
Advanced Topics Appendix

This appendix provides additional information and examples about creating reports from views explained in Chapter 11, as well as additional examples about managing progress and EVM in Project 2013 with EV measurement methods covered in Chapter 12.

Advance Topics related to Chapter 11: Reporting

Includes a review of steps and tips when printing views such as the Network Diagram view, the Calendar View, the Resource Sheet view, the Task Usage view, the Team Planner view, and the Timeline view.

Formatting & Printing the Network Diagram View

The Layout of the Nodes

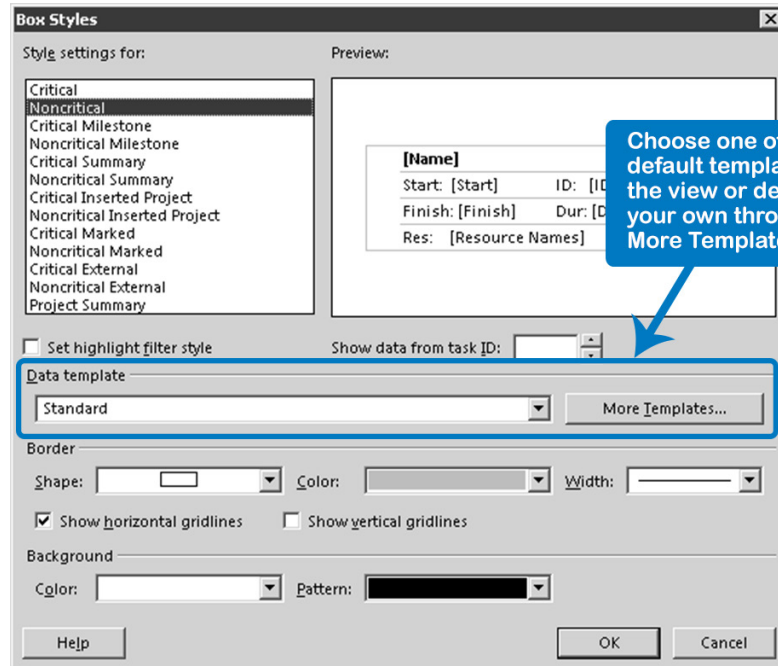
Display Only the Task Name

Printing the Network Diagram can be helpful in communicating the flow of the logic to team members and other stakeholders. Prior to printing, you can change the appearance of the view to suit your needs.

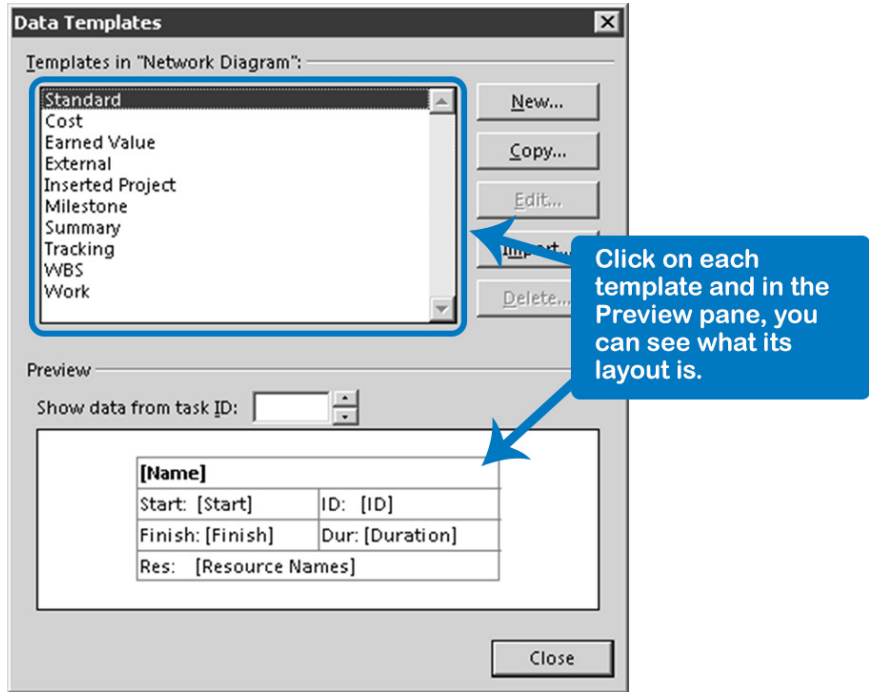
You can customize which fields are shown, the border of the nodes, and the font.

Change the layout of the fields on the task nodes in such a way that only task names will show. This will allow you to see many more nodes within one screen.

1. Ensure you are in the **Network Diagram** view. On the **Task** tab, in the **View** group, click **Network Diagram**.
2. On the **Format** tab, in the **Format** group, click **Box Styles** and the **Box Styles** dialog appears:

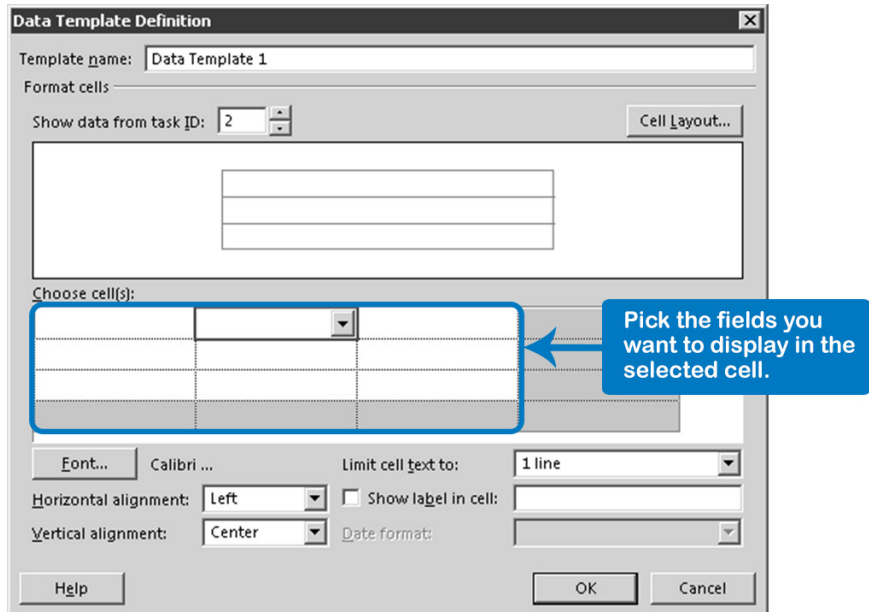


3. Click **More Templates**, and the **Data Templates** dialog opens:



Here you can define a **New** template or **Copy** an existing one to use as the base to create a custom one.

4. Click **New**, and the **Data Template Definition** dialog opens:



-
5. Enter a name for this template in the field **Template Name**, for example *<Task Names Only>*.
 6. In the table-like area below **Choose cell(s)**, click on a cell in the grid; and select from this list the field to display. For instance, if you want task names only, select the field **Name**.
 7. If you have long task names, set **Limit cell text** to more than one line.
 8. Click **OK**. You are back in the **Data Templates** dialog; you can see the newly created template listed.
 9. Click **Close**, and you are now back in the **Box Styles** dialog.
 10. Now we have to apply this template to the different types of tasks. **Under Style Settings For**, select all the different types of tasks by dragging over them, or select them more specifically by holding down **CTRL** and clicking each one.



Notice that within a Network Diagram view, you can apply several templates to different types of tasks to make them look exactly the way you want.

11. Under **Data Template**, display the list and select the data template you just created.
12. Click **OK**, and the **Network Diagram** view now shows nodes with only the task names, which fits many more nodes within one screen.



Follow these steps to create fancy Network Diagrams with dates on the milestones, put durations on the detail tasks, costs on the summary deliverables, etc., all within one view.

Change the Border of the Nodes

You can use different border formats for different types of tasks.

1. Ensure you are in the **Network Diagram** view. On the **Task** tab, in the **View** group, click **Network Diagram**.
2. On the **Format** tab, in the **Format** group, click **Box Styles** and the **Box Styles** dialog appears.
3. In the list Style Settings for select the type of task for which to change the border.
4. In the bottom section, Border, you can choose the **Shape**, **Color**, and **Width**. The **Preview** area in the top right shows what it will look like when done. You can also choose a fill **Background Color** and a **Pattern**.

5. If you have more than one data field inside the nodes, you can choose to show the division gridlines by checking the following options:
 - ▶ **Show horizontal gridlines**
 - ▶ **Show vertical gridlines**
6. Click **OK**.

Change the Font

To change the font in a report:

1. Ensure you are in the **Network Diagram** view. On the **Task** tab, in the **View** group, click **Network Diagram**.
2. On the **Format** tab, in the **Format** group, click **Box Styles** and the **Box Styles** dialog appears.
3. Click **More Templates**, and the **Data Templates** dialog opens.
4. In the list **Templates in <view name>** select the data template for which to change the font.
5. Click **Edit**, and the **Data Template Definition** dialog opens.
6. In the **Choose cell(s)** grid, select the cell or cells to modify and click **Font**. Select the font type and size you need.
7. Click **OK**, and you are back in the **Data Template Definition** dialog.
8. Click **OK**, and you are back in the **Data Template** dialog.
9. Click **Close**, and you are back in the **Box Styles** dialog.
10. Click **OK**, and you should see the new font applied.

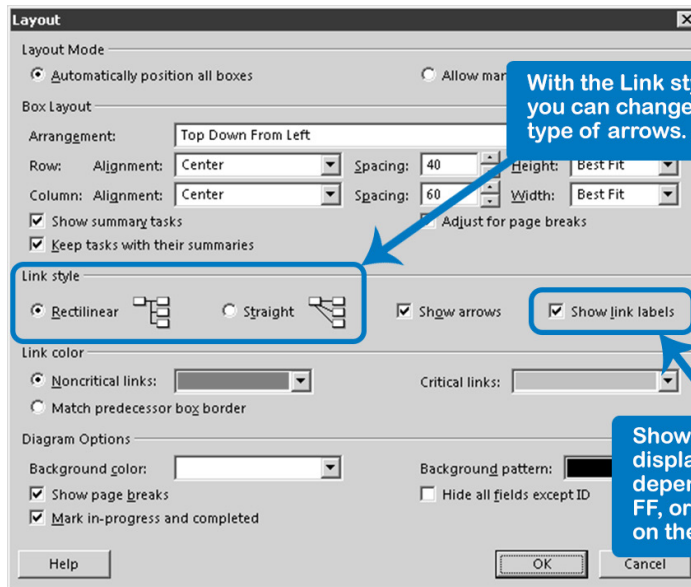
The Layout of the Diagram

You can customize the layout of the diagram, including how dependencies within tasks are shown, arrow types, with progress or not, with or without summary tasks, etc.

