

### Objectives

- Track the actual progress of tasks
- Updating a Project
- Compare baseline data to actual and scheduled data
- Viewing a Network Diagram

Once the project starts, it's time to begin tracking the actual progress of tasks and resources. **Tracking** is the process of gathering and entering task information into the schedule. You can track progress by entering all or some of the actual information.

In the previous lesson, we complete our scheduling and resource assignments. For this lesson, we will assume our project is underway and that several tasks have either finished or are partially finished. We will then determine if our project is behind or ahead of schedule.

### Tracking Progress

Before we can begin tracking progress, the project schedule should be fully developed and a **baseline** plan should be set. Once work begins, progress should be tracked throughout the project. The more often we update the information, the easier it is to identify problems and take corrective action.

When actual information is entered, the project is automatically recalculated. For this reason, task progress should be entered starting at the top of the task list and continuing down the list.

There are **three** types of dates stored for each task:

**Scheduled:** Tasks that haven't started yet or are in progress.

**Actual:** Tasks that are in progress or are completed.

**Baseline:** Originally planned dates. These dates are used to compare the original plan with the actual dates and scheduled dates. Baseline dates **do not** change.

There are **five** types of actual data that can be entered in MS Project:

- Actual start and finish dates
- Percentage completion
- Actual duration and remaining duration
- Actual and remaining work
- Actual and remaining costs

Our project was scheduled to begin on October 1, 2007 and end on November 19, 2007. For the purposes of this lesson, we will assume that it is now October 29, 2007 and the project is underway

1. **Open your MyLab7\_XXX.mpp and save as MyLab8\_XXX** where XXX are your initials  
**OR**
2. To ensure that all students are starting from the same scheduling parameters, download the following file from your class web site: **Lesson8Start.mpp**
  - a) **Open** the above file in MS Project and then **immediately...**
  - b) **Save as MyLab8\_XXX.mpp**, where XXX are your initials.
  - c) Under **File - Properties** change the **author's name** and the **manager's name** to **your name**. For Company name, enter **MGMT404** followed by your **professor's name**
  - d) **Change** the **name** of the main summary task (task #1) to reflect **your name**.
  - e) Once you have made those changes, save the file.

3. Finally, before continuing, under **Project** menu, select **Project Information**.
4. **Change the current date to October 29, 2007.** (**Important: You must do this every time you open this file!** - for this lesson and lessons 9 and 10)

### Entering Actual Dates

1. **Make sure you are in Gantt Chart View with Table:Entry.**
2. **Select** task 3, Inventory Current Equipment.
3. From the **Tools** menu, point to **Tracking** and select **Update Tasks**. The Update Tasks dialog box appears:

