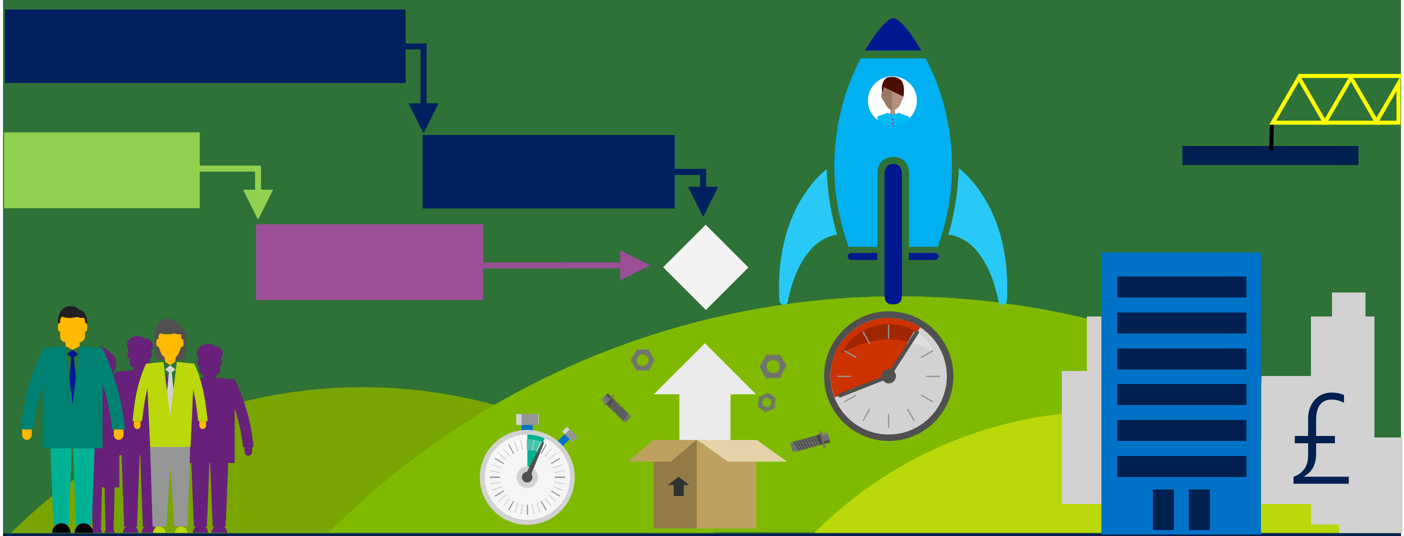
Microsoft Office Training Series

Project

Advanced



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Rev 2-1

Welcome to your Project Advanced Training Course

- Understand and use resource levelling
- Monitor project status using graphical indicators
- Create and use custom fields
- Create custom filters and groups
- Create new tables and views
- Analyse project data with Visual Reports
- Record and use macros to automate repetitive tasks
- Create templates and manage files with the Organizer

Contents

Resource Leveling

Resource leveling can be a helpful tool when scheduling individual and multiple resources in projects. Leveling reschedules tasks to resolve over allocations. It can be useful in projects that don't have many task dependencies.

By setting priorities to tasks it is possible to control and prioritize which tasks are the to be scheduled first.

Here is a simple example to help illustrate how leveling can schedule tasks. Suppose you have a set of tasks for developing documentation as follows:

	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Develop Documentation**	**10 days**	**Wed 27/01/16**	**Tue 09/02/16**		
2	Develop Training Materials	10 days	Wed 27/01/16	Tue 09/02/16		Simon
3	Develop Operational Document	3 days	Wed 27/01/16	Fri 29/01/16		Simon
4	Print draft documentation	1 day	Wed 27/01/16	Wed 27/01/16		Simon

The tasks are all set to auto schedule. Asigning the same resource (Simon) to each task results in over allocation icon appearing in the indicator column.

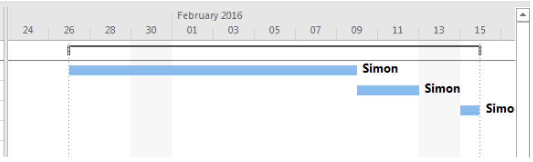
The usual way to overcome over allocations is to link the tasks together with Finish-Start relationships. But leveling offers an alternative if there no clear dependencies between tasks.

Leveling the Entire Project

To schedule these tasks through resource leveling select

Resource, **Level All**

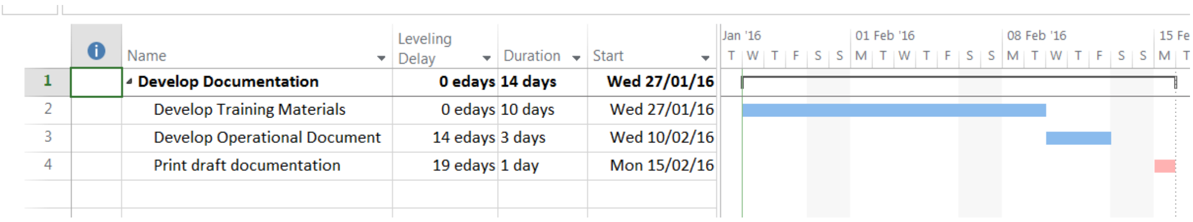
	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Develop Documentation**	**14 days**	**Wed 27/01/16**	**Mon 15/02/16**		
2	Develop Training Materials	10 days	Wed 27/01/16	Tue 09/02/16		Simon
3	Develop Operational Document	3 days	Wed 10/02/16	Fri 12/02/16		Simon
4	Print draft documentation	1 day	Mon 15/02/16	Mon 15/02/16		Simon



This option levels the entire project. Tasks get rescheduled to the first available date that results in no more over allocations. And yet there are no links, lags or constrains added. So how does levelling actually work?

We can see how Project does this rescheduling by looking at the Detail Gantt view.

Right click the View bar, select **More Views**, **Detail Gantt**

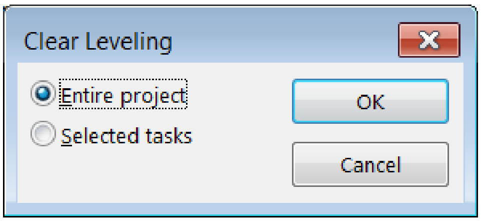


In the Detail Gantt view there is an extra column called Leveling Delay. This is a delay applied to a task measured in elapsed time (edays). This elapsed time represents a date range including non-working days (weekends). In the example a leveling delay of 14 edays for task 3 causes it to be delayed by 10 working days. Note that as there are no dependencies the only critical task coloured pink is the final task.

Clearing Leveling

When you choose the Clear Leveling option the leveling delay values are reset to zero edays.

Select **Resource**, **Clear Leveling**



Choosing Entire project sets the Leveling Delay to zero for all tasks.

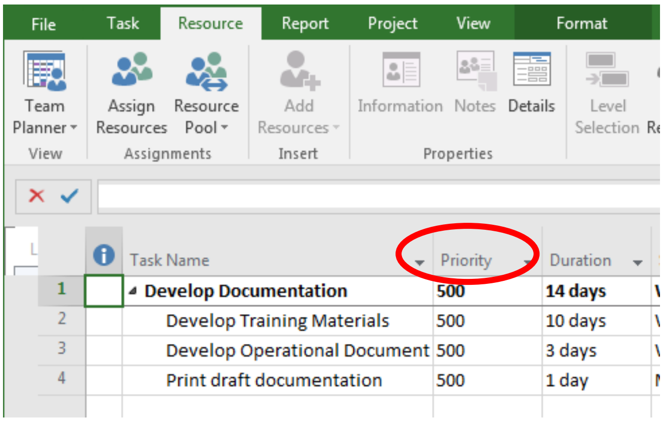
Resource Leveling by Priority

To control which tasks are levelled you can set a task priority value for each task. Levelling the project then schedules tasks in order of priority. High priority tasks are scheduled to be carried out before low priority tasks. A value of between 0 and 1000 can be set where 1000 is the highest priority. The default priority value for task is 500.

To set a task priority select **Task**, **Information**, **Priority**

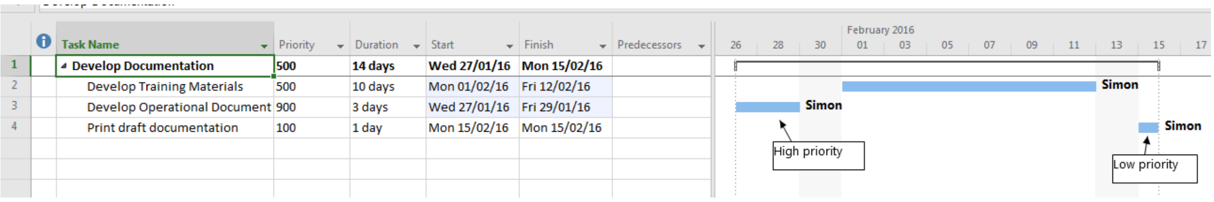
Enter a value for the priority.

Inserting a priority column into the Gantt Chart makes it easier to update and view priority values.



	Task Name	Priority	Duration
1	Develop Documentation	500	14 days
2	Develop Training Materials	500	10 days
3	Develop Operational Document	500	3 days
4	Print draft documentation	500	1 day

Selecting **Level All** schedules tasks to take place in order of priority. (Highest first)

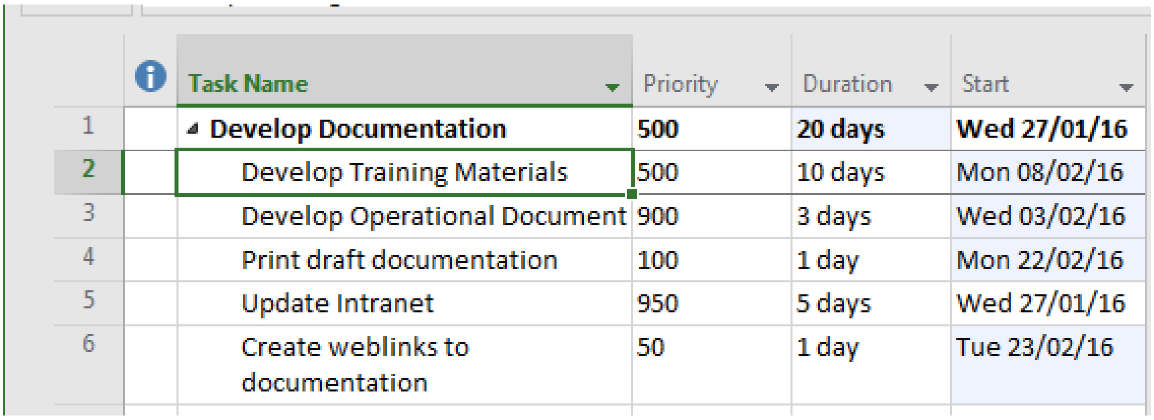


	Task Name	Priority	Duration	Start	Finish	Predecessors
1	Develop Documentation	500	14 days	Wed 27/01/16	Mon 15/02/16	
2	Develop Training Materials	500	10 days	Mon 01/02/16	Fri 12/02/16	
3	Develop Operational Document	900	3 days	Wed 27/01/16	Fri 29/01/16	
4	Print draft documentation	100	1 day	Mon 15/02/16	Mon 15/02/16	

Sorting by Priority

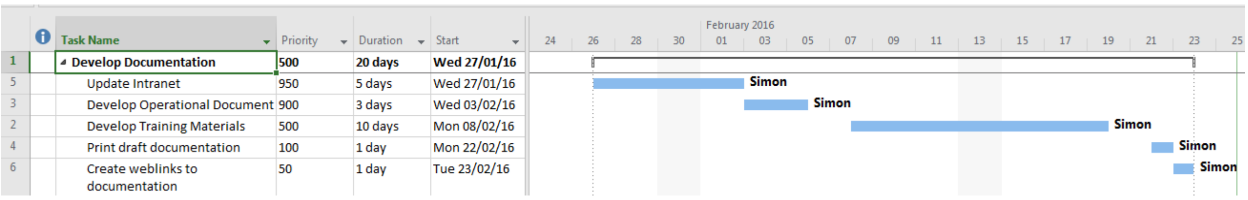
After Leveling by priority it makes sence to resequence the tasks in the order that they are to be performed. This can be done by sorting by the Priority field from largest to smallest.

In the exmple suppose two more tasks added, one with a high and one with a low priority. After adding these tasks and assigning them to the same resource the levelled plan looks as follows.



	Task Name	Priority	Duration	Start
1	Develop Documentation	500	20 days	Wed 27/01/16
2	Develop Training Materials	500	10 days	Mon 08/02/16
3	Develop Operational Document	900	3 days	Wed 03/02/16
4	Print draft documentation	100	1 day	Mon 22/02/16
5	Update Intranet	950	5 days	Wed 27/01/16
6	Create weblinks to documentation	50	1 day	Tue 23/02/16

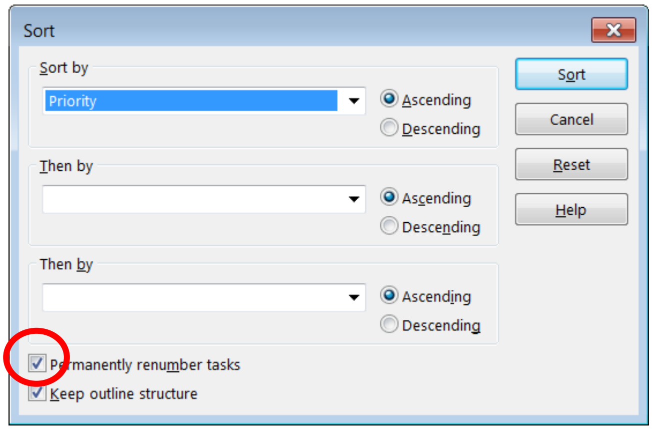
It makes sense now to sort the plan either by Priority or by Start Date.



Note that to sort by Priority and to also keep the task Id numbers in sequence select **View**, **Sort**, **Sort By**

Choose to sort by Priority

Check that **Permanently renumber tasks** is ticked before selecting Sort.



Leveling Multiple Resources

If project leveling is to be used to schedule work we should see how well it handles multiple resources. Also can one resource be levelled within multiple assignments?

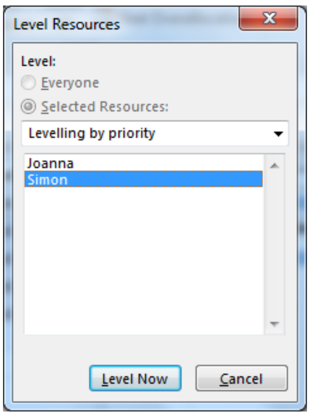
Suppose the leveling is cleared and an extra resource Joanna replaces Steve to develop the documentation.

It is possible now to level the project for a specific resource.

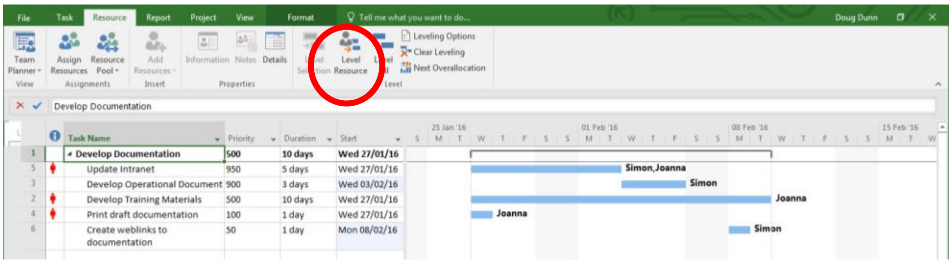
Leveling one resource

To level the project just for one of the resources

Click **Resource**, **Level Resource**



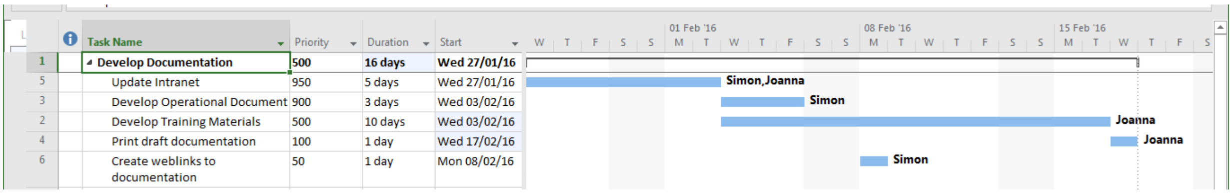
Choosing Simon schedules his tasks according to their priority.



Note that Joanna is over allocated because her tasks have not been levelled.

Leveling all resources

To level multiple resources at one time, select the **Level All** rather than Level Resource.



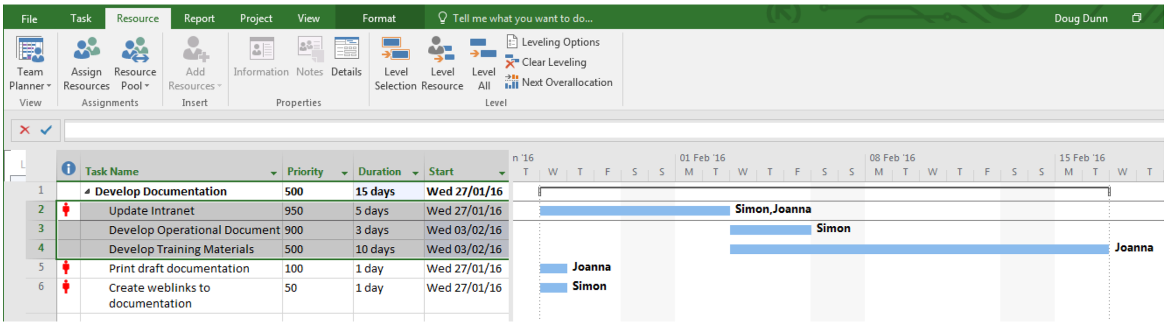
There are no over allocations and the project finishes sooner with Joanna on board (16 days rather than 20).

Level Selection

Leveling can be also applied to specific selected tasks by selecting Level Selection.

In this example, select the first 3 tasks and click

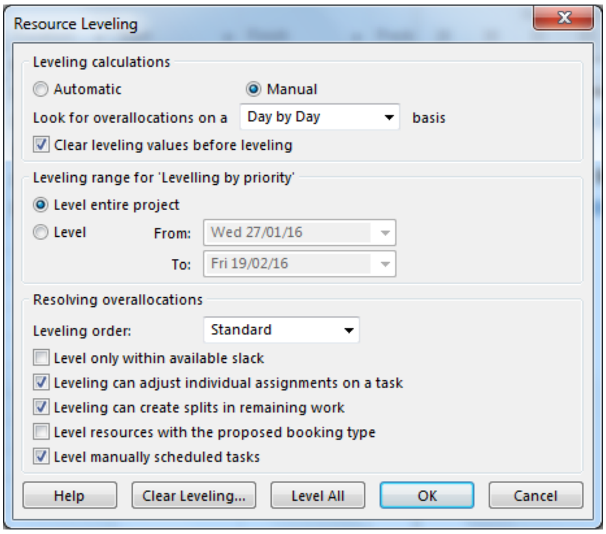
Resource, **Level Selection**



This time only the selected tasks are levelled while the others are not.

Leveling Options

When Project levels resources there are several settings that can be set that control the way the leveling is calculated. These can be viewed and set from **Resource**, **Leveling Option**.



Leveling Calculation – Set to Manual for most cases. Choosing Automatic reschedules all tasks whenever a change is made.

Leveling Range – It can Apply to the entire project or specify a date range.

Level From To – Setting as Priority, Standard will take into account the priority value before slack. Setting to ID ignores task Priority.

Level only within available slack – When a project contains linked tasks Leveling is restricted to tasks with slack. (See Format, Slack to show on the Gantt Chart). Ticking this may result in some over allocations not being resolved.

Leveling can adjust individual assignments on a task – means the entire team does not have to work together on tasks.

Leveling can create splits – untick if you don't want tasks split due to Leveling

Level manually scheduled task – untick if you want to not level manually scheduled tasks.

OK – keeps the settings without Leveling the project.

Level All – Levels all the resources in the project

Clear Leveling – you will be prompted for selected asks or the entire project.

Custom Calculated Fields

In project there are a number of custom fields that can be used to store a variety of entries. The name of the field gives an indication as to what the field can be used for.

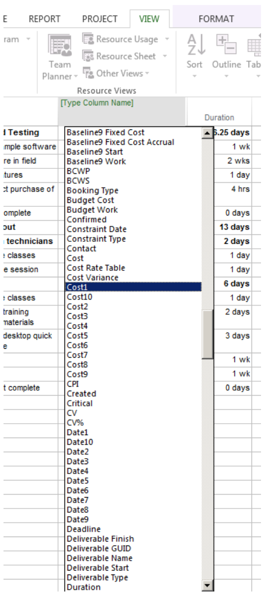
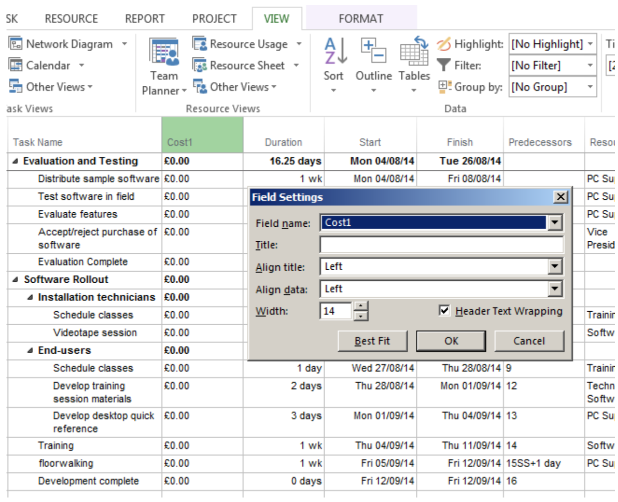
The following are just some of the available options; Cost1-10, Date1-10, Duration1-10, Finish 1-10, Flag1-20, Number1-20, Outline Code1-10, Start1-10 and Text1-30.

Duration 1, 2 and 3, Start 1, 2 and 3 and Finish 1, 2 and 3, should not be used as these are used during pert analysis and any values that are entered into these fields will be removed.

Creating Custom Fields

To add a custom field to a table, ensure that the table is displayed on screen, select the column to the right of where you want the new field to be displayed. Then choose

Right Click, **Insert**, **Column**

A different title can be entered to act as a display name.

Right click in the column heading for Cost1 and select

Field Setting

Choose the Title and data alignment and set the width of the column (the width can always be changed using the mouse at a later date).

When you click on OK the new column or field will be on display.

This field can have suitable values typed in as required.