Show Dependency Type on Arrows

It's often helpful to see the type of dependency displayed for each task relationship. This makes it easier to verify the network logic.

1. Ensure you are in the **Network Diagram** view. On the **Task** tab, in the **View** group, click **Network Diagram**.
2. On the **Format** tab, in the **Format** group, click **Layout**, and the Layout dialog appears:



3. Under **Link style**, check the **Show link labels** box.
4. Click **OK**, and you will now see *FS* attached to each Finish-to-Start arrow, as well as *SS*, *FF*, and *SF* attached to their respective arrows. You will also see any Lag (lead) displayed.



You can also activate the link labels from **Format** tab, in the **Show/Hide** group, check the **Link Labels**.

Change Arrow Type

To change the arrow type:

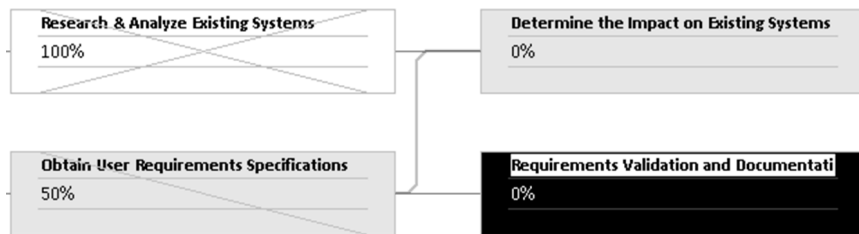
1. Ensure you are in the **Network Diagram** view. On the **Task** tab, in the **View** group, click **Network Diagram**.
2. On the **Format** tab, in the **Show/Hide** group, check the **Straight Links** box to set the arrow type to *Straight* or uncheck **Straight Links** box to set it as *Rectilinear*.

OR

On the **Format** tab, in the **Format** group, click **Layout**, and in the **Layout** dialog, in the **Link style** section, select the type of arrow: **Rectilinear** or **Straight**. Click **OK**.

Display Progress Marks

You can choose to indicate the status of a task in the nodes to differentiate completed, in-progress, and not started tasks:



You can toggle these on and off by choosing the **Format** tab, in the **Show/Hide** group, checking or clearing the **Progress Marks**.

Hide Summary Tasks



If you set all the logic between detail tasks, as we recommend, you can remove the summary tasks from the screen to remove clutter.

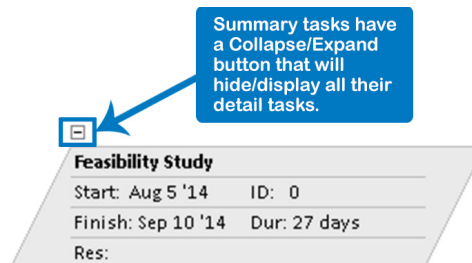
On the **Format** tab, in the **Show/Hide** group, check or clear the **Summary Tasks** to show or hide the summary tasks.



You can do the same for the **Project Summary Task** by checking or clearing the **Project Summary Task**.

Collapse or Expand Summary Tasks

Summary tasks can be collapsed to hide all the detail tasks that belong to the summary. Click the collapse button (-) at the top left of the summary node or click the node and hold down **Alt + Shift** and press **Minus** key.



They can be expanded again by clicking the expand button (+) or holding down **Alt + Shift** and pressing **Plus** key.



Notice that if you collapse a summary task, you hide the detail tasks and also their dependencies. The network may now appear to have loose ends that may not really be loose ends. All real loose ends need to be tied up. Before checking the logic in the Network Diagram, we recommend you expand all summary tasks, by going to the **View** tab, in the **Data** group and clicking **Outline** down-arrow, **All Subtasks**.

Improve the Node Layout

Project 2013 attempts to arrange the nodes as well as it can. By default, the nodes are laid out from the top left to the bottom right, but Project 2013 has several

layout arrangements to choose from. You can improve the layout by choosing a different arrangement, or you can move nodes manually.

➤ **Select a Layout Arrangement**

1. Access the **Layout** dialog. On the **Format** tab, in the **Format** group, click **Layout**.
2. Under **Layout Mode**, make sure that **Automatically position all boxes** is selected.
3. On the **Arrangement** drop-down box, select a layout of nodes that starts with the default **Top Down From Left**.
4. Click **OK**, and the layout of the nodes changes. If the layout isn't satisfactory, try another layout arrangement.



There are also time-phased arrangements available by day, week, or month; these are also known as Time-Scaled Network Diagrams. Unfortunately, Project 2013 does not show a timescale. The time-scaled view is useful when optimizing the network.

In addition to selecting a layout arrangement for all of the nodes, you can make adjustments to the layout of selected nodes.

➤ **Improve the Layout of Selected Nodes**

If you are manually arranging the nodes, you may still want to position groups of nodes within the selected arrangement.

1. Access the **Layout** dialog. On the **Format** tab, in the **Format** group, click **Layout**.
2. Under **Layout Mode**, select **Allow manual box positioning**.
3. Select an **Arrangement** from the drop-down list and click **OK**.
4. Select the nodes by dragging a lasso around them.

OR Hold down **Control** key and click on each node.

5. On the **Format** tab, in the **Layout** group, click **Layout Now** drop-down and select **Layout Selection Now**. Project 2013 rearranges the nodes as best it can according to the arrangement that is currently selected in the **Layout** dialog.

➤ **Lay Out Single Nodes Manually**

1. Access the **Layout** dialog. On the **Format** tab, in the **Format** group, click **Layout**.
2. Under **Layout Mode**, select **Allow manual box positioning**, and click **OK**.

3. Point to the border of the node, the mouse pointer changes to a four-
arrowed cross.
 4. Click and drag the node to its new location.
- **Lay Out Groups of Nodes Manually**
1. First select all nodes to move as a group. Click on the first node and do
any of the following options:
 - ▶ Hold down the Control key; then click on the other nodes. The
nodes are highlighted to show that they have been selected.
 - ▶ Click and drag a lasso around all the task nodes to select.
 - ▶ Hold down the Shift key and click the summary task to select it and
all its detail tasks.
 - ▶ Hold down the Shift key and click the detail task to select its entire
chain of successors.
 2. After the group of nodes is selected, click and hold down the border of
one of the selected nodes. Make sure you see the mouse pointer change
to a four-
arrowed cross.
 3. Drag the group to its new location.

Formatting & Printing the Calendar View

Adjust Row Height and Column Width

While in the **Calendar** view, click **Custom** and select the number of weeks or
range period to display within one screen to adjust the row heights of the days.

OR

Point to the horizontal divider that separates the weeks; the mouse pointer
changes to a two-sided arrow divider. Click and drag the divider up to decrease
the height of all rows. Drag it down to increase the height.



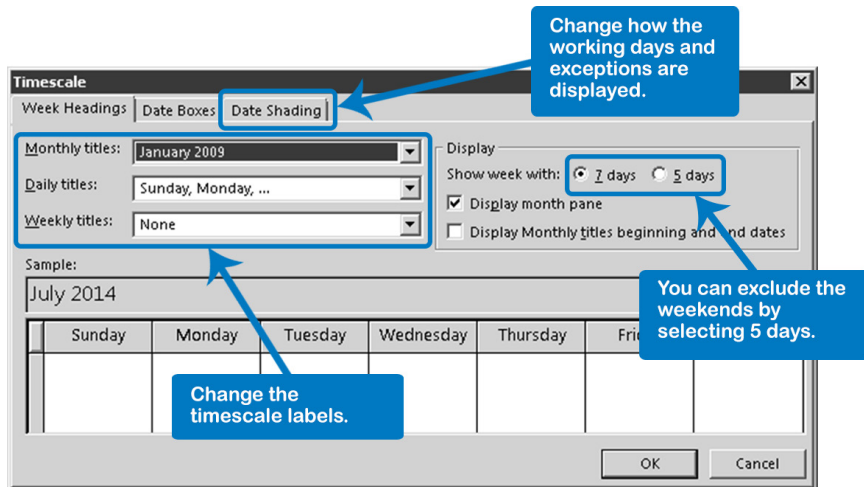
You can always use the Month and Week buttons which return default sizes. The
Month button returns a 4-week view and the **Week** button returns a 7-day view.



Double-click the right-hand side of the column dividers (vertical divider)
between the days to adjust the column widths so they best fit in the entire screen.
You can also drag them, but this usually takes several trial and error attempts.

Change the Timescale

While in the **Calendar** view, double-click on the timescale; the **Timescale dialog** appears.



On the tab **Week Headings** you can:

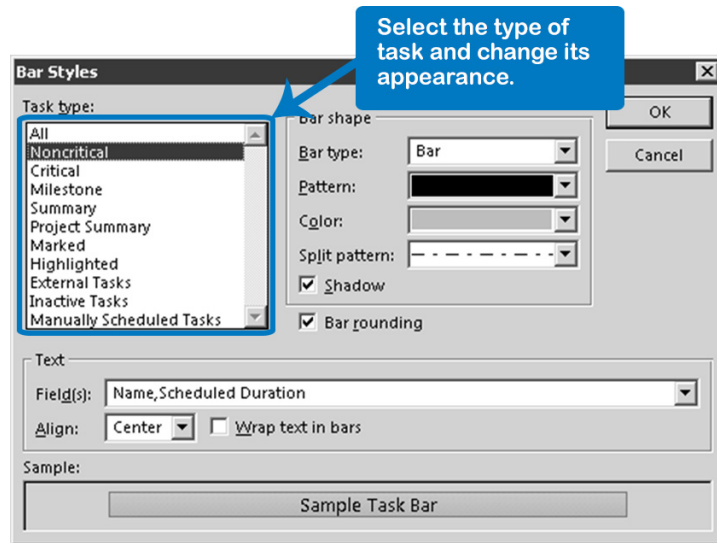
- Change the titles shown for the months, weeks, and days.
- Select **Show week with 5 days** as opposed to the default **7 days** if your team never works weekend days.