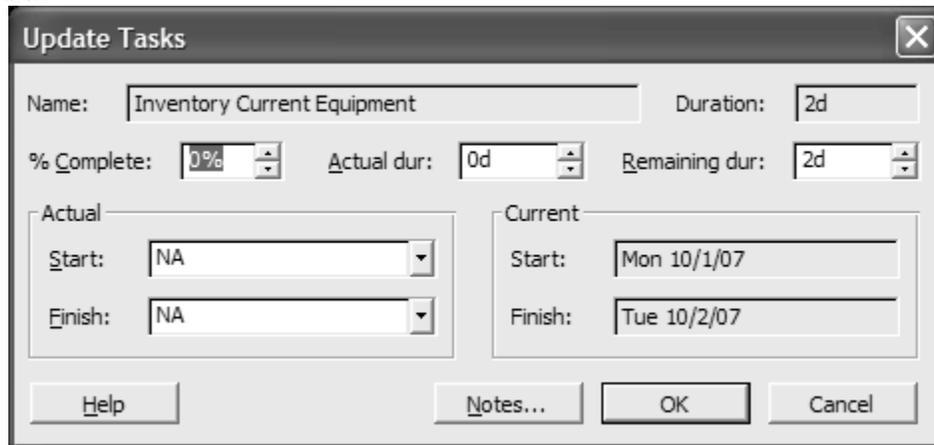


Figure 1

4. In the **Actual** area (left side), click the **Finish** down arrow.
5. Select/Enter **October 2, 2007** and click **OK**.
6. The actual finished date is entered and a checkmark is displayed in the indicator field, and a progress bar is displayed on the Gantt chart.
7. From the **Tools** menu, point to **Tracking** and select **Update Tasks**.
8. Notice the actual start date has been entered, the actual duration was 2 days, the % complete is 100% and the remaining duration is 0. Click **Cancel**.
9. Position your mouse on the checkmark in the **indicator** field and a tip box will open showing you when the task was completed.
10. With completed tasks, you can either enter the actual finished date **or** enter 100% complete or both!

### Entering Actual and Remaining Durations

1. Select task #7, Research Products and Services.
2. From the **Tools** menu, point to **Tracking** and select **Update Tasks**.
3. Click the **Actual Duration** up arrow until 2 days (**2d**) is displayed.
4. Click the **Remaining Duration** down arrow until 1 day (**1d**) is displayed. Click **OK**.

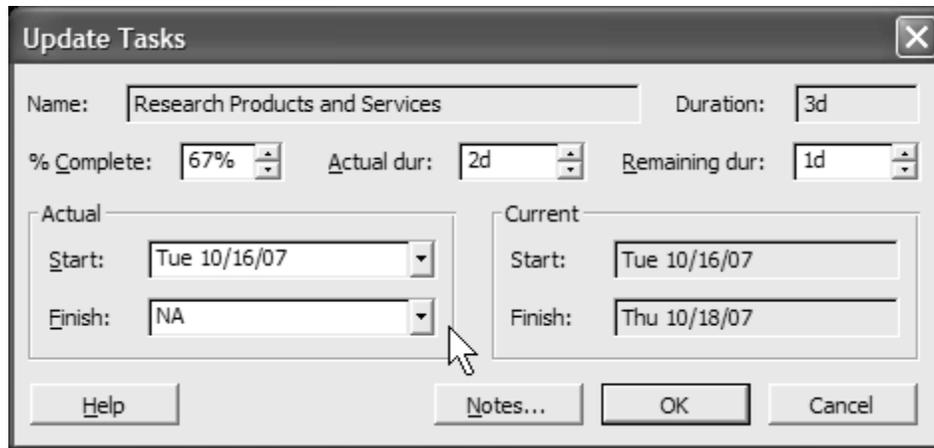


Figure 2

5. From the **Tools** menu, point to **Tracking** and select **Update Tasks**. (See Figure 2)
6. Notice the actual start date is entered as October 16 and percentage completion is 67%. (Note, since this task was originally at 3.5 days, you have just subtracted one-half day to the duration. Given that is 4 hours, you have just subtracted 8 hours of work (2 units of resource) from your overall Project. While your entry table now reflects a 3-day duration, the baseline, however, will still be at the original 3.5 days. Obviously this task did not take as long as you expected. Click **Cancel**.
7. You will notice there is no icon in the task information column, but if you look at your Gantt chart for this task, you will see that the task is partially filled in with a black bar (indicating progress).
8. With partially completed tasks, you can either enter the actual duration with remaining duration or enter the percentage completed. You can also enter any different start date than that reflected. However to affect the change you must press OK.

### Entering Percentage Completion

1. There is also a Tracking **table** and a Tracking **toolbar** that you can also use to update task information.
2. On the **View** menu, click on **More Views...** and then select **Task Sheet**. Press **Apply**. (See figure 3).

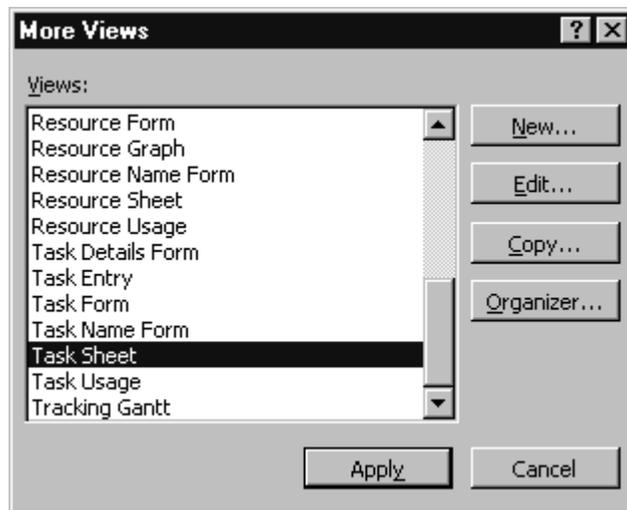


Figure 3

3. Notice the Gantt chart has been removed from your view.
4. Again, go back to the **View** menu, point to **Table** and select **Tracking**.

