

Identifying the Work to Be Done

When you organize a simple activity like seeing a movie with friends, you probably don't bother writing out the steps. You just call your friends, pick a movie, get tickets, and buy popcorn without a formal plan. But for more complex projects—like holding a fundraiser or launching a new product line—identifying the work involved is key to planning how and when to get it done. For example, you have to get all the prep work for the fundraiser done *before* the big day, or your event and the donations it generates will be a bust. And that new product may make a profit only if you get it on store shelves before Thanksgiving and keep costs below \$100,000. In cases like these, delivery dates, costs, and other objectives are important.

That's where a WBS (*work breakdown structure*) comes in. Carving up the project's work into a hierarchy of progressively smaller chunks until you get to bite-sized pieces is the first step toward figuring out how and when everything will get done. If you're new to managing projects, don't panic—you've built a WBS before. The movie example in the previous paragraph is actually a simple WBS.

The structure of a WBS is much like the circulatory system in your body. You can think of the circulatory system itself as the entire project (its goal is to distribute blood throughout your body), and the smaller blood vessels as progressively smaller chunks of the overall work at each level (*summary tasks*). The hordes of tiny capillaries that deliver blood to every part of your body correspond to the individual tasks (called *work packages*) at the bottom of the WBS, which are the small chunks of work that you assign to people to complete the project.

This chapter begins with an overview of how to create a WBS that successfully communicates the work within a project, and how to tell when the WBS is broken down enough. The rest of the chapter helps you get your tasks and WBS into Microsoft Project so you can move on to constructing a project schedule as described in Chapter 7.

If you're working on a small, informal project, you can jump straight to this chapter's sections on creating tasks (page 131). If you and your team members love working in Microsoft Word, Outlook, and Excel, you can build task lists in any of those programs and transfer the results into Project. (When you copy an indented list of tasks from Word or Outlook, Project 2013 automatically transforms them into a hierarchy of summary tasks and subtasks.)

This chapter continues with how to organize tasks. You might start by creating summary tasks to structure low-level tasks into a WBS. Or you can change tasks' outline levels to fine-tune your WBS hierarchy. This chapter describes the steps for building a WBS from the top down in Project. Then you'll learn how to rearrange your task list, whether you want to insert, copy, move, or delete tasks. Finally, you'll learn how to add more detail to tasks, both in Word documents and in your Project file.

■ Breaking Down Work into Manageable Chunks

Knowing the high-level tasks that make up your project is important, but it's tough to estimate hours, line up resources, schedule work, or track progress when all you have are huge chunks like Build Bridge, Raise Money, and Hold Fundraising Race. You need to get much more specific about the work your project is going to take.

The point of a WBS is to break down the work into small enough pieces (called work packages) so that you can do the following:

- **Improve estimates.** Smaller tasks are not only less intimidating than big tasks, but they also make it much easier to figure out the type (and number) of people you need to perform each portion of work, how long it'll take, and how much it'll cost.
- **Keep the team focused.** Because the WBS spells out exactly what's needed to achieve the project's objectives, it acts as a checklist for the work on the project team's plate. It also gently guides team members *away* from doing things outside the project's scope.

- **Assign work to resources.** When work is broken down into discrete tasks, it's easier to identify the skills needed to complete the assignments, so the project manager can clearly determine who's responsible for what. Also, team members are more likely to understand their individual assignments, which makes them more productive and helps keep the project on track.

On the other hand, don't go overboard by dissecting work into minuscule assignments. Productivity drops when team members keep switching to new assignments. In addition, smaller assignments could increase your temptation to micromanage. (The section "When Is Enough Enough" on page 129 describes how to choose the appropriate size for a work package.)

- **Keep the project on track.** Shorter tasks give you frequent checkpoints for tracking costs, effort, and completion dates. Moreover, if tasks have strayed off course, you can take corrective action before things get out of hand.

NOTE In the PMI project-management methodology, introduced briefly in Chapter 1, a WBS is the result of the scope-definition process. The starting point is a scope statement (page 34) in which you define what's within the boundaries of the project and, just as important, what *isn't*. For example, knowing whether the cleaning service you hire takes on teenagers' rooms could be essential to success. For many projects, especially those performed for government agencies, the WBS is a contractually binding document, making the correct inclusion and exclusion of work essential.

Like Goldilocks, you have to find the right size for the work packages—not too big, not too small, but just right. Large work packages can be so vague that team members aren't sure what they're supposed to do. Moreover, your team could reassure you for weeks that a large chunk of work is running smoothly, only to beg for a schedule-busting extension just when you thought they'd be done. Too-small work packages, on the other hand, carry all the disadvantages of micromanagement: excessive communication, unending status reporting, lost productivity, and so on. So how do you build a WBS with work packages that are just right?

Each project is unique, so don't expect the same approach to work for every project you manage. Identifying work can run the gamut from invigoratingly informal to scrupulously methodical, depending on whether you're planning a small project for a close-knit group or wrestling with a multi-year, multi-vendor project. (Whatever the project, a sure-fire shortcut is to borrow from existing sources, as described in the box on page 126.)

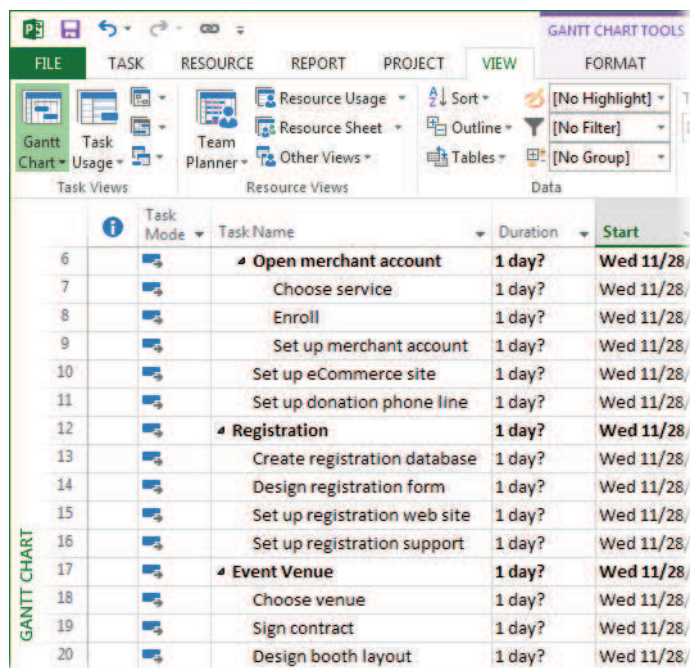
A WBS has only two types of elements: summary tasks and work packages. As you saw in Chapter 4, the lowest-level tasks in a WBS are work-package tasks—hunks of actual work that you assign to team members. Anything else in a WBS is simply some level of summary of that work, which can nest to as many levels as you need, as shown in Figure 6-1. As the following sections explain, you can build a WBS from whichever direction you prefer—top down, bottom up, or side to side.

UP TO SPEED

Borrowing a WBS

Even with input from all the project's stakeholders, a blank WBS can be as daunting as the first blank page of that novel you want to write. Fortunately, several methods of developing a WBS let you learn—or even borrow outright—from the ideas and work of project managers who've walked this path before:

- **Similar projects.** If you know of a project that's similar to the one you're working on, the fastest way to create a WBS is to start with one that's already finished, whether it's stored in Project or another program. Be sure to check that project's final schedule and its closeout documents (page 505) to identify work that was added during that project's execution.
- **Experienced resources.** If people in your organization (or outside consultants and contractors, for that matter) have experience with your kind of project, they can help flesh out a WBS or identify work you've missed. Write up the WBS as best you can, and then ask those folks to provide feedback.
- **Microsoft Project templates.** When you install Project, you automatically get access to templates for different types of projects—everything from business-oriented plans to residential construction (page 86). Start with one of these templates to launch your WBS, and tweak it until it fits your project like a glove.



Task ID	Task Name	Duration	Start
6	Open merchant account	1 day?	Wed 11/28/
7	Choose service	1 day?	Wed 11/28/
8	Enroll	1 day?	Wed 11/28/
9	Set up merchant account	1 day?	Wed 11/28/
10	Set up eCommerce site	1 day?	Wed 11/28/
11	Set up donation phone line	1 day?	Wed 11/28/
12	Registration	1 day?	Wed 11/28/
13	Create registration database	1 day?	Wed 11/28/
14	Design registration form	1 day?	Wed 11/28/
15	Set up registration web site	1 day?	Wed 11/28/
16	Set up registration support	1 day?	Wed 11/28/
17	Event Venue	1 day?	Wed 11/28/
18	Choose venue	1 day?	Wed 11/28/
19	Sign contract	1 day?	Wed 11/28/
20	Design booth layout	1 day?	Wed 11/28/

FIGURE 6-1

The organization of a WBS can vary, but the work packages usually remain the same. For example, you might track a project by phases (planning, acquisition, setup, and delivery) or by completed components (accounting system, registration, venue, food, and so on). As you build a WBS, you can change summary tasks and move work packages around.

TIP Don't forget to include project-initiation and project-management tasks in your WBS. Sure, some of your work goes on behind the scenes without obvious deliverables, but project management is essential to keeping projects within budget and on schedule. Besides, project management *does* have deliverables, since most customers and stakeholders sign off on project plans and want to see status reports, documents, and expenditures.

Identifying Work from the Top Down

As the name “work breakdown structure” implies, the most common way to build a WBS is to start with the entire project and break it down until you reach assignable work packages. (The box on page 127 describes how to show a top-down view of a WBS in Project.) The most common way to *decompose* (that is, break down) a project is by the deliverables that you want it to produce and the milestones you want it to attain. (See pages 33 and 73 for detailed definitions of *deliverables* and *milestones*.) This top-down approach is as easy as 1-2-3 (although sometimes, the levels might continue to 4, 5, and 6). If you work with a team of people, see the box on page 129 for hints on building the WBS without a computer.

POWER USERS' CLINIC

Displaying a WBS in a Hierarchy

The outline you see in Project's Gantt Chart view (see Figure 6-1) shows the levels of the WBS hierarchy, but you might prefer to view the WBS as a hierarchy similar to an organization chart, for example, when you're presenting the WBS to audiences unfamiliar with Project.

In Microsoft Project 2003, the Visio WBS Chart Wizard transformed a task list in Project into a tree diagram in Visio, but that tool went the way of the dodo bird in Project 2007.

Nowadays, you can use a *visual report* (page 485) to turn a task list into a tree. Although Project doesn't include a built-in visual report for displaying a WBS, you can head to this book's Missing CD page at www.missingmanuals.com/cds and download a visual report template for a WBS. This template

uses only the Task Name, WBS, Work, and Duration fields, and sets up a tree structure. (See page 496 to learn how to generate a visual report from a template.) When you work with visual reports, you can specify which folders to search for customized templates, as described on page 498. Project then displays the templates in that folder in the visual report list.

If the WBS visual report isn't what you hoped for, a third-party WBS tool might be the answer. WBS Chart Pro (www.criticaltools.com/wbsmain.htm) is a popular Windows-based program for creating a WBS in a hierarchical format. It isn't free, but it does offer a 30-day limited trial. Alternatively, for a free online tool, go to www.wbstool.com.

Here are the steps for working on a WBS from the top down:

1. Define the top level.

A project scope statement (page 34) usually lists a set of deliverables that the project's customer and other stakeholders expect to receive. One of the best ways to identify project work is to create high-level tasks for every deliverable. For example, if you're planning a big fundraiser, you might create summary tasks for donations, sponsorship, event registration, website, venue, food, and so on.