On the tab **Date Shading** you can:

- Select in the **Show working time** for drop-down box, a different calendar other than the **Standard**.
- Select the **Color** and **Pattern** for different exceptions types in the calendar.

Format the Calendar View

In the **Calendar** view, choose **Format** tab, and in the **Format** group, click **Bar Styles**. You can:



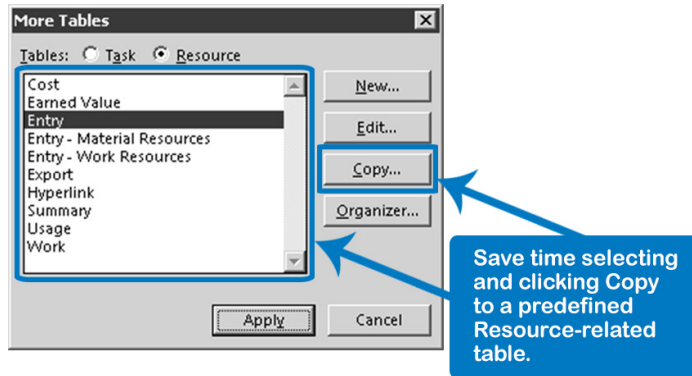
- Choose the appearance of the different types of tasks.
- Add text labels inside the task bars by selecting the labels in the **Field(s)** dropdown list. You can even add multiple labels, like **Name** and **Resource Name**, but you will find that in short task bars, the text is often cut off to fit inside the bar.
- When task names are too long for the task bars, which is common for one-day tasks, use the **Wrap text in bars** checkbox.

Formatting & Printing the Resource Sheet View

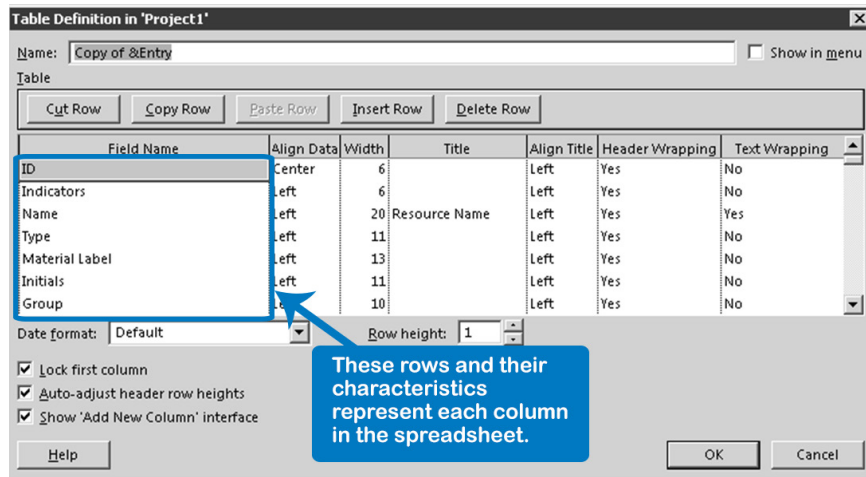
Customize the Table

A report from the Resource Sheet view is useful to inform the characteristics and considerations of the resources to perform the project. Here are some ideas to prepare this view for printing.

1. Access the **Resource Sheet**.
2. On the **View** tab, in the **Data** group, click **More Tables ...**; the More Tables dialog appears:



3. Select **Resource** to display the list of resource-related tables. Select a table that is close to what you need and click **Copy**; the **Table Definition** dialog appears:



4. Change the **Name** for the new table to a more descriptive name.
5. To add this table to the menu, check **Show in Menu**.
6. To delete a field from the table, click the row to delete and click **Delete Row** or press the **Delete** key.
7. To insert a new field in the table, click the row before which you want the new field to appear and click **Insert Row** or press the **Insert** key.
8. On its **Field Name** box, click the drop-down list and select the new field.
9. Click **OK** and **Apply**.



Extra columns you may have used (**Text1**, **Text2**, ... **Number1**, ... **Flag1**) can be permanently renamed. On the **Project** tab, in the **Properties** group, click

Custom Fields icon. This feature allows you to create new fields for resources like *Position* or *Telephone Number*. You can permanently rename these fields in the project database by clicking **Rename**. This is a better way than simply changing the Title in the Table Definition dialog which will only be visible in that particular table.

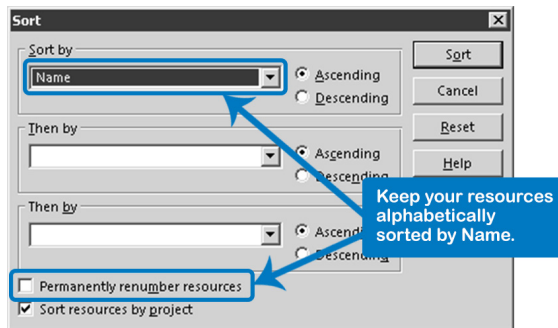
Sort Resources Alphabetically

On the **Task** tab, in the **Data** group, click on the **Sort** down-arrow and pick one of the predefined sorting orders, such as **By Cost**, **By Name**, or **By ID**.

OR

To sort on other fields:

1. On the **Task** tab, in the **Data** group, click on the **Sort** down-arrow, **Sort by...**; the **Sort** dialog appears:

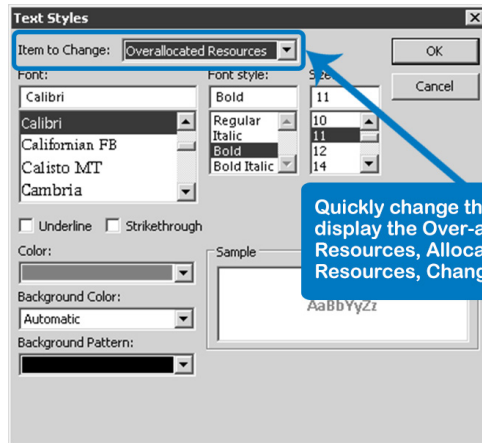


2. Then choose the first sort key in the **Sort by** list and the sorting order **Ascending** or **Descending**. If necessary, set a second key under **Then by** to break ties that may occur in the sorted list.
3. You can check the **Permanently renumber resources** option to keep the resources sorted in the chosen order. This will ensure that the resources are listed alphabetically in all lists where resource names are shown.
4. Click **Sort** to effect the sorting.

Format the Text

To make formatting changes to your text:

1. In the **Resource Sheet** view, choose **Format** tab, and in the **Format** group, click **Text Styles**; the **Text Styles** dialog appears:

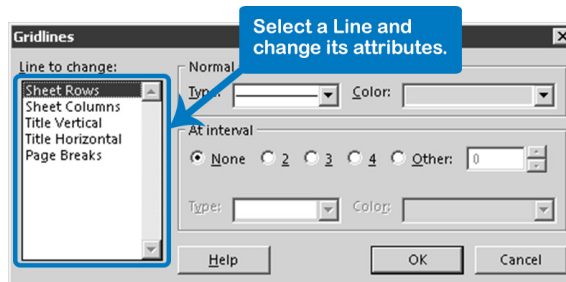


2. Select from the list **Item to Change** the **Over-allocated resources** and notice that by default these critical resources are displayed in red.
3. Choose a font, style, size, and color for the item and click **OK**.

Format the Gridlines

You can add or remove gridlines in your report:

1. While in the **Resource Sheet** view, choose **Format** tab, and in the **Format** group, click **Gridlines**. The **Gridlines** dialog appears:



2. Select an item in the list **Line to change** first, and then select the **Type** of line for this item, its **Color**, and **At Interval**.
3. Click **OK**.

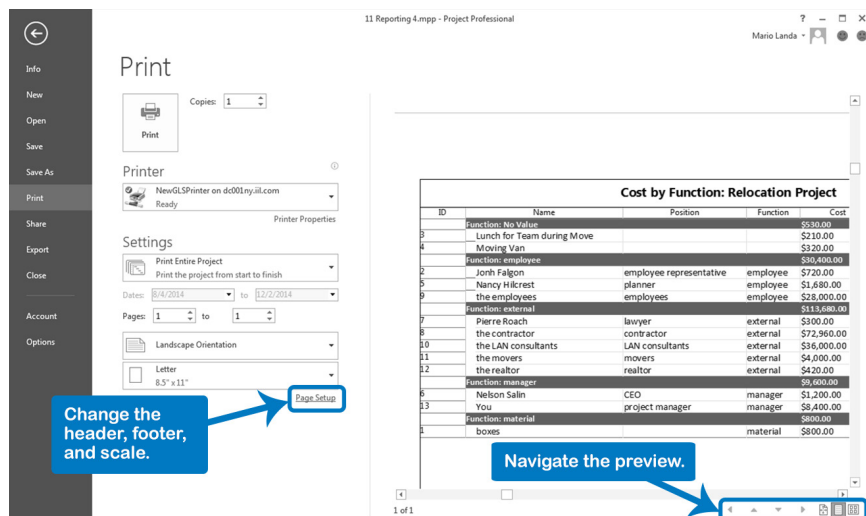
Choose a Grouping or Filter

1. On the **View** tab, in the **Data** group, choose a **Filter**, **Group**, or **Highlight** option.
OR
2. On the **Title** of any specific column, click on the right down-arrow and choose either **Group on this field** or a **Filter** option.

Choose the Page Setup

To make changes in the page setup of your report:

1. On the **File** tab, in the Backstage view, click **Print**. Under **Settings**, click the **Page Setup** link; the **Page Setup – Resource Sheet** dialog appears. Any changes you make in this dialog are stored in the current view, in our case the **Resource Sheet** view.
2. On the **Page** tab you can change:
 - ▶ The page orientation from **Portrait** to **Landscape**
 - ▶ The **Scaling** option to fit the report on a certain number of pages
3. Click the **Margins** tab if you want to adjust the width of the page margin.
4. To insert **Headers** or **Footers**, review the instructions.
5. Select other options you need.
6. Click **OK** to see the results on screen or on paper.
7. You can preview the view on the right area of the **Backstage Print** view.