5. Your table should look similar to Figure 4.

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
1	<input type="checkbox"/> Student's Name's New System	Mon 10/1/07	NA	8%	0%	3.09 days	35.41 days	\$3,040.00	80 hrs
2	<input type="checkbox"/> Create Proposal	Mon 10/1/07	NA	22%	0%	3.13 days	10.87 days	\$3,040.00	80 hrs
3	Inventory Current Equipment	Mon 10/1/07	Tue 10/2/07	100%	0%	2 days	0 days	\$1,440.00	48 hrs
4	Access Current Department Needs	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs
5	Design and Diagram New System	NA	NA	0%	0%	0 days	6.88 days	\$0.00	0 hrs
6	Create Proposal for Accounting	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs
7	Research Products and Services	Tue 10/16/07	NA	67%	0%	2 days	1 day	\$1,600.00	32 hrs
8	<input type="checkbox"/> Selecting Vendor	NA	NA	0%	0%	0 days	16.5 days	\$0.00	0 hrs
9	Issue RFPs	NA	NA	0%	0%	0 days	12 days	\$0.00	0 hrs
10	Evaluate Bids	NA	NA	0%	0%	0 days	3.5 days	\$0.00	0 hrs
11	Award Contract	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs
12	<input type="checkbox"/> Implementing System	NA	NA	0%	0%	0 days	8 days	\$0.00	0 hrs
13	Purchase Equipment	NA	NA	0%	0%	0 days	4 days	\$0.00	0 hrs
14	Install Wiring	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs
15	Install Hardware	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs
16	Install Software	NA	NA	0%	0%	0 days	3.5 days	\$0.00	0 hrs
17	Test System	NA	NA	0%	0%	0 days	1.25 days	\$0.00	0 hrs
18	<input checked="" type="checkbox"/> Project Meeting	NA	NA	0%	0%	0 days	32.25 days	\$0.00	0 hrs

Figure 4

- Again, go back to the **View** menu, point to **Toolbars** and select **Tracking**.
- A toolbar should now appear similar to Figure 5. (Hover your mouse over each icon to see what each one represents).

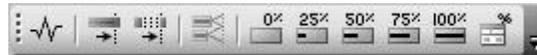


Figure 5

- Select task 4, Access Current Department Needs, on the Task table.
- On the Tracking toolbar, click the 75% complete button.
- The actual start date is entered as scheduled (**October 2**) since the predecessor was completed on time. The actual and remaining durations are updated as scheduled; **2.25 days has been completed** (75% of 3 days) and there is **.75 days remaining** on the task. Your **overall project completion percentage is 13%** and **this phase of the project** (Creating Proposal) is **35% complete**.

**Note:** using percentage completion data for tracking can be somewhat subjective and should only be used when everyone involved understands what the percentage means.

### Entering Actual Work

Sometimes, you need to update or report actual work hours performed on a task. There are times the work that you projected for a resource or resources may be different than what they actually performed.

- From the **View** menu, click on **Task Usage**.
- Your screen should now appear as in Figure 6. (You may have to widen the task name column to see the entire task name).

