, you delay tasks by adding lag time, such as 2d, to the predecessor task and overlap tasks by entering negative lag time. You can also enter lag time as a percentage of the task, such as –25%.

**1** In the **Task Name** field, select the task you want, and then click **Task Information**  .

**2** Click the **Predecessors** tab.

**3** In the **Lag** field, type the lead time or lag time you want, as a duration or as a percentage of the predecessor task duration.

Type lead time as a negative number or as a percentage, and type lag time as a positive number or as a percentage.

**Tip** You can quickly add lead or lag time to a successor task by double-clicking the link line on the Gantt Chart, and then typing the amount of lead or lag time in the **Task Dependency** dialog box.

## Create a resource list

Before you begin assigning resources, you can enter all of the resource information for your project, such as resource groups and costs, at once by creating a resource list. This will save you time when assigning resources to your tasks. Or, you can create a list as you add and assign resources to your project. A resource list includes the names of the resources and the maximum number of units as a percentage of each resource's availability.

**1** On the **View Bar**, click **Resource Sheet**  .

**2** On the **View** menu, point to **Table**, and then click **Entry**.

**3** In the **Resource Name** field, type a resource name.

**4** If you want to designate a resource group, type a name in the **Group** field.

**5** If necessary, type the number of resource units available for this resource in the **Max. Units** field, as a percentage.

For example, type **300%** to indicate three full-time units of a particular resource.

**6** Change the default information in the remaining fields as appropriate.

**7** Repeat steps 3 through 6 for each resource.

**Tip** As you work in the Gantt Chart or other task views, you can enter additional resource names. To assign additional resources, click **Assign Resources**  , and then type a resource name in the **Name** field. You can also click **Address** and select a resource from your e-mail address book.

## Assign resources

Assigning resources to tasks can be an important part of managing a successful project. You should assign resources to tasks when you want to:

- Track the costs and amount of work done by the people and equipment assigned to the tasks.
- Ensure high accountability. When responsibilities are clear, there is less risk of tasks being overlooked.
- Have greater flexibility in planning how long tasks will take.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** In the **Task Name** field, select the task to assign a resource, and then click **Assign Resources**  .

**3** In the **Name** field, select the resource to assign to the task or click **Address** to select a resource from your e-mail address book.

- To assign a resource part-time, type a percentage less than 100 in the **Units** field.
- To assign several different resources, press CTRL to select nonadjacent resources or press SHIFT to select adjacent resources.
- To assign more than one of the same resource, type a percentage amount greater than 100 in the **Units** field, such as 200 percent for two carpenters.

If necessary, type the name of a new resource in the **Name** field.

**1** Click **Assign**.

A check mark to the left of the **Name** field indicates that the resource is assigned to the selected task. The resource's name also appears next to the task bar in the Gantt Chart.

**Note** If you don't enter resource information, Microsoft Project calculates your schedule using just task duration and task dependency information.

**Tips**

- As your schedule changes, you can replace one resource with another. In the **Assign Resources** dialog box, select the assigned resource, and then click **Replace**. Select one or more resources to assign, and then click **OK**.
- If you want to assign resources as you complete other work on your schedule, you can continue to display the **Assign Resources** dialog box while you work with the Gantt Chart and other Microsoft Project views.
- As you assign additional resources to a task, the duration will be reduced to reflect the addition of the resources. If you want the duration of the task to stay the same regardless of the resources assigned, select the task, click **Task Information**  , and then click the **Advanced** tab. Clear the **Effort driven** check box.

## Change a resource's work schedule

By default, the working hours and days off defined by the project calendar are the default working hours and days off for each resource. If your resources will work the same days and hours, you can use this calendar for all resources. But, if you need to specify different working times for individual resources, you can modify individual resource calendars for those resources.

1. On the **Tools** menu, click **Change Working Time**.
2. In the **For** box, click the resource whose calendar you want to change.
3. On the calendar, select the days you want to change.

   To change a day of the week for the entire calendar, select the day at the top of the calendar.
4. Click **Use default**, **Nonworking time**, or **Working time**.
5. If you clicked **Working time** in step 4, type the times at which you want work to start in the **From** boxes and the times at which you want work to end in the **To** boxes.

**Tip** If a group of resources will have the same special working hours and days off, you can create a new base calendar for them. Click **New**, and type a name for the new base calendar. Click **Create new base calendar** to begin with a default calendar. Or, to base it on an existing calendar, click **Make a copy of**, and then click the calendar name in the **Calendar** box. Click **OK**, and then modify the days and hours on the calendar. Click **Resource Sheet**, and select the new base calendar in the **Base Calendar** field for each resource to which you want to assign it.

## See to which tasks the resources are assigned

The Resource Usage view shows project resources with their assigned tasks grouped underneath them. Using the Resource Usage view, you can find out how many hours each resource is scheduled to work on specific tasks and see which resources are overallocated. You can also determine how much time each resource has available for additional work assignments.

1 On the **View Bar**, click **Resource Usage**  .

To see different information about resource assignments, such as work and cost, from the **View** menu**,** select **Tables**, then click the table you want to see in the **Resource Usage** view.

2 In the **Resource Name** field, review the resource assignments.

**Note** Changing the view or table does not add information to or remove information from your project, it only changes the project information that is displayed.

## Assign pay rates to resources

Microsoft Project allows you to assign rates to resources so you can manage project costs accurately. You can assign multiple standard rates, overtime rates, or per-use rates to resources along with the dates for each rate to go into effect.

1. On the **View Bar**, click **Resource Sheet**  .
2. In the **Std. Rate**, **Ovt. Rate**, or **Cost/Use** field for the resource, type the rates you want.
3. Press ENTER.

**Tips**

- You can assign up to five sets of cost rates to support different types of work or future rate changes, such as pay increases. In the **Resource Name** field, select the resource, and then click **Resource Information**  . Click the **Costs** tab, and then enter the rates in the **Cost rate tables**.
- You can assign per-use rates for resources (such as one-time costs of equipment). In the **Cost/Use** field, type a per-use rate for the resource.
- You can change the default standard and overtime rates for any new resources you enter. On the **Tools** menu, click **Options**, and then click the **General** tab. In the **Default standard rate** and **Default overtime rate** boxes, type the new rates. If you want to set this default for all future projects, click **Set as Default**.

## Set a fixed cost

When you know the exact cost of materials (such as equipment or supplies), and you're not assigning resources to a task, you can enter a fixed cost for the task.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **View** menu, point to **Table**, and then click **Cost**.
3. In the **Fixed Cost** field for the task, type the cost.
4. Press ENTER.

**Tip** In the Cost table, you can also change when the fixed cost is accrued by selecting an accrual method in the **Fixed Cost Accrual** field.

**Note** Unlike fixed costs for a resource, fixed costs for tasks do not require resource assignments.

## Change when a cost accrues

In Microsoft Project, resource costs are prorated by default and their accrual is based on the percentage of completion of the task and is distributed over its duration. You can, however, change the accrual method for resource costs to take effect at the start or end of the task instead.

1. On the **View Bar**, click **Resource Sheet**  .
2. In the **Resource Name** field, select the resource whose accrual method you want to change.
3. Click **Resource Information**  , and then click the **Costs** tab.
4. In the **Cost accrual** box, click an accrual method.

**Notes**

- When you enter timephased rate changes for a resource and use the prorated cost accrual method, your costs will be calculated using the rates for the appropriate time periods and may change during the completion of the task.
- You cannot prorate per-use resource costs or accrue them at the end of a task assignment. They are always accrued at the start of the assignment.

## Update or add another pay rate

To allow for changes in resource rates, such as pay increases or decreases, you can assign different rate values to be applied at times you specify. You can save up to five different sets of rates for each resource to support different charges for different types of work.

1 On the **View Bar**, click **Resource Sheet**  .

2 In the **Resource Name** field, select the resource for which you want to enter different rates.

3 Click **Resource Information**  , and then click the **Costs** tab.

4 In the **Cost rate tables**, type the effective date and the new standard, overtime, or per-use cost rate in the corresponding fields of the first blank row.