8. Print the report by clicking **Print**.

Formatting & Printing Assignment Views

The Time-Phased Budget

If your financial department asks you as the project manager to predict how much money your project needs each month, you can print a time-phased budget. You have two options:

- Time-phased budget by resource: Use the Resource Usage view
- Time-phased budget by task or deliverable: Use the Task Usage view

The following sample report shows expenses by deliverable by month in baseline and updated forecast:

Task Name	Baseline	Total Cost	Details	Jun	3rd Quarter Jul	Aug	Sep	4th Quarter Oct	Nov	Dec	1st Quarter Jan
Relocation DEVOM, Inc.	\$188,210.00	\$185,010.00	Base. Cost			\$10,640.00	\$26,320.00	\$53,520.00	\$47,730.00		
			Cost			\$10,640.00	\$2,320.00	\$58,320.00	\$69,730.00	\$14,000.00	
1 REQUIRMENTS	\$1,760.00	\$1,760.00	Base. Cost			\$1,760.00					
			Cost			\$1,760.00					
5 LOCATION	\$6,480.00	\$6,480.00	Base. Cost			\$6,480.00					
			Cost			\$6,480.00					
12 REMODELING CONTRACT	\$3,520.00	\$3,520.00	Base. Cost			\$1,200.00	\$2,320.00				
			Cost			\$1,200.00	\$2,320.00				
18 REMODELED LOCATION	\$91,920.00	\$108,720.00	Base. Cost				\$24,000.00	\$53,520.00	\$14,400.00		
			Cost				\$0.00	\$58,320.00	\$50,400.00		
27 MOVE	\$34,530.00	\$34,530.00	Base. Cost			\$1,200.00	\$0.00	\$0.00	\$33,330.00		
			Cost			\$1,200.00	\$0.00	\$0.00	\$19,330.00	\$14,000.00	
33 POST MOVE REVIEW	\$0.00	\$0.00	Base. Cost			\$0.00					
			Cost			\$0.00					

The deliverable has a Baseline of \$91,920 expected to be spent in Sep, Oct, and Nov. The new forecast is of \$108,720 to be spent in Oct and Nov.

Customize the Usage View

1. On the **View** tab, look in the **Task Views** group for the **Task Usage** (or in the **Resource Views** group for the **Resource Usage** if you want the report by resource).
2. On the **View** tab, in the **Data** group, click **Cost**. You can rearrange the order of the columns by clicking the column title and dragging.
3. On the **Task** tab, in the **Editing** group, click **Scroll to Task** to scroll the numbers into view; you will see the details **Work** displayed by default, which is the required effort spread over time.
4. On the **Format** tab, in the **Details** group, click **Add Details**. The Detail Styles dialog appears.
5. On the **Available fields**, select **Baseline Cost** and **Cost**, and click **Show**.
6. On the **Show these fields box** (right), select **Work**, and click **Hide**.
7. Click **OK**.

Adjust the Timescale

8. Adjust the level of detail of the outline structure you want to show. On the **View** tab, in the **Data** group, click **Outline** down-arrow and choose the appropriate level of detail. In the example, only deliverables are shown. In the **Resource Usage** view, click on any column heading and click **Hide Subtasks**.

1. Adjust the timescale to show the time unit your financial department would like to see. By using the **Status bar**, you can zoom in or out by directly clicking on the zoom slider.

OR

You can double-click on the timescale and in the **Timescale** dialog, select the units for the **Middle Tier** and **Bottom Tier**.

2. Make sure you can read all the numbers in the timescale; if the columns are too narrow, you will see ####. You can adjust the column width of the bottom tier timescale units by dragging their right-hand borders.

OR

Double-click on the timescale itself and in the **Timescale** dialog, adjust the **Size %**.

Print the Assignments

To print the assignments detail, you can follow the same steps to create the time-phased budget, considering other fields such as Work and Baseline Work; and the outline level should show more detailed assignments. When you have the view ready, you can print preview and consider additional options:

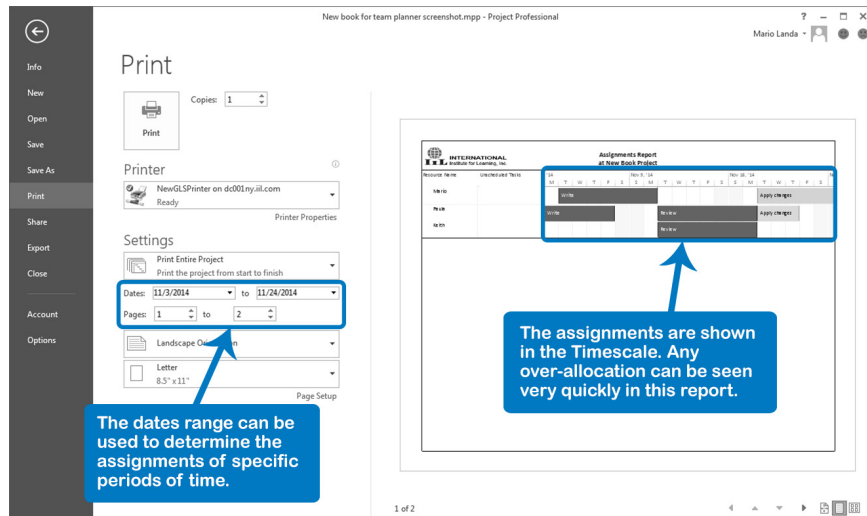
1. Create the header and footer in the **File** tab, **Backstage** view, **Print, Page Setup** dialog.
2. You can print row totals and column totals in the timescale of the usage views. In the **Task Usage** or **Resource Usage** view, you can select these totals by choosing the **File** tab, **Backstage** view, **Print, Page Setup** link, **View** tab and checking **Print row totals for values within print date range** and **Print column totals**.
3. Print the report by clicking **Print**.

Print the Assignments with the Team Planner

In addition to the Resource Usage and Task Usage views, you have the Team Planner view, which is a more intuitive way to display the assignments and easily see over-allocations of your resources. To create your team planner report follow the steps:

1. On the **View** tab, in the **Resource Views** group, click **Team Planner** to apply the **Team Planner** view.

2. Select a resource and click **Scroll to Task**. On the **Task** tab, in the **Editing** group, click **Scroll to Task**.



Show High Level or Detail Level

The level you select in this option will show the level of detail of the assignment, for instance, if you select a summary task level such as Level 1, the assignment will be shown with the name of its summary tasks. It's usually better to show all the detail tasks but if you were analyzing the participation of each team member in the result of a deliverable, this option could be useful.

1. Adjust the level of detail of the outline structure you want to show. In the **Team Planner** view, on the **Format** tab, in the **Format** group, click **Roll -up** down-arrow and choose the appropriate level of detail.
2. If you prefer to show the detail assignments, just select the **All Subtasks** option.

Adjust the Timescale

1. Adjust the timescale you would like to see. In the Status bar, you can zoom in or out by directly clicking on the zoom slider.

OR

You can double-click on the timescale and in the **Timescale** dialog, select the **units** for the **Middle Tier** and **Bottom Tier**.

Format the Bars and Text Styles

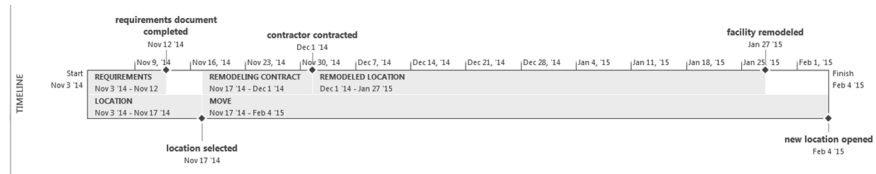
1. Modify the format for the different bars by using any of the options available in **Format** tab, **Styles** group. With this option you can influence the display of Auto-Scheduled tasks, Manually Scheduled tasks, Actual Work, External Tasks, and Late Tasks.
2. Modify the text styles by clicking **Text Styles** in the **Format** tab, **Format** group.

3. Create the header and footer in the **File** tab, **Backstage** view, **Print, Page Setup** dialog.
4. Print the report by clicking **Print**.

Create a Timeline Report

While in any view, you can activate the **Timeline** view as a split by choosing **View** tab, and in the **Split** view group, checking the **Timeline** box.

1. Select the tasks, summary tasks, or milestones you want to show in the **Timeline**.
2. On the **Task** tab, in the **Properties** group, click **Add to Timeline**.
3. Adjust the timescale you would like to see. In the Status bar, you can zoom in or out by directly clicking on the zoom slider.



Format the View

1. Modify the format for the different bars by using any of the options available in **Format** tab.
 - ▶ **Text Styles:** lets you set the font type, style, size, and color for specific items of the timeline, for instance you can change the Timescale text style
 - ▶ **Date Format:** lets you change the displayed date format as an exception to the default format.
 - ▶ **Detailed Timeline:** when activated, shows the name and dates of each task inside the boxes of tasks; when deactivated, it shows just the boxes.
 - ▶ **Overlapped Tasks:** separates the overlapping tasks in different rows.
 - ▶ **Pan & Zoom:** this option works with a combination view, for instance the Gantt Chart and the Timeline. When checked, it will show a shadow box in the timeline with the dates included where you can pan to the right or left to focus on a specific window of time. The Gantt view will also move to that specific window of time.
 - ▶ **Display as Bar:** this button will only activate after you select a task in the timeline. Then clicking on it will change the format of the task from a callout to a bar or vice versa.
 - ▶ **Display as Callout:** this button will only activate after you select a task in the timeline. Then clicking on it will change the format of the task from a callout to a bar or vice versa. Callout display will help you to represent summary tasks or to save space in the timeline.

Copy or Print the Timeline

- ▶ **Remove from Timeline:** this button will remove the task from the Timeline view but not from the database.