Calculated Custom Fields

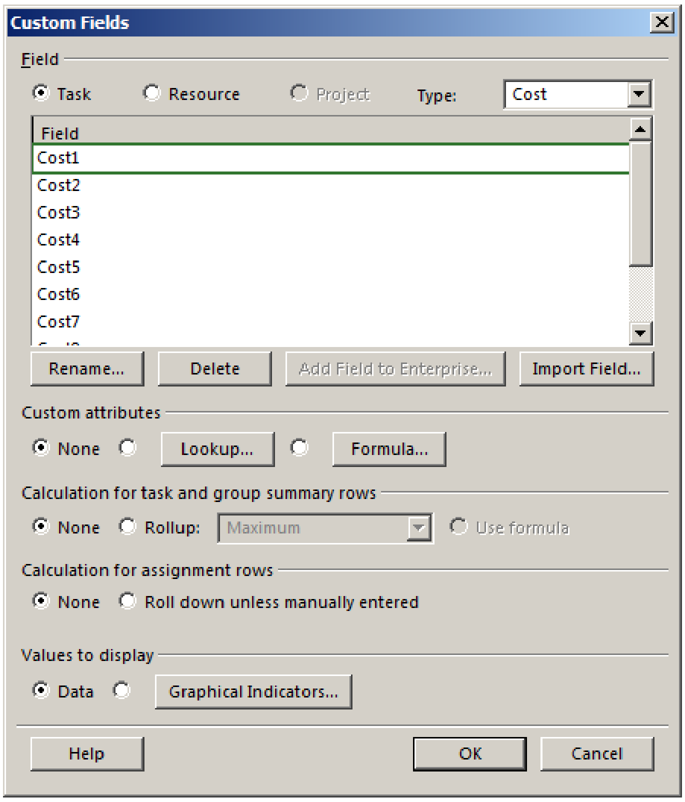
Once a custom field has been added to a table the data can be added to this field automatically using a formula.

To create a Calculated Field, ensure that your insertion point is somewhere within the custom field column. Choose

Tools/ customize / fields

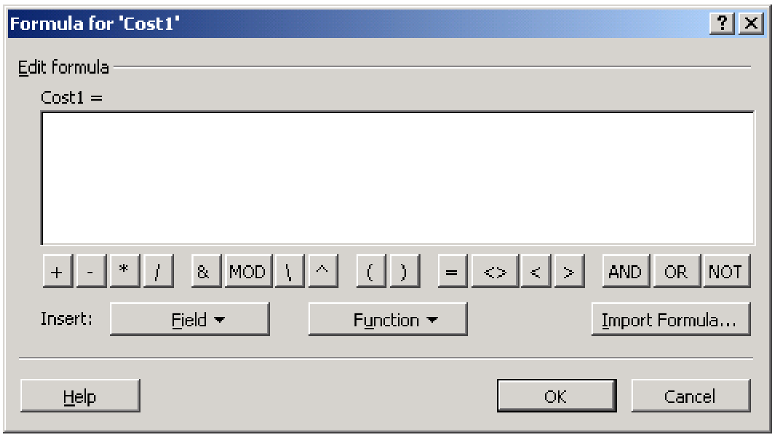
Right mouse button

Right click on field name and choose **Custom Fields**.



In the Custom fields dialogue box a number of items can be built. Initially the formula option will be explored.

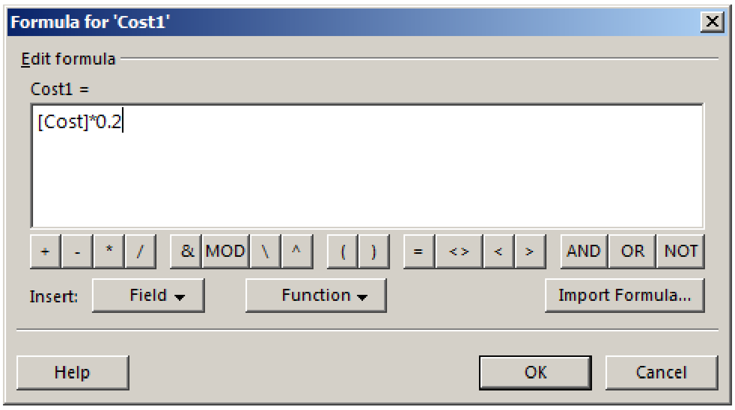
Ensure the field that was inserted is selected in the list and click on the **Formula** button.



The formula is able to use existing fields and a number of functions in order to generate a value for this custom field.

Example

The Cost1 field is going to show a retention of 20%. The field button is used to insert the cost field and then this is multiplied (*) by 0.2. Project does not accept the use of the percentage (%) so all percentages must be entered as a decimal.



Once the formula is built Click on OK.

A message may appear on screen; this is warning that any existing values in the field Cost1 will be replaced with the outcome of this formula.

Click Ok to return to the table.

In the table a set of values will have been created and entered into the Cost1 Field.

Functions

An extensive list of functions exists in project to assist in the creation of more advanced calculations. Refer to the help files for a definitive list of what is available. Two useful functions to be aware of are iif and projectdatediff.

IIf – this is a logical expression enabling a condition to be tested and a true and false outcome to be displayed.

Projectdatediff – this is a function designed to give a numerical difference between two dates.

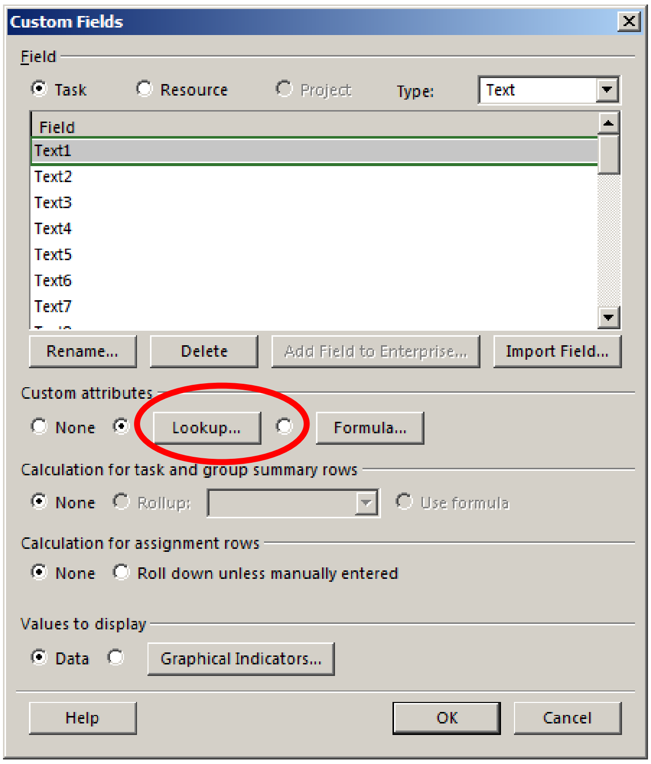
Creating a Lookup field

A Lookup list is a list of entries that can be chosen using the drop down triangle. This is a good method of ensuring consistency and speeding up data entry.

To create a Lookup field start by inserting a custom field with a suitable data type for the value list that will be created. (For example choose Text1 for list of text entries). Then select

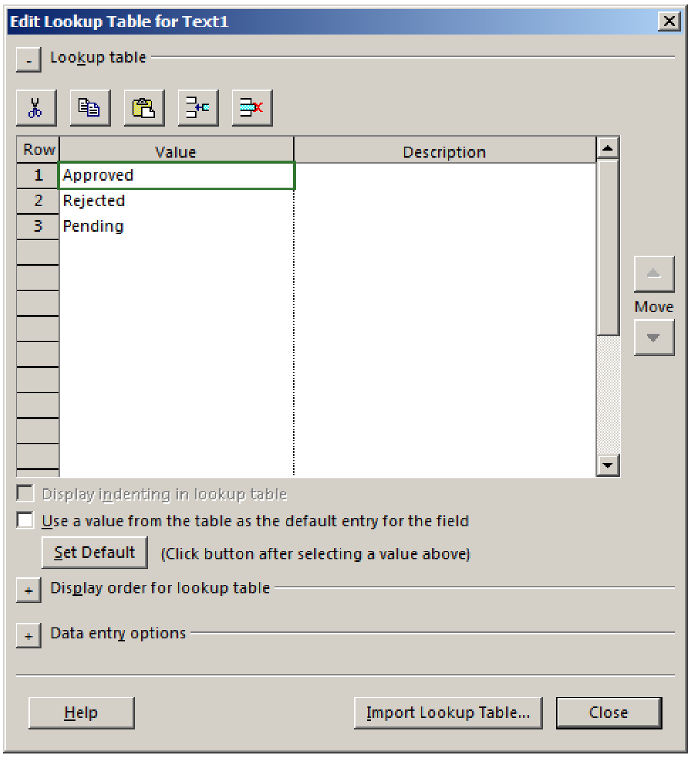
Project, **Custom Fields** (or right click, Custom Fields)

Ensure that you select custom field you inserted in the table then click the **Lookup** button.



Enter the values that are needed putting one on each row. If one of these values should be the default entry, ensure it is selected, tick the option to **Use a value from**

the table as the default entry and click the **Set Default** button. This value will then be automatically entered when new tasks are inserted into the project plan.



Under **Data entry options**, you allow additional items not in the list to be added. The normal setting is that items not in the list cannot be entered.

Alternatively, additional items can be entered into the field which can be added to the value list if this is appropriate.

When you click on Close the Lookup list will be created for the custom field.

Renaming the Lookup Field

From the Custom Field dialog, you can rename the Text1 field to make it easier to work with. To do this, select the Text1 field and click **Rename**.

Example

A custom field has been added to the cost table to show whether the costs have received financial approval. This field, Text1 has had a title entered of Financial Approval and a value list created to populate the field with three possible values; Approved, Rejected, Pending. Pending has been set as the default value.

In the extract of the table shown below the Financial Approval Field can be seen. Pending is the default value and will be entered automatically for every task that is setup. This can be changed to either Approved or Rejected by clicking into the cell and using the drop down triangle that will be shown.

	Task Name	Fixed Cost	Fixed Cost Accrual	Financial Approval
1	Start of project	£12,000.00	Prorated	Approve
2	**Define Objectives**	**£200.00**	**Prorated**	**Pending**
3	budget	£340.00	Prorated	Pending
4	Hardware	£367.00	Prorated	Rejected
5	Review Timescales	£3,456.00	Prorated	Pending
6	Board of Approval	£209.00	Prorated	Pending
7	**Building**	**£340.00**	**Prorated**	**Approved**
8	**health and safety re**	**£367.00**	**Prorated**	**Pending**
17	**Construction**	**£3,456.00**	**Prorated**	**Pending**
18	lay foundations	£209.00	Prorated	Pending
19	construct shell	£340.00	Prorated	Pending
20	electrical work	£367.00	Prorated	Pending
21	decorating	£3,456.00	Prorated	Pending
22	Building Complete	£209.00	Prorated	Pending
23	**Installation**	**£340.00**	**Prorated**	**Pending**
24	Furniture	£367.00	Prorated	Pending
25	Computer Hardware	£3,456.00	Prorated	Pending
26	**software setup**	**£209.00**	**Prorated**	**Pending**
27	Load	£340.00	Prorated	Pending
28	Test	£367.00	Prorated	Pending

Using Custom Indicators

Custom indicators are used to provide clear and simple ways of looking at a field's value, the values themselves will not be displayed, instead an icon is on show. They can only be created for custom fields although these can be based on an existing field. For example, a traffic light system could be used to show whether a task is currently running to the baseline schedule.

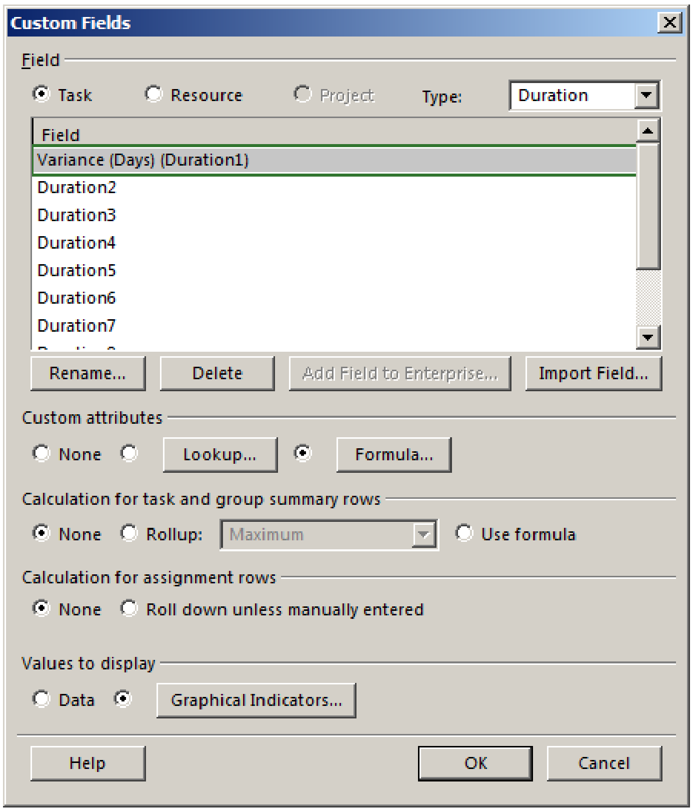
	Task Name	Variance (Days)	Duration	Start
	Office Move Project		**63.5 days**	**Mon 03/08/1**
	Secure New Site for Head Office		**35 days**	**Mon 03/08/**
✓	Authorise Budget		0 days	Mon 03/08/
✓	Research Possible Sites		4 wks	Mon 03/08/
✓	Negotiate Lease		3 wks	Tue 01/09/
	Sign Contract		0 days	Mon 21/09/
✓	Set Date for Move		0 days	Mon 21/09/
	Prepare New Site		**24 days**	**Wed 23/09/**
✓	Site Meeting		0.5 days	Wed 23/09/
	Prepare Plans		1 wk	Wed 23/09/
	Authorise Planned Changes		1 wk	Wed 30/09/
	Install Partitioning		1 wk	Wed 14/10/
	Install Computer And Telephone		2 days	Mon 19/10/
	Decorate		1 wk	Mon 19/10/

Creating a Custom Indicator

Insert a custom field – use the data type that is appropriate to the values that will be stored in the field. For example, suppose you want to know whether the duration of a task is over or under the planed (baseline) duration. In this case you will need to customise a Duration field.

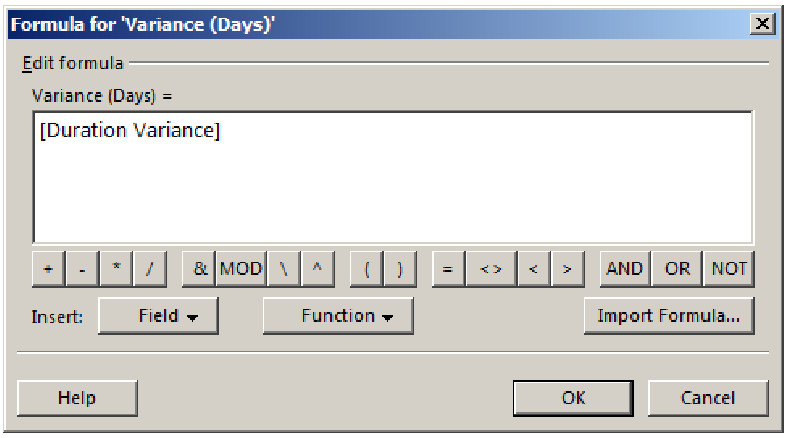
Select **Project**, **Custom Fields**

Choose the **Duration** from the **Type** list and select Duration1.



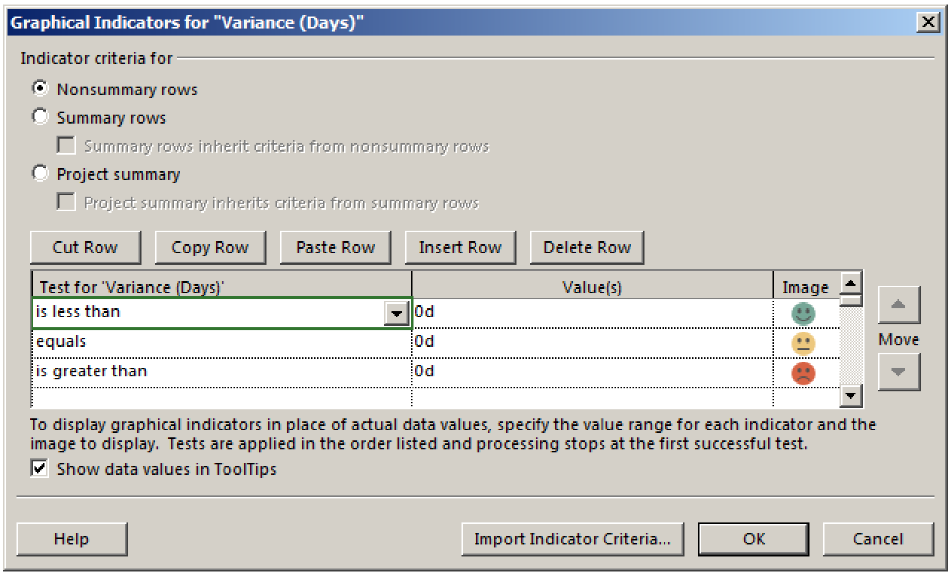
Click **Rename** and change the Duration1 field name to something more meaning full such as Variance (Days).

Decide how the field will be populated with data: Will the values be typed, or created using a formula or from a Lookup list? Either of these options can be used when working with a graphical indicator. In this example click **Formula** and type the following (or select Field, Duration, Duration Variance). Click OK to apply this formula.



Defining the Graphical Indicators

In the same customize fields dialog box now click the **Graphical Indicators** button.



Duration Variance is the Actual Duration – Baseline Duration.

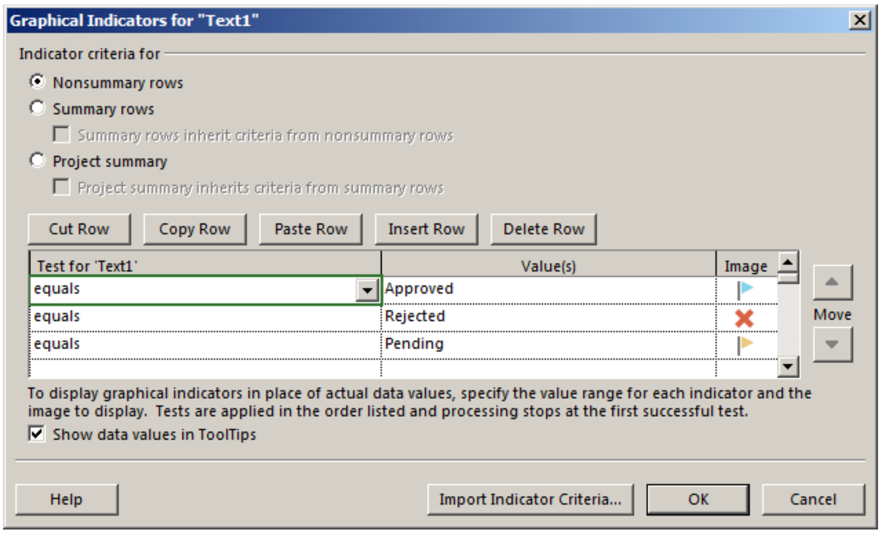
So a value of less than zero for this field indicates that the task duration is less than the baseline duration. Choose a green image in this case.

A value of duration variance greater than zero could be set to show red image indicator. All tasks with a zero duration variance display as a yellow image.

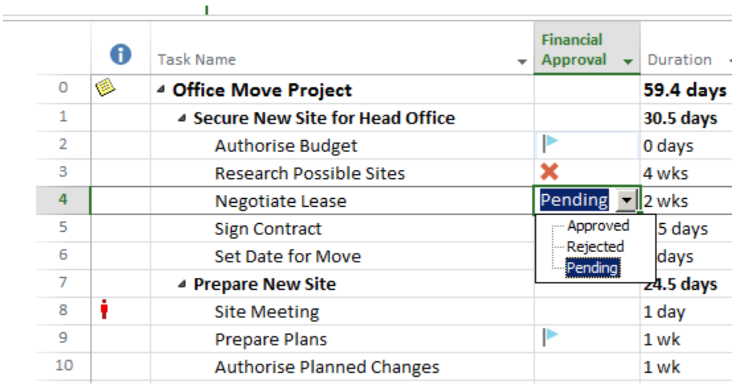
Alternatively delete the yellow criteria if you prefer to display with the sheduled duation without an image icon.

After selecting OK insert the Duration1 field into the Gantt view to see the graphical indicators. Any deviation in a task's duration from the baseline will now be clearly seen from the graphical indicators.

Another example is to set a graphical indicator for the Lookup field Financial Approval created earlier. The exact amount of variance in days can be viewed by hovering the mouse over the graphical indicator.



Values still be chosen from the lookup list but they are displayed as an icon rather than as text values.



Inserting Graphical Indicators can help project managers quickly identify issues causing delays or overspending when updating projects. They are similar to the way Project identifies tasks where a resource overallocation by displying a red image in the indicator column. See row 8 in the above example.

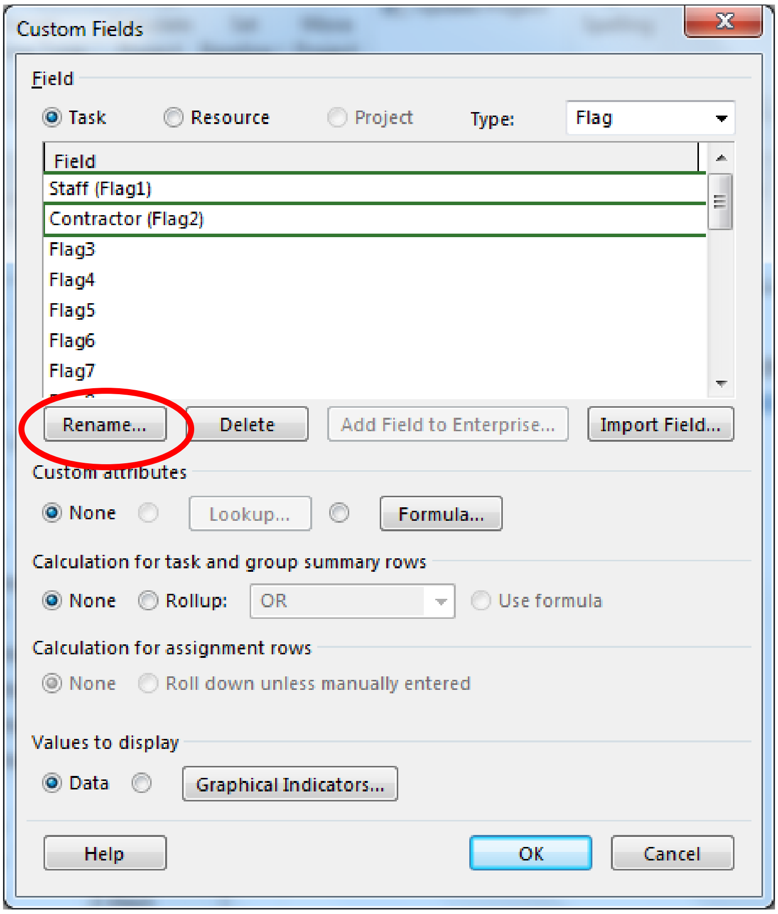
Automatic formating with flag fields

Calculated fields can be used to format the Gantt Chart automatically by making use of Flag fields. For example, suppose you wish to automatically colour the task bars depending on which Resource Group is assigned. Staff could be, say, green and contractors are orange. This might help to distingish internal fom external work to be performed on a project. There are several steps to create auto formating:

Step 1

Create Flag fields for each different resource group (colour)

Select Project, Custom Fields



Choose Flag for the field type then rename Flag1 to Staff and Flag2 to Contractor.

Step 2

Write a formula for each flag field

Click the **Formula** button for Flag1 and type the following:

[Resource Group] = "Staff"

Press OK. This will set Flag1 to Yes if the Resource Group field is Staff.