**Tips**

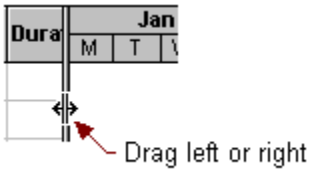
- From any task view, you can open the Resource Information dialog box by double-clicking the resource in the **Assign Resources** dialog box.
- In the rate fields of the cost rate tables, you can enter rate increases or decreases in values by typing a new rate or in percentages by typing +10% or –10%, for example. When entering percentages, Microsoft Project will calculate the new rate for you.

## See the cost of tasks or resources

After you assign rates to tasks or resources, you may want to review the total cost of these assignments to make sure they fall within your expectations. If the total cost of a task or resource does not meet your budget, you may need to examine each individual task's costs and each resource's task assignments to see where costs can be reduced.

1. To see task costs, click **Gantt Chart** on the **View Bar**.

   To see resource costs, click **Resource Sheet** on the **View Bar**.
2. On the **View** menu, point to **Table**, and then click **Cost**.
3. In the Gantt Chart, drag the divider bar to the right to view the **Total Cost** field.




**Tips**

- You can also view how costs are distributed over a task's duration in the Task Usage view by displaying its cost details. On the **View Bar**, click **Task Usage**. On the **Format** menu, point to **Details**, and then click **Cost**.
- You can view resource costs in more detail by clicking **Resource Usage** on the **View Bar**, pointing to **Details** on the **Format** menu, and then clicking **Cost**.
- You can also see resource cost totals displayed graphically by clicking **Resource Graph** on the **View Bar**, pointing to **Details** on the **Format** menu, and then clicking **Cost** or **Cumulative Cost**.

## See the cost of the entire project

You can view your project's current, baseline, actual, and remaining costs to see whether you're staying within your overall budget. These costs are updated each time Microsoft Project recalculates your project.

1. On the **Project** menu, click **Project Information**.
2. Click **Statistics**.
3. In the **Current** field under **Cost**, the total planned cost of the project is shown.

**Tips**

- After you have set a baseline and begun to track actual costs, you can compare the **Baseline** and **Actual** fields to see if total project costs are progressing as expected.
- As actual work is progressing, you can also compare the variance between the **Current** and **Remaining** fields to see if you will have enough money to complete the project.

## Use the GanttChartWizard for easy formatting

The GanttChartWizard is a series of interactive dialog boxes containing options that you select to help you format the Gantt Chart, such as highlighting the critical path. When you finish selecting the options you want, the GanttChartWizard formats your Gantt Chart for you.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** Click **GanttChartWizard**  .

**3** Follow the GanttChartWizard instructions.

**Tip** To undo the formatting you chose with the GanttChartWizard, click **GanttChartWizard** and choose the default options to return the Gantt Chart to its. default settings.

## Format a category of Gantt bars

To call attention to all tasks of a certain category, you can change the format of the Gantt bars that represent that type of category on the Gantt Chart. A category can, for example, include all the tasks in your project, or just specific types such as milestone tasks, or critical and noncritical tasks.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **Format** menu, click **Bar Styles**.
3. In the **Name** field, select the category (such as Task or Milestone) you want to change, and then click the **Bars** tab.
4. Under **Start shape**, **Middle bar**, and **End shape**, select shapes, patterns or types, and colors for the bar.

**Note** Some categories have only a start shape (such as Milestone), while others have a start shape, middle bar, and end shape (such as Summary Task).

**Tip** To change the formatting of an individual Gantt bar, select the task, and then click **Bar** on the **Format** menu. Click the **Bar Shape** tab, and then format the Gantt bar.

## Format a category of tasks in your task list

To distinguish a category of tasks, such as critical tasks, from other tasks in your project, you can change the formatting of all the text of the tasks in that category in any view except the PERT Chart and form views. (In some views, however, not all formatting options are available.)

If certain information in your view requires urgent attention, such as the completion date of a slipped task, you can call attention to that information by formatting it individually

1 On the **View Bar**, click a sheet view such as the **Gantt Chart**  .

2 On the **Format** menu, click **Text Styles**.

3 In the **Item to Change** box, click the type of information you want to change, and then select formatting options for that information.

To change the formatting of another type of information without closing the dialog box, click a new type in the **Item to Change** box, and then select formatting options for that information.

**Tips**

- To change the format of an individual task, select the task, click **Font** on the **Format** menu, and then select formatting options for that text.
- To quickly copy the formatting of one task to another, select the task with formatting you want to copy, click **Format Painter**  , and then select the task to which you want to apply that formatting.

## View different project information

You can display project information in task views or resource views. Use a task view when you want to enter, change, or display task information. Use a resource view when you want to enter, change, or display resource information.

- On the **View Bar**, scroll and click the view you want to use.

  To use a view that is not on the **View Bar**, click **More Views**  , click the view you want in the **Views** list, and then click **Apply**.

**Note** Changing the view does not add information to or remove information from your project, it only changes the project information that is displayed.

## Add a title, page number, or other project information

You can add project information to the header, footer, or legend of a view. The project information can be data you entered (such as your company's name or manager's name) or data provided by Microsoft Project (such as the page number or project finish date). You can choose the project information that adds the most impact to your printed view.

1. On the **File** menu, click **Page Setup**.
2. Click the **Header**, **Footer**, or **Legend** tab.
3. Click the **Left**, **Center**, or **Right** tab.
4. In the text box, place the insertion point where you want to add the project information.
5. In the box at the bottom of the tab, click each type of information you want, and then click **Add**. Microsoft Project will use the information you typed into the Project Information and Properties dialog boxes to fill in each type of information.

**Tip** To format project information, you need to select the ampersand (&) that precedes it or select the entire line, and then click **Font**  . Select the font, font style, size, and color you want, select the **Underline** check box if you want, and then click **OK**.

## Preview your schedule

Before printing a view, it is often useful to see what the information will actually look like when printed. In the Print Preview window, you can adjust the page orientation and size, edit headers, footers, and legends, and set print options. You cannot edit the information in the view itself in the Print Preview window.

- To preview what a project view will look like when printed, click **Print Preview**  .

## Print the view on the screen

- To print a view using the default settings, click **Print**  .

If you want to change the default print settings, click **Print** on the **File** menu, and then specify the printer and printer properties, the print range, the number of copies, and the date range. You cannot, however, save print options; you must reset print options every time you print. To see the results of your changes immediately, click **Preview** in the **Print** dialog box.

**Tips**

- To change options, such as printing notes or a specific number of columns, click **Page Setup** on the **File** menu, click the **View** tab, and then select the options you want.
- If you preview a view, and then decide to change the appearance of the view pages, click **Page Setup** in the **Print Preview** window, and then make the changes you want. To return to the **Print Preview** window, click **Print Preview** in the **Page Setup** dialog box.

## See the entire project on the screen

You can get an overview of your project's start and finish dates and when major phases will occur by zooming in and out on the Gantt Chart.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** Click **Zoom** on the **View** menu, and then click **Entire project**.

**Tips**

- To see the Gantt bars on a larger or smaller timescale, click **Zoom In**  or **Zoom Out**  .
- If you have to scroll down to see the project's finish date, and you have outlined tasks into a hierarchy, you can hide the subtasks and look at just the summary tasks. Click the ID column heading (the left-uppermost field in the Gantt Chart), and then click **Hide Subtasks**  .

## Check the project's finish or start date

You can review important project information, such as the finish date, to see if the project will meet your expectations as it is currently scheduled.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** On the **File** menu, click **Properties**, and then click the **Contents** tab. The project's start and finish dates are shown, as well as the project's total work and cost, and the percentages of the tasks and work that are complete.

**Tip** Once the project is underway, you can also see a comparison of the project's planned and actual information. Click **Project Information** on the **Project** menu, and then click **Statistics**.

## Identify the critical path

The critical path is a series of tasks that must be completed on time for a project to finish on schedule. Most tasks in a typical project have some slack and can therefore be delayed a little without affecting the project's finish date. Those tasks that cannot be delayed without affecting the project finish date are the critical tasks. As you modify tasks to resolve overallocations or other problems in your schedule, be aware of the critical tasks and that changes to them will affect your project finish date.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** Click **GanttChartWizard**  .