2. Break down work into lower levels.

Once you've defined the top-level tasks, take another pass at decomposition by identifying intermediate deliverables and critical milestones, like completing the fundraiser's website or finalizing the contracts for all the vendors. For each intermediate deliverable and milestone, ask yourself what work it entails. For instance, the donation aspect of the fundraiser requires an accounting system, a merchant account for accepting payments, as well as an e-commerce website, so add lower-level summary tasks for each of those. Then simply repeat this process for each deliverable until you have work packages that you can assign to your people, third-party vendors, and other folks you hire.

3. Verify the WBS.

Make sure all the items in the scope statement have corresponding work in the WBS. Look out for work packages that don't support the scope. Add missing summary tasks and work packages or remove those that don't belong. If you think of a deliverable that isn't in the scope statement, add the work to the WBS and revise the scope statement. (Keep in mind, though, that if you're doing projects for customers, you probably need their approval to change the scope statement.)

Developing a WBS from Start to Finish

Another way to slice and dice a project is to identify what you have to do from the beginning of the project until the end. This approach isn't all that different from the top-down decomposition described in the previous section, except that you decompose each branch of the tree until you reach its work packages. Then you go back to the top and work your way to the bottom of the next branch.

This variation on the top-down method is ideal when different teams or groups work on a project. Once you identify top-level tasks, you can assign their decomposition to the groups that do the work. (See page 137 for instructions on assembling WBSs from several groups.)

UP TO SPEED

Assembling a WBS Without a Computer

Sticky notes and an empty wall or whiteboard might be the best solution for capturing tasks when a team is tossing around ideas. In fact, sticky notes offer enough advantages that you might use them even when WBS sessions proceed at a more leisurely pace.

Sticky notes are a democratic way to collect tasks when several people collaborate on a WBS. Team members can have their own pens and pads of sticky notes so no one is stuck being the sole scribe. Moreover, anyone can walk up to the sticky-note WBS and move summary tasks and work packages around. The hardest part of the sticky-note approach could be too *much* enthusiasm. If disagreements begin to break out over added or relocated tasks, then it's time to jump in and take over sticky note maintenance until things calm down.

Sticky notes are slick when you're searching for the ideal project organization. You can peel a note off the wall and move it to wherever you want without mouse clicks or keyboard shortcuts. And if you buy sticky flip charts, you can use them to represent summary tasks and attach sticky notes representing work packages to them.

One drawback to sticky notes is that they lose their stickiness over time. The safest approach is to record the contents of a sticky-note WBS in Project or another program before you leave the meeting room. If your room reservation has expired, fold the pages carefully and transport them to your office. For sticky notes stuck directly to the wall or whiteboard, post a polite note asking others to leave your masterpiece alone until you can come back and transcribe it—and snap a photo of it with your smartphone to be safe.

Constructing a WBS from the Bottom Up

Identifying work packages and then organizing them into summary tasks usually works only for small projects, but small projects occur often enough to make this a popular approach. Whether you write tasks on sticky notes or type them into Project, you and your team can identify every iota of work you can think of. Then you can head to a quiet spot to organize it into higher-level tasks (page 142).

When Is Enough Enough?

Most people can keep track of up to five things at once, although stress and age increase forgetfulness. If you're a juggler extraordinaire, you might be able to absorb eight items, but, beyond that, all bets are off. Between three and seven levels of summary tasks is ideal for a WBS that audiences can digest. For example, you can divide the entire project at the top level into phases like defining requirements, designing systems, and developing components. Then, within each phase, you can create lower levels to identify work in more detail.

For monster projects, though, you can maintain focus by breaking the behemoth into subprojects. If the overall project is a nationwide fundraising initiative, you can have a few levels of decomposition to reach a set of subprojects, each of which contributes major deliverables (corporate sponsorship initiative, individual donation

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campaign, bicycle race program, and so on). Then you can create a separate three- to seven-level WBS for each subproject. (If vendors or subcontractors are performing subprojects, ask them to develop the WBSs for their subprojects.)

TIP If you have a bunch of folks helping you create the WBS, see the box below for advice on working together effectively.

WORD TO THE WISE

Too Many Cooks Can Spoil the WBS

If you're a team of one but tend to argue with yourself, asking another person to act as a tiebreaker can save time and frustration. In most cases, however, the problem is too *many* people with their own convictions about the correct way to break down the project. You'll end up reorganizing your WBS, rearranging summary tasks, and revising work packages with little progress toward a completed WBS.

A better approach is to start with a small group of renaissance folks—people knowledgeable in one or more sections of the

project and familiar with the overall goal. For example, you could work with the managers of each department involved in the project to craft the top two or three levels of the WBS. Then, you can assign the decomposition of the lowest summary tasks of this initial WBS to work teams that have experience with the type of work involved. For example, the event manager can handle the tasks related to race day, and the fundraising manager can identify the tasks involved in raising money.

As with almost any endeavor, the last 20 percent is the most difficult. The first several levels of the WBS might appear almost effortlessly, but then the decomposition can slow to a crawl as you try to decide whether something represents a work package or not. Here are some ideas for how to decide what constitutes a work package:

- **To estimate work.** Break tasks down into work packages that represent chunks of work you know how to estimate. That way, estimating the overall project is as easy as adding up estimates for all the chunks. For example, you may not have a clue how long it will take to deploy Windows 8 throughout your organization, but you know that it takes 3 hours to reconfigure one computer.
- **To track progress.** One rule of thumb for defining work packages is to keep task duration between 8 and 80 hours (in other words, anywhere from one workday to two work weeks). These durations give you early warning when tasks overrun their estimates. Another approach is to break work down into durations no longer than the time between status reports, so you're likely to have concrete progress to report. To use this method, you need a clear idea of how long various tasks take, so this approach works well only for projects similar to those you've performed in the past.
- **To maintain focus.** Guidelines aside, simply decompose work to the level of detail that you can handle. If you're a keep-things-simple type, you can keep your WBS at a high level and let team leaders manage details. On the other

hand, if you can remember details the way a Starbucks barista remembers coffee orders, you can break down the work to your heart's content. Just remember that dividing work into portions that take less than a day can reduce productivity and morale (with certain exceptions, as discussed in the box on page 131).

GEM IN THE ROUGH

When Short Is Sweet

Most of the time, you don't want to break down your WBS into tasks that take less than a day. Most people can handle a task like sending out invitations without reporting back to their boss after they buy the postage stamps. But suppose your project's goal is replacing a mission-critical software system. When it's time to switch to the new system, you probably have only a few hours or even *minutes* to make the change. For a short, crucial period like that, you don't have time to manage a project schedule. All you need is a detailed checklist of steps each person needs to perform.

Fortunately, situations like this are few and far between. But here's an example of how the WBS for this type of project

might work: The months of work preparing for the changeover is broken into day- or week-long chunks. Then, the changeover work that has to be done over a single night (before the staff comes in the next morning) can be checklists in Word documents that describe what each person does. These checklists help you line up the people you need (because you won't have time to call them in at the last minute) and spot potential delays. If you create a single task in your project schedule called something like "Mission-critical changeover," you can attach all these Word documents to a note for that task (page 583) for easy reference.

■ Adding Tasks to Your Project File

Don't worry about getting tasks in the right order or giving them the correct structure when you add them to your Project file. You can add additional tasks as you think of them or rearrange tasks (page 144) anytime after you create them. This section shows you how to create different types of tasks in Project and bring in tasks you've documented in another program. To learn how to add summary tasks to your list, see the section "Inserting Summary Tasks" on page 143.

NOTE

If you have a handwritten WBS ready to go, flip to the section "Building a WBS from the Top Down" (page 145) to learn how to quickly enter your summary tasks and work packages.

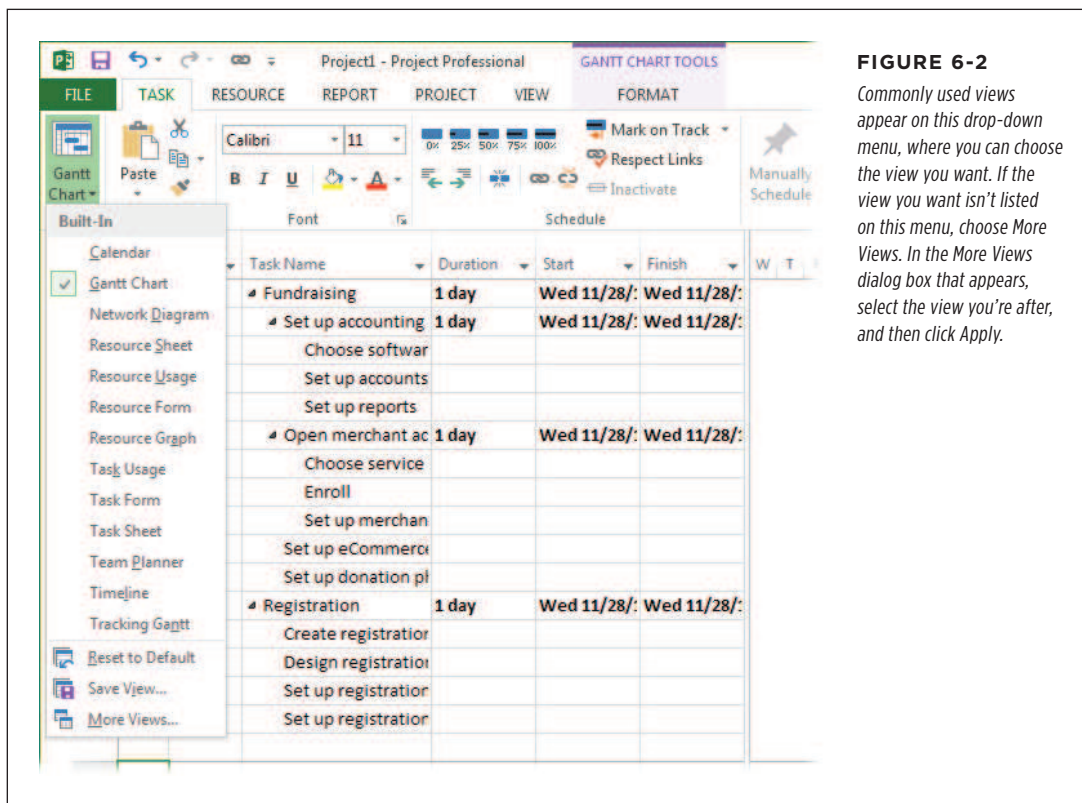
Creating Tasks

In Project, the table on the left side of Gantt Chart view is the place to be for fast task entry. Here's how to add tasks in this view:

1. **If you're not already in Gantt Chart view, then on the ribbon's Task tab, click the bottom half of the Gantt Chart button (Figure 6-2), and then click Gantt Chart on the drop-down menu that appears.**

Alternatively, on the View tab, click Gantt Chart, and then choose Gantt Chart.

ADDING TASKS TO YOUR PROJECT FILE



2. In the table on the left side of the view, click a blank Task Name cell, and then type the name of the task. Press Enter or the down-arrow key to save the task and move to the Task Name cell in the next row.

After you name your task (see the box on page 134 for task-naming tips) but before you press Enter or the down-arrow key, the task name isn't saved and most commands on Project's menus are inactive. So if Project menus are awash with grayed-out commands, that might be the culprit. To make most commands available, simply press Enter to save the current task.

3. Repeat step 2 to create as many tasks as you want.

If the task mode isn't set the way you want, then in the status bar, click New Tasks and then choose the task mode you want. (See page 67 to learn more about switching task modes.)

That's all you have to do for the moment. Page 149 tells you how to insert a task between existing tasks in a task list.

TIP To edit a task's name, click its Task Name cell in the table area, and then click it *again* until the text-insertion point appears in the name. Then make your changes. You can also double-click the Task Name cell and edit the task name in the Task Information dialog box.

Another way to edit a task name is in the Entry bar, which appears between the ribbon and the current view—if you tell Project to display it: Choose File→Options; on the left side of the Project Options dialog box, choose Display, and then turn on the “Entry bar” checkbox. When you edit the text in the Entry bar, press Enter to save the changes or press Esc to cancel them.