Repeat the process for the next flag field by typing the formula for Flag2:

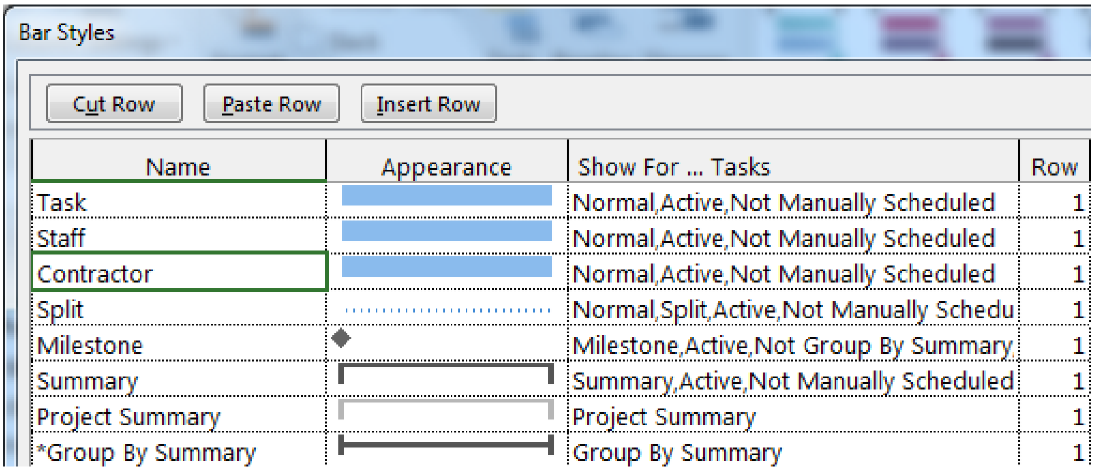
[Resource Group] = “Contrator”

Press OK and OK again to close the custom field dialog.

Step 3

Now to colour the task bars according to Flag value:

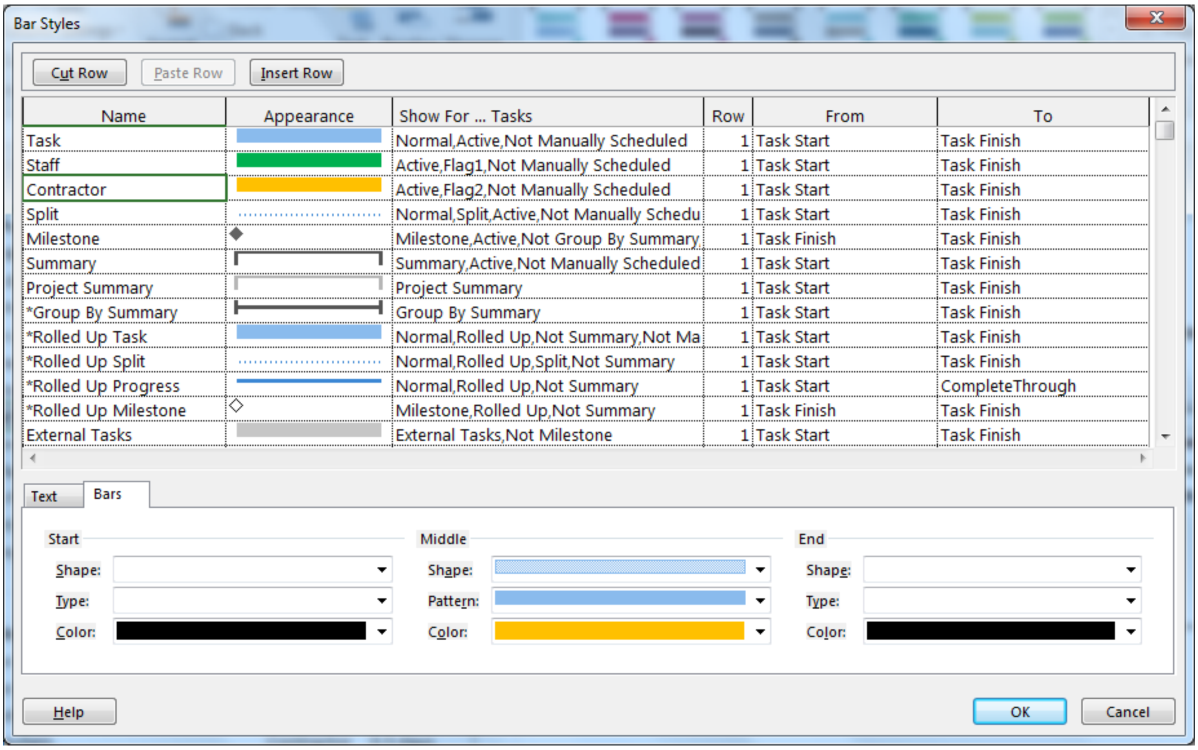
Select **Format**, **Bar**, **Bar Styles**



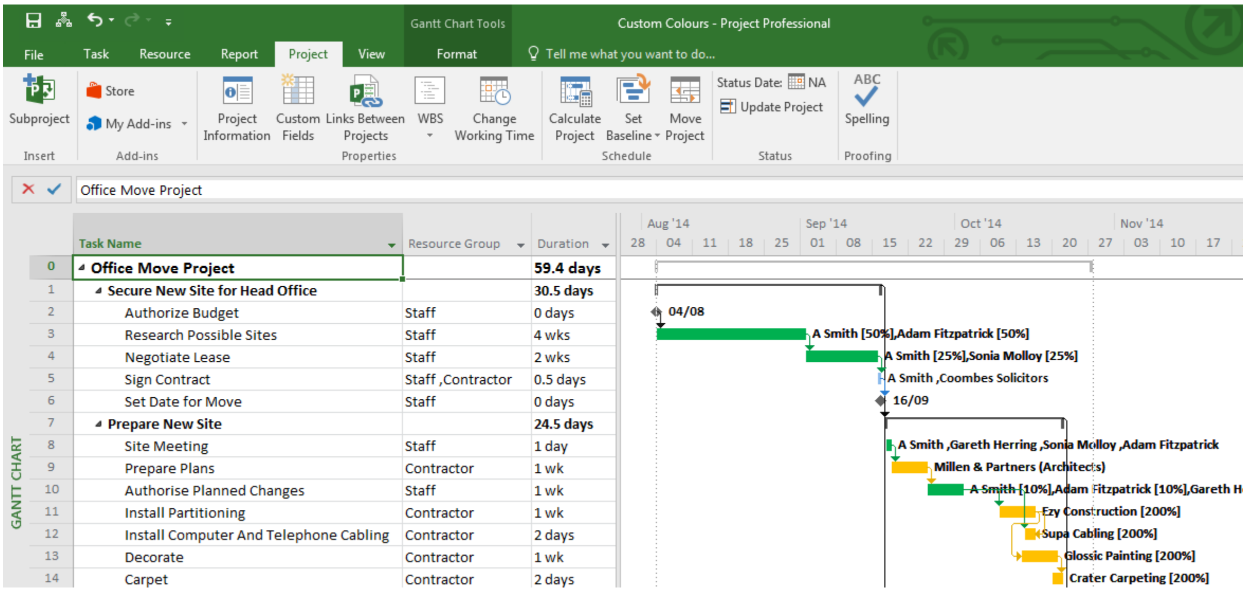
Select the first row for Task and click **Cut Row** then **Paste Row** 3 times. Then name the second row Staff and the third row Contractor.

For Staff change the middle bar colour to green and in in the **Show For … Tasks** column type replace **Normal** for **Flag1**.

Repeat for the Contractor row choosing orange for the colour and replacing Normal for Flag2.



When you press OK the Gantt Chart should be coloured according to Resource Group. The Resource Group field has been inserted for checking purposes but can then be hidden.



Note that task 5 is still blue as it is asigned to both Staff and Contractor. Also that the Resource Group filed cannot be edited directly from the Gantt Chart. It will change only according to the Resource Names assignment.

Filters and Groups

A filter is a tool for determining which tasks or resources are displayed based on the criteria contained within the filter. While a filter is applied other data will be temporarily hidden. When a highlight filter is applied all tasks or resources are displayed, with tasks or resources that match the filter criteria highlighted using font settings, for example a different colour.

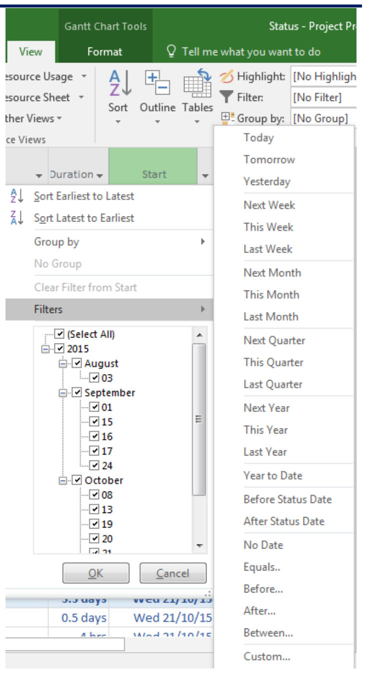
Project contains a large number of standard filters that can be applied including an auto filter. Custom Filters can be created to meet specific user's requirements; these are created by specifying one of more field values that must be matched for a task or resources to be selected for display.

An interactive filter can be created which require the user to supply one or more values as the filter is being run.

Filters can either be used on task or resource views.

Auto Filters are the simplest and quickest form of filters, when applied all columns in the table on show will have a downward facing triangle enabling a menu to be displayed containing values to be chosen to act as a criterion. Multiple criteria can be added by choosing values from more than one column.

Applying an AutoFilter



Project now makes filtering of all Tables available by default. The downward facing triangles alongside each field name is used to filter data is on display.

Example

Click on the triangle alongside the Start field

Choose **Filter** and filter by one of the predefined options. Tasks starting today, tomorrow, this week, next week, this month or next month.

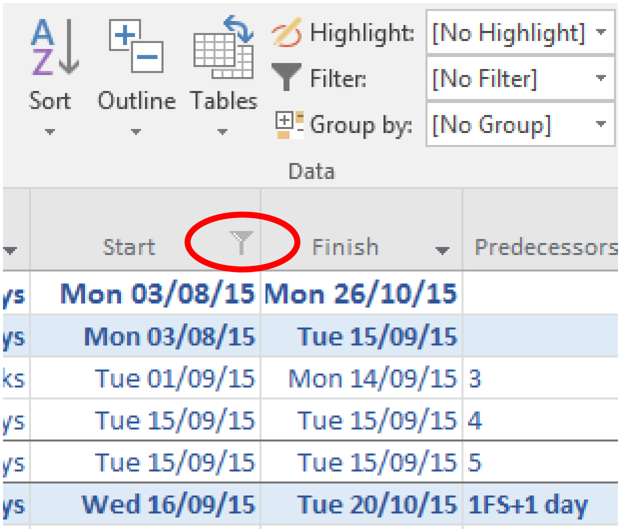
Alternatively deselect **Select All** to choose specific days or months.

Additional criteria can be applied to other fields without removing the first criteria, this enables the data on display to be exactly what the user needs to display. When more than one field is used to specify criteria the criteria are applied together – all of them must be true for a task or resource to be displayed.

Example

On the Summary table the tasks could be filtered by both cost and start fields to enable information to be displayed about costs for a particular time period.

When a filter has been applied, the triangle next to the filtered field is replaced by a filter icon.



To remove a filter

To clear a filter for one field, click back on filter icon and choose the Clear Filter from option.

Alternatively, to clear filters on every field press function key **F3**

All tasks will then be displayed and AutoFilters will still be turned on.

Turning off/on AutoFilter

When opening projects that were created in older versions of MS Project (prior to Project 2010) you may find that the Autofilter buttons are not showing. To display them again select

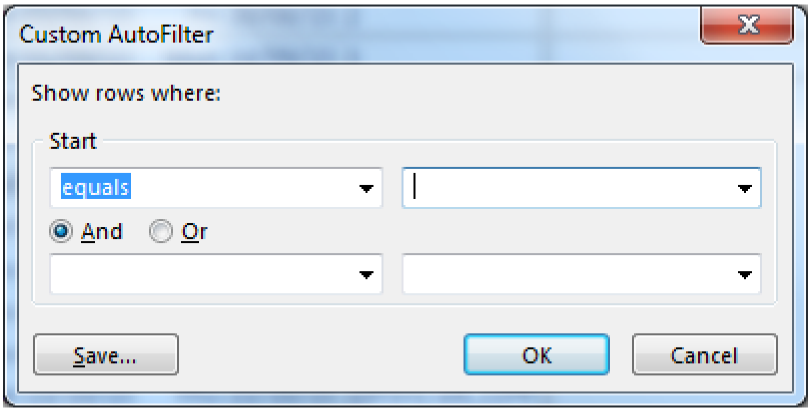
View, **Filter**

Display AutoFilter from the dropdown list.

Custom AutoFilters

A custom AutoFilter enables multiple criteria to be specified for one field.

To create a custom filter, click the filter triangle, choose **Filter**, **Custom** The dialogue box below displays.



On the left choose the test that will be applied to the data, for example equals, and then set the value on the right.

A second criteria is then entered in the same way. In between the two criteria either And or Or must be set.

- Choosing And will mean that both criteria has to be true for a task or resource to be displayed.
- Choosing Or will mean that either criteria can be true for a task or resource to be displayed.

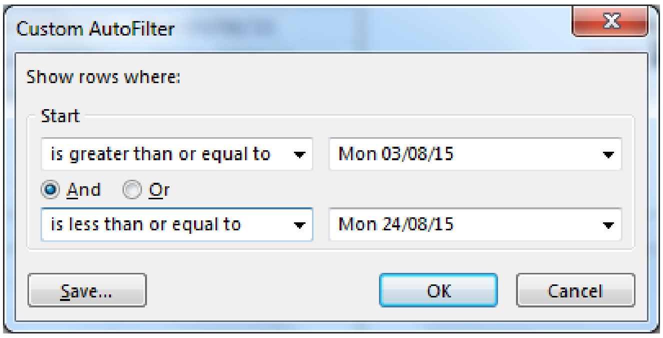
Click OK to apply the custom filter.

To review the criteria that was entered, use the same field and click on Custom again and the criteria will still be on show in the dialogue box.

This filter can be saved using the **Save** button in the bottom corner of the custom dialogue box, the filter criteria will then be displayed in a **Filter Definition** area and this can be amended and a name added. Once saved a filter can be reapplied at any point.

Example

Working on the entry table a custom filter could be created to display tasks starting between two dates as shown below.

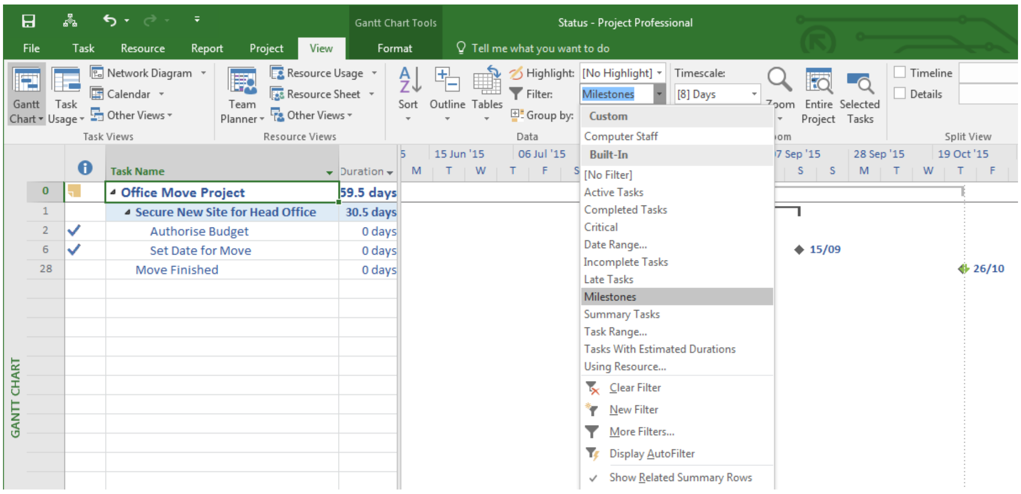


To apply existing filters

Work in the view which you want to apply the filter to.

Select **View**, **Filter**

Choose a filter from the list. For example, Milestones.



Other useful filters include Completed Tasks, Incomplete Tasks, Critical Tasks.

Click More Filters to see others or to create new custom filters.

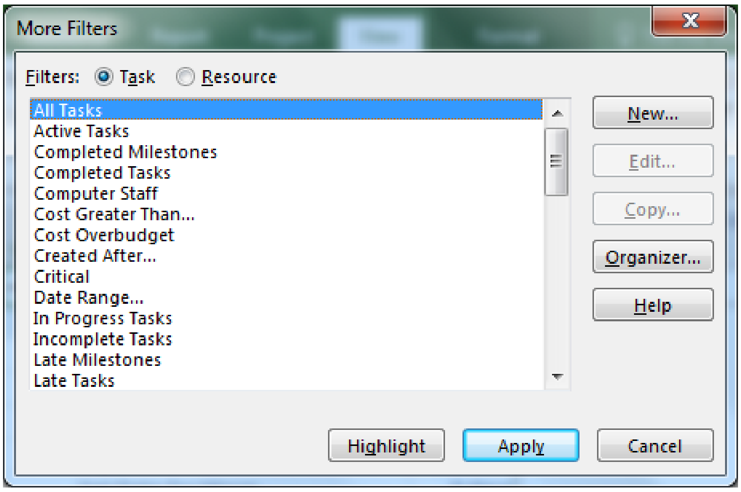
The names of saved Custom filters also appear at the top of the Filter list.

Choose [No Filter] to remove the filter or press **F3**.

Creating and Modifying Filters

To create a filter, select **View**

From the Filter list select **More Filters**

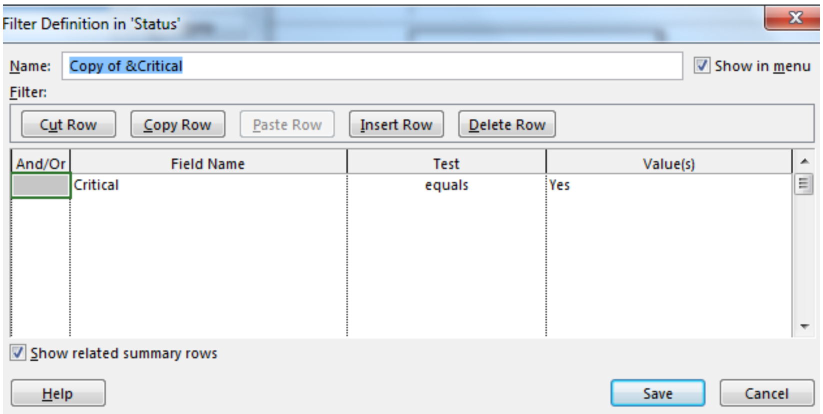


Filters can either be built from scratch or an existing filter can be selected and copied, this option is useful as it saves time.

Use the dialogue box that displays to choose whether the filter is being built for a Task or Resource View.

Copying an existing filter

Select a suitable filter and then click on Copy.



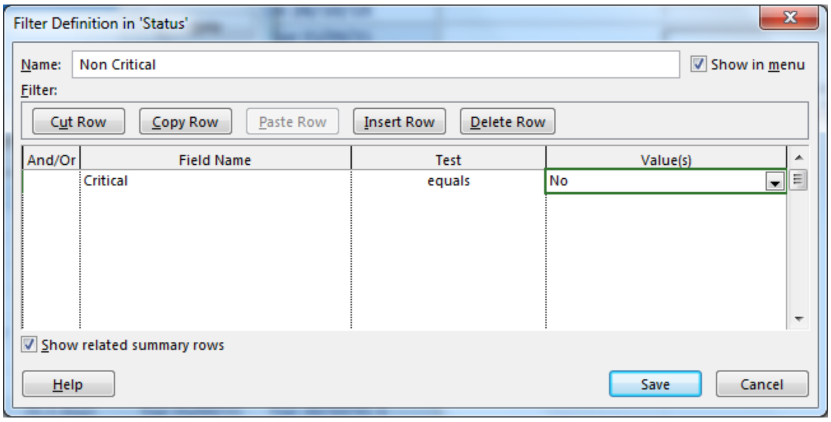
All the details from the original will be set in the Filter definition area and the name set to Copy of "existing filter name".

Type in a meaningful name for the filter and add in any new criteria or amend the existing criteria.

The & is used in earlier versions (prior to 2010) to provide a shortcut to enable the filter to be run from the toolbar. When the filter definition has been completed, Click on the **Save** button.

Example

A copy of the Critical filter has been made and as shown below the copy has been renamed and the criteria amended to enable non-critical tasks to be displayed.



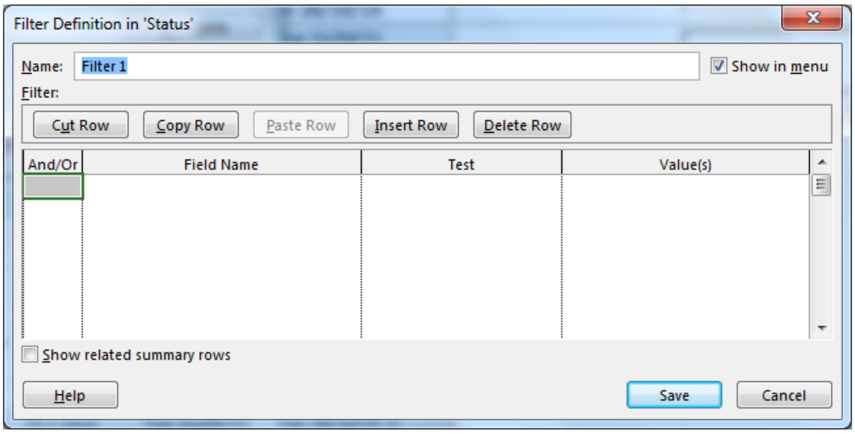
Filter Definition Options

Within the dialogue box the following options exist:

- **Show in menu** – a link to the filter is placed at the top of the Filter list.
- **And/Or** – only needs to be filled in if more than one criteria are being entered. And means all criteria entered must be matched for data to be displayed, Or means that any of the values entered could be matched for data to be displayed.
- **Field name** – choose the field that you are building a criterion for.
- **Test** – choose from the list, how the field name should be tested against the value entered. For example, equals.
- **Values** – set the value that the field will be tested against.
- **Show related Summary Rows** – enables relevant summary rows to be displayed or hidden when the filter is applied.

New Filters

To create a blank filter, click the **New...** button on the right side of the More Filters dialog box.



In Filter Definition enter a name for the filter. Decide if summary rows should be displayed as part of the filter. Add in as many criteria as needed. Once more than one line is used in the filter definition dialogue box, the first column titled And/or will need to be completed.

By putting in a value And the computer will ensure that both criteria are matched for a value to be displayed.

If an Or is entered the computer will allow either criteria to be matched for a value to be displayed.