Whether you decide to print or copy the report and paste it as a graphic, you can follow the next steps:

1. To print the view:
 - ▶ Create the header and footer in the **File** tab, **Backstage** view, **Print, Page Setup** dialog.
 - ▶ Print the report by clicking **Print**.
2. To copy it, on the **Format** tab, in the **Copy** group, click **Copy Timeline** and select the option where to copy (**For E-mail**, **For Presentation**, or **Full Size**).
3. Paste in the desired application. For instance, in PowerPoint, click the **Paste** down-arrow (this activates the **Paste Options** menu) to select among three options:
 - ▶ **Use Destination Theme:** If you want the image to take the theme of the destination presentation that you are pasting to. This option will also paste the image as different components that will be editable from PowerPoint. For instance, you can change the font size and color, etc.
 - ▶ **Keep Source Formatting:** If you want the image to keep the original theme from the origin. This option will also keep the image as different components that will be editable from PowerPoint.
 - ▶ **Picture:** This will paste the image as a picture with limited possibilities to edit the elements.

Advance Topics related to Chapter 12: Earned Value Management

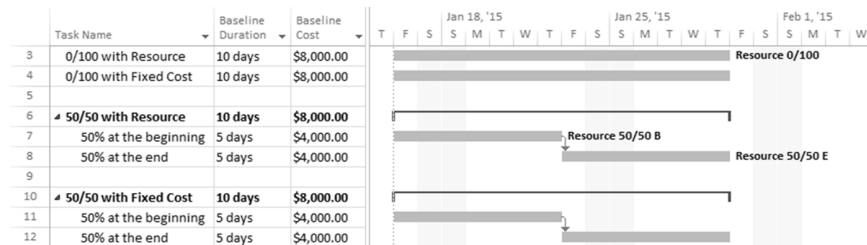
Let's look at some examples of how to manage progress and EVM in Project 20102013, based on the EV measurement techniques methods just covered in Chapter 12 such as Fixed Formula, Weighted Milestones, and Percent Complete.

EVM Performance Analysis & Forecasting with Project 2013

All examples in this section will use the international date convention: dd/month/yy. If you have set a different date format in your computer, you should enter your dates according to that convention (they will of course appear different from the format of the dates in this chapter).

Fixed Formula

The following screen shows tasks with fixed formulas 0/100 and 50/50, according to the baselined plan.

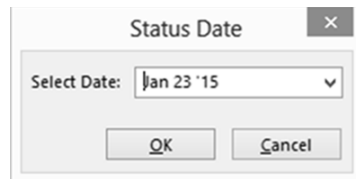


You now need to update your schedule with the following progress information for status date Fri23/Jan/15:

- Task 3. 0/100 with Resource: Started three days late, but the responsible team member assures you it will be delivered on time, working normal hours.
- Task 4. 0/100 with Fixed Costs: Started on time and the responsible person says the task will be delivered next Wednesday, but with a final cost of \$10,000.
- Task 6. 50/50 with Resource: Started three days late and the responsible person says the task will have the same duration and resources as planned.
- Task 10. 50/50 with Fixed Costs: Started on time and will be delivered next Wednesday with a final estimated cost of \$10,000.

First define the Status Date:

1. On the **Project** tab, in **Status** group, click **Status Date**. The **Status Date** dialog box appears:



2. In the **Status Date** dialog box, select or type 20/Jan/15
3. Click **OK**.

Update Task 3. 0/100 with Resources:

1. On the **View** tab, in **Data** group, click **Tables** and select **Tracking**.
2. For task **3** in the **Act. Start** column enter or select *Thu 22/Jan/15*. Notice that the bar moves on the **Gantt Chart**.
3. In the **Act. Dur.** column enter or select *2 days*. **Rem. Dur.** will change automatically to *8 days*.
4. In the **Rem. Dur.** column enter or select *5 days*. (The task is to finish on time according to the person responsible.)

Update Task 4. 0/100 with Fixed Costs:

1. For task **4**, in the **Act. Start** column enter or select *Mon 19/Jan/15*.
2. In the **Act. Dur.** column enter or select *2 days*. **Rem. Dur.** will change automatically to *5 days*.
3. In the **Rem. Dur.** column enter or select *3 days* (to finish next Wednesday).
4. After the **Act. Cost** column insert the **Fixed Cost** column.
5. For task **4**, in the **Fixed Cost** column, enter *10000*.

Update Task 6. 50/50 with Resource:

1. For task **7**, in the **Act. Start** column enter or select *Thu 22/Jan/15*.
2. Select task **7** and enter or select *2 days* in the **Act. Dur.** Column.

Update Task 10. 50/50 with Fixed Costs:

1. Select task **11** and click **Update as Scheduled** in the **Tracking** toolbar.
2. For task **11** in the **Fixed Cost** column, enter *5000*.
3. For task **12** in the **Rem. Dur.** column, enter or select *3 days*.

4. For task **12** in the **Fixed Cost** column, enter **5000**.

We have updated the progress and the remaining work. Your Tracking Gantt should look like this:



Note that our schedule reflects not only all progress information to date, but because we updated the remaining work, the result is a dynamic schedule. If the tasks had successors, they would be affected, as well.

Note also that the % Complete information does not correspond to our methods; remember that we've been calculating costs and the % Complete formula depends on task duration ($\% \text{ Complete} = \text{Actual Duration} / \text{Duration}$).

Let's see the EVM information. The following screen shot is the default Earned Value table, with some extra columns: PV%, EV%, AC%, SPI, CPI, Cost, and VACT. (PV%, EV%, AC%, and VACT are customized fields calculated as we previously explained).

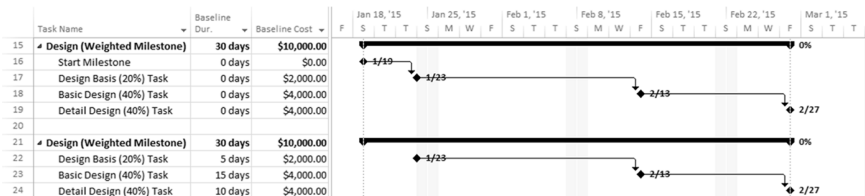
Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
3 0/100 with Resource	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	0	0	\$8,000.00	\$5,600.00	\$5,600.00	\$2,400.00	0 days
4 0/100 with Fixed Cost	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	0	0	\$8,000.00	\$10,000.00	\$10,000.00	(\$2,000.00)	2 days
6 50/50 with Resource	\$4,000.00	\$4,000.00	\$4,000.00	50.00%	50.00%	50.00%	\$0.00	\$0.00	1	1	\$8,000.00	\$8,000.00	\$8,000.00	\$0.00	-3 days
7 50% at the beginning	\$4,000.00	\$4,000.00	\$4,000.00	100.00%	100.00%	100.00%	\$0.00	\$0.00	1	1	\$4,000.00	\$4,000.00	\$4,000.00	\$0.00	-3 days
8 50% at the end	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	0	0	\$4,000.00	\$4,000.00	\$4,000.00	\$0.00	-3 days
10 50/50 with Fixed Cost	\$4,000.00	\$4,000.00	\$5,000.00	50.00%	50.00%	62.50%	\$0.00	(\$1,000.00)	1	0.8	\$8,000.00	\$10,000.00	\$10,000.00	(\$2,000.00)	2 days
11 50% at the beginning	\$4,000.00	\$4,000.00	\$5,000.00	100.00%	100.00%	125.00%	\$0.00	(\$1,000.00)	1	0.8	\$4,000.00	\$5,000.00	\$5,000.00	(\$1,000.00)	0 days
12 50% at the end	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	0	0	\$4,000.00	\$5,000.00	\$5,000.00	(\$1,000.00)	2 days



Note that all values are based on progress and the EV measurement methods selected. Note also that the EV% values reflect a better percent of progress of tasks, so we recommend you display EV% in **Gantt Charts** instead of % Complete.

Weighted Milestones

The following screen shows tasks with weighted milestones:



Now, consider the following progress information for a status date of Fri 13/ Feb/15:

- *Task 15. Design (Weighted Milestones):* Started as scheduled, *Design Basis* milestone was accomplished on Tue 24/Jan/15, *Basic Design* milestone was

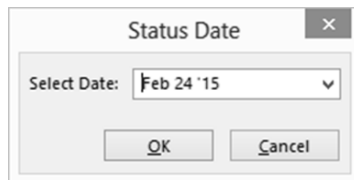
rescheduled for 17/Feb/15, and *Detail Design* milestone was rescheduled for 2/Mar/15.

- *Task 21. Design (Weighted Milestones)*: Started as scheduled, *Design Basis* milestone was accomplished as scheduled, *Basic Design* milestone was accomplished on 03/Feb/15, and *Detail Design* milestone was rescheduled for 17/Feb/15.

Steps in Project 2013

Define the Status Date:

1. On the **Project** tab, in **Status** group, click **Status Date**. The **Status Date** dialog box appears.
2. In the **Status Date** dialog box, type or select 24/Feb/15.
3. Click **OK**.



Update Task 15. Design (Weighted Milestones):

1. In **Tracking Gantt** view, select **Tracking table** (on the **View** tab, in **Data** group, click **Tables** and select **Tracking**).
2. Select task **16**, then on the **Task** tab, in the **Schedule** group, click **Mark on Track** in order to establish the actual start of the task.
3. Double-click on task **17**, and in the **Task Information** dialog box, click the **Predecessors** tab.
4. For the **Start Milestone** Predecessor task, type or select 7 in the **Lag** column. This reschedules the second milestone; notice how the **Gantt** chart is updated.
5. Click **OK**.
6. Select task **17**, then on the **Task** tab, in the **Schedule** group, click **Mark on Track** in order to establish 100% completion of the milestone.
7. Double-click on task **18** and in the **Task Information** dialog box, click the **Predecessors** tab.
8. For the **Design Basis Milestone** Predecessor row, type or select 18 in the **Lag** column. This reschedules the third milestone. Note that the **Gantt** chart is updated.