Creating Milestones

In bygone days, a milestone was literally a stone that marked a distance of one mile from the last stone. In projects, milestones typically measure work progress, not distance. However, milestones can represent all kinds of progress: events (like receiving a payment), deliveries (like delivering a requirements document), or achievements (like completing a phase). And because milestones have no duration, you can add as many as you want without extending the project's finish date.

Creating tasks for milestones couldn't be easier:

1. **Select the task below where you want to insert a milestone by clicking anywhere in its row. In the Task tab's Insert section, click Milestone.**

Project inserts a new task with the name “<New Milestone>” and sets its Duration cell to “0 days.”

2. **Give the milestone a name.**

The Task Name cell is selected automatically, so you can simply start typing the milestone's name. In the Gantt Chart timescale, the task's task bar is a black diamond to indicate its milestone status. Even better, because the milestone's duration is zero, you don't have to assign any resources to it.

GEM IN THE ROUGH

Good Task Names

Like poetry, the best task names communicate the work they represent in a few well-chosen words. The better a task name conveys the work it represents, the less you have to worry about whether you're managing the work you're supposed to.

Most importantly, task names should be unique. Duplicate task names can cause problems when you generate reports, group tasks with similar characteristics using the Group command, or hide summary tasks. In those cases, duplicate task names might appear side by side with no indication of which is which. The simple fix is to add a word or two to make task names unique: "Set up registration website" and "Set up donation website," for example.

In addition, it's helpful to include a verb and a noun in task names—the action you want people to take and the result you expect. You can help your audience interpret tasks by differentiating summary tasks, work packages, and milestones with different grammatical forms:

- Because summary tasks represent a series of activities that span time, change the verbs for summary tasks to gerunds (verbs with "ing" at the end), like "Setting up registration."
- Using the present tense of a verb presents the task as a command or a directive, which is perfect for work packages. For example, "Write instructions" clearly identifies the type of work and which deliverable the work applies to. "Instructions" alone doesn't tell the assigned resources whether they are writing, editing, or posting the instructions to the website. Unambiguous verbs help clarify work.
- Milestones (which represent goals or states) typically have names that include the deliverable and its state, such as "Registration website design approved" or "Registration website operational."

TIP

You can designate tasks with durations as milestones. To appoint any task to milestone-hood, double-click the task in the task table to open the Task Information dialog box. (Or select the task and then, on the Task tab, click Information.) Then select the Advanced tab and turn on the "Mark task as milestone" checkbox.

Here are several ways to put milestones to use:

- **Project start or project phase.** Using a milestone as the first task in a project or phase makes it easy to reschedule an entire project or a portion of one. For example, if your customer doesn't send in the deposit payment you require to begin work, you can delay the entire schedule by changing the date for the deposit-payment milestone. Once a project is under way, you can delay a section of it by modifying the date of the section's starting milestone.
- **Project completion.** By adding a milestone as the last task in a project schedule and linking the project's final tasks to it, you make it easy to see the current estimated finish date.
- **Decisions and approvals.** High-risk, big-budget projects often use feasibility studies to determine whether the project (and its funding) will continue. Milestone tasks are perfect for representing go/no-go decisions, approvals required

before work can continue, or other decisions that affect the tasks that follow. For example, a go/no-go milestone might turn into the last milestone if the project is canceled, but it controls when successor tasks begin if the project gets the OK to continue. Milestones can also delay work that hinges on other types of decisions. For instance, the choice of programming language for your website determines who you hire, how the site is designed, and what code is written.

- **Progress.** Actual progress is stored within your project's work-package tasks, but you can gauge progress by adding milestones at significant points during the project, such as the completion of deliverables, be they documents, programs, tents, or cooked food. You can add a milestone after any summary task, for example, to show that all its work is complete.
- **Handoffs and deliveries.** A milestone can document when the responsibility for work transfers to a new group (for instance, when the registration website is turned over to the people who will record event registrations). Milestones also work for deliveries you expect from subcontractors or vendors. When you place an order for tents, tables, and chairs for an event, you don't manage the rental company employees who assemble the order and load the delivery truck; you simply plan for the goods to arrive on the day they're promised. Thus, all you need is a milestone for that delivery date.

TIP Unlike the names of work tasks and summary tasks, *don't* include action verbs in milestone names. Nouns and adjectives (or verbs in past tense) are all you need to identify the deliverable and the state it's in: "Rental supplies delivered."

Creating Repeating Tasks

Some tasks occur on a regular schedule—for example, monthly meetings of the change control board, biweekly status meetings, or nightly backups of project files. Fortunately, you don't have to create each occurrence separately in Project. Instead, you can create a *recurring task*, and Project then takes care of creating individual tasks for each occurrence and a *summary task* for all the occurrences.

To create a recurring task, do the following:

1. **Click anywhere in the row *below* where you want the new recurring task. Then, in the Task tab's Insert section, click the Task down arrow, and then choose Recurring Task.**

The Recurring Task Information dialog box appears.

2. **In the Task Name box, type the name for the recurring task, such as *Stakeholder Status Meeting*.**

Project automatically sets the value in the Duration box to 1 day (abbreviated as 1d). This box sets the duration for one occurrence of this task—that is, one status meeting. If the occurrence takes less than a day, then in the Duration box, type the correct duration, such as *2h* to reflect a 2-hour meeting.

3. In the “Recurrence pattern” section, specify the frequency of the task.

Choose from Daily, Weekly, Monthly, or Yearly. For each option, you see additional settings that let you add more detail about the timing, as illustrated in Figure 6-3. To schedule occurrences for more than one day a week, you can turn on the checkbox for each day of the week on which occurrences are scheduled, such as Monday and Thursday. Occurrences for other periods have different frequency settings. For example, when you select the Monthly option, you can specify when the tasks occur each month, such as on the 15th or on the first Monday.

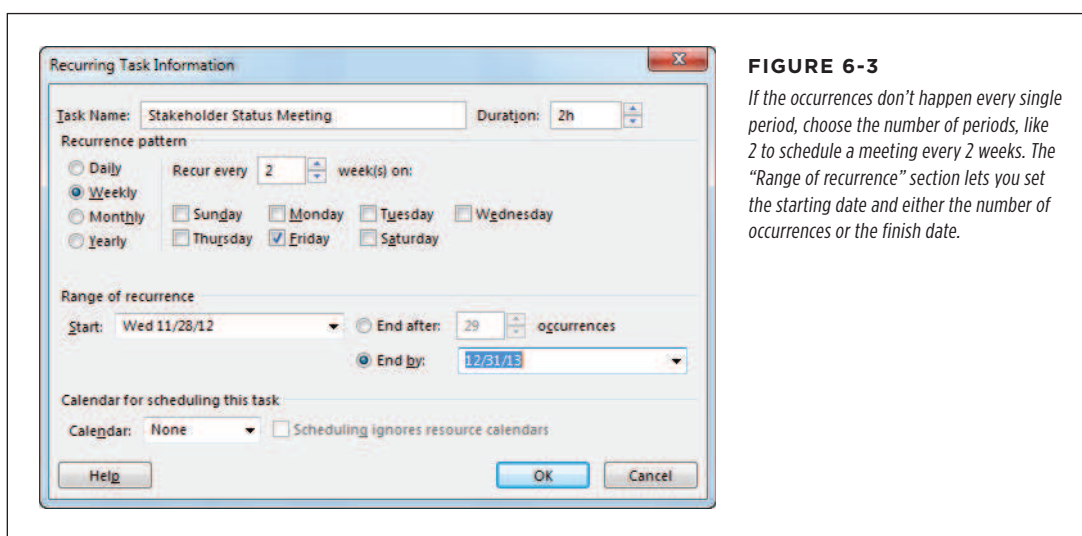


FIGURE 6-3

If the occurrences don't happen every single period, choose the number of periods, like 2 to schedule a meeting every 2 weeks. The “Range of recurrence” section lets you set the starting date and either the number of occurrences or the finish date.

4. In the “Range of recurrence” section’s Start box, choose the date you want the occurrences to begin.

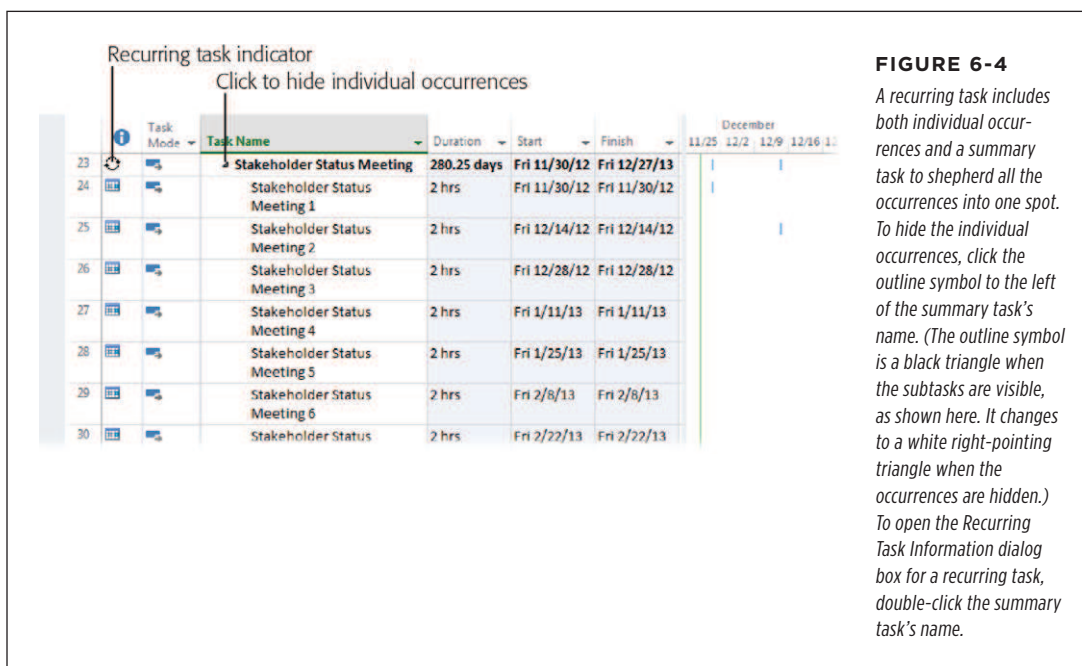
Project initially sets this box to the project’s start date.

5. To specify when the occurrences end, select the “End after” option, and then type a number of occurrences. Alternatively, select the “End by” option if you want to set the end date.

Project initially selects the “End by” option and sets the date to the project’s end date. With either option, you’ll have to edit this recurring task later if the project runs longer than you anticipated—Project doesn’t automatically extend recurring tasks to conform to a new end date.

6. Click OK to close the dialog box and add the recurring task to the project, as shown in Figure 6-4.

In the Indicator column, a circular icon with arrows indicates that the task has multiple occurrences. To view the task’s frequency and range, position your pointer over this icon.



The summary task for a recurring task is always set to be automatically scheduled. That's because it calculates the total duration, work, and other values of all the occurrences. The subtasks for the individual occurrences use whichever task mode (page 59) is currently selected. (See page 64 to learn how to set the task mode for new tasks or new projects. Page 67 describes how to change task modes as you work.)

NOTE Because recurring tasks are scheduled to take place on specific dates, occurrences that are automatically scheduled use Start No Earlier Than date constraints (page 188) to pin the occurrences' dates. Whether an occurrence is auto-scheduled or manually scheduled, you can edit an occurrence if, for example, you need to reschedule one status meeting because of a scheduling conflict.