**3** Follow the GanttChartWizard instructions to format critical path tasks.

**Tips**

- You can filter your schedule so that only the critical tasks (tasks with no total slack) are displayed. On the **Project** menu, point to **Filtered for**, and then click **Critical**. Click **All Tasks** to display all tasks again.
- After filtering critical tasks, you can sort them by duration so that the critical tasks will be in order from the longest to the shortest. This helps you see where to put your efforts in shortening tasks.
- You can adjust the amount of time a task can slip before it affects another task's date or the project finish date, and thus become a critical task. On the **Tools** menu, click **Options**, and then click the **Calculation** tab. In the **Tasks are critical if slack is less than or equal to** box, enter the amount of slack.

## Change the view

You can display project information in task views or resource views. Some task and resource views are like spreadsheets, listing columns of related information, called sheet views. You can change the table in a sheet view to see different columns of information. Other views show tasks or resource allocation graphically, such as the Calendar View, PERT Chart, and Resource Graph, or tasks and resources related to a timescale, such as the Task Usage and Resource Usage views.

- On the **View Bar**, click the view you want to use.

  To use a view that is not on the **View Bar**, click **More Views**  , click the view you want in the **Views** list, and then click **Apply**.

**Note** Changing the view neither adds information to nor removes information from your project, it only changes what is displayed.

## Apply a different table to a view

As you plan and track your schedule, it's useful to look at different combinations of information. By changing the table applied to a sheet view, you can change the fields of information displayed in that view.

1. On the **View Bar**, click the view to which you want to apply a table.

   To use a view that is not on the **View Bar**, click **More Views**  , click the view you want in the **Views** list, and then click **Apply**.

2. On the **View** menu, point to **Table**, and then click the table you want to apply.

   To apply a table that isn't on the **Table** submenu, click **More Tables**, click the task or resource table you want, and then click **Apply**.

## Apply a filter to a sheet view

When you want to focus on certain tasks or resources in the current view, you can apply a filter to the view. You can specify that the filter either show or highlight only those tasks or resources that meet the filter criteria.

1. On the Project menu, point to Filtered for, and then click the filter you want to apply.
   To apply a filter that isn't on the **Filtered for** submenu or to apply a highlighting filter, and click **More Filters**.
2. Click Apply to apply the filter or click Highlight to apply a highlighting filter.
3. If you apply an interactive filter, type the requested values, and then click OK.

**Note** You cannot apply task filters to resource views or apply resource filters to task views.

**Tip** To turn off a filter, point to **Filtered for** on the **Project** menu, and then click **All Tasks** or **All Resources**.

## Check task dependencies

A task dependency describes how a task is related to the start or finish of another task. Microsoft Project provides four task dependencies you can use to connect a series of tasks in a schedule: finish-to-start (the most commonly used dependency), start-to-start, start-to-finish, and finish-to-finish. By using these dependencies effectively, you can modify the critical path and shorten your project schedule.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** Double-click the link line of the tasks you want to check.

**3** In the **Type** box, look at the task dependency.

**Tips**

- The appearance of the link itself will identify the task dependency type. For example, a link line drawn from the beginning of one Gantt bar to the beginning of another denotes a start-to-start dependency.
- If you have tasks that can be worked on at the same time, you can shorten the critical path most by changing the task dependency. For example, if two tasks can be started at the same time, you can change the task dependency to start-to-start. If two tasks should finish at the same time, you can change the task dependency to finish-to-finish.
- You can add lead or lag time to tasks to make their start or finish dates overlap each other or to delay a predecessor task.

## Find slack in your schedule

When you analyze the tasks in your schedule, you can look for slack, which is the amount of time a task can be delayed without delaying any other task. You can also look at total slack, which is the amount of time a task can be delayed without affecting the finish date of the project.

It's important to know where slack exists in your schedule so you can move tasks when certain phases of the schedule have no slack and other phases have too much. Most schedules have some noncritical tasks with slack. You can allow these tasks to start late without affecting the schedule to compensate for tasks that take longer than planned or to delay tasks and resolve resource overallocations.

1. On the **View Bar**, click **More Views**  .
2. In the **Views** list, click **Detail Gantt**, and then click **Apply**.
   Slack on a task appears graphically as thin slack bars adjoining the regular Gantt bars.
3. Drag the divider bar to the right to view the **Free Slack** and **Total Slack** fields.

**Note** Slack values may also indicate a schedule inconsistency. For example, a negative slack value occurs when one task has a finish-to-start dependency with a second task, but the second task has a Must Start On constraint that is earlier than the finish date of the first task.

**Tips**

- You can filter your schedule so that only critical tasks (tasks with no total slack) are displayed. On the **Project** menu, point to **Filtered for**, and then click **Critical**. Click **All Tasks** to display all tasks again.
- You can adjust the point at which tasks become critical. On the **Tools** menu, click **Options**, and then click the **Calculation** tab. In the **Tasks are critical if slack is less than or equal to** box, enter the amount of slack at which the task becomes critical.

## Overlap tasks or add lag time between tasks

After you've sequenced tasks by linking them, you can overlap or delay certain tasks to more accurately model how the work will be done. In Microsoft Project, you delay tasks by adding lag time to the predecessor task and overlap tasks by adding negative lag time.

**1** In the **Task Name** field, select the task you want, and then click **Task Information**  .

**2** Click the **Predecessors** tab.

**3** In the **Lag** field, type the lead time or lag time you want, as a duration or as a percentage of the predecessor task duration.

Type lead time as a negative number or as a percentage, and type lag time as a positive number or as a percentage.

**Tip** You can quickly add lead or lag time to a successor task by double-clicking the link line on the Gantt Chart, and then typing the amount of lead or lag time in the **Task Dependency** dialog box.

## Check constraints on tasks

Task constraints can help you create a more accurate schedule by modifying when tasks occur in relation to dates. For example, you can specify that a task must start no earlier than a particular date or finish no later than a particular date. You can change the constraint on a task from the default, As Soon As Possible, to eight different constraints or reset it to the default constraint to better reflect how the task will be done.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **View** menu, point to **Table**, and then click **More Tables**.
3. In the **Tables** list, click **Constraint Dates**, and then click **Apply**.
4. Drag the divider bar to the right to view the **Constraint Type** and **Constraint Date** fields.

5. For each task with a constraint other than the default, As Soon As Possible, look at the predecessor tasks and successor tasks on the Gantt Chart to determine if the constraint is necessary.

**Notes**

- If you type a start date for a task or drag a Gantt bar to change the start date, Microsoft Project sets a Start No Earlier Than (SNET) constraint based on the new start date. If you type a finish date for a task, Microsoft Project automatically assigns a Finish No Earlier Than (FNET) constraint.
- If you're scheduling your project from a finish date, typing a start date for a task or dragging a Gantt bar to change the start date sets a Start No Later Than (SNLT) constraint. If you type a finish date for a task, Microsoft Project automatically assigns a Finish No Later Than (FNLT) constraint.

## Make tasks shorter by adding more resources

Once you've assigned resources to a task, Microsoft Project will recalculate the task's duration if you add or remove additional resources. For example, if you add another resource to a task with a 4 day duration and one assigned resource, the task will be shortened to 2 days. If you have more flexibility with your resource assignments than schedule deadlines, this can be an effective way to shorten your schedule.

**1** On the **View Bar**, click **Gantt Chart**  .

**2** In the **Task Name** field, select the task to which you want to assign more resources, and then click **Assign Resources**  .

**3** In the **Name** field, select the resource you want to assign to the task or click **Address** to select a resource from your e-mail address book.

**4** Click **Assign**.

If necessary, type the name of a new resource in the **Name** field.

A check mark to the left of the **Name** field indicates that the resource is assigned to the selected task. The resource's name also appears next to the task bar in the Gantt Chart.

**Note** As you assign additional resources to a task, the duration will be reduced to reflect the addition of the resources.