Task Name	Work	Duration	Details	Sep 30, '07						
				S	M	T	W	T	F	S
[-] Student's Name's New System	558 hrs	38.5 days	Work		24h	27h	29h	19h	23h	8h
[-] Create Proposal	248 hrs	14 days	Work		24h	27h	29h	19h	21h	8h
[-] Inventory Current Equipment	48 hrs	2 days	Work		24h	24h				
System Administrator	32 hrs		Work		16h	16h				
System Analyst	16 hrs		Work		8h	8h				
[-] Access Current Department Needs	48 hrs	3 days	Work			3h	29h	16h		
System Manager	16 hrs		Work			3h	13h			
System Administrator	16 hrs		Work			0h	8h	8h		
System Analyst	16 hrs		Work			0h	8h	8h		
[+] [-] Design and Diagram New System	80 hrs	6.88 days	Work					3h	21h	8h

Figure 6

- From the **Format** menu, point to **Details**, and then select **Actual Work**.
- Notice the **Details** column splits into two rows: **Work** and **Actual Work**.
- Go to **task 7, Research Products and Services**, and scroll, if necessary, until you see the hours of work for the **System Analyst**. (See Figure 7).

Task Name	Work	Duration	Details	Oct 14, '07						
				S	M	T	W	T	F	S
[-] Research Products and Services	48 hrs	3 days	Work			16h	16h	16h		
			Act. W			16h	16h			
System Analyst	48 hrs		Work			16h	16h	16h		
			Act. W			16h	16h			

Figure 7

- In the **row for Systems Analyst**, select the cell with 16 hours for **Tuesday** (Oct 16) that is in the **Actual Work row (Act.Work)**. (**DO NOT change the Work row!**).
- Change the 16 hours to 24 hours. Note the **icon** that appears in the **Indicator Column**. This indicates that the work assignment has been changed. (Did you notice any other changes, such as duration and what happened to that Thursday?)

**On your own**, do the following: (Review beginning of lab before performing these steps).

- Edit/track task 5**, Design and Diagram New System, as **2** days actual duration with remaining **3** days duration. (Hint: **Do NOT press OK**...continue with next step...)
- Edit** task 5 for an **actual start date of Friday, October 5, 2007**.
- Now, press OK**
- Edit/track task 6**, Create Proposal for Accounting, as **50%** completed.
- For **task 6**, Create Proposal for Accounting, change the Project Manager's actual work for Friday, October 12, 2007 from 10 hours to **8** hours.

### Entering Changes in Fixed Costs

To enter changes to fixed costs, after you have begun a project, do the following:

1. Change to Gantt chart view. From the **View** menu, point to **Table** and select **Cost**.
2. Move the Gantt chart so you can see all the columns of this table.
3. Go to task #14, Install Wiring.
4. In the Fixed Cost column, **change \$4,000 to \$6,400**
5. Notice the column Baseline still says \$4,000, but the total cost column says \$6,400 for a variance of \$2,400. (Note the **variance** column).

Tracking actual costs, other than fixed costs, can **only** be done after the task is **completed** or the remaining work is **zero**. In our lesson, the only task that is completed is task #3. To change that task's actual cost would require changing the details of our task sheet to add cost information and then change that information. For this lab, we will not be doing this.

(Note: MS Project automatically calculates actual costs, so you must turn off this option to manually change actual costs.)

### Comparing the Baseline to Actual Data

When we save our project with a baseline, we did so because we need to have something to serve as a basis for comparing costs, work and dates for task and resources. It is the only way we can know if we are on-schedule, within budget, etc.

Project baselines and actual data can be viewed graphically in charts or numerically in tables. The following describes the tools in MS Project to analyze and compare baseline, actual and scheduled data:

<b>Tool</b>	<b>Type</b>	<b>Description</b>
Tracking Gantt	Chart	Displays the actual and baseline information for tasks in a graphical format
Variance	Table	Displays the difference between actual information and baseline information
Work	Table	Displays the difference between actual and baseline work hours
Cost	Table	Displays the difference between actual and baseline costs
Cost Overbudget	Task Filter	Displays all tasks with a cost greater than baseline cost
Slipping Tasks	Task Filter	Displays all tasks that are behind in schedule
Work Overbudget	Resource Filter	Displays all resources with scheduled work greater than baseline work.

You can quickly see overall progress by displaying **project statistics**:

1. From the **Project** menu, click **Project Information**.
2. Click **Statistics**. Note: You may also use the icon on the Tracking toolbar to display these statistics.
3. You should see the information as in figure 8. The Percent Complete is for the entire project.