Importing Tasks from Another Office Program

You and your teammates can also whip up a list of tasks in Microsoft Word, Outlook, or Excel. More of your team members are likely to be familiar with these programs than with Project, so documents, emails, and spreadsheets are a great way to get task info from them. If your team members prefer Excel, you can take advantage of the Excel templates that Microsoft provides. When you use the Project Task List Import Template or Microsoft Project Plan Import Export Template, the Excel worksheet is set up to make importing a snap. This section explains how to import tasks from Word, Outlook, and Excel.

■ IMPORTING TASKS FROM WORD OR OUTLOOK

In Word and Outlook, it's easy to indent, outdent, insert, move, and delete tasks. Then all you have to do is copy the text in either of those programs and paste it into Project. This section describes methods you can use to build your task list in Word or Outlook and then outlines the steps for getting those tasks into Project.

NOTE Project is smart enough to transform the indents in Word documents and Outlook emails into outline levels in Project.

Here are techniques you can use to build a task list in Word or Outlook:

- **Promote a task one level higher in the outline.** Position the cursor to the left of the task's text and then press Backspace to, for example, change a task from level 3 to level 2.
- **Demote a task one level lower in the outline.** Position the cursor to the left of the task's text and then press Tab to, for example, push the task from level 3 down to level 4.
- **Move tasks.** Select any tasks you want to move, and then drag them to a new position. Or, use Ctrl+X and Ctrl+V (respectively) to cut and paste the tasks from one position to another. If need be, promote or demote the tasks to the correct level.
- **Delete tasks.** Select the task(s) you want to delete, and then press Delete or Ctrl+X.
- **Import Outlook tasks into Project.** If you create tasks in Outlook (in the Home tab's New section, click the down arrow next to New Items, and then choose Task on the drop-down menu), you can import them into Project. In Project, in the Task tab's Insert section, click the down arrow below Task, and then choose Import Outlook Tasks. In the Import Outlook Tasks dialog box that appears, turn on the checkboxes for the tasks you want to import, and then click OK. See page 560 for the full scoop on importing Outlook tasks into Project.

Once you have a task list in Word or Outlook, here's how to paste it into Project:

1. **Open the document in Word or the email in Outlook.**
2. **Select the tasks you want to paste into Project, as shown in Figure 6-5 (top), and then press Ctrl+C.**
3. **Switch over to Project and click the first blank Task Name cell where you want to paste the tasks; then press Ctrl+V.**

Project inserts the task names into the Task Name cells and indents the tasks to the same levels they were at in the Word document or Outlook email, as shown in Figure 6-5 (bottom).

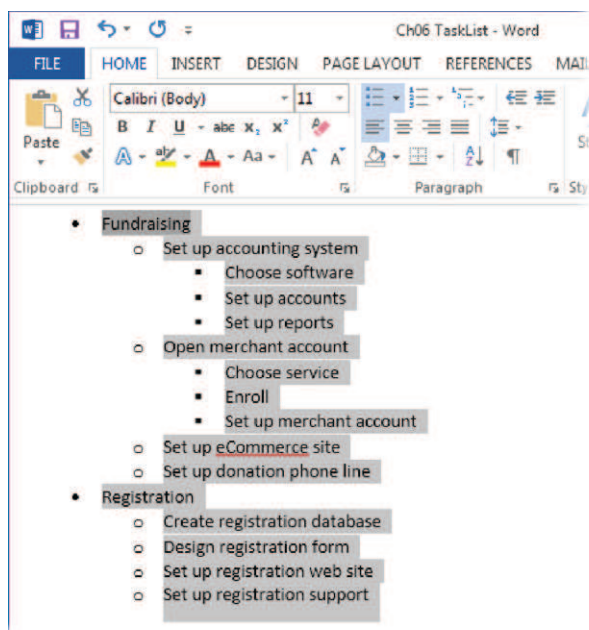


FIGURE 6-5

Top: Type each task name on a separate line in a Microsoft Word document. To make a line a subtask, select it and then press Tab. To promote an item to a higher level, position the cursor to the left of the task name's text, and then press Backspace.

Bottom: When you paste tasks into Project, it figures out the correct outline level and keeps the formatting from the Word document or Outlook email.

Tasks indent to the same level as in the Word document

Formatting copies over from the other program

	Task Mode	Task Name	Duration	St
23		Fundraising	1 day?	W
24		Set up accounting system	1 day?	W
25		Choose software	1 day?	W
26		Set up accounts	1 day?	W
27		Set up reports	1 day?	W
28		Open merchant account	1 day?	W
29		Choose service	1 day?	W
30		Enroll	1 day?	W
31		Set up merchant account	1 day?	W
32		Set up eCommerce site	1 day?	W
33		Set up donation phone line	1 day?	W
34		Registration	1 day?	W
35		Create registration databas	1 day?	W
36		Design registration form	1 day?	W
37		Set up registration web site	1 day?	W
38		Set up registration support	1 day?	W

■ USING AN EXCEL TEMPLATE TO IMPORT DATA

If you have both Project and Excel installed on your computer, Excel includes two templates tailored to work perfectly with Project's Import Wizard. (The box on page 140 describes how to add these templates to your personal templates location in Office.) The columns in the Excel worksheets map to Project fields so task info slips into the right slots in your Project file:

- The **Microsoft Project Task List Import Template** is an Excel template with columns for basic task fields, perfect for importing your initial task list. It contains a Task_Table worksheet with columns for ID, Name, Duration, Start, Deadline, Resource Names, and Notes. It also includes an Info_Table worksheet that explains how to use the template. (You don't enter any information in that one.)
- The **Microsoft Project Plan Import Export Template** has four worksheets: Task_Table, Resource_Table, Assignment_Table, and Info_Table. The Task_Table worksheet includes columns for ID, Name, Duration, Start, Finish, Predecessors, Outline Level, and Notes. The Resource_Table worksheet mimics the field you see in the Project Resource Sheet. The Assignment_Table includes columns for Task Name, Resource, Name, % Work Complete, Work, and Units.

If you don't see these two templates, the box below explains where to find them.

WORKAROUND WORKSHOP

Where Are My Templates?

If you don't see the Project Import and Project Export templates in Excel's Backstage view, don't be alarmed. For unknown reasons, the templates may not appear in your initial list of Excel templates. The easiest solution is to copy them to the folder where you keep your other templates—or to create a folder for your favorite templates and store them there.

If you're using the 64-bit version of Microsoft Office, you'll find the templates in *C:/Program Files/Microsoft Office/Templates/1033* (if you installed the 32-bit version of Office instead, they're in *C:/Program Files (x86)/Microsoft Office/Templates/1033*). Remember, Excel and Project must both be installed on your computer for the task-list and project-plan templates to appear.

In Windows Explorer, copy these files to your personal templates folder. For example, in Windows 7, when you create a user, Windows automatically creates a My Templates folder located at *C:/User/<your username>/My Documents/My Templates*, which is perfect for storing templates you use often. But, if you prefer, you can create your own folder for templates wherever you want.

Then you can tell Excel where to find your personal templates. Click File, and then choose Excel Options. On the left side of the Excel Options dialog box, click Save. In the "Default personal templates location" box, fill in the path to the folder that holds your templates, such as *C:\Users\<your username>\Documents\Custom Office Templates*.

The overall process is simple: First, create a new Excel file from either of the templates. Then give the Excel files to others to fill out. When your colleagues send the filled-in files back, import them into Project using the Import Wizard. Here are the steps:

1. In Excel, click File→New.

Backstage view opens to the New page and displays available templates.

2. If you stored the templates in your personal templates folder, then tell Excel where to find them.

In Excel 2013, below the Search box, click Personal. Excel displays the Excel templates in the folder you designated as your default personal templates location, as described in the box on page 140.

In Excel 2010, click “Sample templates” to see built-in templates. If you stored the templates in your personal templates folder, below the Available Templates heading, click “My templates.”

3. Double-click the template you want to use.

Excel creates a new workbook, which contains two worksheets. The Info_Table worksheet merely explains what the template can do, not how to fill it in.

The Microsoft Project Task List Import Template is ideal for building a task list because it’s simple. However, you can also fill in task names and import your task list using the Microsoft Project Plan Import Export Template. (Page 209 describes the other things you can do with the project plan import template.)

4. Click the Task_Table worksheet tab (at the bottom-left corner of the Excel window) to view the fields that the template contains.

Be sure to tell your team members that they *don’t* have to enter dates despite the presence of the Start and Finish columns. If tasks have critical finish dates, team members can enter them in the Deadline column.

5. Choose File→Save. Navigate to the place or folder where you want to save the file.

The Save As dialog box appears.

6. In the “File name” box, type a filename, such as MyTaskListforImport, and then click Save.

Excel automatically selects Excel Workbook in the “Save as type” drop-down list. If you want to save the workbook in a different format, click the down arrow in the “Save as type” box and then choose a format on the drop-down list.

7. Distribute the file to team members, so they can open the file and enter data.

The first row in the file displays Project field names, so people know which columns contain which fields. They don’t have to fill in every cell; they should just fill in what they can. When team members finish entering data, they simply save the file and send it back to you.

NOTE

The Excel files based on these templates don’t apply specific formatting to the columns, so whoever fills in the files must enter the values correctly (or you’ll have to edit the values so Project can understand them). For example, duration is a length of time like 5d or 3w. If the values aren’t valid, then the Project Import Wizard displays an error message (page 536).

8. **When you're ready to import the tasks that people sent you, in Project, choose File→Open, and then navigate to where you saved the filled-out Excel workbooks.**

The Open dialog box is automatically set to look only for Project files, so you have to tell it which type of file you want to import. You'll do that in the next step.

9. **In the box to the right of the "File name" box, click the down arrow, and then choose the file format you want to import: Excel Workbook for Excel 2013 or Excel Workbook (*.xlsx) in Excel 2010.**

The Open dialog box shows only the files of the type you selected. So if the file you want is conspicuously absent, it might be a different format than you think.

10. **In the file list, double-click the name of the workbook file (or click its file-name, and then click Open).**

The Import Wizard appears. Click Next to bypass the welcome screen, which does nothing but explain the process.

11. **On the "Import Wizard - Map" screen, keep the "New map" option selected and click Next. On the "Import Wizard - Import Mode" screen, select the "Append the data to the active project" option if you're going to import several files of tasks into the same project.**

Appended data appears in the current Project table after the existing rows.

12. **On the "Import Wizard - Map Options" screen, turn on the Tasks checkbox and then click Next.**

The "Import Wizard - Task Mapping" screen appears.

13. **Click Finish to import the Excel data into the Project file.**

Because the mapping between Excel columns and Project fields is already done, Project takes care of the heavy lifting and imports the data.

NOTE See page 540 to learn more about importing, exporting, and using these Excel templates.

■ Organizing Tasks

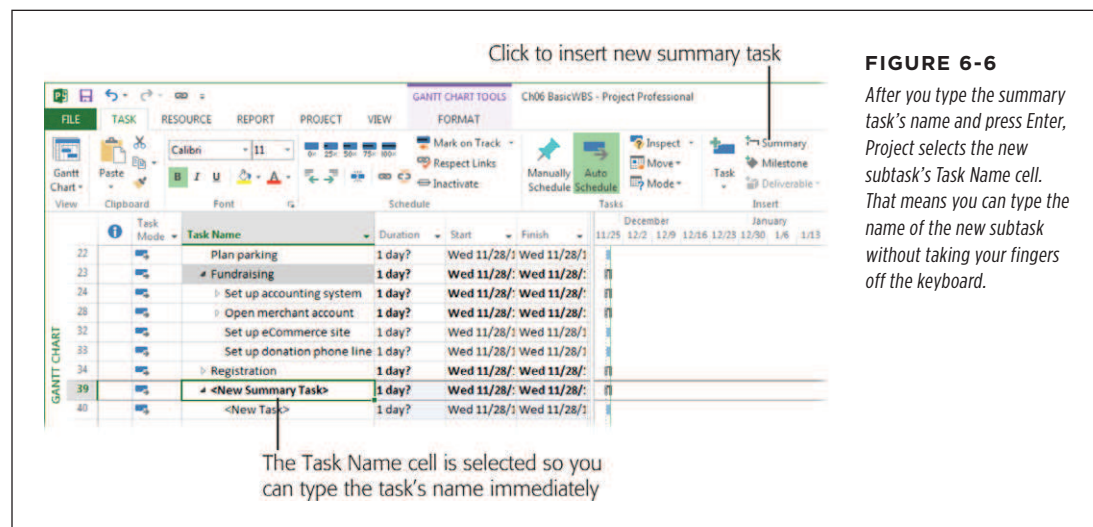
If you're in high gear churning out project tasks, you can gleefully insert, delete, and rearrange tasks in the WBS outline as you go—and the resulting WBS looks exactly the same as one methodically typed from the top down. The methods for adding, moving, and changing outline levels for tasks are the same whether you're creating or modifying a WBS. This section covers all the options from adjusting the outline of tasks to adding, removing, and rearranging tasks. If you're building a

formal WBS, you'll also learn how to customize the WBS code format to your liking (or your company's standard).