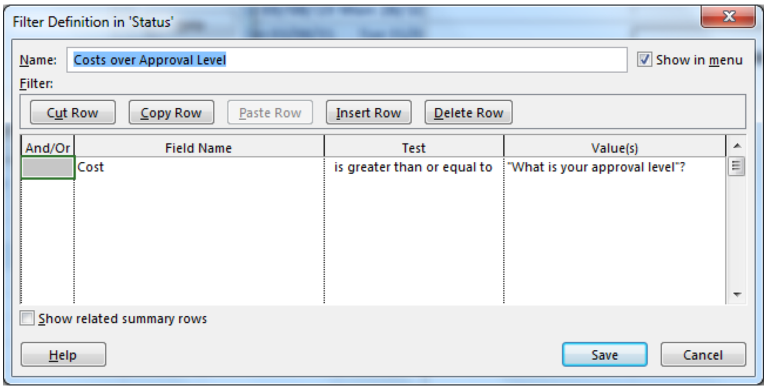
If both And and Or are used in a filter, the and criteria will be applied first.

Click on Save to complete the filter.

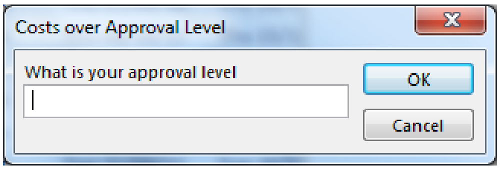
If the filter is to be interactive – i.e. user entering a value when a filter is run. The value entered in the filter definition will be a question entered in the following format "Question"?

Example

An interactive filter can be created which will ask the user to enter the level of costs that they can approve, when applied tasks with costs above this level will be displayed.



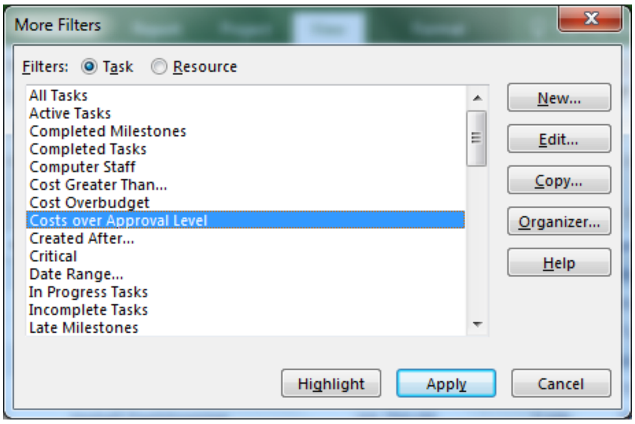
When this filter is applied the following input box appears.



Modifying an existing filter

All existing filters can be modified to ensure that they match the needs of a project. Choose

View, Filter, More Filters

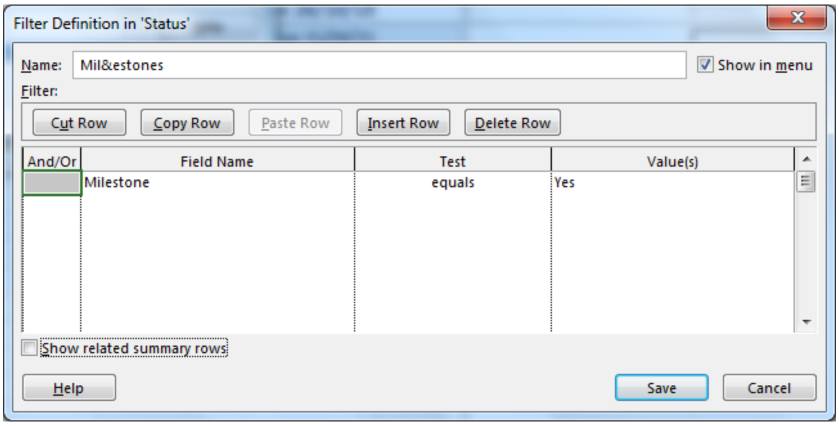


Select from the list the filter to be edited and then click on the Edit button.

If the filter to be edited is not on display change to the Resource option at the top of the dialogue box to see resource filters. The filter definition area will then display enabling the criteria and values to be amended. Once all editing changes have been made, click Save to close the dialog box.

Example

The Milestones filter has been chosen to be edited and the check has been removed from Show related summary rows.



All filters created or modified are by default only modified or available to the project that was open at the time. To make these changes available to all projects refer to the course notes on Organizer.

Creating Custom Groups

Groups exist to enable data to be displayed in a clearer manner. They can be used to focus attention on key tasks or to make the data more manageable. When a group is applied a subtotal for numeric fields will be generated alongside the group name.

This group can be collapsed to enable focus on other areas for printing.

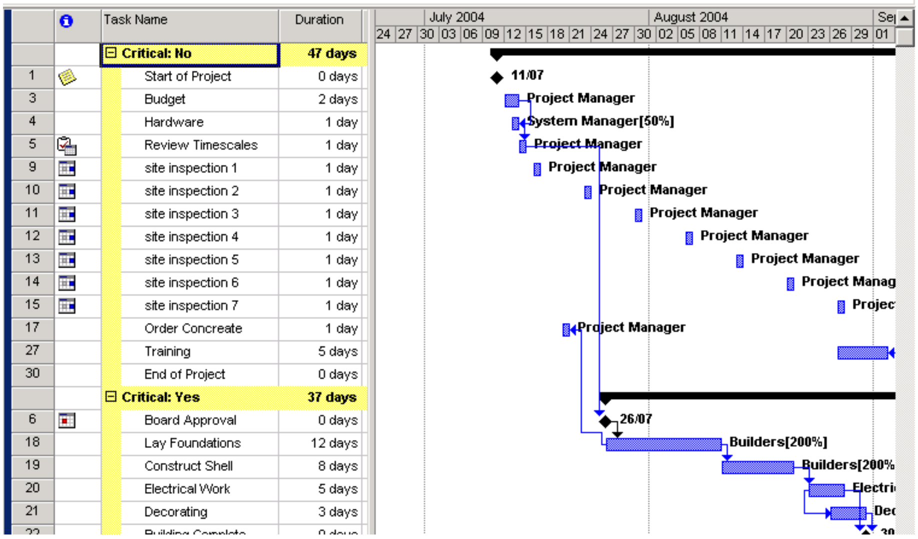
To apply an existing group

Choose **View**, **Group By** and choose from the built-in list.

Choose a group to apply.

Example

The diagram below shows the critical group applied. The groups are clearly visible and the data automatically placed into these groups – the Gantt chart also displays the tasks in that group.



A subtotal is created for all numeric fields; this can be seen above alongside the group names, such as Critical:No 47 Days.

To create a group

Creating Groups is similar creating new filters. To create a group select

View, **Group By**, **New Group By**

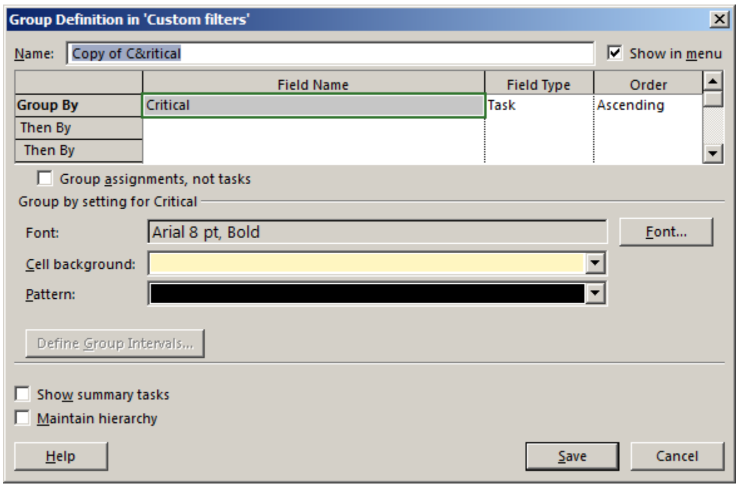
Complete the Group By definition sheet and click **Save**.

Copy existing Group

An existing group can be copied and changes made to produce a new group.

Change between Task or Resource group.

Select the group to be copied and then click on the Copy button.



Make any changes and then click Save.

Group Definition

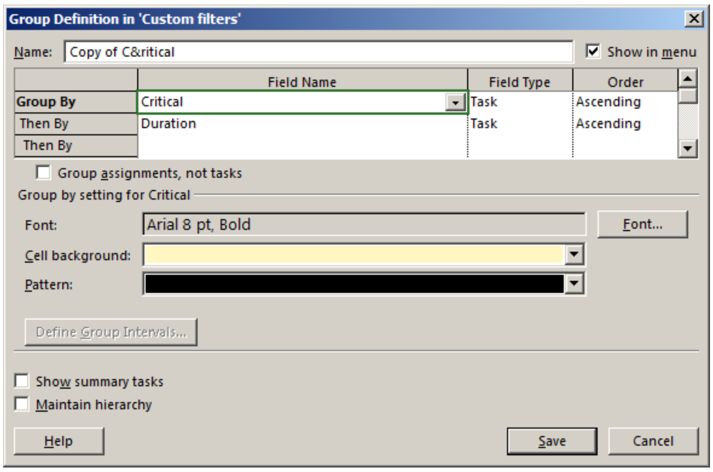
- **Name** – enter a suitable name, if it is a copy of an existing group it will already be given the name Copy of ... but this can be changed.
- **Show in menu** – by putting the group in the menu it will be directly available from the toolbar button or the menu.
- Group by, Then By, Then By, Then By – each row is used in turn to layer up group on group.
- **Field name** – set the field that will be grouped
- **Field type** – will either be set on Task or Resource depending upon the type of group that is being generated. This cannot be changed (unless Group Assignments are checked) and will be completed automatically once fields names are entered.
- **Group assignments, not tasks** – with this area checked the field type can be changed to assignment.
- **Order** – set to either Ascending or Descending order to control how the grouped values will be ordered on screen.
- **Group by settings** – work on the row to be amended and then a different Font and Cell background and pattern can be set. By default Group By will be set

to yellow and the first Then By on silver, however all these colours can be changed.

- Define group intervals – If a numeric field is grouped this button will become active and different intervals for grouping can be set.
- Show summary Tasks – decide if the group will show summary tasks.

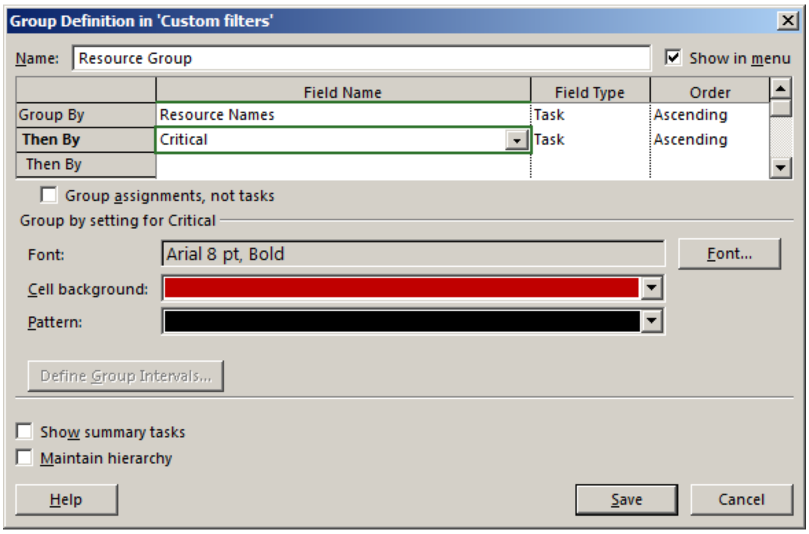
Example

A copy of the group Critical has been created and the duration field added as a second grouping in the Group Definition dialogue box.



To create a blank group decide if a resource or task group is being created and then click on new complete the Group definition dialogue box and then click on Save.

Example



A Group called Resource Group has been created to enable resources to be grouped together and then in each resource group a second group will exist showing whether the task is critical.

Task Name	Duration	Start	Finish
Resource Names: No Value	**13d**	**Tue 26/08/14**	**Fri 12/09/14**
Critical: Yes	**13d**	**Tue 26/08/14**	**Fri 12/09/14**
Evaluation Complete	0 days	Tue 26/08/14	Tue 26/08/14
Development complete	0 days	Fri 12/09/14	Fri 12/09/14
Resource Names: PC Supp	**29.25d**	**Mon 04/08/14**	**Fri 12/09/14**
Critical: Yes	**29.25d**	**Mon 04/08/14**	**Fri 12/09/14**
Distribute sample softw	1 wk	Mon 04/08/14	Fri 08/08/14
Test software in field	2 wks	Mon 11/08/14	Fri 22/08/14
Evaluate features	1 day	Mon 25/08/14	Mon 25/08/14
Develop desktop quick reference	3 days	Mon 01/09/14	Thu 04/09/14
floorwalking	1 wk	Fri 05/09/14	Fri 12/09/14
Resource Names: Software	**11d**	**Wed 27/08/14**	**Thu 11/09/14**
Critical: No	**1d**	**Wed 27/08/14**	**Thu 28/08/14**
Videotape session	1 day	Wed 27/08/14	Thu 28/08/14
Critical: Yes	**5d**	**Thu 04/09/14**	**Thu 11/09/14**
Training	1 wk	Thu 04/09/14	Thu 11/09/14
Resource Names: Technica	**2d**	**Thu 28/08/14**	**Mon 01/09/14**
Critical: Yes	**2d**	**Thu 28/08/14**	**Mon 01/09/14**
Develop training session materials	2 days	Thu 28/08/14	Mon 01/09/14
Resource Names: Training	**2d**	**Tue 26/08/14**	**Thu 28/08/14**
Critical: Yes	**2d**	**Tue 26/08/14**	**Thu 28/08/14**
Schedule classes	1 day	Tue 26/08/14	Wed 27/08/14
Schedule classes	1 day	Wed 27/08/14	Thu 28/08/14
Resource Names: Vice Pre	**0.5d**	**Tue 26/08/14**	**Tue 26/08/14**
Critical: Yes	**0.5d**	**Tue 26/08/14**	**Tue 26/08/14**
Accept/reject purchase of software	4 hrs	Tue 26/08/14	Tue 26/08/14

Removing a Group

To remove a grouping select **View**, **Group By**, **[No Group]**

or press the shortcut **Shift+F3**

Custom Tables and Views

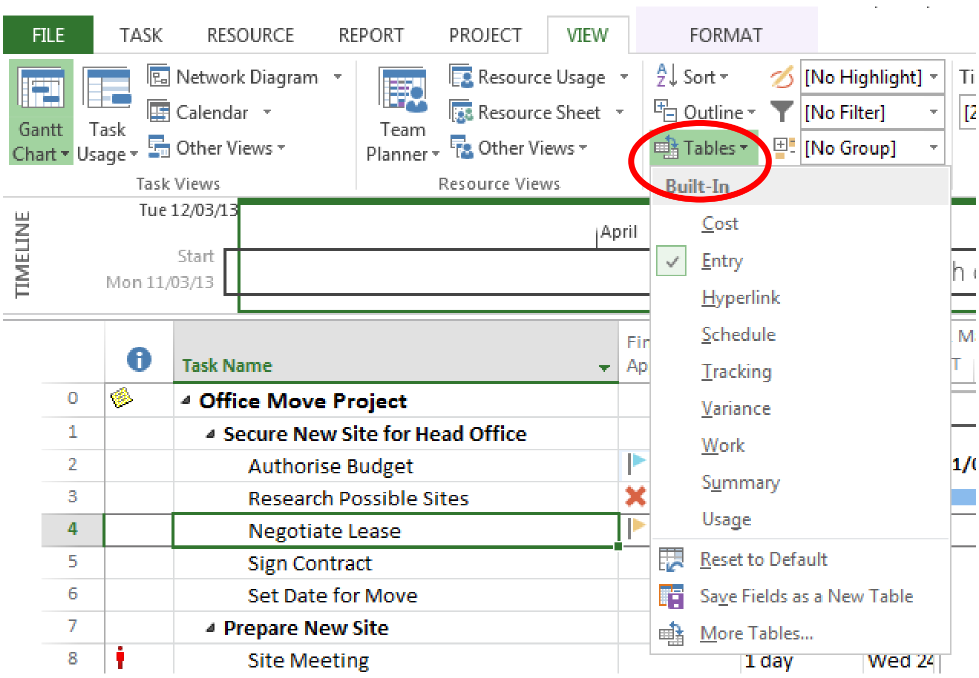
Creating a table

Within project a number of different tables already exist enabling the user to focus attention on different combinations information at any one time. A table contains many different fields; these are displayed in columns.

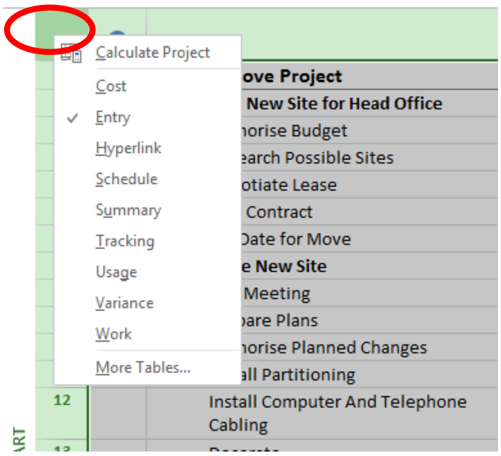
To change to a different Table view select

View, **Tables**

Then choose the table to display.



Alternatively position the mouse pointer over the grey square directly above the ID column, **right click** and choose the table to display from the menu.



The default table that is displayed is called **Entry** and this enables tasks to be setup and edited. Changing to the Cost table gives the task name, fixed and total cost information amongst other things.

To ensure that a user is able to focus on the information that is important it may be necessary to modify an existing table or create a new table. A table could also be created to include custom fields.

Existing tables

All existing tables are defined from Task and or Resource fields. Some are a combination of both. Here is a list for reference.

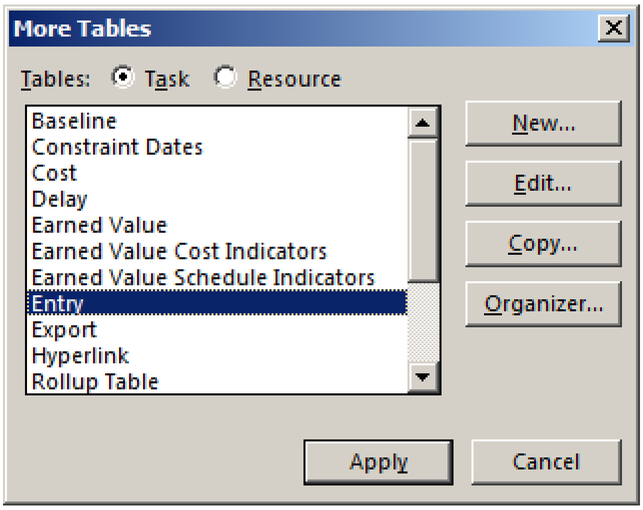
Table Name	Task	Resource
Baseline	✓	
Constraint Dates	✓	
Cost	✓	✓
Delay	✓	
Earned Value	✓	✓
Entry	✓	✓
Export	✓	✓
Hyperlink	✓	✓
Roll Up Table	✓	
Schedule	✓	
Summary	✓	✓

Tracking	✓	
Usage	✓	
Variance	✓	
Work	✓	✓
Entry – Material Resources		✓
Entry – Work Resources		✓

Modifying or Copying existing tables

To modify, copy or create new tables select

View, **Tables**, **More Tables**



By selecting a table and clicking **Edit**, the table can then be renamed and modified.

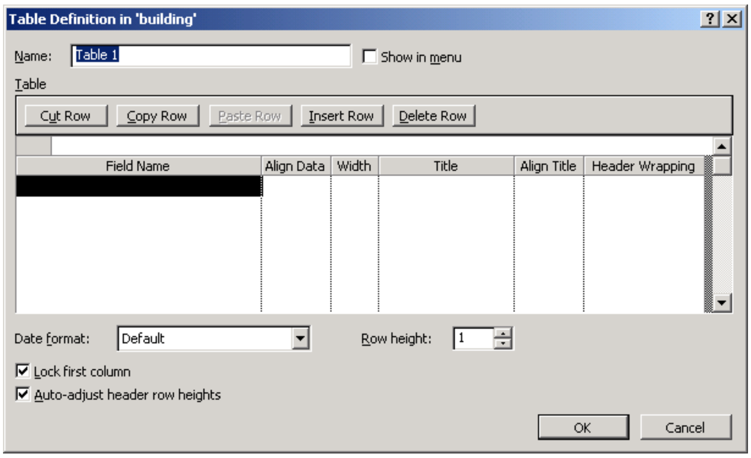
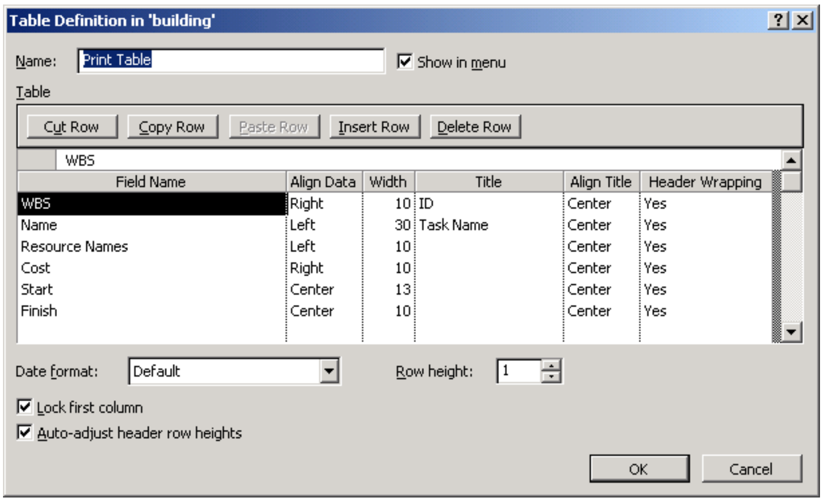


Table Definition

- **Name** – enter a suitable name for the table
- **Show in menu** – if this option is checked the table can be run from the menu or right click shortcut
- **Field Name** – choose the field name to display in the table
- **Align Data** – Decide how the data in the field will be aligned
- **Width** – enter number of characters to display – this can be widened within the table
- **Title** – a more appropriate title can be entered to be displayed instead of the field name. If this is left empty, the field name will be used.
- **Align Title** – generally set to be centred but titles alignment can be modified
- **Header Wrap** – this will enable the header to be put on two rows if the column is not wide enough to display the full title
- **Date Format** – If date columns are chosen as part of the table then an appropriate format can be chosen.
- **Row Height** – by default this is 1 but can be increased which will make rows deeper and this will also affect views on display with the table.
- **Lock First Column** – the first column will always be on display if this option is checked; it will be displayed on a grey background.
- **Auto-adjust header row heights** – if the title is wrapped onto two lines this option will ensure that the row height is adjusted automatically.

In this example a table is created ready for printing.



Here is an example of a table has been created that gives a good overview of information ready for printing. The Title area has been used to replace the field name with something more suitable in the table.

Creating a View

A view displays a set of project information in a format that is clear to understand. Project gives the user a number of views which can be used to focus on different information, however these views may not be completely what is needed and other views may need to be generated to enable more effective use of Project. Data entered in a view is added to one core set of data and is available for all suitable views.

Three types of view exist; Task views, resource views and assignment views.