Update Task 21. Design (Weighted Milestones):

1. Select task **22** then on the **Task** tab, in the **Schedule** group, click **Mark on Track**.
2. For task **23**, in the **Act. Start** column, type or select *Fri 23/Jan/52* to establish the actual start date of the task marked as milestone.
3. For task **23**, in the **Act. Dur.** column, type or select *10 days*, and in the **Rem. Dur.** column, type or select *0 days*. With this we have marked the task as 100% complete on the status date. Note that task 24 Detail design was also rescheduled.
4. Select task 24, then on the **Task** tab, in the **Schedule** group, click **Mark on Track**.

We have updated the progress and the remaining work. Your Tracking Gantt view should show:



As with the previous example, our schedule reflects all progress and remaining work information in a dynamic way. Note also that the % of progress displayed in the Gantt chart is correct because in this view we displayed EV% instead of % Complete.

The following screen shot shows EVM information.

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PI%	EV%	AC%	SV	CV	EAC	SPI	CPI	BAC	VAC	VACT
15 Design (Weighted Milestone)	\$6,000.00	\$2,000.00	\$2,000.00	20.00%	60.00%	20.00%	(\$4,000.00)	\$0.00	\$10,000.00	0.33	1	\$10,000.00	\$0.00	-5 days
16 Start Milestone	\$0.00	\$0.00	\$0.00	NA	NA	NA	\$0.00	\$0.00	\$0.00	0	0	\$0.00	\$0.00	0 days
17 Design Basis (20%) Task	\$2,000.00	\$2,000.00	\$2,000.00	100.00%	100.00%	100.00%	\$0.00	\$0.00	\$2,000.00	1	1	\$2,000.00	\$0.00	0 days
18 Basic Design (40%) Task	\$4,000.00	\$0.00	\$0.00	0.00%	100.00%	0.00%	(\$4,000.00)	\$0.00	\$4,000.00	0	0	\$4,000.00	\$0.00	-5 days
19 Detail Design (40%) Task	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	\$4,000.00	0	0	\$4,000.00	\$0.00	-5 days
20														
21 Design (Weighted Milestone)	\$6,000.00	\$6,000.00	\$6,000.00	60.00%	60.00%	60.00%	\$0.00	\$0.00	\$10,000.00	1	1	\$10,000.00	\$0.00	5 days
22 Design Basis (20%) Task	\$2,000.00	\$2,000.00	\$2,000.00	100.00%	100.00%	100.00%	\$0.00	\$0.00	\$2,000.00	1	1	\$2,000.00	\$0.00	0 days
23 Basic Design (40%) Task	\$4,000.00	\$4,000.00	\$4,000.00	100.00%	100.00%	100.00%	\$0.00	\$0.00	\$4,000.00	1	1	\$4,000.00	\$0.00	5 days
24 Detail Design (40%) Task	\$0.00	\$0.00	\$0.00	0.00%	0.00%	0.00%	\$0.00	\$0.00	\$4,000.00	0	0	\$4,000.00	\$0.00	5 days

Note that all values reflect current progress and the EV measurement methods selected. If you review the EVM information of both main tasks, it seems that everything is progressing according to the baseline, and this is true according to the EV measurement method selected. But if you review VACT you will notice a variance in the final delivery: 5 days behind schedule in the first main task, and 5 days ahead of schedule in the second main task. You'll also note this in the Gantt chart. It is very important to always analyze the information at the status date and the forecasts at completion.

Note also that in task *16 Start Milestone*, NA appears in the PV%, EV%, and AC% columns. This is because this is just a milestone to mark the start of the main task, and is without resources or costs, thus its **Baseline Cost** is zero. When you apply the formulas to obtain EV data as a percentage, you divide it by the **Baseline Cost**. When we defined the customized fields, we included an “if then” verification that sends “NA” in case of a **Baseline Cost** equal to zero, to avoid an error message. It is very important that you identify any possible errors in your formulas to define the right algorithms.

Percent Complete

To demonstrate this method, let’s assume the following planned tasks, shown in the screen below:

- % Complete (Duration) tasks
 - ▶ Case a. Duration 20 days. 1 work Resource W1 (std. rate = \$100/hr) assigned
 - ▶ Case b. Same as case a
 - ▶ Case c. Same as case a
 - ▶ Case d. Same as case a
 - ▶ Case e. Duration 20 days. 1 work Resource W2 (std. rate = \$100/hr) assigned
- % Complete (Work) task. Duration 20 days. 1 work Resource W1 (std. rate= \$100/hr) assigned
- % Complete (Units) task. Duration 20 days. 20 units of material Resource M1 (std. rate = \$800/unit) assigned
- % Complete (Physical) task. Duration 20 days. 1 cost Resource C1 (\$16,000) assigned

Task Name	Baseline Duration	Baseline Cost	Jan 18, '15		Jan 25, '15		Feb 1, '15		Feb 8, '15		Feb 15, '15		Feb 22, '15					
			S	T	S	M	W	F	S	T	S	M	W	F	S	T	S	M
26	% Complete (Duration) tasks	20 days	\$80,000.00															
27	Case a	20 days	\$16,000.00															
28	Case b	20 days	\$16,000.00															
29	Case c	20 days	\$16,000.00															
30	Case d	20 days	\$16,000.00															
31	Case e	20 days	\$16,000.00															
32																		
33	% complete (Work) tasks	20 days	\$16,000.00															
34	% complete (Units) tasks	20 days	\$16,000.00															
35	% complete (Physical) tasks	20 days	\$16,000.00															

Now, consider the following progress information for a status date of Fri 27/ Feb/15:

- Task 26. % Complete (Duration) tasks
- Task 27. Case a. Task progress is 30% in duration
- Task 28. Case b. Task progress is 60% in duration
- Task 29. Case c. Actual start on Mon 26/Jan/15, there have been 5 days of work, and the remaining duration is estimated at 15 days
- Task 30. Case d. Started as scheduled, there have been 10 days of work, and the remaining duration is estimated at 5 days

- Task 31. Case e. Started as scheduled, there have been 10 days of work, and the remaining duration is estimated at 5 days. The actual rate of the resource assigned is \$110/hr
- Task 33. % Complete (Work) task. The resource assigned presented his actual work report:

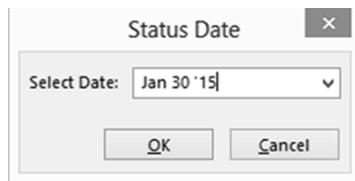
	18 Jan '15					25 Jan '15							
	S	M	T	W	T	F	S	S	M	T	W	T	F
Actual Work (hrs)	8	6	2	10	2			8	8	8	4	4	

- Task 34. % Complete (Units) task. There have been ten days of work, 12 units have been produced, and the remaining units will be produced in the following 8 days
- Task 35. % Complete (Physical) task. The percent of physical progress is 40%

Steps in Project 2013

Define the Status Date:

1. On the **Project** tab, in **Status** group, click **Status Date**. The **Status Date** dialog box appears:



2. In the **Project Information** dialog box, in **Status Date**, type or select *Fri 30/Jan/15*.
3. Click **OK**.

Task 26. % Complete (Duration) tasks.

We'll look at a number of different options for updating here, each of which has slightly different results.

Update Task 27. Case a:

1. In the **Tracking Gantt** view, select **Tracking** table (on the **View** tab, in **Data** group, click **Tables** and click **Tracking**).
2. In the % **Comp.** column for task **27**, type or select *30%*.

If you just enter the % Complete, you may have the correct current progress information, but you are not using a dynamic schedule approach: you are not reflecting the delay in the remaining work. You can see this in EVM forecasts. The **Tracking Gantt** view and EVM table you should get are shown below:

Task Name	Act. Start	Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Gantt Chart													
27 Case a	Jan 19 '15	NA	30%	0%	6 days	14 days														

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	VAC	VAC1
27 Case a	\$8,000.00	\$4,800.00	\$4,800.00	50.00%	30.00%	30.00%	(\$3,200.00)	\$0.00	0.6	1	\$16,000.00	\$16,000.00	\$0.00	0 days

- Select task 27, then on **Project** tab, in **Status** group, click **Update Project**. The **Update Project** dialog box appears:

- Select **Reschedule uncompleted work to start after** (you will see the status date previously selected in the date field), and select **For: Selected tasks**, then click **OK**.

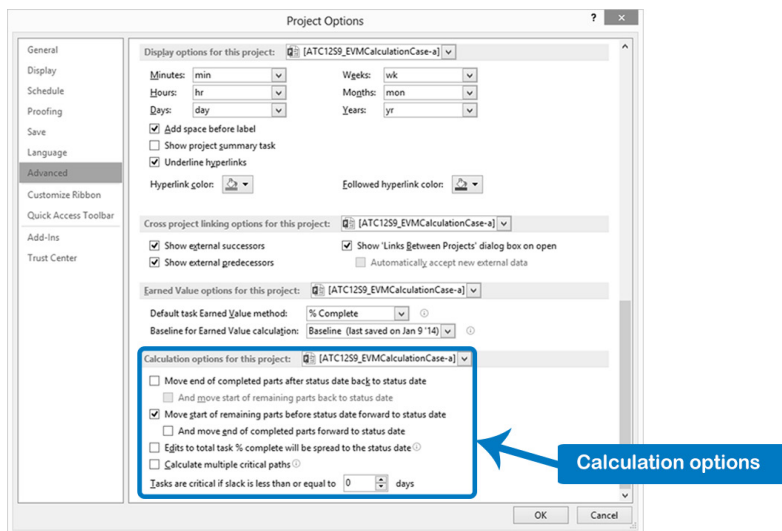
With this, you will reschedule the remaining work starting the next work day. This is fine: now you have reflected the delay in finish date, but you are creating a split inside the bar, and this will cause problems in the EVM calculations for the next period. The **Tracking Gantt** view and EVM table you should get are shown below:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Jan 18, '15	Jan 25, '15	Feb 1, '15	Feb 8, '15	Feb 15, '15	Feb 22, '15
27 Case a	Jan 19 '15	NA	30%	0%	6 days	[Gantt bar showing a split between Jan 19 and Jan 26, with 30% completion indicated]					

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VAC1
27 Case a	\$8,000.00	\$4,800.00	\$4,800.00	50.00%	30.00%	30.00%	(\$3,200.00)	\$0.00	0.6	1	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	-4 days

Now we'll look at another way to update the progress of this task.