**Tips**

- If you don't know which resources have the availability to take on extra work, you can see current resource allocations by clicking **Resource Usage**  on the **View Bar**.
- To assign a resource part-time, type a percentage less than 100 in the **Units** field to represent the percentage of working time you want the resource to spend on the task.
- To assign several different resources, press CTRL to select nonadjacent resources or press SHIFT to select adjacent resources.
- To assign more than one of the same resource (such as two carpenters), type a percentage amount greater than 100 in the **Units** field.

## Save a baseline of your project’s information

When you have entered all the information needed for your project and you're ready to start actual work, you can save a baseline of your project's information to compare with the actual progress of your project. Using a baseline, you can track the progress of your schedule and make any necessary corrections. For example, you can see which tasks started later than planned, how much work resources performed, and keep track of your budget. After you save a baseline, you can save up to ten interim plans to compare planning strategies or as checkpoints during the actual progress of your project.

1. On the **Tools** menu, point to **Tracking**, and then click **Save Baseline**.
2. Click **Entire project** or **Selected tasks** to add new tasks to an existing baseline.

**Tip** If you want to create a budget, first enter all your resource assignment and rate information, and then save a baseline. You cannot save this information in an interim plan.

## Save the project without a baseline

Remember to save your project file periodically as you work. The first time you save the file, you will be asked whether to save a baseline of your project's information. If you've entered all your basic project information and you're ready to start actual work, you can save a baseline of your plan so that you can compare any future changes with your project as it was planned initially. If your project is not polished, you may prefer to save it without a baseline until you have entered more complete or accurate information.

1. Click **Save**  .
2. In the **File name** box, type a name for the project and then click **Save**.
3. Click **Save Without a Baseline**.

## Save an interim plan

After you save a baseline of your project's information, you can save up to 10 interim plans as checkpoints during the actual progress of your project.

1. On the **Tools** menu, point to **Tracking**, and then click **Save Baseline**.
2. Click **Save interim plan**.
3. In the **Copy** box, click the plan name you want to save.
4. In the **Into** box, click the name to which you want to save the plan.
5. Click **Entire project** or **Selected tasks** to save the portion of the schedule you want.

**Note** An interim plan saves the tasks' start and finish dates. No resource or assignment data is saved in an interim plan.

## Save a budget

If you've entered resource assignments and assigned rates to the resources or have entered fixed costs for tasks, you can save a baseline plan of your project's information to use as a budget. With a baseline plan as your budget, you can keep track of your project costs and see how much work resources performed, as well as other project information, such as which tasks finished later than expected. You can use baseline information to make cost projections and compare them with the actual cost of your project, which can help you catch potential cost overruns before they become critical.

1. On the **Tools** menu, point to **Tracking**, and then click **Save Baseline**.
2. Click **Entire project** or **Selected tasks** to add tasks to an existing baseline.

## Compare actual task information to the baseline

When you save a baseline plan and then update your schedule, you can compare the baseline plan to your actual progress to identify variances. Variances alert you to the areas of the project that are not going as planned. To keep your project on schedule, you need to make sure that tasks start and finish on time as much as possible. Every project has variances, but it is important to find tasks that vary from the baseline plan as soon as possible so you can adjust task dependencies, reassign resources, or delete some tasks to meet your deadlines.

1. On the **View Bar**, click **Tracking Gantt**  .

   The Tracking Gantt shows task variances graphically, making it easier to see variances in your schedule.
2. On the **View** menu, point to **Table**, and then click **Variance**.
3. Drag the divider bar to the right to view the variance fields.

**Note** You must update tasks' actual start and finish dates, actual work values, or actual durations before variances will appear. Microsoft Project will calculate the other task information based on the information you enter.

## Make the number of resources drive the amount of work

As you assign more resources or remove resources from a task, Microsoft Project by default decreases or increases the duration of the task. But, you may want to change the amount of work on the task instead. For example, a task with a 1 day duration and one assigned resource has 8 hours of work. If you turn off effort-driven scheduling and assign another resource, the task will have 16 hours of work and still have a 1-day duration.

1. On the **View Bar**, click **Gantt Chart**  .
2. In the **Task Name** field, select the tasks for which you want to turn off effort-driven scheduling.
3. Click **Task Information**  , and then click the **Advanced** tab.
4. Clear the **Effort driven** check box.

**Tip** You can turn off effort-driven scheduling for all new tasks you create. Existing tasks will not be affected. On the **Tools** menu, click **Options**, click the **Schedule** tab, and then clear the **New tasks are effort driven** check box.

**Note** Previous versions of Microsoft Project behave as if effort-driven scheduling is turned off.

## Split a task into segments

You can split a task so that the task is interrupted, and then resumes later in the schedule.

1. On the **View Bar**, click **Gantt Chart**  .
2. Click **Split Task**  .
3. Move the pointer over the task bar you want to split, and then click the task bar where you want the split to occur.

**Tips**

- You can create a longer split by clicking and dragging the task bar to the right.
- You can remove the split by dragging a portion of a split task so that it touches another portion.

## Schedule work in uneven increments

When you assign a resource to a task, Microsoft Project automatically assigns the same number of hours per time period throughout the duration of the task, which is a flat work contour. You can tailor work values for a specific time period using preset work contours to more accurately reflect the pattern of a resource's work throughout the duration of a specific task. For example, you may want to use a frontloaded contour to increase the working hours of a resource toward the beginning of a writing assignment to reflect the additional time devoted to research, travel, and interviews.

1. On the **View Bar**, click **Task Usage**  .
   Resources are grouped under the tasks to which they are assigned.
2. In the **Task Name** field, select a resource for which you want to apply a preset work contour.
3. Click **Assignment Information**  , and then click the **General** tab.
4. In the **Work contour** box, click a contour pattern.
   An icon representing the contour pattern appears in the **Indicators** field.

## Find overallocated resources and their task assignments

Resources are overallocated when they are assigned more work than they can complete in their scheduled working hours. Before you can attempt to resolve resource overallocation problems, you must determine which resources are overallocated, when they are overallocated, and what tasks they are assigned to at those times. To resolve the problem, either the resources must be allocated differently or the task must be rescheduled to a time when the resource is available.

- On the **View Bar**, scroll down and click **Resource Usage**  .

**Notes**

- For each resource, the Resource Usage view shows the total hours the resource is working, the total hours the resource is working on each task, and the hours worked per time period on the timescale. Overallocated resources are highlighted.
- Resources with no tasks yet assigned do not have any tasks listed underneath their names.
- Tasks with no resources assigned are located under Unassigned in the Resource Name field.

**Tips**

- If you see pound symbols (##) in the timescale portion of the Resource Usage view, the columns in the timescale are not wide enough to display the information. To change the width of the columns, click **Timescale** on the **Format** menu, and then increase the value in the **Enlarge** box.
- You can see how much of a resource's work is allocated to particular tasks and per time period. On the **Format** menu, click **Detail Styles**. In the **Available fields** list, click **Percent Allocation**, and then click **Show**.

## Reduce a resource's work

After you've assigned a resource to a task, you can either change the total work values for the resource's work on the task or change work values for a specific time period during which the resource works on the task. Tailoring work values this way can make your schedule more accurate at a finer level of detail.

**1** On the **View Bar**, click **Task Usage**  .

Resources are grouped under the tasks to which they are assigned.

**2** On the timescale portion of the view, change the individual work values (or hours) for the assigned resources.

**Note** You can also change the total work value for a resource assignment by entering a new value in the Work field.

**Tip** You can also use the Resource Usage view to see and edit work values for tasks grouped under the resources to which they are assigned. On the **View Bar**, scroll down and click **Resource Usage**  .

## Reassign work to another resource

If you have tried to resolve a resource overallocation using other methods and the overallocation persists, it may be time to reassign the task to another more available resource. This is an alternate method of manually leveling your schedule by reassigning work rather than delaying work. Be careful to avoid causing an overallocation for the replacement resource.

**1** On the **View Bar**, scroll down and click **Resource Usage**  .

**2** On the **Format** menu, point to **Details**, and then click **Overallocation**.

**3** Look at the timescale on the right and for each highlighted overallocation, examine the availability of other resources on that day.