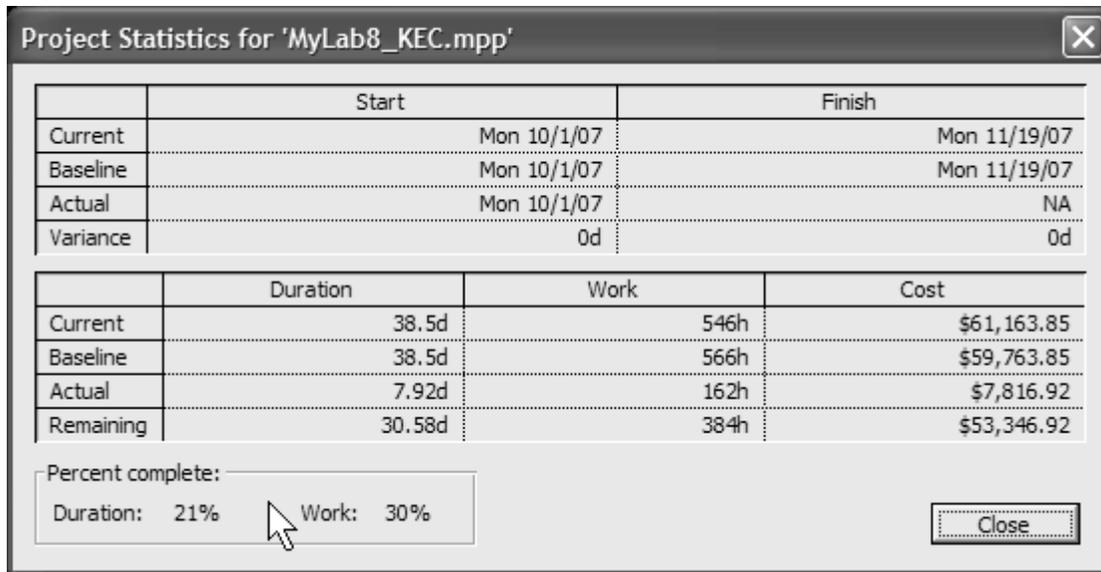


Figure 8

Or you can view the **Tracking Gantt Chart**:

1. From the **View** menu, select **Tracking Gantt**.
2. The Gantt chart now is displayed showing actual versus baseline scheduling information. (Figure 9).