Inserting Summary Tasks

Summary tasks help you plan, track, and manage project work, as described in the section "Breaking Down Work into Manageable Chunks" on page 124. If you entered all your WBS tasks into Project in one fell swoop, you can turn existing tasks into summary tasks by changing their outline level as described in the next section. But, if you want to insert a *new* summary task (in any Gantt Chart view), you can choose from the following three methods:

- **Insert a new summary task with a new subtask.** This method is perfect if you want to add an entirely new batch of work, so you need to insert a new summary task and a new subtask. Click a blank Task Name cell, and then, in the Task tab's Insert section, click Summary. Project selects the Task Name cell, which now contains the text "<New Summary Task>," as shown in Figure 6-6, so you can simply start typing to name the new summary task. Press Enter to move to the new subtask's Task Name cell. Type the name for the subtask and press Enter. Now you can move these tasks to another location (page 151), change their level in the outline (page 144), or insert additional subtasks (page 149).



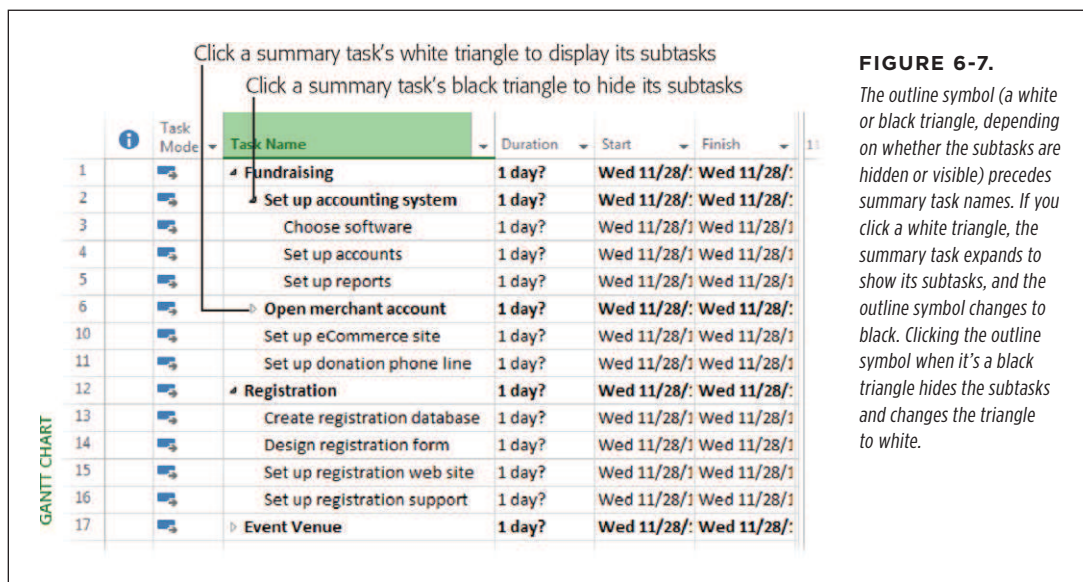
- **Insert a new summary task for selected subtasks.** If you want to summarize several existing tasks, the Summary command is still the answer. First, select tasks that you want as subtasks. Then, in the Task tab's Insert section, click Summary. Then type the name of the summary task and press Enter.
- **Insert a new task and make it a summary task.** If you want to insert several new summary tasks in the middle of your task list, the easiest approach is to insert regular tasks and then change them into summary tasks. Select the row

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below the new task and then, in the Task tab's Insert section, click the Task icon (the blue bar with a green + sign). In the Task Name cell, type the new summary task's name, and then press Enter. Reselect the new task and then either press Alt+Shift+left arrow or, in the Task tab's Schedule section, click Outdent Task (the green, left-pointing arrow) until the summary task is at the level you want.

Reorganizing the Task List Outline

Changing a task's level in the outline is easy, although the results depend on what type of task you modify and whether you move it lower or higher in the outline. You can use the following techniques to develop a WBS in any order. The table in Gantt Chart view indicates outline level in several ways, as shown in Figure 6-7. (The box on page 145 explains additional methods for choosing which tasks appear in this view.)



You can use the following techniques to develop a WBS in any order:

- **Make a summary task into a nonsummary task.** Select the first subtask for the summary task, and then either press Alt+Shift+left arrow or, in the Task tab's Schedule section, click Outdent Task (the green, left-pointing arrow). When you outdent the subtask, the summary task turns into a regular task, and its summary-task triangle disappears.
- **Elevate a summary task to a higher level.** Select the summary task, and then either press Alt+Shift+left arrow or, in the Task tab's Schedule section, click Outdent Task (the green, left-pointing arrow).
- **Indent a task to the next lower level.** If you add several tasks in a row, they all start out at the same level. To turn them into summary tasks and subtasks, you indent the subtasks. To do that, select the soon-to-be subtask(s), and then press

Alt+Shift+right arrow or, in the Task tab's Schedule section, click Indent Task (the green, right-pointing arrow). If the task was at the same level as the task above it, then the task indents to the next-lower level in the outline, while the task above it turns into a summary task. If the task you indented was at a higher level than the task above it, the task above doesn't become a summary task.

TIP To select several adjacent tasks, click the first task's ID cell and then Shift-click the last task's ID cell. You can also drag over the ID cells of the tasks you want to select. To select several nonadjacent tasks, Ctrl-click the ID cell of each task.

- **Elevate a subtask to the next higher level.** Moving a task higher in the outline comes in handy when you want to disconnect a task from its summary task (for example, when you want to delete a summary task without deleting its subtasks). Select the subtask(s), and then press Alt+Shift+left arrow or, in the Task tab's Schedule section, click Outdent Task. If the outdented task was one of several at the same level, it turns into a summary task.
- **Indent or outdent several tasks at once.** If you want to indent or outdent several tasks, select them all, and then use the techniques in this section. To select adjoining tasks in the outline, drag across them. To select several separate tasks, Ctrl-click each one.

UP TO SPEED

Hiding and Showing Tasks in the Outline

As you work on one part of the WBS, tasks in other parts of the project might get in your way. Or your stakeholder team might be interested in only the first few levels of the WBS. Regardless of the reason, you can choose which tasks and subtasks to show or hide at any time. Here are several techniques for displaying only the tasks you want to see:

- **To display only non-summary tasks** (work packages), in the Gantt Chart Tools | Format tab's Show/Hide section, turn off the Summary Tasks checkbox. If you want to see the outline level for each task, then in that same section, turn on the Outline Number checkbox.
- **To display summary tasks**, in the Format tab's Show/Hide section, turn on the Summary Tasks checkbox.
- **To hide or show subtasks for a specific summary task**, click the outline symbol to the left of the summary task's name. You can also select the summary task in the outline and then, in the View tab's Data section, choose Outline→"Show Subtasks or Outline"→Hide Subtasks.
- **To show all tasks down to a specific outline level**, in the View tab's Data section, click Outline and then, from the drop-down list, choose the lowest level you want to display. For example, if you want to view the top three levels of the WBS, choose Level 3.
- **To display all the tasks in the project**, in the View tab's Data section, choose Outline→All Subtasks.

Building a WBS from the Top Down

Your WBS may not start out in Project—maybe you scribbled it on a whiteboard, scrawled it on sticky notes pasted to flip charts, or it's just rattling around in your head. Regardless of where your ideas are, you can make short work of getting them

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into Project. Now that you're familiar with outlining tasks (described in the previous section), you can quickly build your WBS in Project from the top down. Because Project creates each new task at the same outline level as the previous task, this approach keeps indenting and outdenting to a minimum.

For maximum efficiency, when you flesh out a lowest-level summary task, insert as many rows as there are work packages for that summary task, and then type the names of the work packages in the Task Name cells. The following steps show you exactly how to work your way down a WBS one level at a time:

- 1. Create a new blank file (page 84).**

Gantt Chart view appears with the Entry table on the left and the Gantt Chart timescale on the right. (If you don't see Gantt Chart view, in the Task tab's View section, click Gantt Chart.)

- 2. If you don't see a WBS column in the Entry table, right-click the Task Name heading and, from the shortcut menu, choose Insert Column.**

Project inserts a new column to the left of the Task Name column with "[Type Column Name]" in the heading cell.

- 3. Type **WBS**, and then press Enter.**

You could also scroll in the drop-down list that appears, as shown in Figure 6-8, and then click WBS, but in this case, typing is quicker.

NOTE The WBS code format that Project uses out of the box is a number at each level, with levels separated by periods. If your organization has a custom WBS format, you can set up your own WBS code (see page 157).

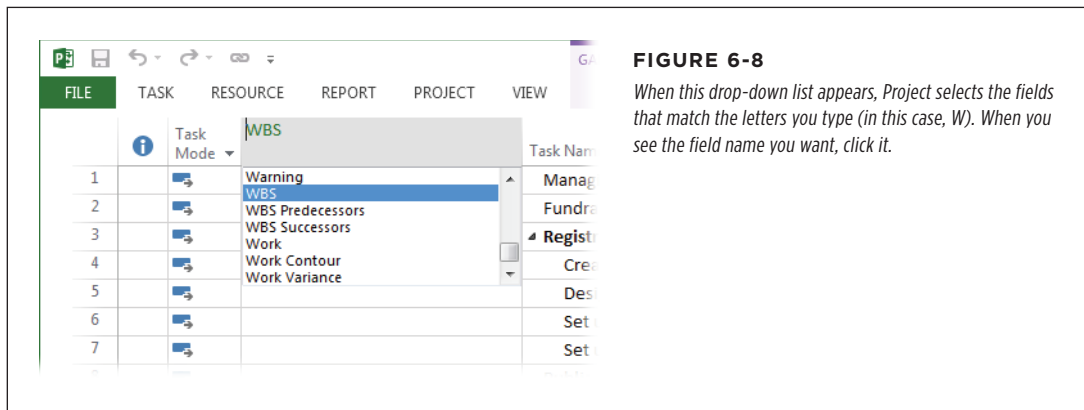


FIGURE 6-8

When this drop-down list appears, Project selects the fields that match the letters you type (in this case, W). When you see the field name you want, click it.

- 4. In the Entry table, click the first Task Name cell, type the name of the summary task, and then press Enter.**

Project selects the Task Name cell in the next row, so you're ready to enter the next task.

NOTE You don't have to create a top-level task for the overall project. Behind the scenes, Project has a *project summary task* that sits in the exalted position of Row 0 and rolls up the values for all the other tasks in the schedule. To display the project summary task, in the Gantt Chart Tools | Format tab's Show/Hide section, turn on the Project Summary Task checkbox. To *always* show project summary tasks for your projects, click File→Options. On the left side of the Project Options dialog box, click Advanced. Finally, scroll to the "Display options for this project" section, and then, in the "Display options for this project" box, choose All New Projects. Then turn on the "Show project summary task" checkbox. By doing that, the project summary task will appear automatically for every new project you create. You can hide the project summary task at any time by turning off the Project Summary Task checkbox on the Gantt Chart Tools | Format tab.