**4** Select the entire row of the task assignment you need to reassign.

**5** Drag the task assignment to the resource to which you want to reassign it.

## Delay a task

One of the simplest ways to resolve a resource overallocation is to delay a task assigned to the resource until the resource has time to work on it. You can add delay to a task, check the effect on the resource's allocation, and then adjust the delay further if needed.

Delaying a task will also delay the start dates of its successors and can affect the finish date of your schedule. To avoid this, delay tasks with free slack first (noncritical tasks) and only delay them up to the amount of slack that is available for each task. Experiment with adding delay to different tasks to see the effect on your schedule.

1. On the **View Bar**, click **More Views**  .
2. In the **Views** list, click **Detail Gantt**, and then click **Apply**.
   Slack on a task appears graphically as thin slack bars adjoining the regular Gantt bars.
3. On the **View** menu, point to **Table**, and then click **Schedule**.
4. Drag the divider bar to the right to view the **Free Slack** and **Total Slack** fields.

5. In the **Task Name** field, select the task you want to delay, and then click **Task Information**  .
6. Click the **Predecessors** tab.
7. In the **Lag** field, type the duration you want the task to be delayed.
   To ensure that successor tasks are not affected, do not enter more lag than the amount of free slack for that task.

## Change a resource's working days and hours

The project calendar designates the default work schedule for the project. But, you can create a resource calendar to indicate work hours, vacations, leaves of absence, and sick time for individual resources.

1. On the **Tools** menu, click **Change Working Time**.
2. In the **For** box, click the resource whose calendar you want to change.
3. On the calendar, select the days you want to change.

   To change a day of the week for the entire calendar, select the day at the top of the calendar.
4. Click **Use default**, **Nonworking time**, or **Working time**.
5. If you clicked **Working time** in step 4, type the times you want work to start in the **From** boxes and the times you want work to end in the **To** boxes.

**Tip** If a group of resources will have the same special working hours and days off, you can create a new base calendar for them. Click **New**, and type a name for the new base calendar. Click **Create new base calendar** to begin with a default calendar. Or, to base it on an existing calendar, click **Make a copy of**, and then click the calendar name in the **Calendar** box. Click **OK**, and then modify the days and hours on the calendar. Click **Resource Sheet**, and select the new base calendar in the **Base Calendar** field for each resource to which you want to assign it.

## Insert a project into an existing project

By inserting individual project files into a existing project, you can view, print, or change information for the projects you're working with (and even those projects "owned" by other project managers) as though they were a single project.

1. Open a new or existing project file.
2. On the **View Bar**, click **Gantt Chart**  .
3. In the **Task Name** field, click the row above which you want to insert the project.
   You can insert a project at any level of the outline.
4. On the **Insert** menu, click **Project**.
5. In the **Look in** box, click the drive or folder that contains the project file.
6. In the folder list, open the folder that contains the project file you want.
7. Change the insert project options you want.
   - If you don't want the inserted project to be linked to its source project, clear the **Link to Project** check box. By default, this option is selected.
   - If you don't want changes to the inserted project to be made in its source project, select the **Read Only** check box. By default, this option is cleared.
   - If you want the inserted project's tasks to be shown immediately in the consolidated project, clear the **Hide Subtasks** check box. You also can choose to hide or show subtasksafter you've inserted the project.
8. Click the project you want to insert.

   To insert two or more projects at the same time, hold down CTRL as you click each project.
9. Click **Insert**.

**Tips**

- After you've inserted a project, you can quickly show an inserted project's hidden subtasks by clicking the summary task's outline symbol. Outline symbols indicate whether a summary task has subtasks displayed  or does not have subtasks displayed  .
- For more information about the options in a dialog box, click  and then click the item you want.

## Create a dependency between tasks in different projects

If you have several projects in which tasks in one project are dependent on tasks in another project, you can create a task dependency between tasks in the different projects. When you link the tasks, Microsoft Project displays an external task in each project with which to show the task dependency. The external task is not editable.

1. Open both projects.
2. On the **Window** menu, click **New Window**.
3. Hold down CRTL, click the projects you want to consolidate temporarily, and then click **OK**.
4. On the **View Bar**, click **Gantt Chart**  .
5. Position the pointer over the Gantt bar for the predecessor task and drag to the successor task in the other project.

   A finish-to-start task dependency is created. If the tasks you linked are not in a consolidated project, an external predecessor task is added to the project containing the successor task and an external successor task is added to the project containing the predecessor task.

**Note** You can also link tasks between projects by typing "*project name**ID*" in the predecessor field (where *project name* is the file name of the project containing the task you want to link to and *ID* is the Task ID of the task you want to link to).

## Create a resource pool

If you manage a group of resources in more than one project for an ongoing period, you can create a new project file that contains only resource information (no tasks), and then have all projects use this project's pool of common resources when they are assigned resources. You can also update the pool with current information so that the resource pool is up to date when you schedule other projects.

1. Open a new project file.
2. If your existing projects already contain resources, switch to each project, and then, in turn, have each project share resources with the new project.

 How?

Resource information from each project is added to the new project and made available to each other.

3. Click **Save**  .

   If this is the first time you've saved the project file, type a name for the project in the **File name** box, and then click **Save**.

**Tip** Occasionally, you may need to stop sharing resources across projects, for example, when your resources are assigned exclusively to your project. On the **Tools** menu, point to **Resources**, and then click **Share Resources**. Click **Use own resources** to disconnect the project file from the resource pool.

## Use another project's resources in your project

Balancing the usage of resources shared between projects doesn't require a lot of preparation. You can "borrow" resources from an existing project and stop sharing resources whenever you want. When you do this, all of the resources in the pool project, as well as the projects that are sharing resources with it, are combined and available to your project.

1. Open the project containing the resources you want to use in your project.
2. On the **Tools** menu, point to **Resources**, and then click **Share Resources**.
3. Click **Use Resources**, and then click the project file in the **From** box that contains the resources you want to use.

   If you want the information in the active project file to take precedence when the active file and the resource pool file contain calendars or resources with the same name, click **Sharer takes precedence**.
4. Click **OK**.

   The resources are now available in the active project file, and you can assign them just as you would assign any resources. If your project already had its own resources, the resources from both projects are combined.

## Update the resource pool

After you create a resource pool, assign resources, and start tracking actual information, you need to update the pool with the latest information so that it is available to project managers who might be working on other projects sharing resources from the pool at the same time.

- On the **Tools** menu, point to **Resources**, and then click **Update Resource Pool**.

## Review resource assignments in all projects

Occasionally, you may want to see all the resource assignments for a particular resource across all the projects the resource is working on. Because resource assignment information is stored in the resource pool, you can do this quickly by opening the project file containing the pool of resources working on multiple projects.

**1** Open the project file containing the pool of resources shared by all projects.

**2** On the **View Bar**, click **Resource Usage**  , and then review the resource assignments you want.

## Check if tasks are progressing according to plan

To keep your project on schedule, you need to make sure that tasks start and finish on time as much as possible. Of course, there will always be tasks that do not start on time or run behind schedule. It is important to find tasks that vary from the baseline plan as soon as possible, so you can adjust task dependencies, reassign resources, or delete some tasks to meet your deadlines.

1 On the **View Bar**, click **Tracking Gantt**  .

2 On the **View** menu, point to **Table**, and then click **Variance**.

3 Drag the divider bar to the right to view the variance fields.

**Note** You must have saved a baseline in order to have variance information.

## Enter actual start and finish dates for a task

It's important to track whether tasks start and finish on time. Tasks that start or finish late can throw an entire project off schedule by delaying the start or finish dates of related tasks. Tasks that start or finish early can free resources to work on other tasks that are behind schedule. Microsoft Project uses the actual values you enter to reschedule the remaining portions of your project.

1. In the **Task Name** field, select the task you want to update.
2. On the **Tools** menu, point to **Tracking**, and then click **Update Tasks**.
3. Under **Actual**, type the dates in the **Start** and **Finish** boxes.

**Note** Entering an actual start date or actual finish date for a task changes the corresponding scheduled date for that task. Baseline dates, however, are not affected by changes you make to the actual or scheduled dates.