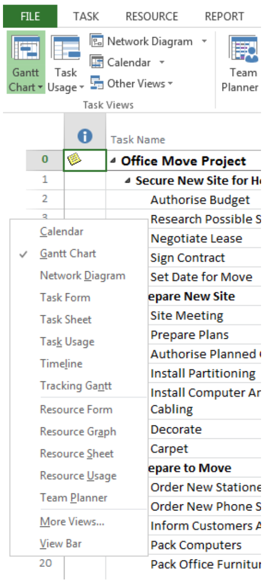
Existing Views

View Name	Task View	Resource View	Assignment Views
Bar Rollup	✓		
Detail Gantt	✓		
Gantt	✓		
Leveling Gantt	✓		
Milestone Date Rollup	✓		
Milestone Rollup	✓		
Resource Allocation		✓	
Resource Sheet		✓	
Resource Usage		✓	✓
Task Entry	✓		
Task Sheet	✓		
Task Usage	✓		✓
Tracking Gantt	✓		

Changing views

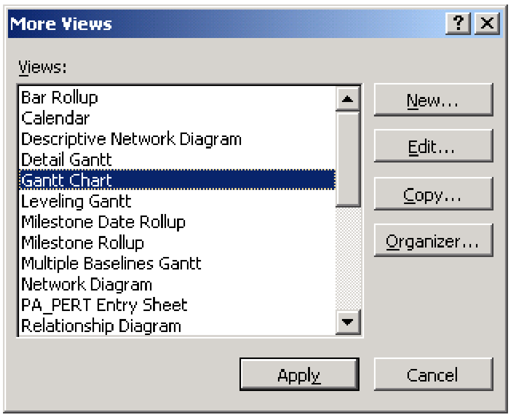
To change a view, select one from the View tab.

Alternatively, right click on the vertical bar on the left of the screen to choose a different view.

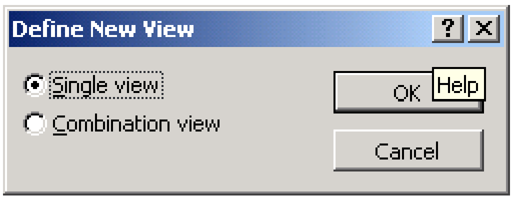


Creating a new View

To create a new view, select More Views and then click on **New**...



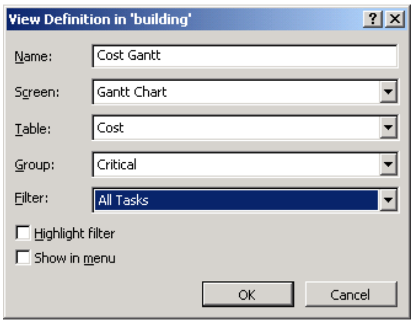
Select whether a New Single view or Combination view is being created.



Single View Options

- **Name** – enables a name to be defined for the new view
- **Screen** – choose the view that will be displayed as part of the new view
- **Table** – choose which table will be on the left of the new view
- **Group** – either choose which group will be applied to the view or set this to no group. It cannot be left empty.
- **Filter** – choose a filter to apply to the new view, if no view is needed all task should be chosen.
- **Highlight Filter** – if this option is checked then rather than data being hidden by the filter the data matching the criteria will be highlighted in a different font colour.
- **Show in menu** – provides a shortcut in the menu and view bar to display this new view.

In this example a view has been created with the cost table on show and data grouped on the basis of whether it is critical or not.



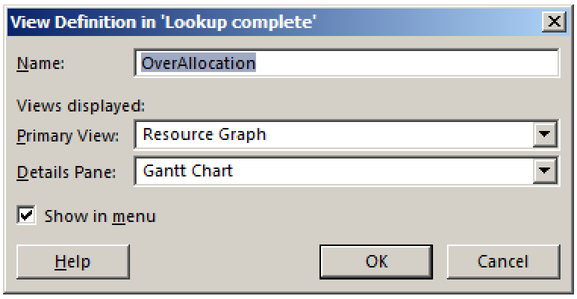
Combination Views

If a combination view is chosen, then a view for the top and bottom of the screen can be chosen.

The view is named and then views selected for the top and bottom of the screen, again the option to show the view in the menu is possible.

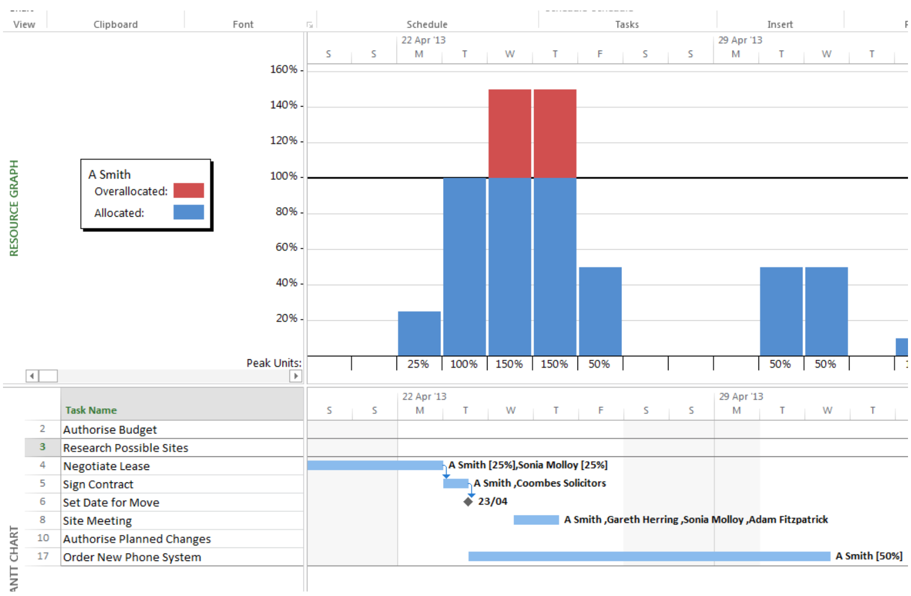
Example

Here a view has been setup for identifying over allocation problems with the resource graph and Gantt chart being displayed together.



The view that is placed in the top of the combination will control the information that can be displayed in the bottom of the form.

As different resources are selected on the top area of the form the Gantt chart will display the tasks assigned to that resource.



From this combination view the reason for the overallocation can be resolved more easily than from the Gantt view.

Removing a Combination View

After working in a combination view you can return to a single view as follows:

Select **View**, **Details** and remove the tick.

Then choose a view such as the Gantt View from view column on the left of the screen.

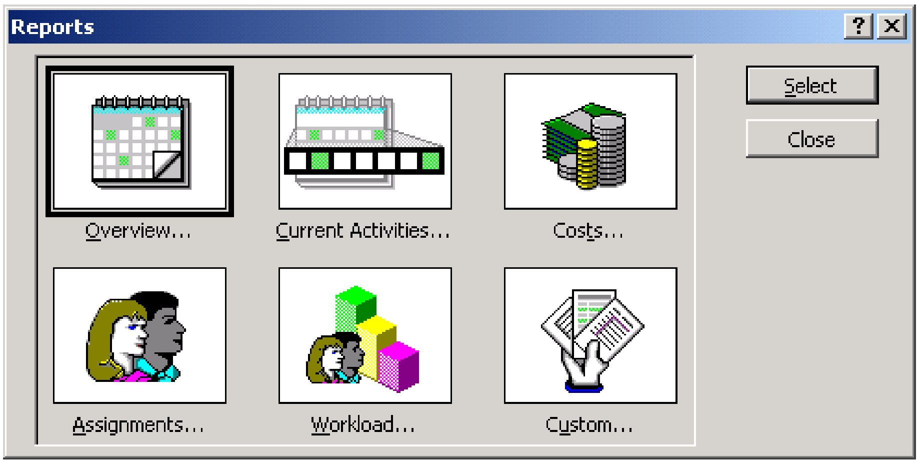
Creating Reports

Creating Report with Project 2010

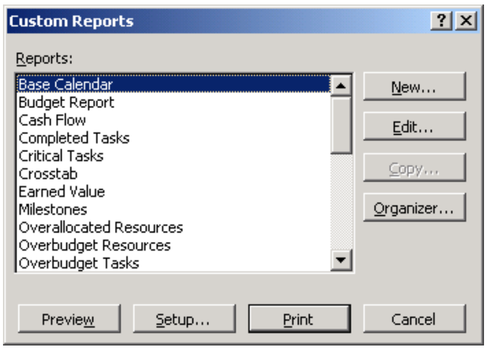
Project 2010 contains a number of reports, providing the user with the ability to create rapid printouts of summarised information. In essence there are four types of report; task lists, resource lists, cross tabs and calendar types. Apart from the calendar type which has no predefined examples there are examples of the other three types which can be copied or edited.

Viewing existing reports

To access reports, select **Project**, **Reports** and then from the dialogue box pick the category of report that you wish to generate.

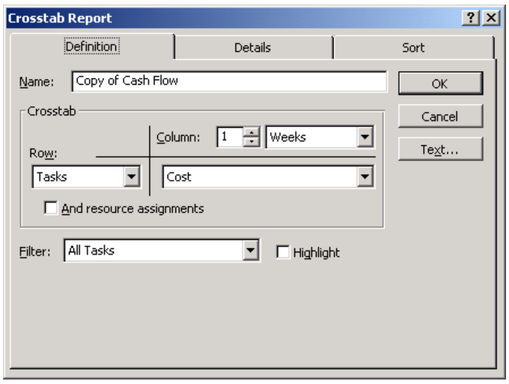


Project, **Reports**, **Custom**



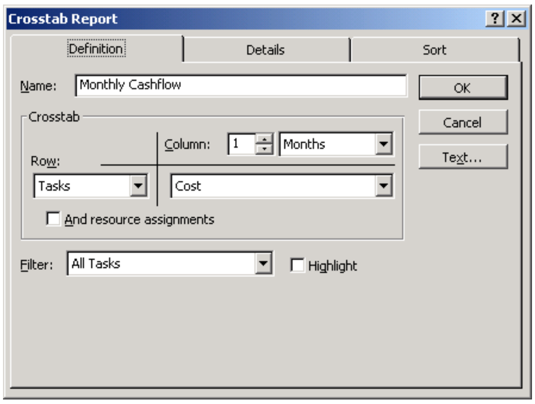
In the custom reports dialogue box existing reports are visible enabling them to be edited or used as a basis for a new report.

Select a report and click on **Copy**.



Four types of report exist and each one has a separate group of options. Above is a picture of a copy of a Cross tab Report. The name can be changed and then existing options amended. The report will be run from the custom section of the report dialog box.

In this example the **Cash Flow** report has been copied and then amended to make the report a monthly cash flow by changing the weeks to months.

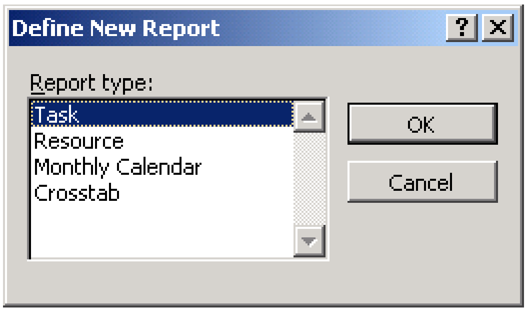


If there are no reports that are suitable to be amended a new report can be setup from scratch.

Creating a New Report

Project, **Reports**, **Custom**, **New**

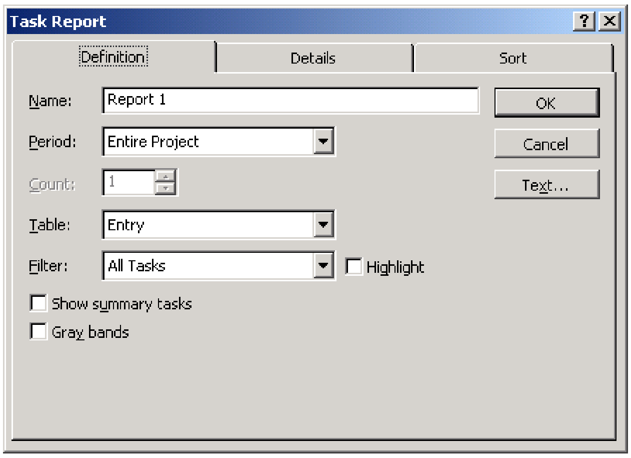
Choose from 4 different types of report.



When a new report is being generated the report type must be defined before the report can actually be generated.

Task or Resource reports

Both task and resource reports are created in the same way decide which type of report needs to be generated.



Name the report and decide what **Period** of time the report will be generated for.

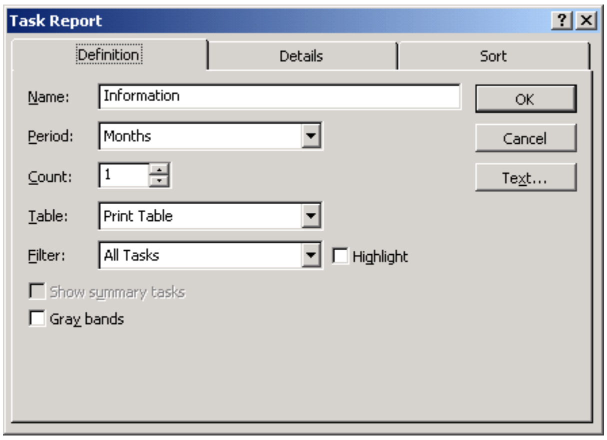
Pick the **Table** that will be used to generate the report and decide what filter if any to apply.

If the table contains fields that you don't want to show on the report you can either hide/delete the field from the table or build a customised table which is a copy of the table without the field that you don't what to include in the report. If you have built a customised table this can be selected to base the report on.

On the **Details** tab objects can be chosen for printing including settings relating to notes, predecessor and successors. The detail section will also enable gridlines to be added to the report.

On the **Sorting** tab the data in the report can be sorted by up to three different fields and the outline structure overridden if required. By default, all data will be sorted by the id field.

In this example a report has been created to use the information in the customised table called Print Table.



On the Sort tab the data has been sorted by cost into descending order.

An image of the report created is shown below.

The period setting has cause the data to be structured by month, with costs being sorted in descending order.

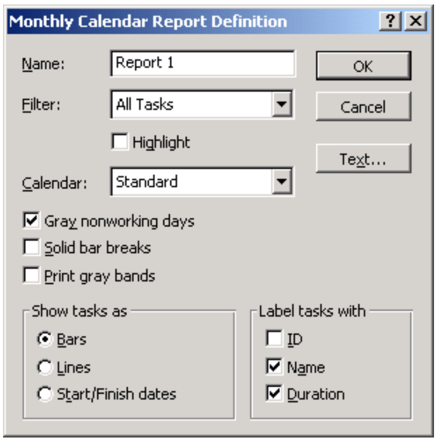
ID	Task Name	Resource	Cost	Start	Finish
September 2004					
	Review Timescales	Project Manager	£300.00	Wed 29/09/04	Wed 29/09/04
	Hardware		£150.00	Tue 28/09/04	Tue 28/09/04
J2.*	budget	Project Manager	£100.00	Mon 27/09/04	Mon 27/09/04
J1	Start of project		£0.00	Mon 27/09/04	Mon 27/09/04
October 2004					
	lay foundations		£100.00	Wed 06/10/04	Thu 21/10/04
J3	Board of Approval		£45.00	Wed 06/10/04	Wed 06/10/04
	construct shell		£11.00	Wed 20/10/04	Fri 29/10/04
November 2004					
	Test	Project Manager	£5,097.00	Fri 19/11/04	Mon 22/11/04
	Computer Hardware		£980.00	Wed 10/11/04	Thu 11/11/04
J6.*	Furniture		£800.00	Tue 09/11/04	Tue 09/11/04
J5	Building Complete		£554.00	Fri 05/11/04	Fri 05/11/04
J7.*	Load		£232.00	Fri 12/11/04	Fri 19/11/04
	electrical work		£23.00	Mon 01/11/04	Fri 05/11/04
	decorating		£0.00	Tue 02/11/04	Thu 04/11/04
J8	End of project		£0.00	Mon 22/11/04	Mon 22/11/04

Monthly calendar

This report type exists for users who what to create a report showing task information in a calendar format. There are no existing calendar reports created by defaults so they must be created from scratch.

Select Project, Reports, **New**

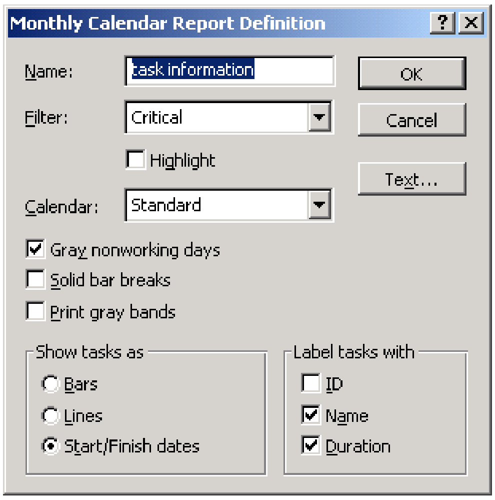
Now select Monthly Calendar to define the report.



Name the report and then decide if a **Filter** will be applied. Any base or resource calendars can be chosen for displaying the working and non-working days.

To ensure that non-working days are clearly visible keep the check in grey nonworking days.

Here is an example of a calendar that will show just the critical tasks in the format of start and finish dates. The output is very similar to the calendar view but does give a few different setting than this existing view (these are primarily related to the type of filters that can be used).

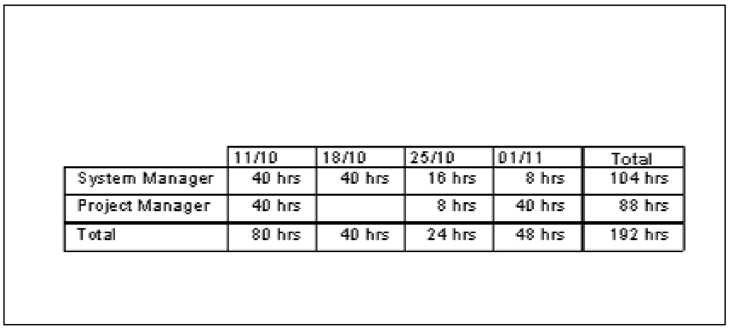


Cross Tab Reports

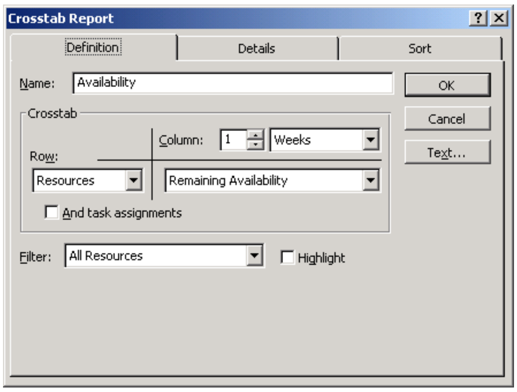
Cross Tab reports show cost amounts or work hours by task or resources in a grid format based on time period. There are only a limited number of options to set to create a useful summary report.

From the custom section of Reports choose **New** and then choose **Cross Tab**, modify the setting to match the information that needs to be displayed.

A Cross Tab report has been created to show availability of resources across weeks. The data has been sorted by Standard rate.



	11/10	18/10	25/10	01/11	Total
System Manager	40 hrs	40 hrs	16 hrs	8 hrs	104 hrs
Project Manager	40 hrs		8 hrs	40 hrs	88 hrs
Total	80 hrs	40 hrs	24 hrs	48 hrs	192 hrs

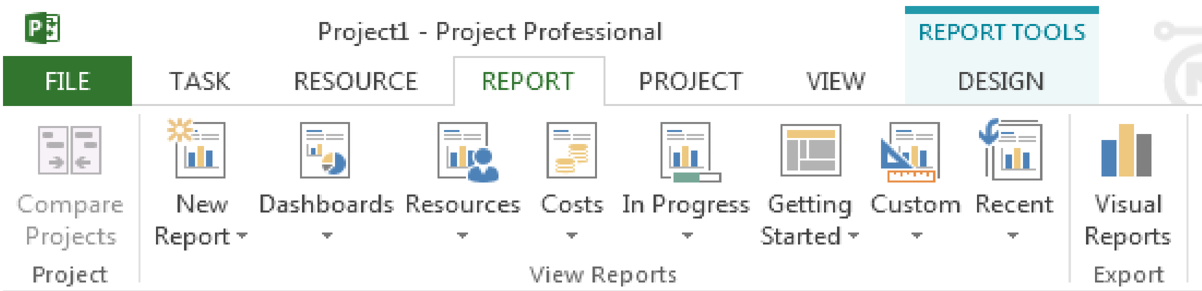


Creating Reports with Project 2016

Using Project 2016, you can create and customise striking graphical reports of whatever project data you want. As you work on the project, the reports change to reflect the latest info so there is no need to manually update.

Reporting tools are becoming more important in project management applications, as many companies need to delve deeper into the details of projects to see how their budgets are being spent. Accountability is huge, and improved reporting tools can give you the best views of project information and help you communicate it to management.

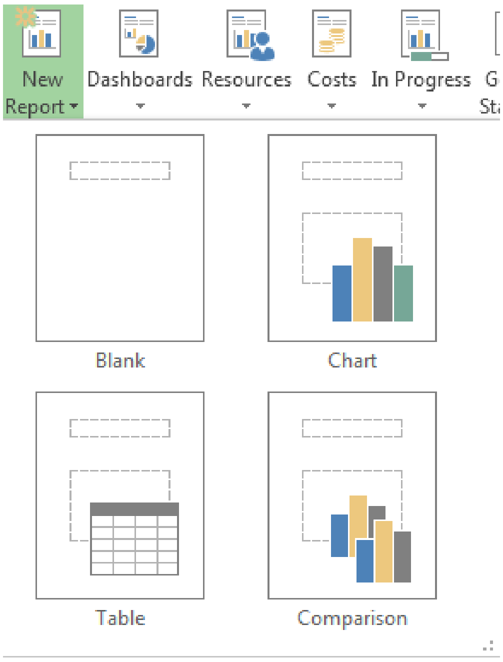
Project Professional 2016 offers improved reporting tools that maintain the Office-like experience, making it easier for users of all levels to see and publish project information in a view that works for them. These tools offer dashboard-like reporting options.