5. Repeat step 4 for each top-level task in the WBS.

Project creates the next task at the same level in the WBS outline as the previous task, so you're ready to enter the next top-level task. As you'll see shortly, this behavior makes it easy to add several tasks at the same level, no matter which level of the WBS you're creating. Once the top-level tasks are in place, you're ready to add tasks at the next level of the WBS.

6. To add subtasks to a summary task, click the Task Name cell immediately below the summary task you're fleshing out, and then press the Insert key on your keyboard as many times as there are subtasks, as demonstrated in Figure 6-9.

This step is the secret to speedy outlining because it works in the same way at every level of the WBS: second-level, third-level, and lowest-level summary tasks. When you insert rows for a lowest-level summary task, insert as many rows as there are work packages for that summary task. Then you can type away and fill them all in quickly.

FIGURE 6-9
You can insert blank task rows by clicking anywhere in the row below the summary task and pressing the Insert key. But if you click the Task Name cell in the row below the summary task, then when you press Insert, the blank task's Task Name cell becomes the active cell—ready for you to type the name of the first subtask.

Task ID	Task Name	Duration
1	Managing Volunteers	1 day?
2	Fundraising	1 day?
3	Registration	1 day?
4		
5		
6		
7		
8	Publicity	1 day?
9	Sponsorship	1 day?
10	Event Venue	1 day?
11	Hold Race	1 day?

Then press Insert to add blank rows

First click here to insert tasks above

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7. With the top blank Task Name cell beckoning you, type the name of the subtask, and then press Enter to save the task.

Pressing Enter moves the active cell to the next Task Name cell. However, the first subtask isn't at the right level—it's still at the same level as the summary task.

8. To indent the subtask, press the up-arrow key, and then press Alt+Shift+right arrow or, in the Task tab's Schedule section, click Indent Task (the green, right-pointing arrow).

Project indents the subtask and indicates its subordinate position in two ways: with a WBS number and a summary-task outline symbol—both shown in Figure 6-10.

9. Press the down-arrow key to move to the next Task Name cell, type the name, and then press Enter.

Because the first subtask now is at the correct level, the remaining subtasks come in at the right level for their summary task.

10. Repeat steps 6–9 for every summary task in the WBS, ultimately filling in each level of the WBS.

Your initial draft of the WBS is complete!

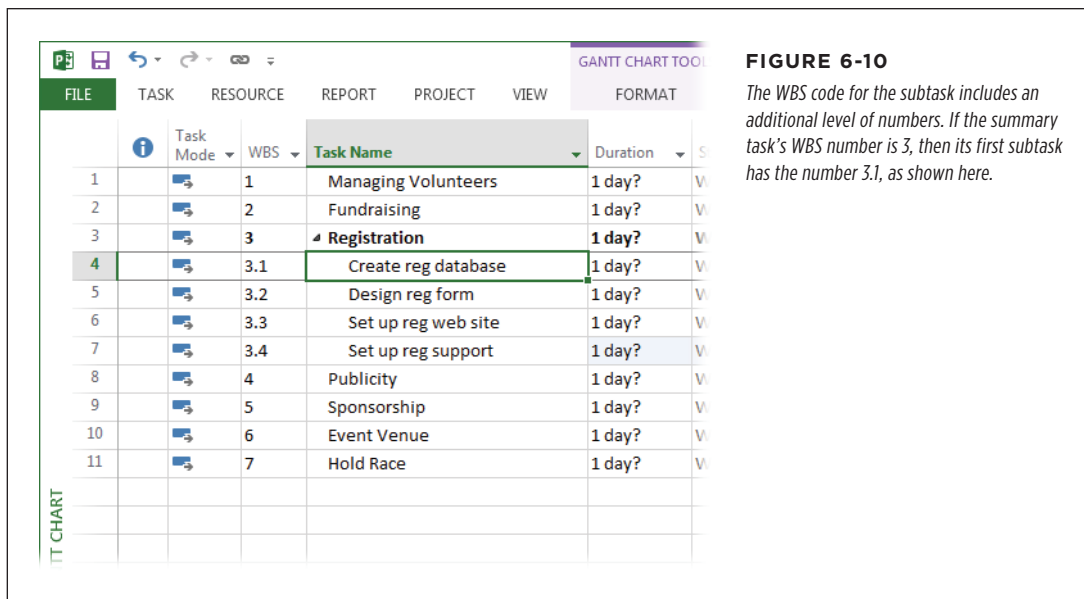


FIGURE 6-10

The WBS code for the subtask includes an additional level of numbers. If the summary task's WBS number is 3, then its first subtask has the number 3.1, as shown here.

Rearranging Tasks

You can organize tasks as you create them, or come back later and change their order. Summary tasks, work-package tasks, milestones, and repeating tasks all respond to Project's organizational techniques. The following sections describe different ways you can arrange tasks in your Project file.

■ INSERTING ADDITIONAL TASKS

Sometimes your project planning uncovers more work than you originally estimated, and you need to add tasks to your existing list. Other times, you might decide to change the way you summarize work or to decompose work further, which means creating new summary tasks.

Here's how to insert tasks in an existing list:

- **Insert a summary task.** Click the row below where you want the new summary task to go and then, in the Task tab's Insert section, click Summary. Project inserts the new summary task at the same outline level as the task above it, fills in the Task Name cell with the text "<New Summary Task>," and turns the task below it into its first subtask. Type the new summary task's name, and then press Enter to save it.
- **Insert a new summary task for several existing tasks.** First, select the soon-to-be subtasks. Then, in the Task tab's Insert section, click Summary. Project inserts the new summary task *and* transforms all the selected tasks into subtasks.
- **Insert a task at any level.** To insert a new task between two existing ones, click the lower of the two existing task rows, and then press the Insert key. In the Task Name cell of the blank task row that appears, type the new task's name, and then press Enter. If the task isn't at the correct outline level, press Alt+Shift+right arrow or Alt+Shift+left arrow to indent or outdent it, respectively.
- **Insert a new subtask.** In the row below an existing subtask, click the Task Name cell, and then press the Insert key. A new, blank task row appears at the same outline level as the existing subtask.

■ COPYING TASKS

If your project plan includes similar tasks in several areas of the project, it's often easier to create a set of tasks and copy them to each place you use them. Or, if you have a task that already has values you want in a new task (such as hours, assigned resources, and deadlines), you can copy it so that the new task includes the same values. (You should, of course, rename the new, copied task to avoid confusion; the box on page 151 explains a shortcut for renaming tasks.) You can copy just task names or entire tasks.

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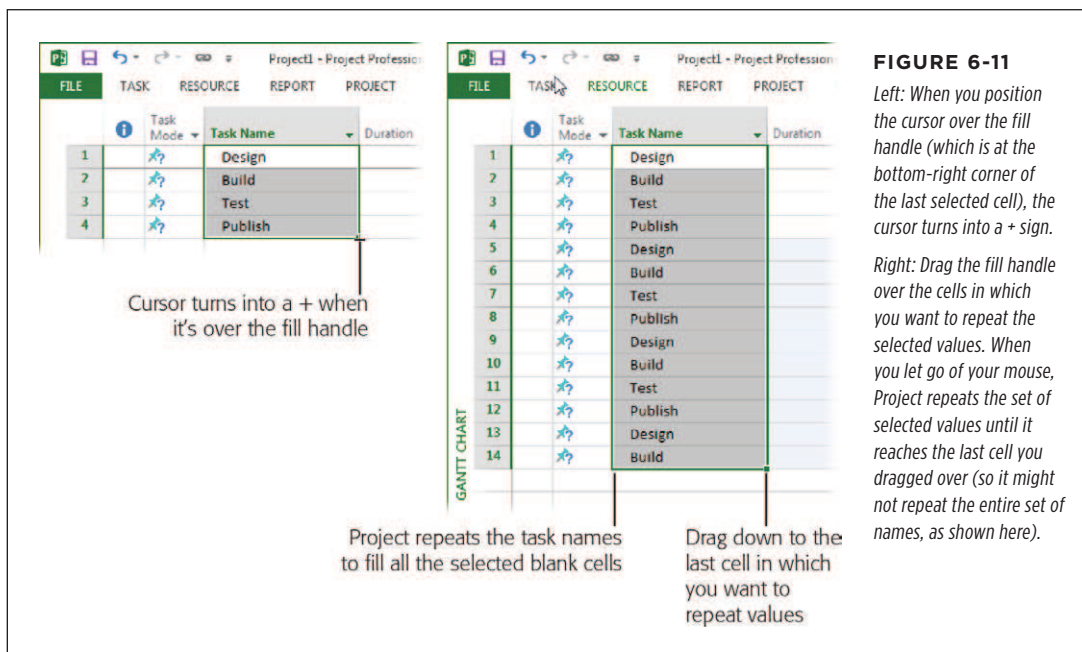
Here are different methods for copying tasks and when to use each one:

- **Copy task names.** When you copy only task name cells, be sure to paste them only into *blank* rows, so you create new tasks. If you paste the task names into rows that contain values, you'll overwrite the current contents of the task name cells instead of creating new tasks. To copy one or more task names, select the Task Name cells you want to copy and then press Ctrl+C (or, in the Task tab's Clipboard section, click Copy). Next, click the first blank Task Name cell, and then press Ctrl+V (or, on the Task tab, click Paste).

TIP

To select several adjacent Task Name cells, click the first one and then Shift-click the last one. (You can also drag over the Task Name cells you want to select.) To select several nonadjacent Task Name cells, Ctrl-click each one you want to select.

- **Repeat a set of task names.** Say you have a set of task names that you want to repeat several times, such as the steps for setting up several websites for a project. In this case, Project's *fill handle* is just the ticket. The fill handle is the little green box at the lower right of a selected cell (or range of cells); it lets you copy the content of cells to adjacent cells in your task list. First, select the Task Name cells you want to copy. Then position your mouse pointer over the lower-right corner of the last Task Name cell; you can tell when the pointer is over the fill handle because the pointer turns into a + sign, as shown in Figure 6-11 (left). Then drag the fill handle over the Task Name cells into which you want to copy the selected names. When you let go of the mouse, Project repeats the existing task names in the blank Task Name cells you dragged over, as shown in Figure 6-11 (right).



- **Copy whole tasks.** When you copy and paste an *entire* task, Project inserts the task into new rows in the task list, so you don't need blank rows to paste into. First, select the entire task you want to copy by clicking its ID cell. (If you want to select more than one task, then drag the pointer across adjacent task ID cells. You can also Shift-click the first and last ID cells to select adjacent tasks, or Ctrl-click each task's ID cell to select nonadjacent tasks.) Then press Ctrl+C or, in the Task tab's Clipboard section, click Copy. Finally, click the ID cell of the task above which you want to insert the copied tasks, and then press Ctrl+V (or, on the Task tab, click Paste).

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Renaming Copied Task Names

If you work hard to keep task names unique, copying tasks raises an issue: The copied tasks have the same names as the originals. Don't despair—the Replace command can come to the rescue and replace the adjectives for each phase or deliverable. Here's how it works:

1. Select the tasks you want to rename that use the same adjectives or qualifiers. For example, say you've copied tasks called "Design reg website," "Code reg website," and "Test reg website," and you want to change the word "reg" to "fundraising."
2. To open the Replace dialog box, press Ctrl+H or, in the Task tab's Editing section, click the down arrow next to the Find button (it looks like a pair of binoculars), and then choose Replace.
3. In the Replace dialog box, be sure that the Search box is set to Down, indicating that Project will begin at the

first selected task and search in *all* subsequent tasks in the list.