**Tip** If a number of tasks started and finished on time, you can set the actual start and actual finish information for all of those tasks at once. In the **Task Name** field, select the tasks that started and finished on time. On the **Tools** menu, point to **Tracking**, click **Update Project**, and then click **Selected tasks**.

## Enter the actual duration of a task

If you know the number of days that a task has been in progress and it is progressing as planned, you can track progress by entering the duration for which you've been working on the task. When you enter the actual duration of a task, Microsoft Project updates the actual start date, the task's percentage complete, and the duration of the task remaining in the schedule.

1. Select the task for which you want to enter the actual duration.
2. On the **Tools** menu, point to **Tracking**, and then click **Update Tasks**.
3. In the **Actual dur** box, type the actual duration of the task.

**Tip** If you think the task is going to be finished sooner or later than originally scheduled, you can enter a new value in the **Remaining dur** box.

**Notes**

- If you use effort-driven scheduling, you should not change the scheduled or actual duration of tasks. Instead, adjust the amount of work for the resource or resource units to change the task duration.
- Microsoft Project displays a check mark in the Indicators field for a completed task.
- If the actual duration of a task is greater than the scheduled duration, you should enter the actual amount of work for the task. Microsoft Project changes the actual finish date to reflect the increased amount of work and also increases the task duration. If you enter an actual duration for a task that is greater than the scheduled duration, Microsoft Project updates the scheduled task duration to equal the actual task duration, changes the remaining task duration to zero, and marks the task as 100 percent complete.

## Update a task's progress as a percentage

You can indicate how much progress has been made on a task by entering the percentage of the task duration that is complete. For tasks that are relatively short in duration, it may not be worthwhile to track progress in such detail; but for tasks of an extended duration, indicating the percentage complete of the task helps you track actual progress against the baseline plan. By default, Microsoft Project indicates the task's percentage complete on the Gantt Chart as a thin, black line drawn horizontally through the middle of each task bar.

1. Select the task for which you want to update progress.
2. Click **Task Information**  , and then click the **General** tab.
3. In the **Percent complete** box, type a whole number between 0 and 100.

**Notes**

- Microsoft Project calculates the summary task's percentage complete based on the progress of its subtasks. You can also manually enter the summary task's percentage complete, which Microsoft Project will use to calculate the percentage complete of its subtasks.
- Microsoft Project displays a check mark in the Indicators field for a completed task.

**Tips**

- To indicate progress on a recurring task, add the % Complete field to your Gantt Chart and type the number in that field. On the **View Bar**, click **Gantt Chart**  , and then click **Column** on the **Insert** menu. Click **% Complete** in the **Field name** box, and then enter the percentage in the **% Complete** field for the recurring task.
- You can use the buttons on the Tracking toolbar to update progress on a task and to perform other tracking activities. On the **View** menu, point to **Toolbars**, and then click **Tracking**.

## See if tasks have more or less work than planned

If you're managing resource assignments in your project, you need to make sure that resources are completing their tasks in the amount of time scheduled. Variances in your schedule can be good as well as bad, depending on the type and severity of the variance. A task with less work than planned, for example, is normally good news, but may indicate that your resources are not allocated efficiently.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **View** menu, point to **Table**, and then click **Work**.
3. Drag the divider bar to the right to view the **Baseline** field.

4. Compare the values in the **Work** and **Baseline** fields.

   To see the variance between the baseline and actual work, look at the values in the **Variance** field.

## Update actual work on a daily basis

You can track actual work using the timephased fields in Microsoft Project. This can be a useful way of keeping your project up-to-date on a daily or weekly basis, because you can enter information for a particular day in your schedule.

**1** On the **View Bar**, click **Task Usage**  .

**2** On the **View** menu, point to **Table**, and then click **Work**.

**3** Drag the divider bar to the right to view the **Actual** field.

**4** In the **Actual Work** field, type the updated work value and the duration abbreviation for the actual work of each assigned resource.

**Tip** If it makes no difference which of the resources assigned to a task performs the work, then type a value for the combined work done on the task by all the resources in the **Actual** field for the task. Microsoft Project divides the actual and remaining work among the resources based on where they are scheduled on the task and the remaining work for each assignment.

## Enter actual costs for a task

Microsoft Project automatically updates actual costs as a task progresses based on the task's accrual method. But if you want to track actual costs separately from the actual work on a task, you can enter costs manually instead of allowing Microsoft Project to calculate them. First, you must turn off the automatic updating of actual costs and then, if you want to enter your own actual cost for a resource assignment, you can do so after the remaining work is zero.

1. On the **Tools** menu, click **Options**, and then click the **Calculation** tab.
2. Clear the **Actual costs are always calculated by Microsoft Project** check box.
3. Click **OK**.
4. On the **View Bar**, click **Task Usage**  .
5. On the **View** menu, point to **Table**, and then click **Tracking**.
6. Drag the divider bar to the right to view the **Act. Cost** field.

7. In the **Act. Cost** field, type the actual cost for the assignment for which you want to update costs.

**Tips**

- You can set the fixed cost for a task to accrue at the beginning or the completion of a task or to be prorated for the length of the task. Click **Gantt Chart** on the **View Bar**. On the **View** menu, click **Table**, and then click **Cost**. In the **Fixed Cost Accrual** field, select the accrual method you want.
- Sometimes resource assignment costs include a per-use cost for items such as equipment costs, setup charges, delivery, or rental fees, in addition to a standard rate. You can change the fixed amount charged to a resource each time it is assigned to a task by clicking **Resource Sheet**  on the **View Bar**, and then typing a new cost in the **Cost/Use** field for the resource whose per-use cost you want to change.

## Update actual costs on a daily basis

You can track actual costs using the timephased fields in Microsoft Project. This can be a useful way of keeping your project up-to-date on a daily or weekly basis, because you can enter information for a particular day in your schedule.

Microsoft Project automatically updates actual costs as a task progresses based on the accrual method you set. First, you must turn off the automatic updating of actual costs to make the actual costs editable and then, if you want to enter your own actual cost for a resource assignment, you can do so after the remaining work is zero.

1. On the **Tools** menu, click **Options**, and then click the **Calculation** tab.
2. Clear the **Actual costs are always calculated by Microsoft Project** check box.
3. Click **OK**.
4. On the **View Bar**, click **Task Usage**  .
5. On the **View** menu, point to **Table**, and then click **Cost**.
6. On the **Format** menu, point to **Details**, and then click **Cost**.
7. On the **Format** menu, point to **Details**, and then click **Actual Cost**.
8. To enter actual values for a task, select the column for the day you want to track, and then type a value into the field of the task.

   To enter actual values for a resource assignment, select the column for the day you want to track, and then type a value into the field of the resource.

## See the cost variance of the entire project

You can view your project's current, baseline, actual, and remaining costs to see whether you're staying within your overall budget. These costs are updated each time Microsoft Project recalculates your project.

1. On the **Project** menu, click **Project Information**.
2. Click **Statistics**.

## See if tasks cost more or less than budgeted

If you're assigning fixed costs to tasks or specifying wages for resources, you may want to see tasks accruing more cost than budgeted. By creating a budget using a baseline planand closely tracking your project costs, you can catch cost overruns early and adjust either your schedule or your budget accordingly.

Microsoft Project calculates the cost of each resource's work, the total cost for each task and resource, and the total project cost. These costs are considered scheduled or projected costs, which reflect the latest cost picture as the project progresses.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **View** menu, point to **Table**, and then click **Cost**.
3. Drag the divider bar to the right to view the **Total Cost** and **Baseline** fields.

4. Compare the values in the **Total Cost** and **Baseline** fields.

   For the cost variance, look at the value in the **Variance** field.

**Tips**

- You can compare the baseline total cost of your project to the actual total cost. On the **Project** menu, click **Project Information**, and then click **Statistics**. In the **Cost** column, compare the values in the **Baseline** and **Actual** fields.
- You can check the resources assigned to a task and the resource costs related to that task. On the **View Bar**, click **Task Usage**  . On the **View** menu, point to **Table**, and then click **Cost**. Drag the divider bar to the right and compare the values in the **Total Cost**, **Baseline**, **Actual**, and **Remaining** fields for the resources assigned to that task.