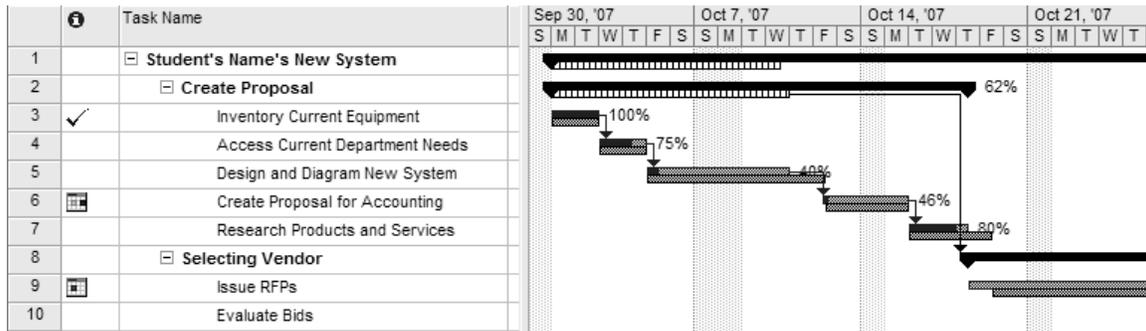
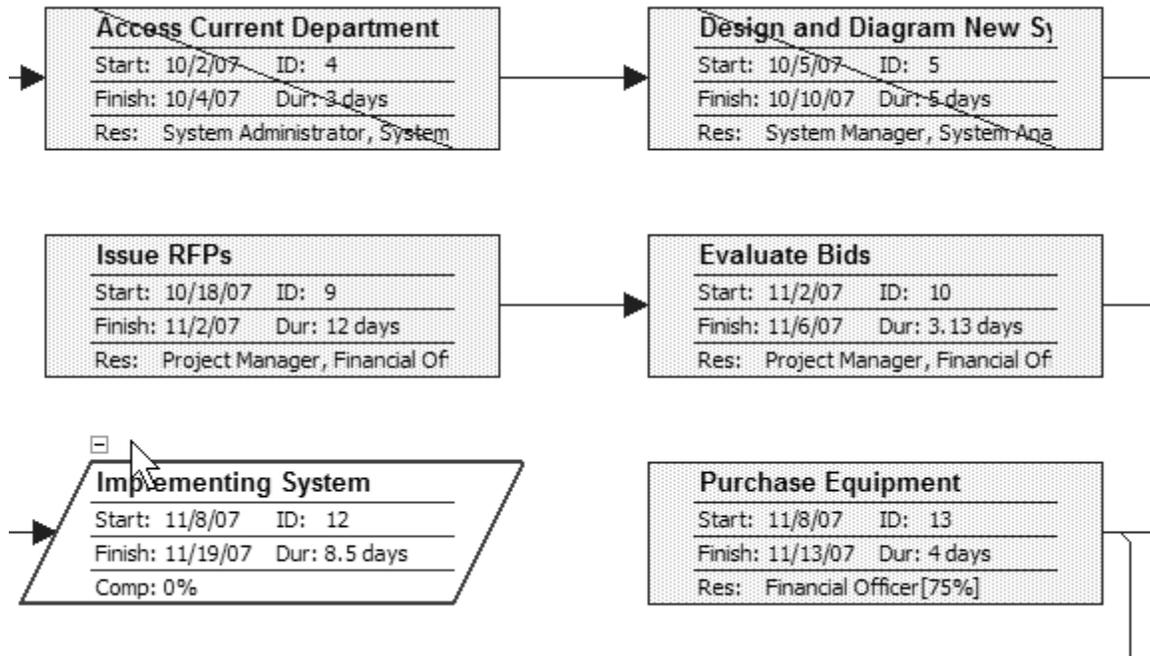


Figure 9

3. Another graphical representation of your project is the **Network Diagram**. The Network Diagram view displays tasks and task dependencies in a network or flowchart format. A box (sometimes called a node) represents each task, and a line connecting two boxes represents the dependency between the two tasks. By default, the Network Diagram view displays one diagonal line through a task that is in progress and crossed diagonal lines through a completed task.
4. To see the Network Diagram, **select Network Diagram** from your View Bar on the left (or select it from the View Menu). Your screen will look something like Figure 10.



5. You can change to zoom levels to see the more of the diagram, but for now leave it at 100%.
6. MS Project's Network Diagram is similar to an AON chart. You may want to view the legend on this diagram to see what each shape and color means.

Another way to view information about the baseline is in a report showing Earned Values. **Earned values** are a measure of cost of the work performed up to a given date in a project. Earned values are calculated using the baseline costs and actual work to show whether the actual costs incurred are over- or under-budget. Earned values indicate how much of the budget (or baseline) cost should have been spent based on the work completed. Earned values are used to forecast whether a task/project will finish over- or under-budget.

At this point, **save** your file and **print out** the following reports: (use proper **header** information)

1. **Project Summary**
2. **Overbudget Tasks**
3. **Earned Value** (*Make sure you have reset your current date per instruction at beginning of this lab*).
4. **The Network Diagram**. (Keep at 100%. The printout may be from 4-7 pages).

**Review Questions**

Name \_\_\_\_\_

Answer the following questions using complete sentences:

- 1) Why is it best **not** to enter a percentage (%) completion?
  
- 2) **According to your Project Summary**, is this project on schedule? Will you be over or under budget and by how much?
  
- 3) After printing out the Earned Value report, define the following terms, using MS Project Help:

**BCWS:**

**BCWP:**

**ACWP:**

**SV:**

**CV:**

**EAC:**

**BAC:**

**VAC:**

**Attach your four printouts, in print order, to the back of this sheet and submit by the lesson due date.**