The following Categories are available:

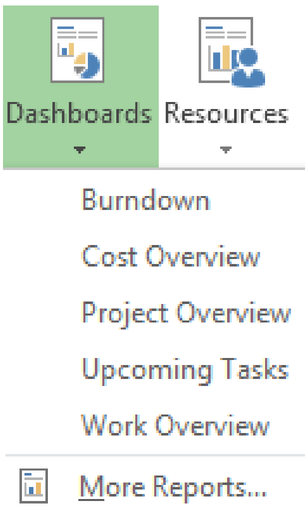
- New Report
- Dashboards
- Resources
- Costs
- In Progress
- Getting Started
- Custom
- Recent

New Report – Blank, Chart, Table or Comparison



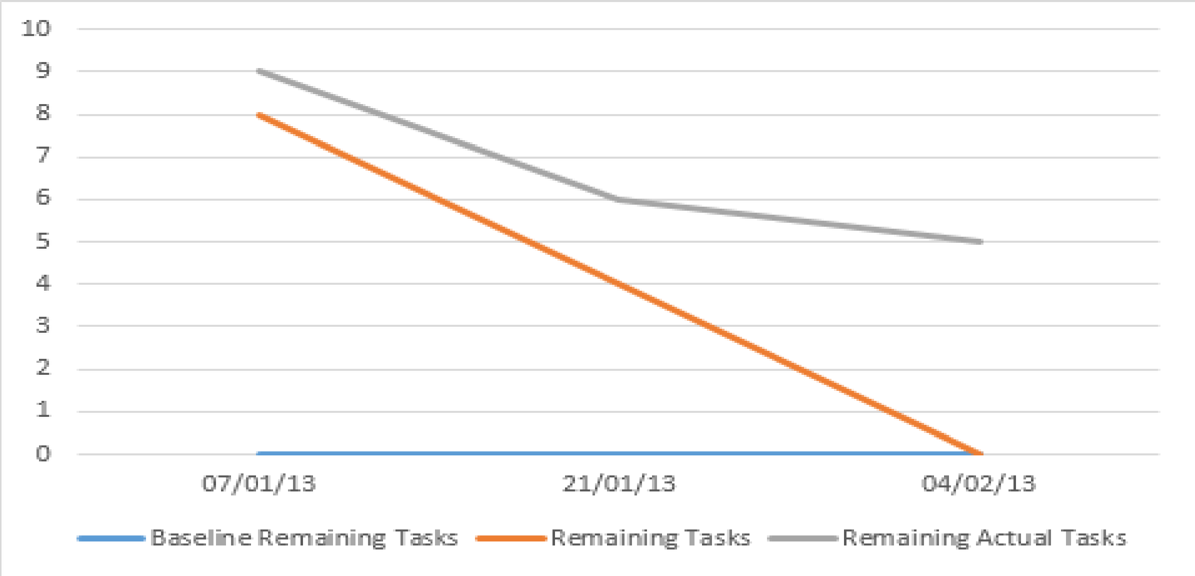
Dashboards

Burndown reports show planned work, completed work, and remaining work as lines on a graph. They give you and your stakeholders an at-a-glance status, letting you know if your project is behind schedule or ahead.



Dashboards are new graphical representations of your key project data which can be presented to the project board or directors. Dashboards organise and present information in a way that is easy to read.

The following report is a Burndown report:



Cost Report

The following report gives you progress made versus the cost over time.

COST OVERVIEW

COST STATUS

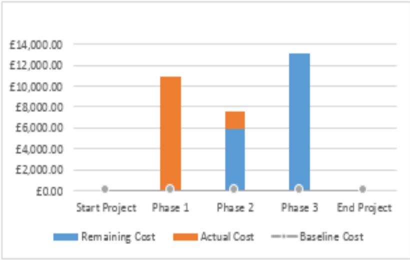
Cost status for top level tasks.

Name	Actual Cost	Remaining Cost	Baseline Cost	Cost	Cost Variance
Start Project	£0.00	£0.00	£0.00	£0.00	£0.00
Phase 1	£10,880.00	£0.00	£0.00	£10,880.00	£10,880.00
Phase 2	£1,600.00	£5,920.00	£0.00	£7,520.00	£7,520.00
Phase 3	£0.00	£13,120.00	£0.00	£13,120.00	£13,120.00
End Project	£0.00	£0.00	£0.00	£0.00	£0.00

COST STATUS

Cost status for all top-level tasks. Is your baseline zero?

Try setting as baseline



COST OVERVIEW

COST OVERVIEW

WED 09/01/13 - TUE 26/02/13

COST

£31,520.00

REMAINING COST

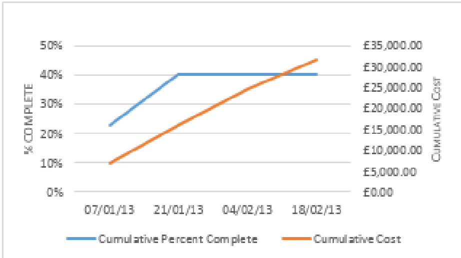
£19,040.00

% COMPLETE

40%

PROGRESS VERSUS COST

Progress made versus the cost spent over time. If % Complete line below the cumulative cost line,your project may be over budget.



Project Overview

PROJECT OVERVIEW

PROJECT OVERVIEW

WED 09/01/13 - TUE 26/02/13

% COMPLETE

40%

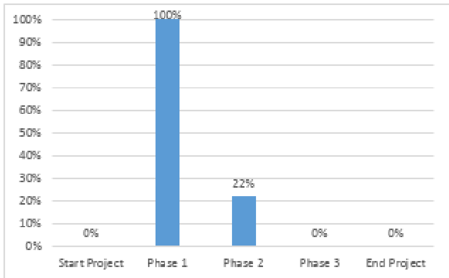
MILESTONES DUE

Milestones that are coming soon.

Name	Finish
Start Project	Wed 09/01/13
End Project	Tue 26/02/13

% COMPLETE

Status for all top-level tasks. To see the status for subtasks, click on the chart and update the outline level in the Field List.

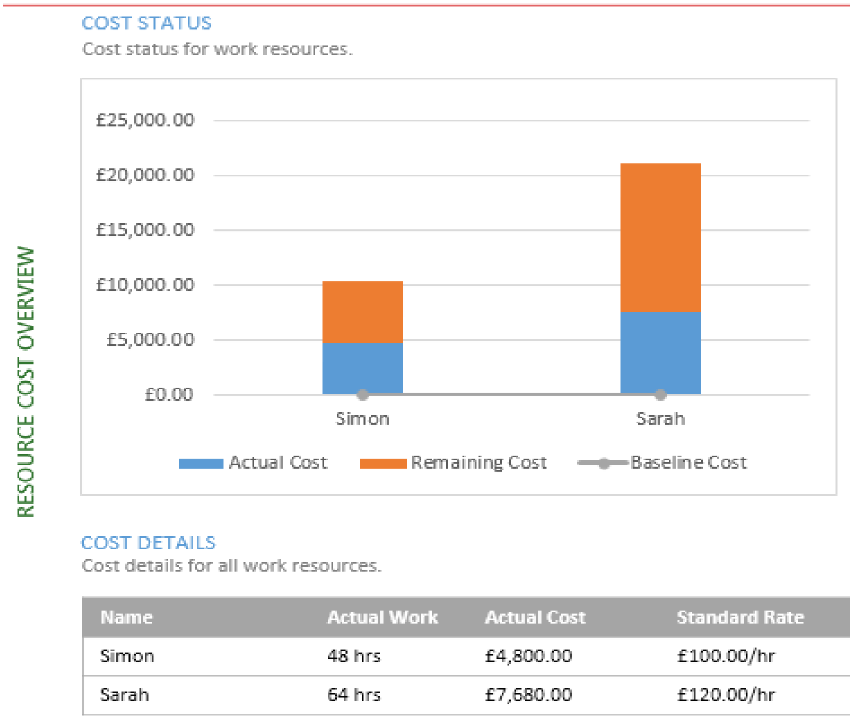


LATE TASKS

Tasks that are past due.

Name	Start	Finish	Duration	% Complete	Resource Names

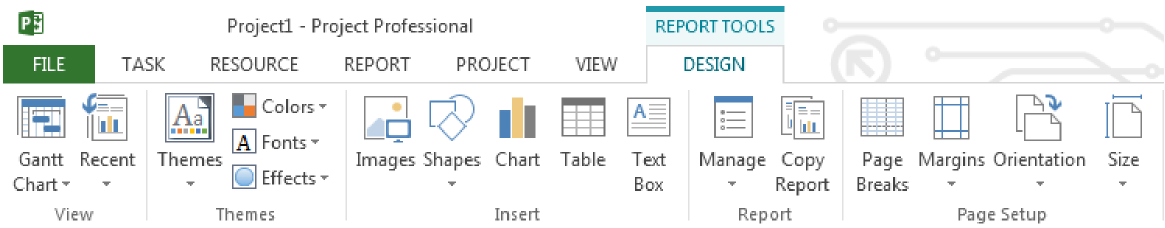
Resource Overview Dashboard report



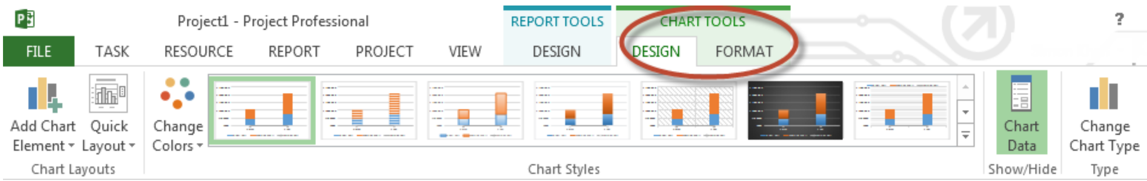
Name	Actual Work	Actual Cost	Standard Rate
Simon	48 hrs	£4,800.00	£100.00/hr
Sarah	64 hrs	£7,680.00	£120.00/hr

You can then edit or format the report by using the following tools:

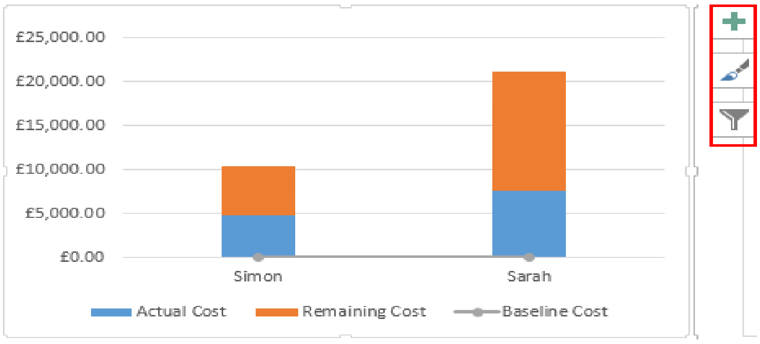
If you click in the background of the report the following REPORT TOOLS tab appears on the ribbon:



However, if you select a chart the following CHART TOOLS tab appears on the ribbon:

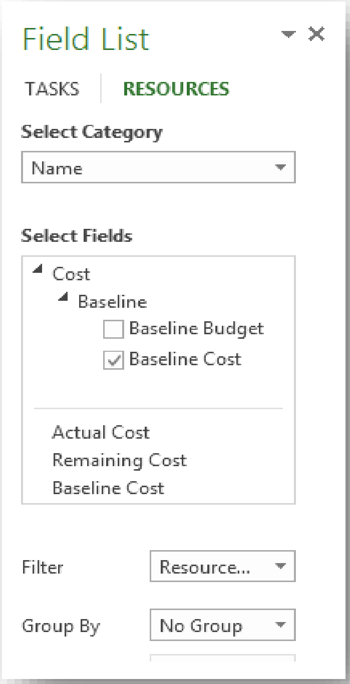


Another new feature of Project 2016 is that contextual buttons appear to the right hand corner of the selected object. These allow you to change the Chart elements, Chart Styles and Chart Titles.

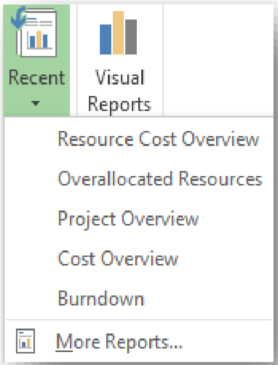


Once you click on of these buttons, you get the elements needed to manipulate the chart. As you can see, change or add titles, line and fill colours and filters.

The Field list can filter, group and add additional fields to the chart. There is also the option to select the Tasks or Resources tab to change the way you analyse the current data.



The Recent option allows you quick access to return to the reports that have been created which is extremely useful as you don't have to create the reports again.



Working with Export and Import Maps

When taking project data to other applications a map is used or created. This map enables the fields being exported to be defined and spreadsheets column name to be created. Within project there are 11 predefined import/export maps.

Existing Maps

Map Name	**Use**
Who Does What	Saves an HTML table which lists resources and tasks assignment information.
Compare Baselines	Exports a table that lists all tasks with scheduled and baseline values.
Cost Data By Task	Exports a table that lists task cost.
Default Task Information	Exports and Imports basic task fields in the task entry table.
Earned Value Information	Exports the task earned value fields.
Export to HTML using Standard Template	Exports basic task, resource and assignment values to an HTML page.
Resource Export Table	Exports all fields in the predefined resource export table.
Task Export Table	Exports all fields in the predefined task export table.
Task and resource pivot table	Used to create excel pivot tables for task and resources
Task list with embedded assignment rows	Export and HTML table of tasks and assigned resources producing a clear web page.
Top Level Tasks	Used to export a table with data for outline Level one – Milestones, summary task, etc…

Creating custom export maps

To export a project and create a custom map:

Open the project you wish to export.

Select all the tasks to export.

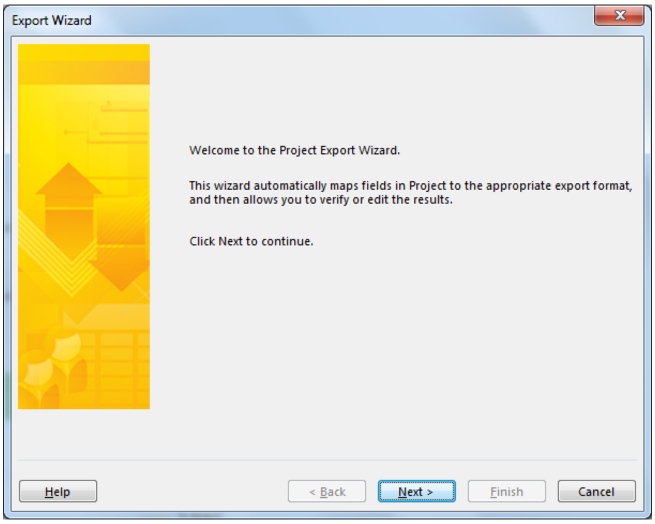
Choose **File**, **Save As**, **This PC**

Select the directory location and filename

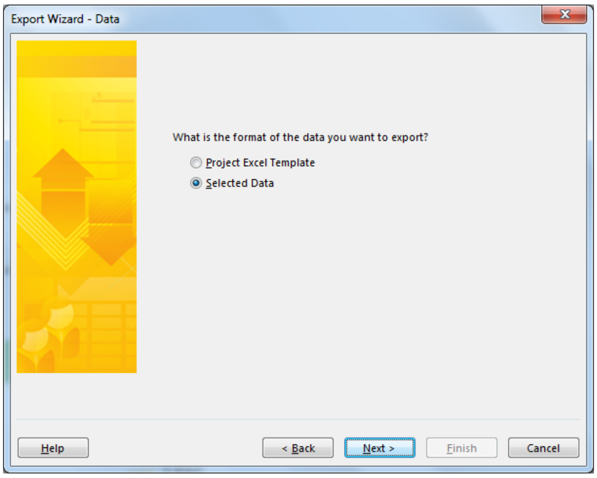
Change the Save as Type to be Microsoft Excel workbook

Click **Save**.

The map wizard will now launch, shows the stages of the process that will go through, less stages may be displayed depending upon choices made in the dialog box shown.



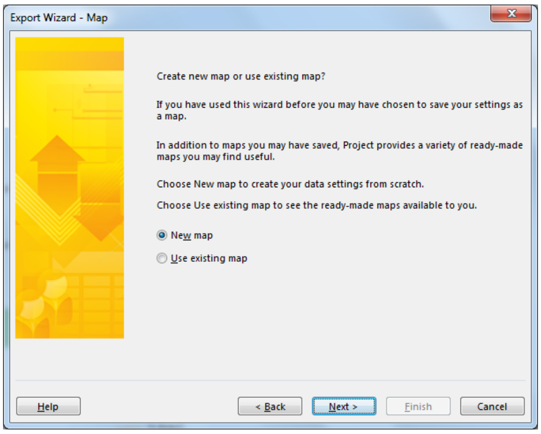
Once the wizard has launched and the second stage is reached a choice is made between using an existing excel template or taking out selected data. If the first option is chosen default fields from the project are taken to the excel file that the process is creating.



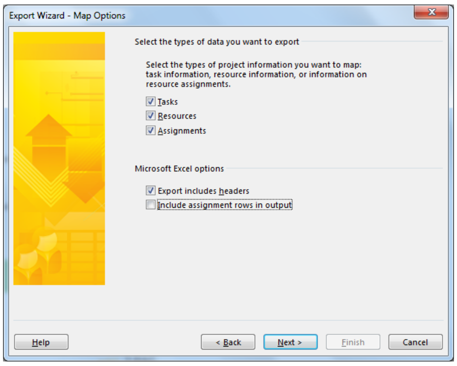
If Select Data is chosen, the wizard continues

To generate a new map, choose the first option – this will enable the user to decide which fields are exported and how they will be labelled in excel.

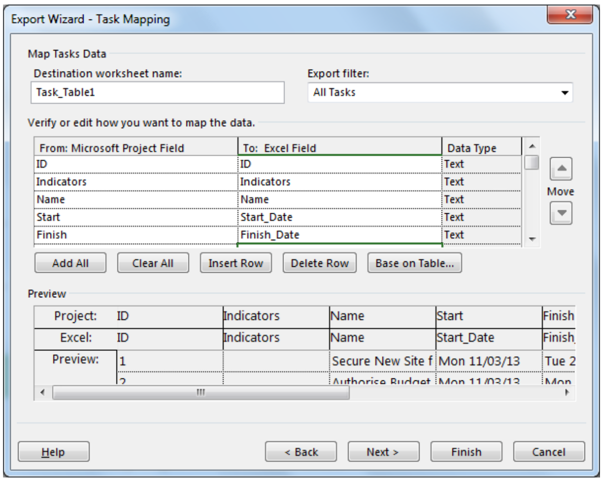
Choosing an existing map will enable the user to go and select which map to be used



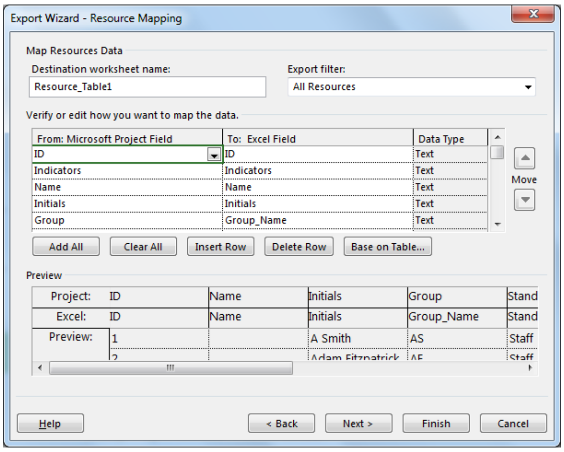
Select the types of data that will be exported from Tasks, Resources or Assignments, at least one of these must be choose.



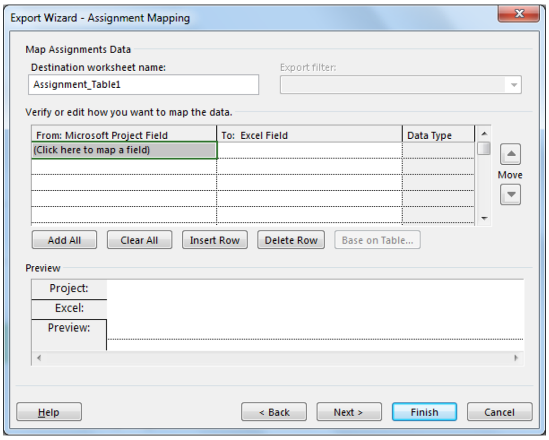
Now the Map Data steps will be displayed, shown below are three of these dialog boxes, one for Tasks, Resources and Assignment. If only one type of data is chosen only one dialog will be displayed.

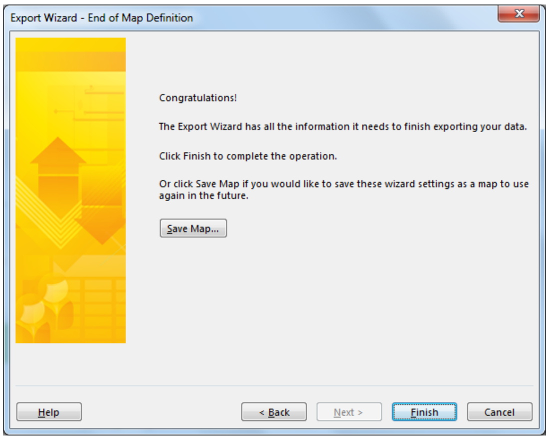


Each type of data is taken to a different sheet within the excel file. The fields can be chosen in turn and then the column label amended for excel.



Assignment Mapping enables Task information to be displayed together with Resource information and cost information on the basis of what tasks have which resources assigned etc…

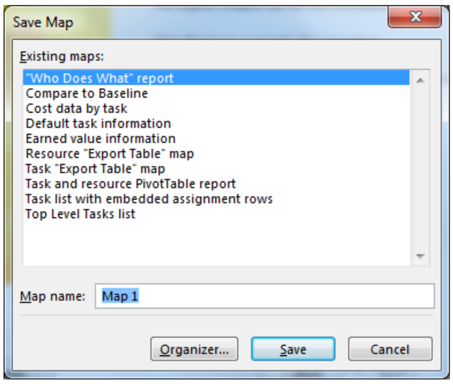




Now the process is complete there is an opportunity to Save the Map enabling these setting to be used again without them having to be reselected.

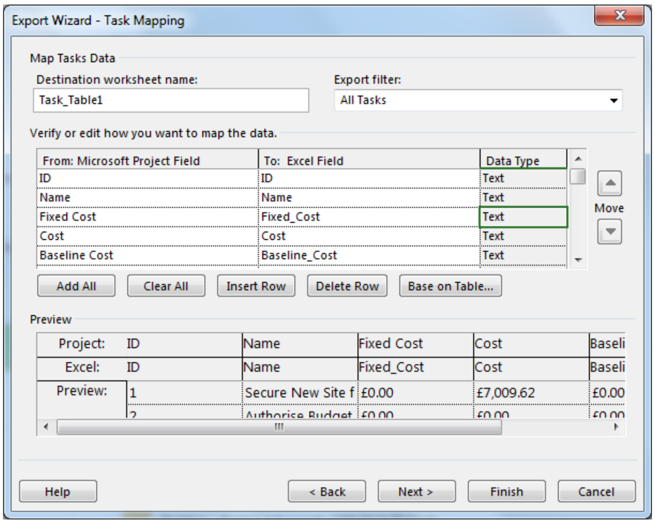
Otherwise the process can be finished if this is a one-time export.

If a map is saved it is saved to the Global.MPT file therefore it is available to all projects on the computer where it was created.



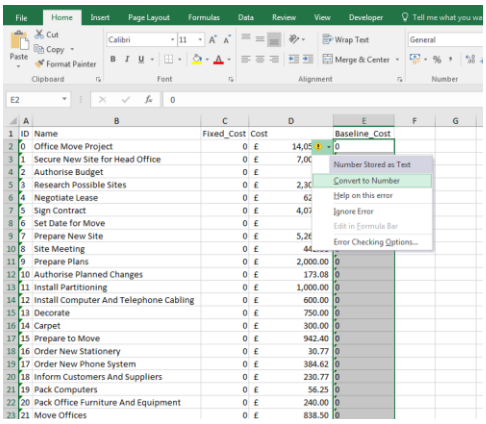
Exporting Cost information

Another example is to export cost information to an Excel file to enable cost variation to be charted. Below is a diagram of the fields that were exported.



After clicking Finish the Excel data can be opened.