## Analyze costs with the Earned Value table

When you want to compare your expected progress with the actual progress to date for tasks that have resources assigned, you can use the Earned Value table. It expresses, in terms of resource costs, each task's actual percentage complete.

You can also use the Earned Value table to forecast whether the task will finish under or over budget based on the cost incurred while the task is in progress. For example, if a task is 50 percent complete and the actual cost incurred to date is $200, you can see if $200 is more, less, or equal to 50 percent of the baseline (or budgeted) cost.

1. On the **View Bar**, click **Gantt Chart**  .
2. On the **View** menu, point to **Table**, and then click **More Tables**.
3. In the **Tables** list, click **Earned Value**, and then click **Apply**.
4. Drag the divider bar to the right to display all of the Earned Value table fields.

**Tips**

- You can also view earned value data on a daily basis. On the **View Bar**, click **Task Usage**  . On the **Format** menu, click **Detail Styles**, and then click the **Usage Details** tab. In the **Available fields** list, hold down CTRL, click the fields you want to display, and then click **Show**.
- You can set a project status date for the purpose of calculating the values of fields in the Earned Value table. Microsoft Project will calculate the value of these fields based on the actual work and costs up through and including the project status date. If you do not set the project status date, Microsoft Project will use the current date to calculate these fields. On the **Project** menu, click **Project Information**. In the **Status date** box, type the date you want Microsoft Project to use as a status date.

## Enter the total actual work done by a resource

If you're scheduling tasks based on the availability of resources, you should track the progress of your tasks by updating the work completed on a task. Using this updating approach, you can track the work that each resource is performing.

When you update the actual work a resource has done on a task, Microsoft Project automatically calculates the work remaining by subtracting the actual work done by the resource from the total work the resource is scheduled to do.

1. On the **View Bar**, click **Task Usage**  .
2. On the **View** menu, point to **Table**, and then click **Work**.
3. Drag the divider bar to the right to view the **Actual** field.

4. In the **Actual Work** field, type the updated work value and the duration abbreviation for the actual work of each assigned resource.

**Tip** If it makes no difference which of the resources assigned to a task performs the work, then type a value for the combined work done on the task by all the resources in the **Actual** field for the task. Microsoft Project divides the actual and remaining work among the resources based on where they are scheduled on the task and the remaining work for each assignment.

## Update a resource's actual work on a daily basis

You can track actual work using the timephased fields in Microsoft Project. This can be a useful way of keeping your project up-to-date on a daily or weekly basis, because you can enter information for a particular day in your schedule.

1. On the **View Bar**, scroll down and click **Resource Usage**  .
2. On the **View** menu, point to **Table**, and then click **Work**.
3. On the **Format** menu, point to **Details**, and then click **Actual Work**.
4. In the **Actual Work** field, type the updated work value and the duration abbreviation for the resource's actual work on each assigned task.

## See the variance between a resource's planned and actual work

If you're scheduling tasks based on the availability of resources and you're tracking actual work, you can analyze how much total work a resource is accomplishing by looking at the variance between the baseline work and actual work. You can also compare those figures to the baseline work and actual work on a daily basis to see in greater detail how the resource's work is progressing.

1. On the **View Bar**, scroll down and click **Resource Usage**  .
2. On the **View** menu, point to **Table**, and then click **Work**.
3. Drag the divider bar to the right to view the **Baseline** and **Actual Work** fields.
4. Compare the values in the **Baseline** and **Actual Work** fields for each resource.
5. On the **Format** menu, point to **Details**, and then click **Work**.
6. On the **Format** menu, point to **Details**, and then click **Actual Work**.
7. In the **Details** column on the timescale portion of the view, compare the **Work** and **Actual Work** fields for a daily summary of each resource's work.

**Baseline plan**

The original project plan you use to track progress during a project. The baseline plan includes task start and finish dates and resource and cost information.

**Project calendar**

The base calendar used by a project.

**Base calendar**

A calendar that specifies working and nonworking time for a project or set of resources. A base calendar differs from a resource calendar, which specifies working and nonworking time for an individual resource.

**Constraint**

A restriction or limitation you set on the start or finish date of a task. For example, you can specify that a task must start on a particular date or finish no later than a particular date.

**Critical path**

The series of tasks that must be completed on schedule for a project to finish on schedule. Each task on the critical path is a critical task.

**Critical task**

A task that must be completed on schedule for the project to finish on time. If a critical task is delayed, the project completion date is also delayed. A series of critical tasks makes up a project's critical path.

**Lag time**

A delay between tasks that have a dependency. For example, if you need a two-day delay between the finish of one task and the start of another, you can establish a finish-to-start relationship and specify a two-day lag time. You enter lag time as a positive value.

**Lead time**

An overlap between tasks that have a dependency. For example, if a task can start when its predecessor is halffinished, you can specify a finish-to-start relationship with a lead time of 50 percent for the successor task. You enter lead time as a negative value.

**Resource group**

A set of resources that shares some characteristic, categorized by a group name. For example, you can categorize resources by job function and use group names such as plumbers or editors. Or, you can categorize resources by employment status and use group names such as contractors and permanent employees.

**Resource List**

The list of resources that you amass in the **Assign Resources** box, which you bring up by clicking the **Assign Resources** button located on the **Standard** toolbar.

If you're planning on communicating with these resources across e-mail, you must add each resource's e-mail address to their **Resource Information**. To get to a resource's information, double-click a resource's name in the **Assign Resources** box.

**Resources**

The people, equipment, and supplies used to complete tasks in a project.

**Successor**

A task that cannot start or finish until another task starts or finishes.

**Filter**

A tool you use to specify which task or resource information should be displayed or highlighted in a view. For example, when you apply the Critical filter, only critical tasks are displayed.

**Footer**

Text that appears at the bottom of every printed page. A footer typically contains information such as page number, total page count, and date.

**Header**

Text that appears at the top of every printed page. A header typically contains information such as the project or company name and the project start and finish dates.

**Resource pool**

A set of resources available for assignment to project tasks. A resource pool can be used exclusively by one project or can be shared by several projects.

**Resource view**

A view that displays resource information. Resource views include the Resource Sheet, the Resource Graph, the Resource Usage view, and resource forms.

**Work breakdown structure (WBS)**

A hierarchical structure used to organize tasks for reporting schedules and tracking costs. With Microsoft Project, you can represent the work breakdown structure by using task IDs or by assigning your own WBS code to each task.

**Legend**

The explanatory list of symbols printed on a chart or graph.

**Accrual method**

Determines when the cost for a resource is incurred and when actual costs are charged to a project. You can incur costs at the start or finish of a task or prorate them during the task.

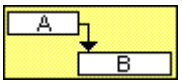
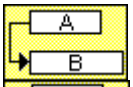
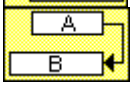
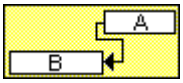
| To | Select |
|---|---|
| Accrue the cost when the task begins | Start |
| Accrue the cost when the task is completed | End |
| Accrue the cost based on the percentage of completion of the task | Prorated |

**Divider bar**

The vertical bar that separates the chart from the table or legend in the Gantt Chart, Resource Graph, and Resource Usage view.

**Task dependencies (FS, SS, FF, SF)**

The nature of the dependencies between linked tasks. You link tasks by defining a dependency between their finish and start dates. For example, the "Contact caterers" task must finish before the start of the "Determine menus" task. There are four kinds of task dependencies in Microsoft Project:

| | | |
|---|---|---|
| **Finish-to-start (FS)** |  | The task (B) cannot start until another task (A) finishes. |
| **Start-to-start (SS)** |  | The task (B) cannot start until another task (A) starts. |
| **Finish-to-finish (FF)** |  | The task (B) cannot finish until another task (A) finishes. |
| **Start-to-finish (SF)** |  | The task (B) cannot finish until another task (A) starts. |

**Schedule**

The timing and sequence of tasks within a project. The schedule consists mainly of tasks, dependencies among the tasks, durations, constraints, and time-oriented project information.