4. In the "Find what" box, type the word(s) you want to replace—*reg* in this example.
5. In the "Replace with" box, type the new term for the copied tasks, for instance, *fundraising* to change the name from "Design reg website" to "Design fundraising website."
6. Click Replace to replace the first occurrence of the term. Continue to click Replace once for each selected task. To skip an occurrence, click Find Next.

It's tempting to click Replace All, but don't do it. Otherwise, Project will replace that word in *all* tasks in the schedule—including the ones you want to leave as is.

■ MOVING TASKS

If you decide that tasks belong in another section of the WBS, you can move them in the Project task list. For example, you might move a subtask to a different summary task to change how you decompose work. Or you can move a subtask to a position before or after another subtask so the subtasks are in the sequence they'll occur.

To move one or more tasks, do the following:

1. **In Gantt Chart view's table area, select the entire task you want to copy by clicking its *ID cell*, as shown in Figure 6-12.**

If you want to select more than one task, drag the pointer across adjacent task ID cells. If you want to select nonadjacent tasks, then Ctrl-click each task's ID cell.

ORGANIZING TASKS

When it's in the ID column, the pointer turns into a four-headed arrow to indicate that you can move the selected task(s).

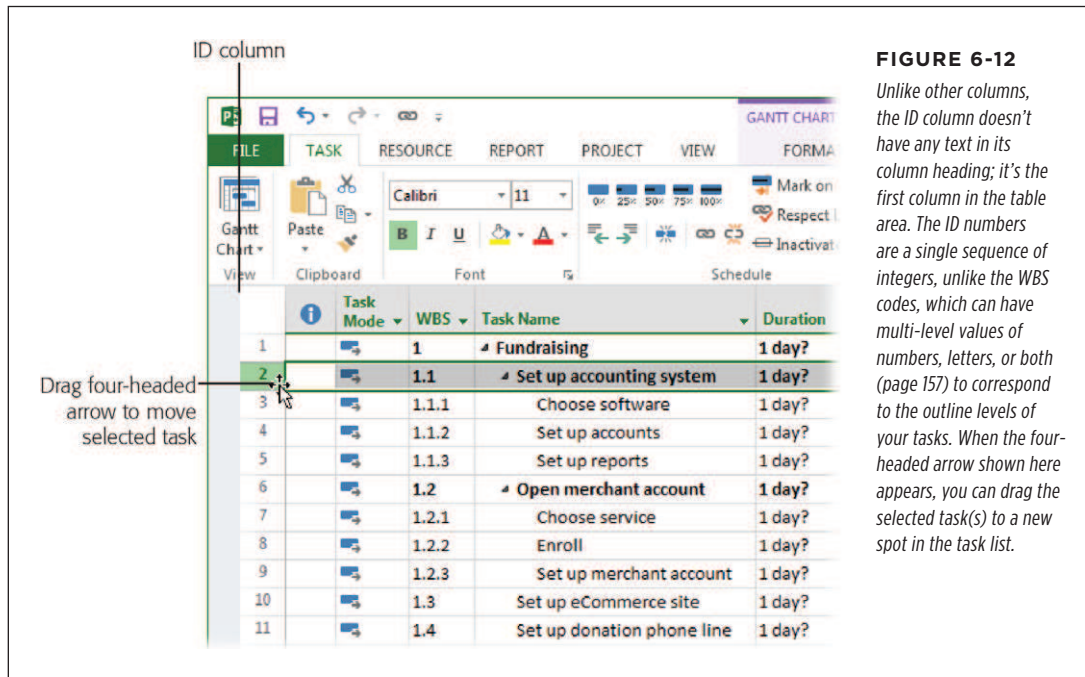


FIGURE 6-12

Unlike other columns, the ID column doesn't have any text in its column heading; it's the first column in the table area. The ID numbers are a single sequence of integers, unlike the WBS codes, which can have multi-level values of numbers, letters, or both (page 157) to correspond to the outline levels of your tasks. When the four-headed arrow shown here appears, you can drag the selected task(s) to a new spot in the task list.

2. Drag the task(s) to the new location.

As you drag, a gray line appears in the border between rows, showing where the task(s) will end up when you release the mouse button.

TIP Project used to scroll like lightning, which made dragging tasks accurately beyond the visible rows all but impossible. Although Project's scrolling has slowed to a manageable pace, cutting and pasting tasks is still a more convenient way to move them when their new location is several pages away. To cut and paste tasks, select the tasks, and then press Ctrl+X. Then select the row below where you want to paste them, and then press Ctrl+V.

3. If the task isn't at the correct outline level, press Alt+Shift+right arrow or Alt+Shift+left arrow to indent or outdent the task, respectively.

You can also click Indent Task or Outdent Task in the Task tab's Schedule section (the icons with the green left and right arrows) to change the outline level.

■ DELETING TASKS

Although work rarely disappears in real life, you may sometimes need to delete tasks in Project. Perhaps you've decided to decompose work differently, or the customer has chosen to reduce the project's scope to fit the budget.

TIP See page 364 to learn how to inactivate tasks instead of deleting them. Inactivating tasks has several advantages: The tasks remain in your plan for historical purposes, and they're easy to reactivate if the stakeholders change their mind about what they want.

Here are the various ways to delete tasks:

- **Delete a subtask.** Select the subtask by clicking the row's ID number, and then press Delete.

TIP If you press Delete when an automatically scheduled Task Name cell is selected, Project displays an indicator (a box containing an X) to the left of that cell. You can click the indicator's down arrow and select the "Delete the task name" option to delete the name or the "Delete the task" option to delete the *whole* task. To hide the delete indicator, choose File→Options. On the left side of the Project Options dialog box, choose Display, and then turn off the "Deletions in the Name columns" checkbox.

- **Delete a summary task and all its subtasks.** To delete a summary task and all its subtasks, select the summary task's ID cell, and then press Delete, or right-click anywhere in the summary task's row and then choose Delete Task from the shortcut menu.
- **Delete a summary task but not its subtasks.** If you're moving subtasks to a different summary task, relocate the subtasks to their new home and then delete the summary task as described in the previous bullet point. If you're not sure where you want the orphaned subtasks to end up, simply change them to the same outline level as the summary task *before* deleting the summary task. To do that, select the subtasks and then press Alt+Shift+left arrow to move them to the same outline level as their summary task. Then select their former summary task by clicking its ID cell and press Delete.

TIP If you want to delete other aspects of a task, the Clear command is at your service. In the Task tab's Editing section, click the down arrow to the right of the Clear button and then choose what you want to delete from the drop-down menu: hyperlinks, notes, or formatting. Choose Clear All to clear all three types of elements. The Entire Row option clears *all* the cells in the row, including the task name, leaving you with a blank row.

■ Documenting Task Details

Providing team members with clear guidance about the work they need to perform and the results you expect is important, but task names aren't the place to get into detail. You need a place to store all the details that explain how to perform tasks completely and correctly. Fortunately, you don't have to worry about keeping track of lots of loose documents: You can link external documents to tasks or add details to notes attached to tasks. This section describes both options.

Documenting Work Details in Word

Ideally, a work-package document describes the work to perform, how to know when it's done, and how to tell whether it's done right. A work package for creating an online-donation mechanism might include the steps for designing the online form, linking to the merchant account, and sending a confirmation. The document could specify the information the donor has to provide and the methods of payments to accept. The document could also describe the desired results, including the transactions processed and the notifications that are sent for both successful and rejected transactions.

After you create work-package documents that spell out the details of tasks (the box on page 155 describes one way to simplify this chore), you're likely to refer to those documents as you work on your Project schedule. There's no need to open them by hand or to try to remember where they are. Instead, you can insert a hyperlink from a task in the Project schedule to the corresponding work-package document. With the hyperlink in place, opening the work-package document is a simple matter of a quick click in Project.

To create a hyperlink in a Project task, do the following:

1. **In Project, right-click anywhere in the row for the task you want to link to a work-package document, and then choose Hyperlink from the shortcut menu.**

The Insert Hyperlink dialog box appears.

2. **In the "Link to" column, click "Existing File or Web Page" (if it's not already selected).**

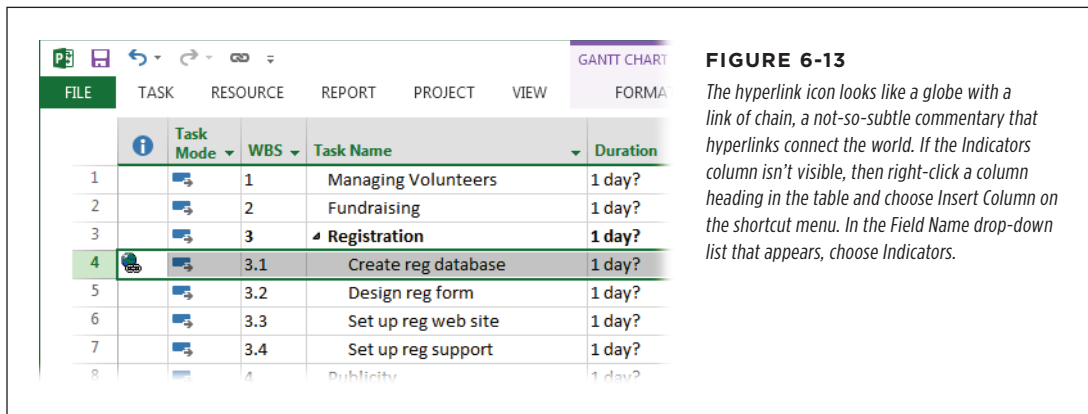
Selecting this option is how you tell Project that you want to link to a document that's already stored on your computer.

3. **Use the options in the center of the dialog box to navigate to the folder that contains the work-package document, and then click the name of the work-package file.**

The "Look in" box shows the name of the current folder, and the Address box displays the current filename.

4. **Click OK.**

In the Indicators column (its heading is an *i* in a blue circle), a hyperlink icon appears, as shown in Figure 6-13.



5. To access a hyperlinked file, simply click the hyperlink icon in the Indicator cell.

The program associated with the file launches and opens the file.

UP TO SPEED

Creating a Reusable Work Package

Even small projects require a multitude of work-package documents. You can speed up your work by creating a Word template for work packages that's as basic or as fancy as your knowledge of Word. That way, you create a new document from the template and have everything labeled and ready for you to fill in. For example, you might set up a basic work-package template with the following information:

- **WBS number.** This is the WBS number that Project assigned to the task in your project schedule.
- **Work-package name.** The task name from the Project schedule.
- **Description of work.** You can use paragraphs or bullet points and provide as much detail as you need to ensure success. If you know an experienced resource is going to

do the work, the document can be brief. For trainees, on the other hand, you can provide detailed checklists of steps or the name of the person who can mentor them.

- **Result.** Describe the final state when the work is done, as well as how to verify that it was done correctly. In a work package for creating a form, for example, you might include who needs to receive the completed form and a list of valid values for each field.
- **Reference materials.** Projects use many types of documents to specify deliverables: requirements, specifications, blueprints, and so on. If other detailed documentation exists, list where to find those documents, like the project notebook or the folder on the network drive.

Adding Details in Task Notes

Project can store supplementary information right with the tasks in your Project file in the form of *notes*. The downside to this approach is that your team members need to be able to open the Project file (or a copy of it) to view the details.

To attach a note to a task, follow these steps:

1. **In a task-oriented view (such as Gantt Chart view or Task Usage view), right-click anywhere in the task's row and then choose Notes from the shortcut menu.**

The Task Information dialog box opens to the Notes tab.

2. **In the Notes box, type the details of the task.**

The toolbar within the Notes box includes buttons for changing the font, setting the justification, creating bulleted lists, and inserting objects from another program (like an Excel spreadsheet, an email message, or a specifications document).