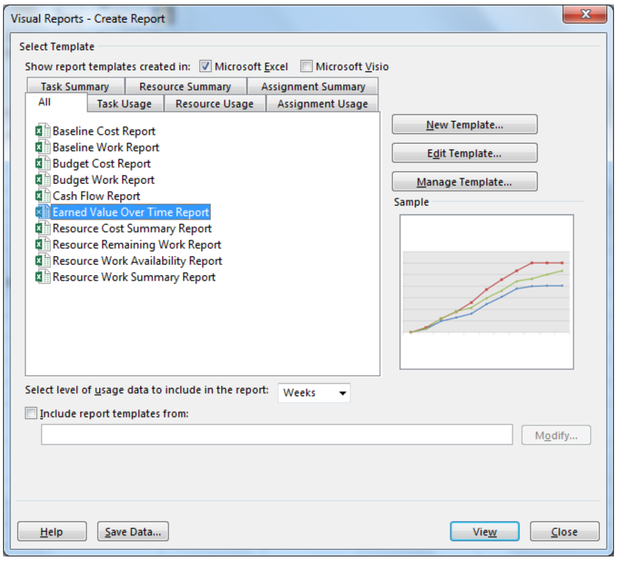
While the cost fields are exported as text they can be easily converted to numbers before charting.



Using Visual Reports

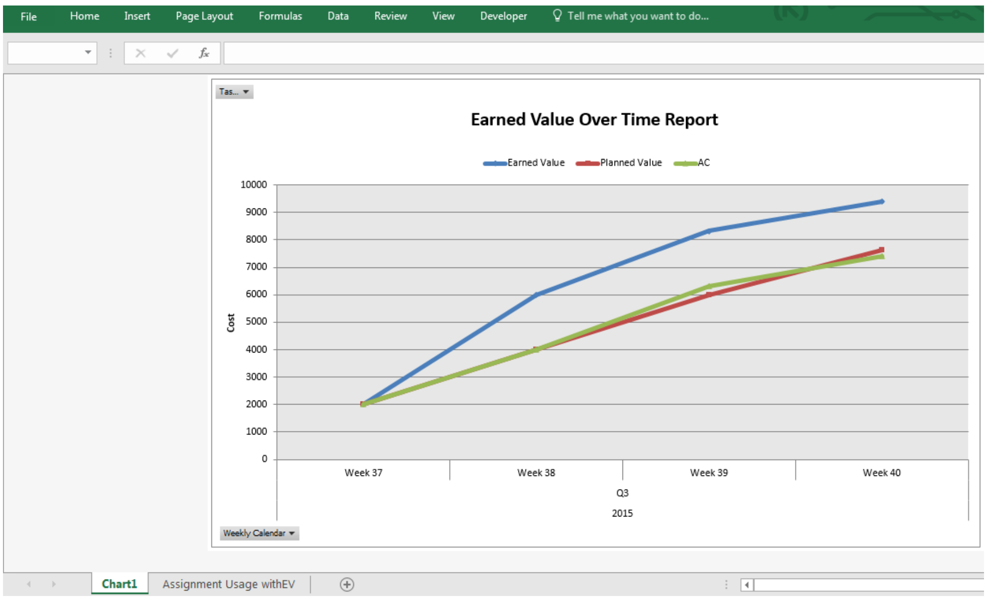
The Visual Reports feature allows data to be exported to Microsoft Excel and Visio for project reporting.

Project 2016 offers a selection different Visual Reports created by Excel. The data is output in the form of Pivot Tables and Pivot Charts and usually needs to be adjusted within Excel to display the desired time scale.

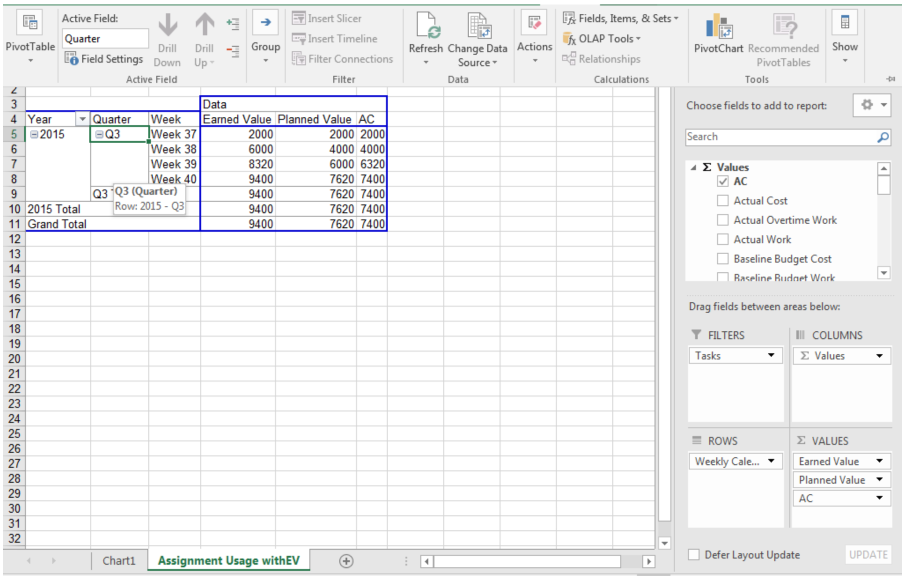


Earned Value over Time Report

One of the Excel reports called the Earner Value over Time report compares cumulative actual cost, scheduled cost and a performance measure called earned value.



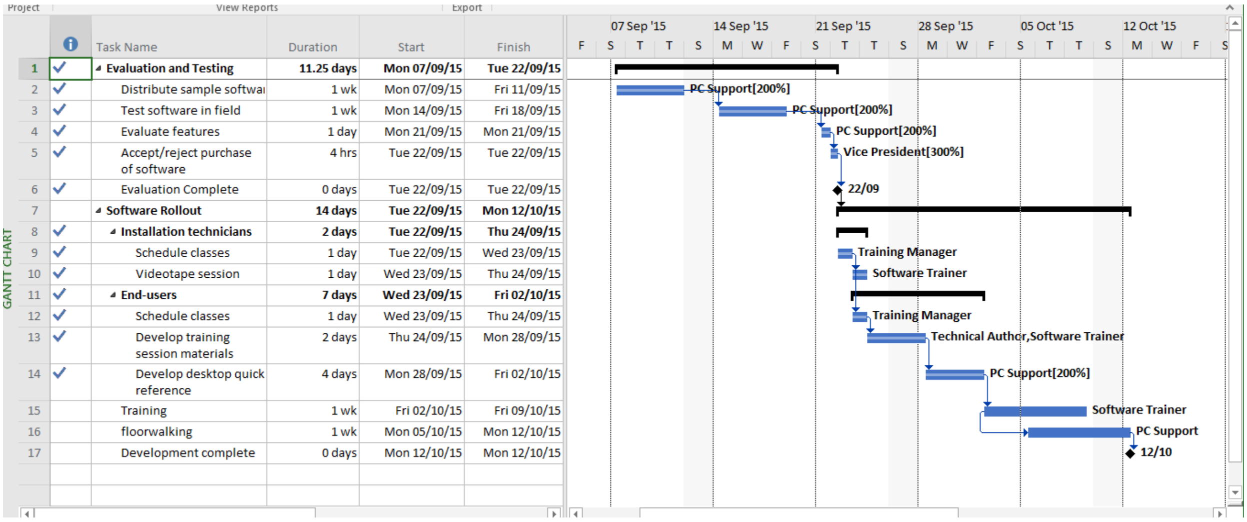
The report contains an Excel worksheet named Assignment Usage with EV containing a Pivot Table for the chart on the Chart1 sheet.



When first created the row labels show data grouped by quarter. Clicking the + sign next to Qtr3 reveals values for each week and updates the Chart at the same time.

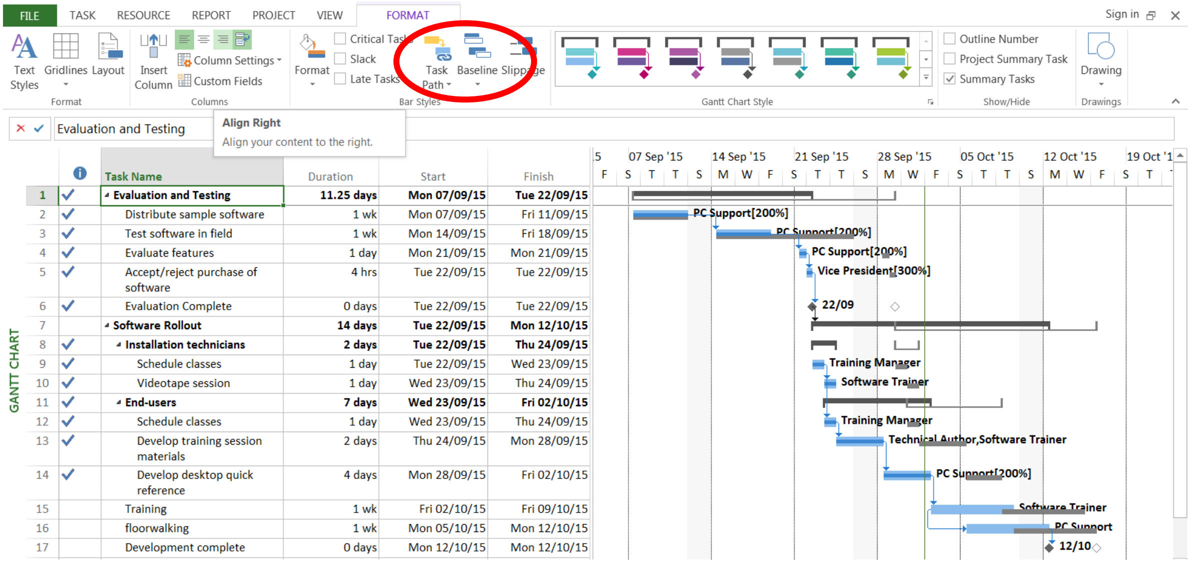
To understand elements of this report we should look at the project data. It is based on (Autumn Visual Report). The project baseline has already been set, the current date is 2/10/15 and everything went to plan apart from changes to two tasks.

Task	Planned duration	Actual duration
Task 3 (Test software)	10 days	5 days
Task 14 (Develop quick reference guides)	3 days	4 days



The changes from the baseline can be seen by selecting

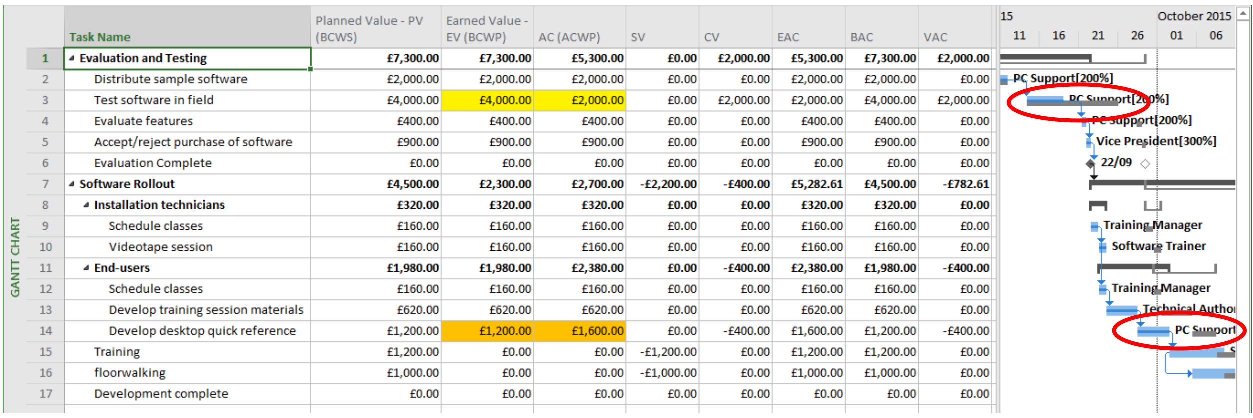
Format, **Baseline**, Baseline (last saved)



The project is ahead of schedule by 4 days because of the savings made to task 3. This results in a reduced cost of the project.

The next stage in understanding the Earned Value over Time report is to change the Gantt Table view from Entry to **Earned Value**.

The Earned Value table



	Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	SV	CV	EAC	BAC	VAC
1	**Evaluation and Testing**	**£7,300.00**	**£7,300.00**	**£5,300.00**	**£0.00**	**£2,000.00**	**£5,300.00**	**£7,300.00**	**£2,000.00**
2	Distribute sample software	£2,000.00	£2,000.00	£2,000.00	£0.00	£0.00	£2,000.00	£2,000.00	£0.00
3	Test software in field	£4,000.00	£4,000.00	£2,000.00	£0.00	£2,000.00	£2,000.00	£4,000.00	£2,000.00
4	Evaluate features	£400.00	£400.00	£400.00	£0.00	£0.00	£400.00	£400.00	£0.00
5	Accept/reject purchase of software	£900.00	£900.00	£900.00	£0.00	£0.00	£900.00	£900.00	£0.00
6	Evaluation Complete	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
7	**Software Rollout**	**£4,500.00**	**£2,300.00**	**£2,700.00**	**-£2,200.00**	**-£400.00**	**£5,282.61**	**£4,500.00**	**-£782.61**
8	**Installation technicians**	**£320.00**	**£320.00**	**£320.00**	**£0.00**	**£0.00**	**£320.00**	**£320.00**	**£0.00**
9	Schedule classes	£160.00	£160.00	£160.00	£0.00	£0.00	£160.00	£160.00	£0.00
10	Videotape session	£160.00	£160.00	£160.00	£0.00	£0.00	£160.00	£160.00	£0.00
11	**End-users**	**£1,980.00**	**£1,980.00**	**£2,380.00**	**£0.00**	**-£400.00**	**£2,380.00**	**£1,980.00**	**-£400.00**
12	Schedule classes	£160.00	£160.00	£160.00	£0.00	£0.00	£160.00	£160.00	£0.00
13	Develop training session materials	£620.00	£620.00	£620.00	£0.00	£0.00	£620.00	£620.00	£0.00
14	Develop desktop quick reference	£1,200.00	£1,200.00	£1,600.00	£0.00	-£400.00	£1,600.00	£1,200.00	-£400.00
15	Training	£1,200.00	£0.00	£0.00	-£1,200.00	£0.00	£1,200.00	£1,200.00	£0.00
16	floorwalking	£1,000.00	£0.00	£0.00	-£1,000.00	£0.00	£1,000.00	£1,000.00	£0.00
17	Development complete	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00

To select this view choose

View, **Tables**, **More Tables**, **Earned Value**

The highlighting and circles have been added to show the changes made to two tasks from the project plan (Baseline).

The Earned Value table is a collection of several columns containing abbreviations. At first sight this look complicated but hovering the mouse pointer over a column heading helps to explain what each column means and how it is calculated. The table below shows what the abbreviated stand for and the formula used.

Column	Stands for	Explanation	Formula
BCWS	Budgeted Cost or Work Scheduled	Planned Value – Cost of work scheduled	
BCWP	Budgeted Cost of Work Performed	Earned Value – Cost of work incurred up to current date	% Complete x BCWS
ACWP	Actual Cost of Work Performed	Cost incurred for work up to the current date	
SV	Earned value Scheduled Variance	Difference in cost terms between the current progress and the baseline plan	SV = BCWP - BCWS

CV	Earned Value Cost Variance	Difference between how much the task should have cost and actually cost to achieve the current level of completion	CV = CBWP – ACWP
EAC	Estimate At Completion	Expected total cost based on performance today	EAC = ACWP
BAC	Baseline Cost	Same as the Baseline Total Cost (on Stats)	
VAC	Variance At Completion		VAC = BAC – EAC

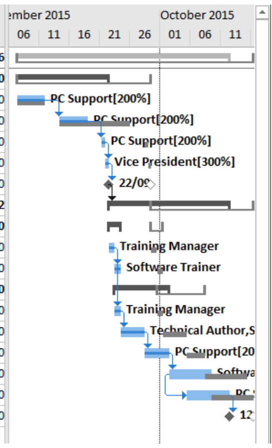
In the example the Earned Value increased (doubled) for task 3 where the task duration was halved from 2 weeks to 1 week. Earned Value decreased for task 14 where the task took 4 days instead of the scheduled 3 days.

Note also that Variance at Completion (VAC) is positive when the actual cost is lower than scheduled and negative when it is higher than scheduled.

These figures can be seen in the Earned Value over Time chart as cumulative values. The change caused by task 3 shows up in Week 38.

The Earned Value Cost Indicators table

	Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	CV	CV%	CPI	BAC	EAC	VAC
0	**Rollout Autumn**	**£11,800.00**	**£9,600.00**	**£1,600.00**	**17%**	**1.2**	**£11,800.00**	**£9,833.33**	**£1,966**
1	**Evaluation and Testing**	**£7,300.00**	**£7,300.00**	**£2,000.00**	**27%**	**1.38**	**£7,300.00**	**£5,300.00**	**£2,000**
2	Distribute sample software	£2,000.00	£2,000.00	£0.00	0%	1	£2,000.00	£2,000.00	£0
3	Test software in field	£4,000.00	£4,000.00	£2,000.00	50%	2	£4,000.00	£2,000.00	£2,000
4	Evaluate features	£400.00	£400.00	£0.00	0%	1	£400.00	£400.00	£0
5	Accept/reject purchase of software	£900.00	£900.00	£0.00	0%	1	£900.00	£900.00	£0
6	Evaluation Complete	£0.00	£0.00	£0.00	0%	0	£0.00	£0.00	£0
7	**Software Rollout**	**£4,500.00**	**£2,300.00**	**-£400.00**	**-17%**	**0.85**	**£4,500.00**	**£5,282.61**	**-£782**
8	**Installation technicians**	**£320.00**	**£320.00**	**£0.00**	**0%**	**1**	**£320.00**	**£320.00**	**£0**
9	Schedule classes	£160.00	£160.00	£0.00	0%	1	£160.00	£160.00	£0
10	Videotape session	£160.00	£160.00	£0.00	0%	1	£160.00	£160.00	£0
11	**End-users**	**£1,980.00**	**£1,980.00**	**-£400.00**	**-20%**	**0.83**	**£1,980.00**	**£2,380.00**	**-£400**
12	Schedule classes	£160.00	£160.00	£0.00	0%	1	£160.00	£160.00	£0
13	Develop training session materials	£620.00	£620.00	£0.00	0%	1	£620.00	£620.00	£0
14	Develop desktop quick reference	£1,200.00	£1,200.00	-£400.00	-33%	0.75	£1,200.00	£1,600.00	-£400
15	Training	£1,200.00	£0.00	£0.00	0%	0	£1,200.00	£1,200.00	£0
16	floorwalking	£1,000.00	£0.00	£0.00	0%	0	£1,000.00	£1,000.00	£0
17	Development complete	£0.00	£0.00	£0.00	0%	0	£0.00	£0.00	£0



This table view is similar to Earned Value except included are the performance indicators CV% and CPI

Column	Stands for	Explanation	Formula
CPI	Cost Performance Index	Ratio of Budgeted Cost of Work Performed and the Actual Cost of Work performed	CPI = BCWP/ACWP
CV%	Cost Variance Percent	Ratio of Cost Variance and Budgeted cost of work performed as a %. This expresses how much a task should have cost compared to how much it actually did cost.	(BCWP-ACWP)/BCWP *100

Exercise

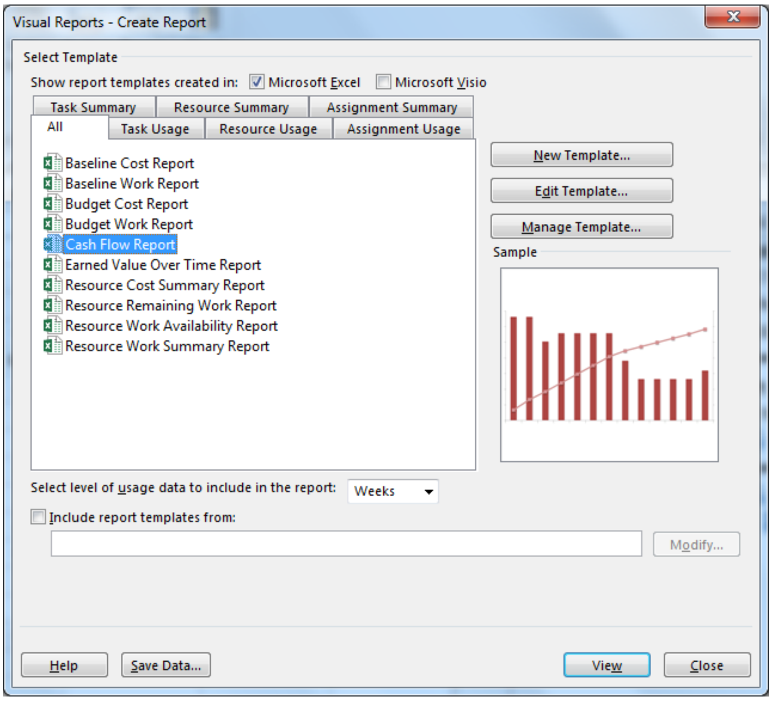
In the project example task 3 has a BCWP of £2000 and an ACWP of £1000. Task 14 has a BCWP of £1,200 and an ACWP of £1,600.

Calculate the CPI and CV% values for both tasks and see if they match with the values in the Earned Value Cost Indicators table.

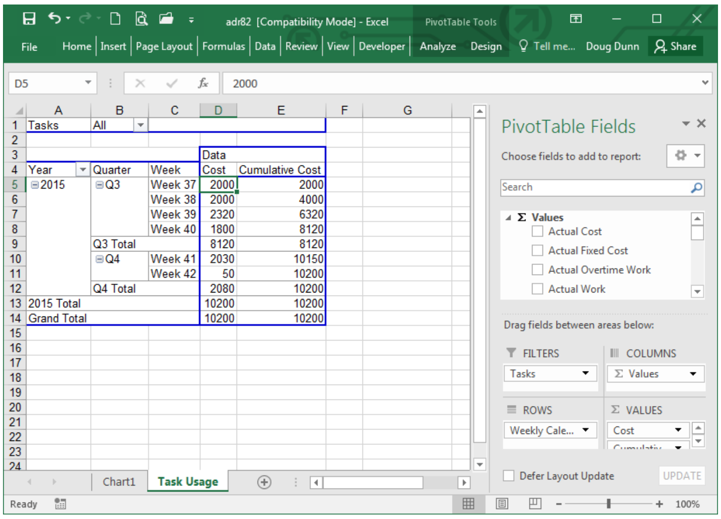
Note in the table the Project Summary Row at the top gives an overall CPI of 1.2 and CV% of 17% for the whole project to date.