**External task**

When you link tasks between standalone projects, Microsoft Project displays external tasks in each project. An external task represents the task in the other project to which the task is linked, providing an easy way to review the attributes of the linked tasks without switching between projects. You can format an external task and edit the links between tasks. You cannot, however, edit an external task. An external tasks can only be changed in the source project.

**Field**

A location in a sheet, form, or chart that contains a specific kind of information about a task or resource. For example, in a sheet, a field is the intersection of a column and a row. In a form, a field is a named box or a place in a column. In a PERT Chart, fields are contained in each PERT box.

**Resource-driven scheduling**

A scheduling method that bases a task's duration on the amount of work the task requires and the number of resource units assigned to it. Resource-driven scheduling is the default scheduling method in Microsoft Project.

**Recurring task**

A task that occurs repeatedly during the course of a project. You might define the weekly status meeting as a recurring task, for example.

**Interactive filter**

A filter that displays a dialog box for entering filter criteria each time you apply the filter. For example, the Using Resource filter displays a dialog box in which you enter a resource name. Microsoft Project then displays all the tasks that are using that resource.

**Interim plan**

A set of task start and finish dates, and sometimes resource and cost information, that you can save at certain stages of your project. You can compare an interim plan with the baseline plan to monitor project progress or slippage. You can save up to ten interim plans.

**Cost**

The total scheduled cost for a task, resource, resource assignment, or for an entire project. Sometimes this is also called current cost, or budget.

**View**

The combination of one or more views (Gantt Chart, Resource Sheet, and so on) and, if applicable, a table and a filter. Using views, you can enter, organize, and examine information in a variety of formats.

There are three types of views:

**Charts** or **graphs** represent information graphically. The Gantt Chart, PERT Chart, Resource Graph, and Calendar are charts or graphs.

**Sheets** represent information in rows and columns. Each row contains information about an individual task or resource. Each column contains a set of fields in which you enter specific information about tasks or resources.

**Forms** represent information in a format similar to a dialog box. Forms show information about only one task or resource at a time.

**Milestone**

A reference point marking a major event in a project, used to monitor the project's progress. Any task with zero duration is displayed as a milestone.

**Outline**

A hierarchical structure for a project that shows how some tasks fit within broader groupings. In Microsoft Project, subtasks are indented under summary tasks.

**Fixed cost**

A cost that remains constant regardless of the task duration or the work performed by a resource.

**Timescale**

The indicator of time periods that appears at the top of the Gantt Chart, the Resource Graph, Task Usage, and the Resource Usage view. The timescale consists of a major timescale and, below it, a minor timescale. Both the major and the minor timescale can display units of minutes, hours, days, weeks, months, quarters, and years. For example, the major timescale can display units of months while the minor timescale displays units of weeks.

**Predecessor**

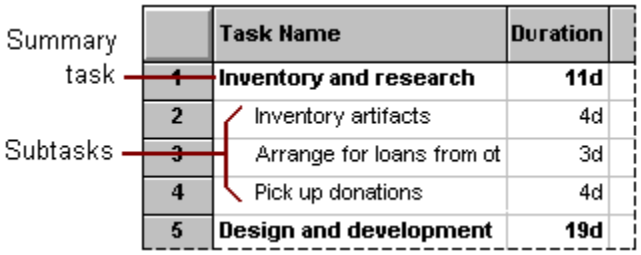
A task that must start or finish before another task can start or finish.

**Consolidated file**

A file that contains copies of one or more inserted project files. The inserted projects can retain links to their source projects so that any changes to the inserted projects in the consolidated file are passed on to the source file.

**Summary task**

A task that is made up of subtasks and that also summarizes those subtasks. You can use the Microsoft Project outlining feature to create summary tasks. Microsoft Project automatically determines summary task information (duration, cost, and so on) using information from the subtasks.



**Highlighting filter**

A filter that displays all tasks or resources and highlights the tasks or resources that match the filter criteria.

**Linking**

In a project, establishing a dependency between tasks. When you link tasks, you define a relationship between their start and finish dates. There are four kinds of task dependencies: finish-to-start (FS), start-to-start (SS), finish-to-finish (FF), and start-to-finish (SF).

**Actual**

Information that shows what has actually occurred. For example, the actual start for a task is the day the task started and its actual cost is the amount spent up to the present.

**Slack**

The amount of time a task can slip before it affects another task's dates or the project finish date. Slack is sometimes referred to as float time.

**Free slack** is the amount of time a task can slip before it delays another task.

**Total slack** is the amount of time a task can slip before it delays the project finish date.

When the total slack is negative, the duration for a task is too long for its successor to begin on the date required by its constraint.

**Table**

A set of columns that shows specific information about tasks or resources in a sheet view.

**Task**

A job that has a beginning and an ending. The completion of a task is important to the project's completion. Projects are made up of tasks. A task is sometimes referred to as an activity.

**Units**

The number of units or the quantity of a resource assigned to a task. For example, if you have a plumbing task, you could assign two units, or two plumbers, to the task. If you have one plumber, you could assign .5 units (half of the plumber's time) to the task. The maximum units is the maximum number of units available for the resource. For example, if you have three plumbers working on a project, the maximum units is three---three plumbers working full-time.

**Resource calendar**

A calendar that specifies working and nonworking time for an individual resource. A resource calendar differs from a base calendar, which specifies working and nonworking time for more than one resource. You can use resource calendars to define unique exceptions for individual resources, such as vacations, different working days, or different shifts.

**Duration**

The amount of time required to complete a task. Elapsed duration includes working and nonworking time.

A duration value is followed by a time unit abbreviation:

| Working time | Elapsed time |
|---|---|
| min = minute | emin = elapsed minutes |
| hr = hour | ehr = elapsed hours |
| day = day | edays = elapsed days |
| wk = week | ewk = elapsed weeks |

**Overallocation**

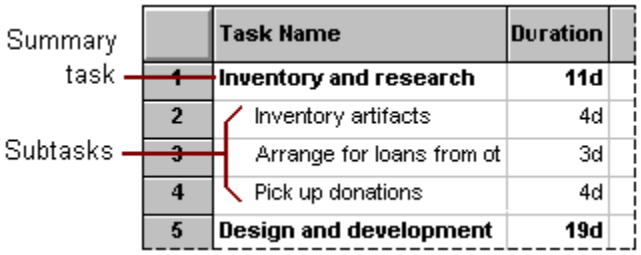
The result of assigning more tasks to a resource than the resource can accomplish in the working time available. Microsoft Project determines which resources are overallocated based on the work and duration values for assigned tasks, the maximum number of units available for the resource, and the calendar used by the resource.

**Sheet**

A spreadsheet-like representation (in rows and columns) of task or resource information. Each row specifies an individual task or resource, such as the "Design package" task or the Advertising Agency resource. Each column specifies a type of information, such as start dates or standard rates.

**Subtask**

A task that is part of a summary task. The subtask information is consolidated into the summary task. You can designate subtasks using the Microsoft Project outlining feature.



**Variance**

The difference between baseline and scheduled task or resource information. Variances usually occur when you set a baseline plan and begin entering actual information into your schedule. Variances in task information usually refer to differences between baseline and scheduled dates. Variances in resource information usually refer to differences between baseline and scheduled work and costs.

**Task view**

A view that displays task information. Task views include three task forms and the following views:

- Bar Rollup
- Calendar
- Detail Gantt
- Gantt Chart
- Leveling Gantt
- Milestone Date Rollup
- Milestone Rollup
- PA_Expected Gantt
- PA_Optimistic Gantt
- PA_PERT Entry Sheet
- PA_Pessimistic Gantt
- PERT Chart
- Task Entry
- Task PERT
- Task Sheet
- Task Usage
- Tracking Gantt

**Overtime**

The amount of work beyond a resource's normal working hours. It is the amount of existing work that is considered by Microsoft Project to be overtime work. When overtime hours are entered for a resource, Microsoft Project subtracts overtime hours from regular hours before the duration is calculated.

Duration = (Work – Overtime Work) ÷ Units