3. **When you're done writing, click OK.**

A notepad icon appears in the task's Indicators cell. To see the beginning of the note (as in Figure 6-14), position your pointer over this icon. To see the entire note, double-click this icon; Project opens the Task Information dialog box to the Notes tab.

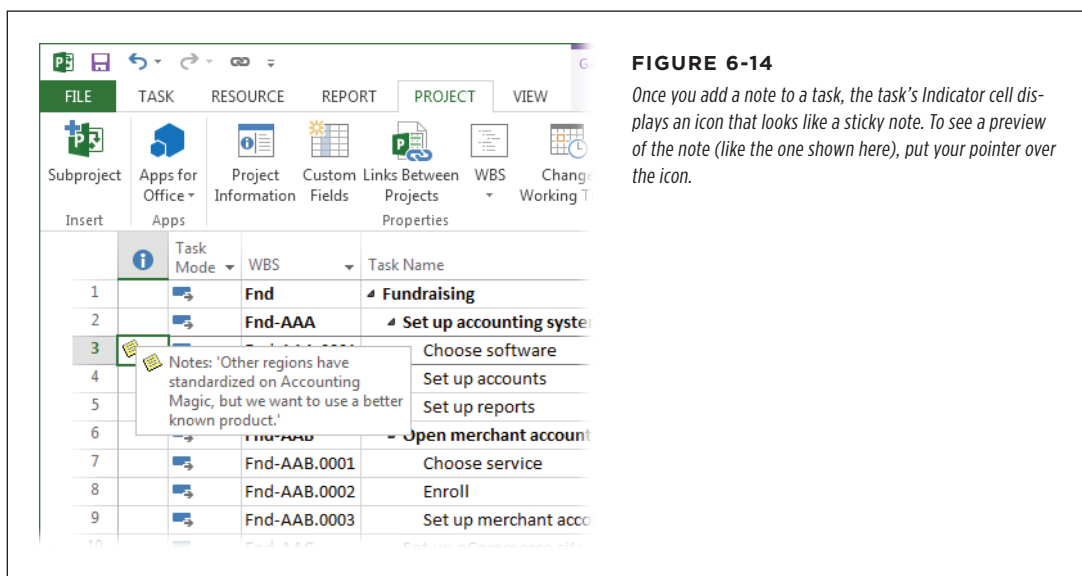


FIGURE 6-14

Once you add a note to a task, the task's Indicator cell displays an icon that looks like a sticky note. To see a preview of the note (like the one shown here), put your pointer over the icon.

■ Setting Up a Custom WBS Code

The WBS codes built into Project are simple outline codes with a number for each level in the outline hierarchy. For instance, a WBS code of 2.1.3 might represent the second phase of the project, the first summary task in that phase, and the third work package for that summary task. If your organization uses custom codes, you can build a tailored numbering system—called a *code mask*—to specify each level of your WBS code. For example, if you use abbreviations for phases, numbers for summary tasks, and letters for work packages, a customized WBS for the design phase of a project might look like this: Dsn.1.a.

To define a custom WBS code, follow these steps:

1. On the Project tab, click WBS→Define Code.

The WBS Code Definition dialog box appears. Without a custom WBS code, Project automatically assigns WBS codes using numbers for each outline level with a period as a separator. (The fields in this dialog box don't show this out-of-the-box format. The fields remain empty unless you specify a custom scheme for your WBS codes.)

NOTE

If you assemble several projects into a single master project (page 516), you can make WBS codes unique for each project, even if they use the same code mask. If you work with multiple projects, set up the code mask for a new project before you get too deep into defining the project's tasks. That way you don't have to renumber all the tasks later. In the WBS Code Definition dialog box's Project Code Prefix field, type a prefix for the current project, like "Colo." Project then inserts this prefix at the beginning of the WBS codes for all the tasks in that project; for instance, Colo.1.4.1.

2. In the dialog box's "Code mask" section, in the first Sequence cell, choose the type of characters you want to use for the top level of the hierarchy, as shown in Figure 6-15.

You can choose from Numbers (ordered), Uppercase Letters (ordered), Lowercase Letters (ordered), and—for the most flexible coding—Characters (unordered). With ordered numbers and letters, Project automatically increments the numbers or letters as you add tasks to the WBS, proceeding, for example, from 1.1 to 1.2. to 1.3.

SETTING UP A CUSTOM WBS CODE

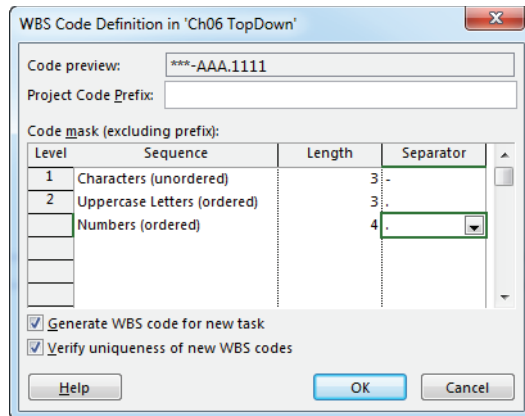


FIGURE 6-15

As you specify the code mask for each level, the “Code preview” field at the top of the dialog box displays a sample of your new WBS code. The choices for characters, length, and separators are limited. If you use unordered characters, you have to type the characters you want for each code, such as *Reg.1*, *Pub.3*, or *Acc.7*, in each summary task’s WBS cell.

3. In the first Length cell, choose a number (from 1 to 10) for the length of the top level’s mask.

Project initially selects Any here, which means the entry for the level can be of any length. If the level uses a number, then Project increments the number beginning at 1 and continuing to 10, 100, or 1,000, if necessary. If the level uses letters, then you can type a code of any number of characters at that level.

Choosing a number limits the entry to between one character and the length you specify. For example, if you limit a numeric entry to one character, Project cycles through the numbers 1 through 9, moves to 0, and then repeats.

4. In the first Separator cell, choose the character that separates the top level from the next level.

Your only choices for separators are periods (.), minus signs (-), plus signs (+), or slashes (/).

5. Repeat steps 2–4 for each additional level of the code mask.

A WBS code can be as long as 255 characters, so you can specify dozens of levels in a code mask. But as you learned on page 129, limiting the number of WBS levels makes the schedule (and WBS codes) easier to comprehend.

6. After you’ve defined all the levels in the code mask, be sure that the “Generate WBS code for new task” checkbox is turned on so Project will automatically assign a WBS code to new tasks you create. Click OK, and then review the refreshed WBS codes in the task list, as shown in Figure 6-16.

The only time you might want to turn this checkbox off is when you plan to renumber all the WBS codes after you've organized your tasks and don't want to be distracted by the interim codes that Project assigns.

To ensure that you don't create any duplicate WBS codes, keep the "Verify uniqueness of new WBS codes" checkbox turned on, too. Although Project adds WBS codes to tasks when the "Generate WBS code for new task" checkbox is turned on, you might type some WBS codes manually, and that can lead to duplicate values. The only time you might turn off the "Verify uniqueness of new WBS codes" checkbox is if you're planning to renumber tasks later and you get tired of the warnings Project displays. As the box on page 160 explains, you can renumber the WBS codes for tasks to correct or reorder your project.

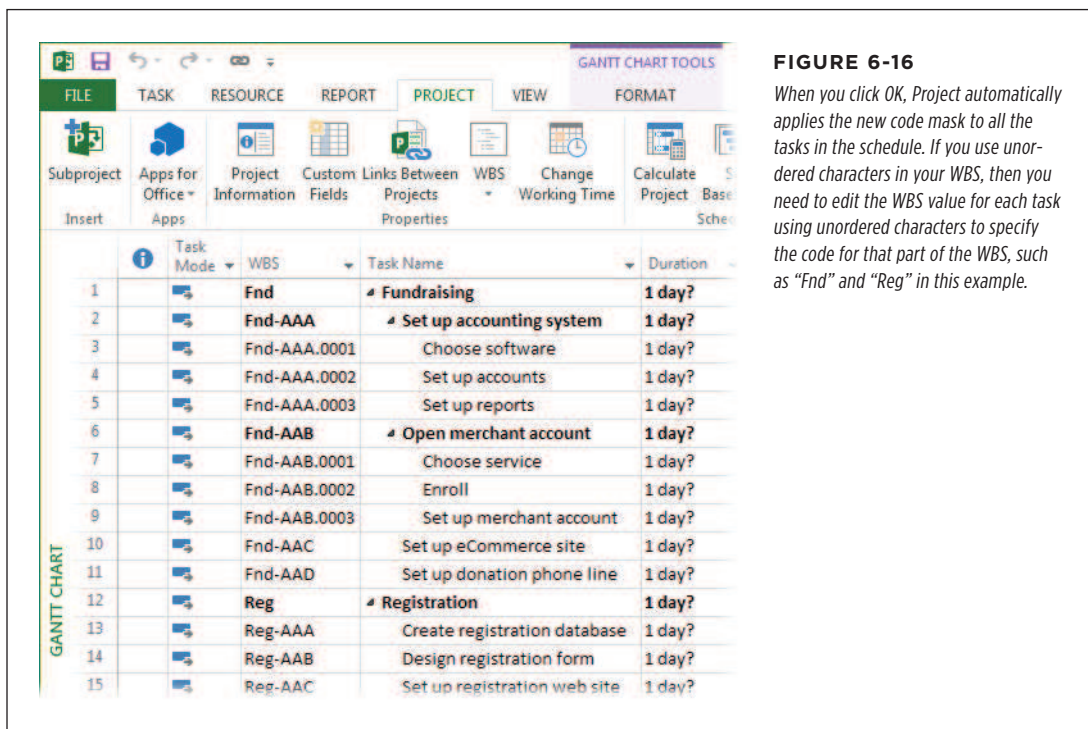


FIGURE 6-16

When you click OK, Project automatically applies the new code mask to all the tasks in the schedule. If you use unordered characters in your WBS, then you need to edit the WBS value for each task using unordered characters to specify the code for that part of the WBS, such as "Fnd" and "Reg" in this example.

7. If the WBS column isn't visible in the current view, add it so you can verify that the code is set up the way you want.

Right-click the Task Name heading and, from the shortcut menu, choose Insert Column. In the new column's heading cell, type **WBS** and then press Enter.

Congratulations! You've customized your WBS codes.

WORKAROUND WORKSHOP

Renumbering Task WBS Codes

When you customize WBS codes, the WBS Code Definition dialog box's "Generate WBS code for new task" checkbox tells Project to automatically assign WBS codes to new tasks you create, whether you insert tasks within the outline or add tasks at the end. With this checkbox turned on, as soon as you press Enter to save a new task, the WBS code pops into the WBS cell, maintaining the sequence you've defined. If you rearrange and re-outline your tasks, your WBS sequence can turn into a mess.

The alternative is to turn *off* this checkbox, and then, after a heated session of adding or modifying the task order, renumber the WBS codes all at once. Fortunately, that's pretty easy to do. When your tasks are organized the way you want them, do the following to renumber the tasks' WBS codes:

1. If you want to renumber only some of the tasks in the Project file, select them.
2. On the Project tab, click WBS→Renumber.

3. If you selected tasks, in the WBS Renumber dialog box, keep the "Selected tasks" option selected. To renumber the whole project, select the "Entire project" option instead. (If you didn't select tasks, Project automatically selects the "Entire project" option.)

4. Click OK. Project reapplies the WBS code scheme to the tasks, alphabetizing ordered letters and incrementing ordered numbers.

When you start to build other documents that reference your WBS codes (like work-package Word files), you don't want Project to change the existing codes. That's another time to turn off the "Generate WBS code for new task" checkbox. Before you type in new WBS codes manually, make sure the WBS Code Definition dialog box's "Verify uniqueness of new WBS codes" checkbox is turned on so Project will warn you if you've duplicated an existing WBS code.