- Select task 27 and on **Task** tab, in **Schedule** group, click **0% Complete** to return progress to 0%.
- On the **File** tab, in the **Backstage** view, click on **Options**. The **Project Options** dialog box appears.
- Click on **Advanced**:



4. On **Advanced**, use the scroll bar to see the **Calculations options for this project**, and check the option **Move start of remaining parts before status date forward to status date**. Click **OK**.

5. In the **% Comp.** column for task **27**, type or select **30%**.

This gives you the same result as the previous method in one step. But you still have the split.

Finally, here's an option that eliminates the split.

1. Select task 27 and on the **Task** tab, in the **Schedule** group, click **0% Complete** to return progress to the original 0%.

2. On the **File** tab, in the **Backstage** view, click on **Options**. The **Project Options** dialog box appears; click on **Advanced**. On **Advanced**, use the scroll bar to see the **Calculations options for this project**, and check the option **Move end of completed parts forward to status date**. Click **OK**.

3. In the **% Comp.** column for task **27**, type or select **30%**.

Notice that you get the same progress, but have moved the actual start of the task to eliminate the split. The current progress now coincides with the status date. This is much better for further EVM calculations and you are applying the dynamic schedule approach. Your screen should look like this:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Gantt Chart (Jan 11, '15 to Feb 22, '15)													
27 Case a	Jan 23 '15	NA	30%	0%	6 days	14 days	[Gantt Chart showing 30% progress bar from Jan 23 to Feb 15, 2015]													

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
27 Case a	\$8,000.00	\$4,800.00	\$4,800.00	50.00%	30.00%	30.00%	(\$3,200.00)	\$0.00	0.6	1	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	-4 days

Task 28. Case b.

1. In the **Tracking Gantt** view, select **Tracking table** (on the **View** tab, in **Data** group, click **Tables** and click **Tracking**).
2. For task **28**, in the **% Comp.** column, type or select **60%**.

We have a situation similar to Case a, but with more progress than planned. If you just enter the **% Complete**, you may have the correct current progress information in the **Tracking Gantt** view, but you'll create big problems in your EVM calculations. The progress after the status date is not reflected in EVM calculations: PV, EV, AC are shown as scheduled, without the additional progress. In addition, you aren't using the dynamic approach. Here's what you'd get:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Jan 18, '15	Jan 25, '15	Feb 1, '15	Feb 8, '15	Feb 15, '15												
28 Case b	Jan 19 '15	NA	60%	0%	12 days	8 days	S	T	T	S	M	W	F	S	T	T	S	M	W	F	S	T	T

Task Name	Planned Value -PV (BCWS)	Earned Value -EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
28 Case b	\$8,000.00	\$8,000.00	\$8,000.00	50.00%	50.00%	50.00%	\$0.00	\$0.00	1	1	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	0 days

3. Select task **28** and on **Task** tab, in **Schedule** group, click **0% Complete** to return progress to the original **0%**.
4. On the **File** tab, in the **Backstage** view, click on **Options**. The **Project Options** dialog box appears; click on **Advanced** (same screen shot shown before). On **Advanced**, use the scroll bar to see the **Calculations options for this project**, and check the option **Edits to total task % complete will be spread to the status date**.
5. For task **28**, in the **% Comp.** column, type or select **60%**.

Now it is a little better: the current status line now shows the whole progress, and the EV is now right. But the AC is still just considering the work up to the status date, so the EVM calculations are wrong, and the **Gantt** chart and forecasts are still not reflecting the dynamic schedule approach. The results are:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Jan 18, '15	Jan 25, '15	Feb 1, '15	Feb 8, '15	Feb 15, '15												
28 Case b	Jan 19 '15	NA	60%	0%	12 days	8 days	S	T	T	S	M	W	F	S	T	T	S	M	W	F	S	T	T

Task Name	Planned Value -PV (BCWS)	Earned Value -EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
28 Case b	\$8,000.00	\$9,600.00	\$8,000.00	50.00%	60.00%	50.00%	\$1,600.00	\$1,600.00	1.2	1.2	\$16,000.00	\$13,333.33	\$16,000.00	\$2,666.67	0 days

Now, let's look at other ways to update the progress of this task.

1. Select task **28** and on the **Task** tab, in the **Schedule** group, click **0% Complete** to return progress to the original **0%**.
2. On the **File** tab, in the **Backstage** view, click on **Options**. The **Project Options** dialog box appears, then click on **Advanced**. On **Advanced**, use the scroll bar to see the **Calculations options for this project**, and check the option **Move end of completed parts after status date back to the status date**.
3. For task **28**, in the **% Comp.** column, type or select **60%**. If a **Planning Wizard** window appears, select **Continue**. **Move the task to start before the project start date** and click **OK**.

The actual start date is adjusted and the progress coincides with the status bar. The EV is now correct, but you've created a split with the problems mentioned before, you are still missing the dynamic schedule approach, and the forecasts don't reflect the extra progress that's been made. The results look like this:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Jan 18, '15				Feb 1, '15			Feb 15, '15							
W	S	T	M	F	T	S	W	S	T	F	S	T	W	S	T						
28 Case b	Jan 15 '15	NA	60%	0%	12 days	8 days	60%														

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
28 Case b	\$8,000.00	\$9,600.00	\$9,600.00	50.00%	60.00%	60.00%	\$1,600.00	\$0.00	1.2	1	\$16,000.00	\$16,000.00	\$16,000.00	(\$0.06)	0 days

Now here's a final way to enter the same progress for the Case b task.

1. Select task **28** and on the **Task** tab, in the **Schedule** group, click **0% Complete** to return to the original 0%.
2. On the **File** tab, in the **Backstage** view, click on **Options**. The **Project Options** dialog box appears; click on **Advanced**. On **Advanced**, use the scroll bar to see the **Calculations options for this project**, and check the option **And Move start of remaining parts back to status date**.
3. For task **28**, in the **% Comp.** column, type or select **60%**. If a **Planning Wizard** window appears, select **Continue**. **Move the task to start before the project start date** and click **OK**.

Now, you will get both the correct EVM calculations and the dynamic schedule approach. The results are:

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Jan 11, '15			Jan 18, '15		Jan 25, '15		Feb 1, '15		Feb 8, '15		Feb 15, '15			
F	M	T	S	W	S	T	F	M	T	F	S	W	F	M	T	S	W	F	S	T	F
28 Case b	Jan 15 '15	NA	60%	0%	12 days	8 days	60%														

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
28 Case b	\$8,000.00	\$9,600.00	\$9,600.00	50.00%	60.00%	60.00%	\$1,600.00	\$0.00	1.2	1	\$16,000.00	\$16,000.00	\$16,000.00	(\$0.06)	2 days

Task 29. Case c.

1. In the **Tracking Gantt** view, select **Tracking** table (on the **View** tab, in the **Data** group, click **Tables** and click **Tracking**).
2. For task **29**, in the **Act. Start** column, type or select *Mon26/Jan/15*. Note how the bar is updated.
3. For task **29**, in the **Act. Dur.** column, type or select *5 days*. Note that the Remaining Duration is updated to *15 days*, and the **% Complete** is calculated to **25%**.



We highly recommend that you update task progress as we did for the Case c task. It is simple, easy, and you can forget all of the switches and conditions explained for Cases a and b. The EVM calculations are right, and the dynamic schedule approach is applied.

Task 30. Case d.

1. In the **Tracking Gantt** view, select **Tracking** table (on the **View** tab, in the **Data** group, click **Tables** and click **Tracking**).
2. For task **30**, in the **Act. Start** column, type or select *Mon19/Jan/15*.
3. For task **30**, in the **Act. Dur.** column, type or select *10 days*, and in the **Rem. Dur.** column, type or select *5 days*. Note the **% Complete** is calculated to *67%*.

Again, this is an easy way to update a task and all the calculations are correct.

Task 31. Case e.

1. In the **Tracking Gantt** view, select **Tracking** table (on the **View** tab, in the **Data** group, click **Tables** and click **Tracking**).
2. For task **31**, in the **Act. Start** column, type or select *Mon19/Jan/15*.
3. For task **31**, in the **Act. Dur.** column, type or select *10 days*, and in the **Rem. Dur.** column, type or select *5 days*. Note the **% Complete** is calculated to *67%*. Note how the bar is updated.
4. On the **View** tab, in **Resource Views** group, click on **Resource Sheet**.
5. In the **Resource W2** row, in the **Std. Rate** column, type *110* to update the resource rate.

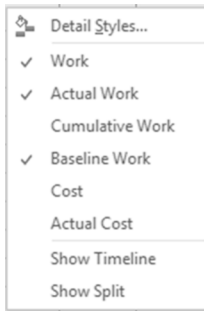
As you can see, this is the best way to update tasks which use a percent of duration completed EV measurement method. The results for cases c, d, and e are shown below. We recommend that you analyze the results obtained and practice the different options with the tool.

Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Jan 18, '15			Jan 25, '15			Feb 1, '15			Feb 8, '15			Feb 15, '15			Feb 22, '15			
							S	W	S	T	F	M	T	S	W	S	T	F	M	T					
29 Case c	Jan 26 '15		NA	25%	0%	5 days	15 days	25%																	
30 Case d	Jan 19 '15		NA	67%	0%	10 days	5 days	67%																	
31 Case e	Jan 19 '15		NA	67%	0%	10 days	5 days	67%																	

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
29 Case c	\$8,000.00	\$4,000.00	\$4,000.00	50.00%	25.00%	25.00%	(\$4,000.00)	\$0.00	0.5	1	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	-5 days
30 Case d	\$8,000.00	\$10,666.67	\$8,000.00	50.00%	66.67%	50.00%	\$2,666.67	\$2,666.67	1.33	1.33	\$16,000.00	\$12,000.00	\$12,000.00	(\$4,000.00)	5 days
31 Case e	\$8,000.00	\$10,666.67	\$8,800.00	50.00%	66.67%	55.00%	\$2,666.67	\$1,866.67	1.33	1.21	\$16,000.00	\$13,200.00	\$13,200.00	(\$2,800.00)	5 days

Task 33. % Complete (Work) task

1. On the **View** tab, in the **Task Views** group, click on **Task Usage**.
2. On the **View** tab, in the **Data** group, click on **Tables** and select **Tracking**.
3. Right click on any part of the time-phase data section, and check **Baseline Work**, **Work**, and **Actual Work** to display these rows:



4. For Resource W1 (task 33), in the **Actual Work** row, type the hours reported:

	18 Jan '15							25 Jan '15						
	S	M	T	W	T	F	S	S	M	T	W	T	F	
Actual Work (hrs)		8	6	2	10	2			8	8	8	4	4	

The Task Usage will look like this:

Task Name	% Comp.	% Work Complete	Phys. % Comp.	Details	Jan 18, '15							Jan 25, '15						
					S	M	T	W	T	F	S	S	M	T	W	T	F	
33 % complete (Work) tasks	44%	38%	38%	Base. Work		8h	8h	8h	8h	8h			8h	8h	8h	8h	8h	
				Work		8h	6h	2h	10h	2h			8h	8h	8h	4h	4h	
				Act. Work		8h	6h	2h	10h	2h			8h	8h	8h	4h	4h	
Resource W1		38%		Base. Work		8h	8h	8h	8h	8h			8h	8h	8h	8h	8h	
				Work		8h	6h	2h	10h	2h			8h	8h	8h	4h	4h	
				Act. Work		8h	6h	2h	10h	2h			8h	8h	8h	4h	4h	

Note that when you update the assignment, the task is also updated. The hours that the resource didn't work were passed to the end of the task in the following work days, as you can see below:

Task Name	% Comp.	% Work Complete	Phys. % Comp.	Details	Feb 8, '15							Feb 15, '15						
					S	M	T	W	T	F	S	S	M	T	W	T	F	
33 % complete (Work) tasks	44%	38%	38%	Base. Work		8h	8h	8h	8h	8h								
				Work		8h	8h	8h	8h	8h			8h	8h	4h			
				Act. Work		8h	8h	8h	8h	8h			8h	8h	4h			
Resource W1		38%		Base. Work		8h	8h	8h	8h	8h								
				Work		8h	8h	8h	8h	8h			8h	8h	4h			
				Act. Work		8h	8h	8h	8h	8h			8h	8h	4h			

The hours were passed to the next workdays because the task is a fixed units type. If the task were fixed duration, the hours would have been prorated in the original 10 remaining days. Of course the EVM calculations would be different.

Now let's review the percent of progress.

In the screen below you can see the columns **% Comp.**, **% Work Complete**, and **Phys. % Comp.**. The calculations of these fields are:

- % Complete = Actual Duration/Duration = 10 days / 22.5 days = 44%
- % Work Complete = Actual Work/Work = 60 hrs / 160 hrs = 38%
- Physical % Complete = You need to enter this percentage

To review the EVM calculations, we inserted columns BCWS (PV), BCWP (EV), and ACWP (AC) in the same **Task Usage** view:

	Task Name	% Comp.	% Work Complete	Phys. % Comp.	BCWS	BCWP	ACWP
33	% complete (Work) tasks	44%	38%	38%	\$8,000.00	\$7,152.83	\$6,000.00
	Resource W1		38%		\$8,000.00	\$6,000.00	\$6,000.00

As you can see, Planned Value (BCWS) is the same in the task and in the assignment, because it is calculated with the baseline information and the status date. Actual Cost (ACWP) is the same also, because it is calculated considering the actual work and the rate of the resource.

The problem is the Earned Value (BCWP): in the assignment it's calculated with the % Work Complete, but in the task it's calculated with % Complete (duration). Because we don't have a uniform distribution of work, the percentages are different.

We consider the EV of the assignment to be correct here, because as of the status date we are behind in ($EV < PV$), although in cost, we are as planned ($EV = AC$). If you analyze the task information, while it seems that you have savings, this is not true. (Note: In the previous screen, PV, EV, and AC are shown as BCWS, BCWP, and ACWP.)



In Project 2013, you can select **% Complete** or **Physical % Complete** to calculate the Earned Value in tasks; we hope that in a future version we can also select **% Work Complete**. To solve the problem, we recommend selecting **Physical % Complete** as the Earned Value Method for the task, and copying the **% Work Complete** of the assignment into the **Physical % Complete** of the task. The result is:

	Task Name	% Comp.	% Work Complete	Phys. % Comp.	BCWS	BCWP	ACWP
33	% complete (Work) tasks	44%	38%	38%	\$8,000.00	\$6,080.00	\$6,000.00
	Resource W1		38%		\$8,000.00	\$6,080.00	\$6,000.00

This is better. The only little problem is that in this case the correct percentage is 37.5%, but Project 2013 first rounds the decimals and then makes the calculation, so we have \$6,080 as EV, instead of \$6,000. While this will have some effect on the rest of the calculation, remember that you need information to help you make the right decisions: this is not an accounting system where you need last decimal precision.

Task 34. % Complete (Units) task.

1. On the **View** tab, in the **Task Views** group, click on **Task Usage**.
2. On the **View** tab, in the **Data** group, click on **Tables** and select **Tracking**.

3. Right-click on any part of the time-phase data section and check **Baseline Work**, **Work**, and **Actual Work** to display these rows.
4. For Resource M1 (task 34), in the **Actual Work** column type 12 (the units reported as received). Note that in the time-phased data section, the Actual Work of the first two weeks was updated, and also the Work for the remaining two weeks. The results are:

Task Name	% Comp.	% Work Complete	Phys. % Comp.	Act. Work	Details	Jan 18, '15					Jan 25, '15									
						S	M	T	W	T	F	S	S	M	T	W	T	F		
34 % complete (Units) tasks	56%	56%	0%	0 hrs	Base. Work Work Act. Work	0h														
Resource M1		60%		12 Units	Base. Work (Units) Work (Units) Act. Work (Units)		1	1	1	1	1	1		1	1	1	1	1	1	
						1.2	1.2	1.2	1.2	1.2	1.2		1.2	1.2	1.2	1.2	1.2	1.2		
						1.2	1.2	1.2	1.2	1.2		1.2	1.2	1.2	1.2	1.2	1.2			

Task Name	% Comp.	% Work Complete	Phys. % Comp.	Act. Work	Details	Feb 1, '15					Feb 8, '15									
						S	M	T	W	T	F	S	S	M	T	W	T	F		
34 % complete (Units) tasks	56%	56%	0%	0 hrs	Base. Work Work Act. Work															
Resource M1		60%		12 Units	Base. Work (Units) Work (Units) Act. Work (Units)		1	1	1	1	1	1		1	1	1	1	1	1	
						1	1	1	1	1	1		1	1	1	1	1	1		

Note that the 12 units entered as Actual Work were divided in the ten first days, reflecting 1.2 units per day in the Actual Work row in the time-phased data. Because there are 8 remaining units, the Work row reflects 1 unit per day in the next 8 days. It is also important to note that because we have a material resource, there is no work reflected in the task row, and the **% Work Complete** for the task cannot be calculated. So Project 2013 copies the **% complete** value to the **% Work Complete** of the task; in this case it is 56%.

For EVM calculations, we have the same problem as with the previous task we analyzed: the **% Complete** is different from the **% Units Complete** (that is the **% Work Complete** of the assignment). The solution again is to select **Physical % Complete** as the Earned Value Method in the task and copy the **% Work Complete** of the assignment row into the **Physical % Complete** of the task row. If you do this, the **Tracking Gantt** view and EV table obtained are as follows. We've included the **% Complete (Work)** task and **% Complete (Units)** task:

Task Name	% Comp.	% Work Complete	Phys. % Comp.	Jan 18, '15		Jan 25, '15		Feb 1, '15		Feb 8, '15		Feb 15, '15		Feb 22, '15			
				F	S	T	T	S	M	W	F	S	T	T	S	M	W
33 % complete (Work) tasks	44%	38%	38%	38%													
34 % complete (Units) tasks	56%	56%	60%	60%													

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC [ACWP]	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
33 % complete (Work) tasks	\$8,000.00	\$6,080.00	\$6,000.00	50.00%	38.00%	37.50%	(\$1,920.00)	\$80.00	0.76	1.01	\$16,000.00	\$15,789.47	\$16,000.00	(\$210.53)	-2.5 days
34 % complete (Units) tasks	\$8,000.00	\$9,600.00	\$9,600.00	50.00%	60.00%	60.00%	\$1,600.00	\$0.00	1.2	1	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	2 days

Task 35. % Complete (Physical) task.

1. Go to **Tracking Gantt** view. Double-click on task 35.
2. In the **Task Information** dialog box, click the **Advanced** tab.
3. For **Earned Value Method**, select **Phys. % Comp.**, and click **OK**.
4. For task 35, in the **Phys. % Comp.** column, type 40%. This updates the EVM information.

5. For task **35**, update the **Actual Start**, **Actual Duration**, and **Remaining Duration**. This updates the schedule information.



Selecting **Phys. % Comp.** as the EV method for a task will update the task just with this percentage, but what will be the status of the schedule and the impact of this task in the overall project? We highly recommend to keep updating the schedule information to keep it dynamic.

Now, reviewing the EVM information in this example, you will find this:

Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	PV%	EV%	AC%	SV	CV	SPI	CPI	BAC	EAC	Cost	VAC	VACT
35 % complete (Physical) tasks	\$0.00	\$6,400.00	\$0.00	0.00%	40.00%	0.00%	\$6,400.00	\$6,400.00	0	0	\$16,000.00	\$16,000.00	\$16,000.00	\$0.00	-2 days

Note that the information in BAC, EAC, and Cost are correct, but there is no information in the rest of the fields. Remember we assigned a Cost Resource Type to this task, and in Project 2013, Cost Resources are not included in EVM calculations. This is a big issue for us, so we are forced to recommend that you avoid using Cost Resources in your project if you want to manage it with EVM. We hope that a future version of the software will include Cost Resources for EVM calculations.

To solve the problem in our task, we should reassign a new material resource, or assign a fixed cost to manage the % Complete (Physical) EV measurement method.