Other Visual Reports

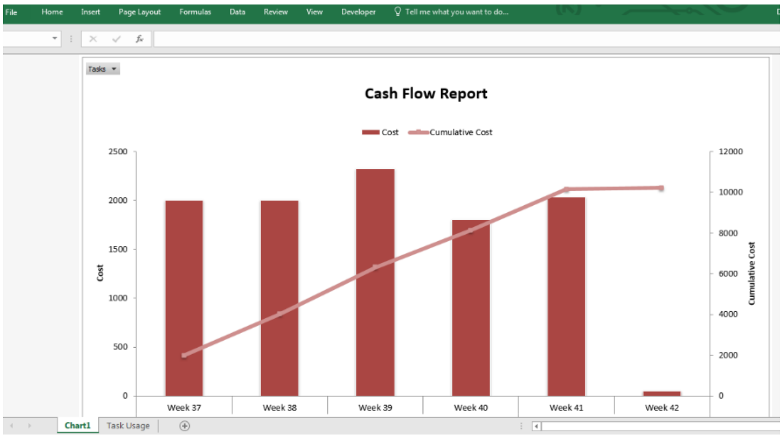
Select **Report, Visual Reports, Cash Flow Report**



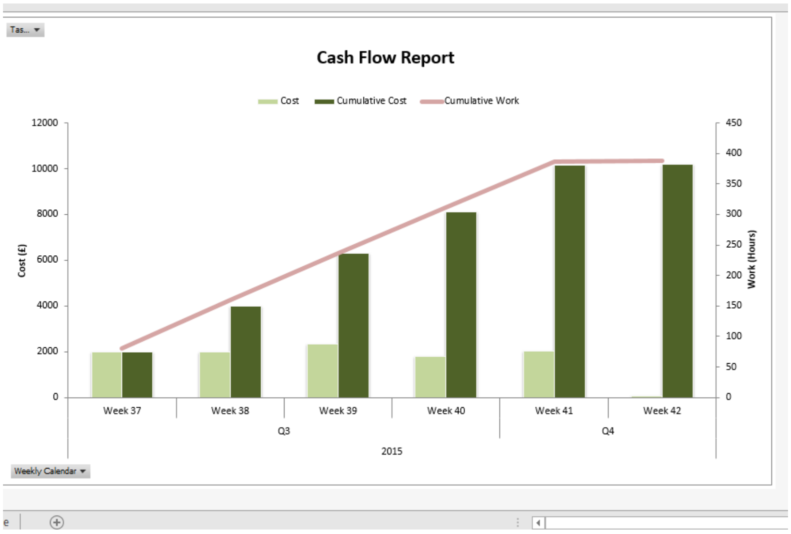
Click **View** to export the report to Excel. The report can then be modified by altering the Pivot data on the Task Usage worksheet.



Click the + next to Q3 and Q4 to include weekly costs then select Chart1 to see the cash flow chart.

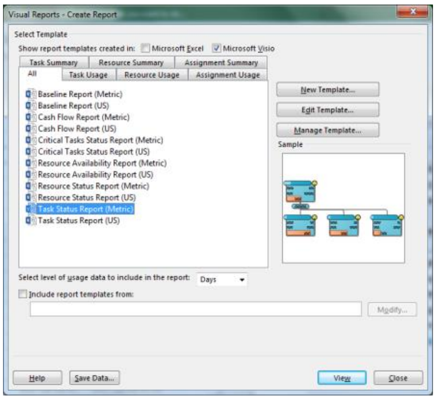


The Task Usage tab can be used also to add other fields for the chart data. For example, Work in hours can be added on the secondary axis instead of cumulative costs.

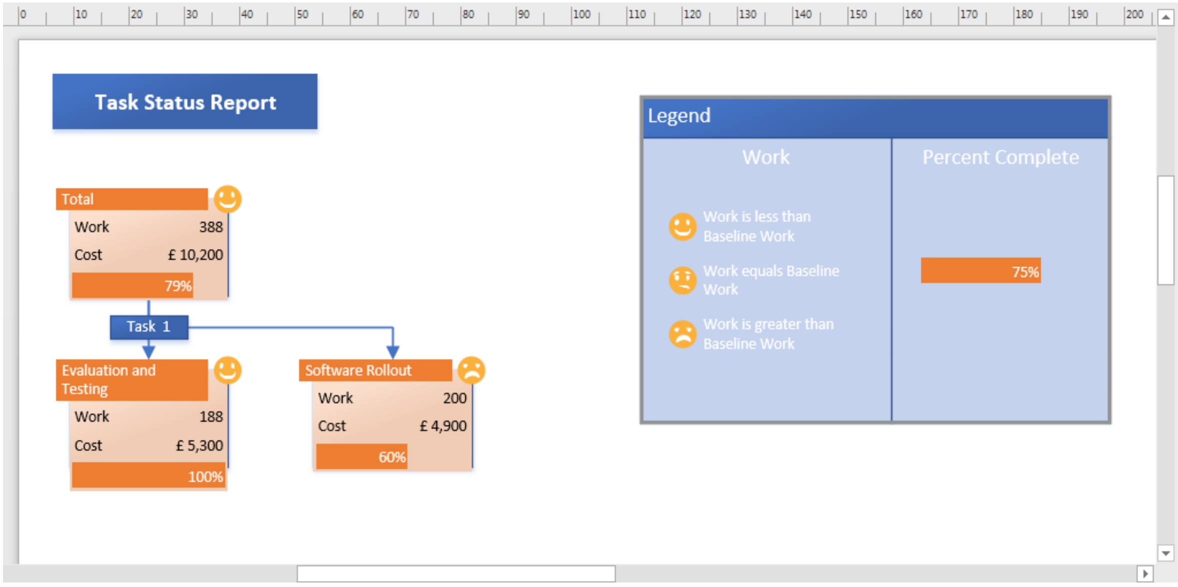


The other Visual reports can be customised in a similar way through the Pivot Table Field List within Excel.

Task Status Report



This report requires MS Visio to be available. It displays the project status in a fun graphical format.



Note that orange bars are a measure of % complete and the smiley faces indicate work higher or lower than scheduled (baseline).

Macro Features

A macro is generated when users want to automate work. Macros are created in Visual Basic for Applications (VBA) and this code can be generated either by recording a macro or manually entering the instructions in VBA.

The use of macros can speed up frequently performed tasks or enable delegation of work by enabling other users to perform actions that they were unaware of.

Recording a macro

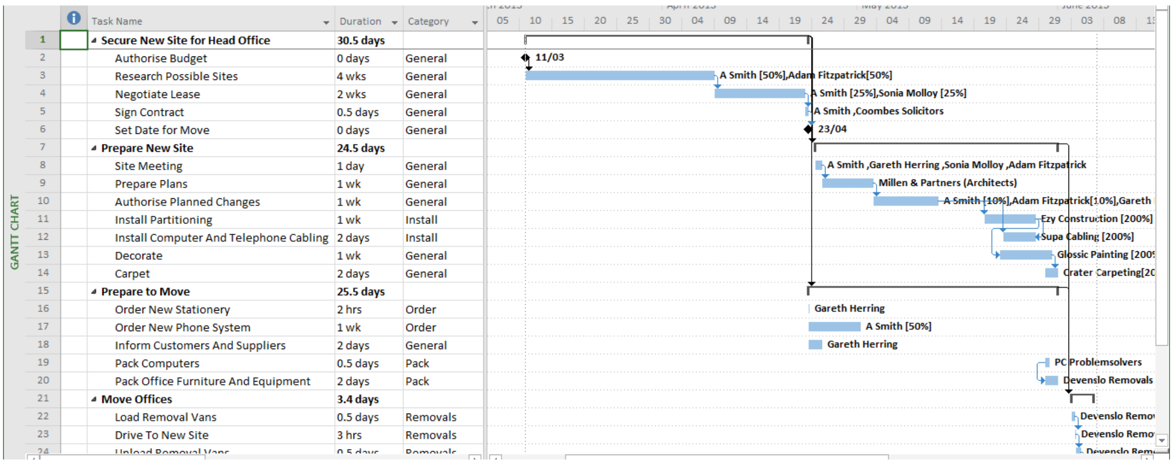
Recording a macro is one way of generating VBA code that will automate tasks. Recorded macros work well for simple tasks such as changing views and printing information, but for more complex tasks they may be unsuitable and manual coding may be necessary.

Before a macro is recorded the actions that it will automate should be planned to ensure that the end results that are as expected. For example, if the macro is going to display a custom table or a view then this element must be created before the macro is generated.

Suppose you wish to have a macro that colours bars and tasks depending on a lookup category column. This is quite a time consuming task involving repetitive filtering. This macro can be recorded and set to perform this formatting by the click of a button!

The macro can be also set to be available only in the project that it applies to.

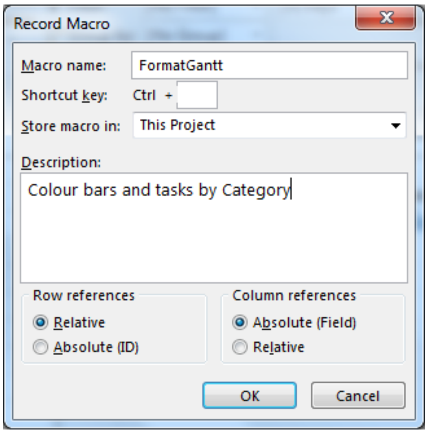
First open the project example called Colours macro. It already contains a custom column called Category.



You could rehearse the steps that are to be recorded first (see next page).

When you are ready to start recording your macro start the macro recorder by selecting

View, **Macros**, **Record Macro**



First enter a **Macro name**. This needs to start with a letter and cannot contain any spaces. You can use an _ (underscore).

In this example name the macro FormatGantt.

The macro can be run from a shortcut key, run from the Macro option on the View ribbon or from the Quick Access Toolbar. Refer to the Appendix for a list of key assignments already in use by Project.

To run a macro from a shortcut key, enter the letter that will be used in conjunction with Ctrl.

Also decide where the macro will be stored – the Global file is selected by default. In this example choose **This Project.** The macro will then be available only in the Colours macro project file. If saved in the Global file it will be available to all projects used on the computer where the macro was created. Click OK to start the recorder.

The computer will now record all actions and convert them into VBA code.

Record the following actions:

1. Select the whole task sheet (click the square above the id column).
2. Click the filter icon for the Category column.
3. Un-tick Select All and tick the first category.
4. Select the Task tab and choose a background colour.

5. Select the Format tab, Format, Bar and choose the same fill colour from the middle bar colour.
6. Repeat steps 2 to 5 choosing a different colour for each category.
7. After filtering and colouring the last category, click the filter icon and tick Select All to show all categories again (or press F3).
8. Finally click in row 1 when finished.
9. To stop recording select View, Macro, **Stop Recording.**

Step 9 is most important otherwise the recorder will continue to record your every action!

Editing a Macro

Before running this macro there is one extra line that may need to be added depending on the version of Project you are running. This requires a short visit to the Visual Basic Editor but only to make a minor addition.

Select **View**, **Macros**

Click the macro name from the list and then click the **Edit** button.

(General) | FormatGantt

```
Sub FormatGantt()
' Colour bars and tasks by Category

    SelectSheet
    SetAutoFilter FieldName:="Text2", FilterType:=pjAutoFilterIn, Criteria1:="General"
    GanttBarFormatEx MiddleColor:=6674943
    Font32Ex CellColor:=49407
    SetAutoFilter FieldName:="Text2", FilterType:=pjAutoFilterIn, Criteria1:="Install"
    GanttBarFormatEx MiddleColor:=9293992
    Font32Ex CellColor:=11788485
    SetAutoFilter FieldName:="Text2", FilterType:=pjAutoFilterIn, Criteria1:="Order"
    GanttBarFormatEx MiddleColor:=15057820
    Font32Ex CellColor:=15189684
    SetAutoFilter FieldName:="Text2", FilterType:=pjAutoFilterIn, Criteria1:="Pack"
    GanttBarFormatEx MiddleColor:=10498160
    Font32Ex CellColor:=10498160
    Font32Ex CellColor:=13110468
    SetAutoFilter FieldName:="Text2", FilterType:=pjAutoFilterIn, Criteria1:="Removals"
    GanttBarFormatEx MiddleColor:=10855845
    Font32Ex CellColor:=14211288
    SetAutoFilter FieldName:="Text2"
    SelectTaskField Row:=0, Column:="Indicators"

End Sub
```

You can see what you recorded for this macro as a set of VBA instructions.

Any green text is a comment and can help document a macro. You can write your own comments by typing an apostrophe ' before the comment.

There should be a Sub followed by the macro name at the beginning and an End Sub at the end of the macro.

Type SelectSheet as the first instruction if it is not there. This is the equivalent of pressing the select sheet square at the top left of the task sheet above the task id column.

Now press the red close button at the top right of the VB Editor.

Before testing clear all the colours manually:

1. Selecting all tasks
2. Click Task, Background, No Fill
3. Choose Format, Format, Bar, Reset
4. Click on row 1 to remove the selection.

Running a Macro

To run the macro, click **View**, **Macros**

Choose FormatGantt macro

Press **Run**

Exercise

Record a second macro called ClearFormats that follows steps 1 to 4 above.

Adding a macro button to the Quick Access Toolbar.

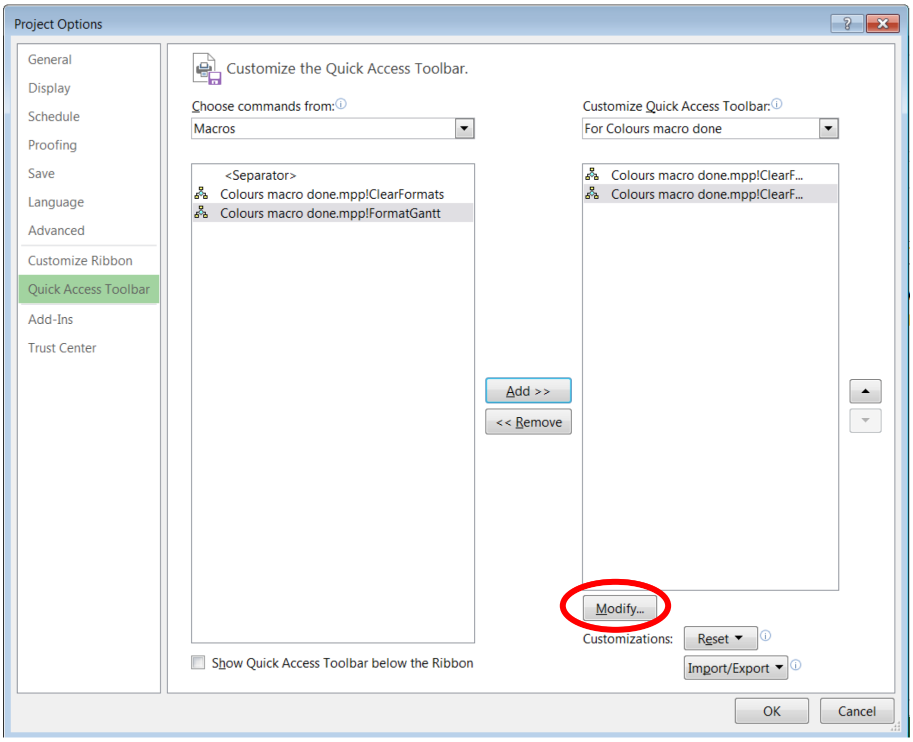
Once you have tested a macro works you can assign it to a button in the Quick Access toolbar at the top of the Project screen. To do this for your created macros:

Click the down arrow on the right side of the Quick Access toolbar.

Choose More Commands

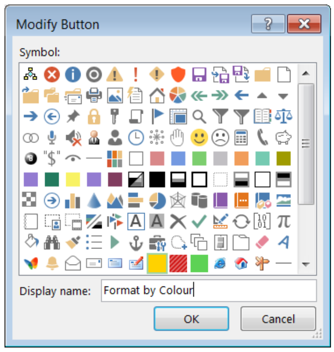
In the Choose commands from box pick **Macros**

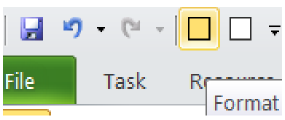
In the Customize Quick Access Toolbar select the Colours macro and click the **Add** button.



Now click **Modify** to change the macro icon and type a display name. This will display as a tool tip for the button.

Repeat for the ClearrFormats macro then press OK when finished. The 2 macro butons will now appear on the Quick Access Toolbar whenever this file is opened.

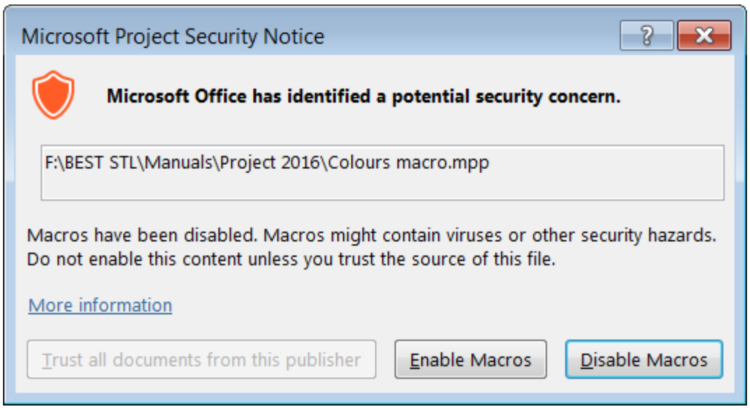




To keep your macros, Save changes to your project file (if stored within the project).

Opening a project file containing a macro

When a file is opened, if it contains a macro you will be prompted to either enable or disable macros. This gives the user a chance to disable macros if unsure about the origin of the project file.



Select **Enable Macros** if you want to run macros in the project.

Notice the Quick Access Toolbar now contains two additional icons for the macros.

Project Templates

A template is a project file that contains typical tasks or resources that can be used as a starting point for many projects within an organisation. Creating templates within project enables standardisation of project structure and can also help speed up the process of generating new project files.

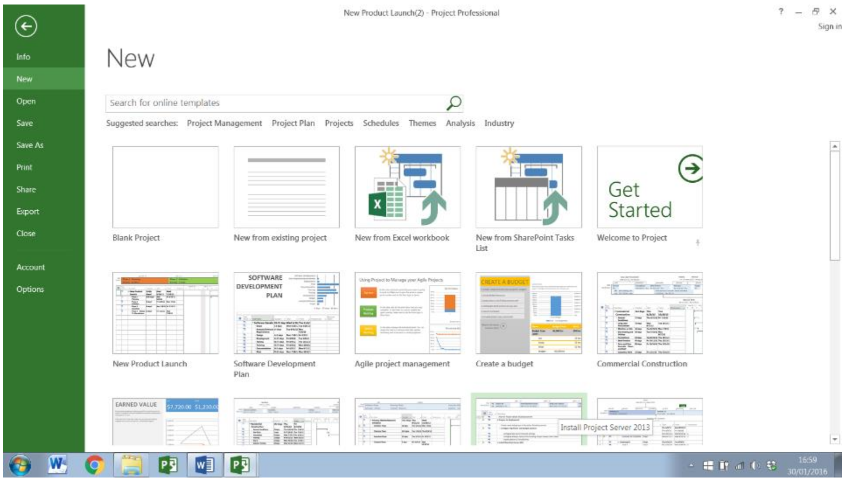
When a new project is created by default it is a blank project based on the Global.mpt file which provides settings and views. These will be titled Project1, Project2 and so on.

There are many sample templates already in existence in Project and these can be viewed when creating a new project.

Using a Sample Template

To view and use a sample Project template

Select **File**, **New**



View the various sample templates or select a category to search by.

The sample templates cover a number of business areas and include

- Commercial construction
- Software Development plan
- Market Research Schedule
- Infrastructure Deployment

- MSF Application Development
- New business plan
- New Product launch
- Home Move plan
- Residential Construction
- Agile Plan (Project 2013)
- Earned Value (Project 2013)

When using Project 2010 many similar templates can be found by selectin New from Office.com.

The templates are designed to install when they are used for the first time, this could result in an error appearing on the computer if the machine does not have access to installation files. To overcome the problem either request access to installation files via a network or use the project cd.

When a template is opened a copy is generated and the original is unaffected by any changes made within the copy.

Creating a Template

Any existing file can be saved as a template to enable the information entered to be reused.

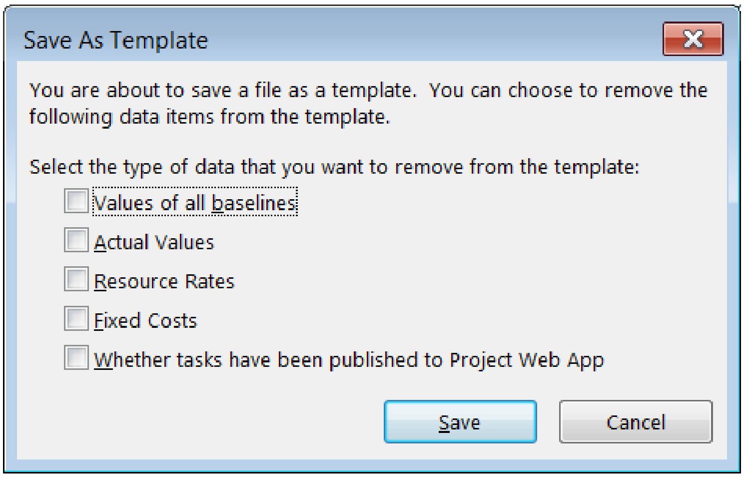
Select **Files**, **Save As**

Choose Computer, Browse

Change the file type to a **Project Template** and then the folder location will have changed to the template folder which is stored under application data.

Enter a name for the template and select **Save**.

The following dialogue box will then appear enabling certain data to be removed from the file before the template is generated. The existence of this feature enables completed or active projects to be used to generate a template as all data unique to the project file can be removed.



Certain data is not removed by this feature – task assignments, notes and hyperlinks.

Once the template is saved a new copy can be generated – this will have the template name until the file is saved, but the file type is mpp.

Editing a Template

Once a project template has been created the original cannot be opened for editing. When this is attempted and the original file is located and opened a copy is generated.

To edit a template therefore the following procedure is used to enable a template to be modified.

Create a copy of the template (using **File**, **New**) then make the changes that are required.

Save the file as a template with the same name as the original

Select **Replace** to accept changes to the original template.

Using a Template

To use any template, whether it is user defined or a sample template.

File, **New**

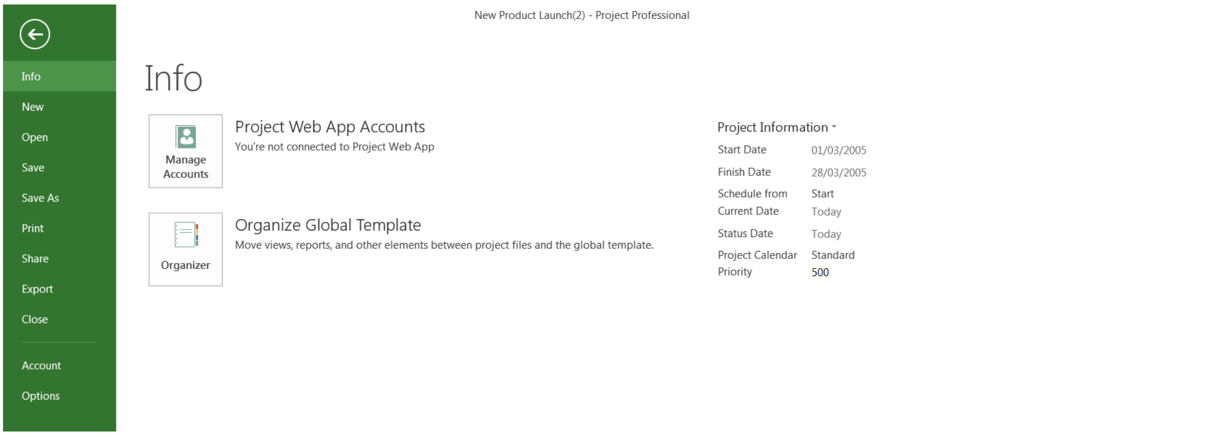
Select the template from the **Personal** section. With Project 2010 select a template from **My Templates**.

How to use the Organizer

The organizer is a feature in project that enables objects that have been created or amended to be copied from one project or template to another project or template.

Work in the project which contains the object to be copied, renamed or deleted.

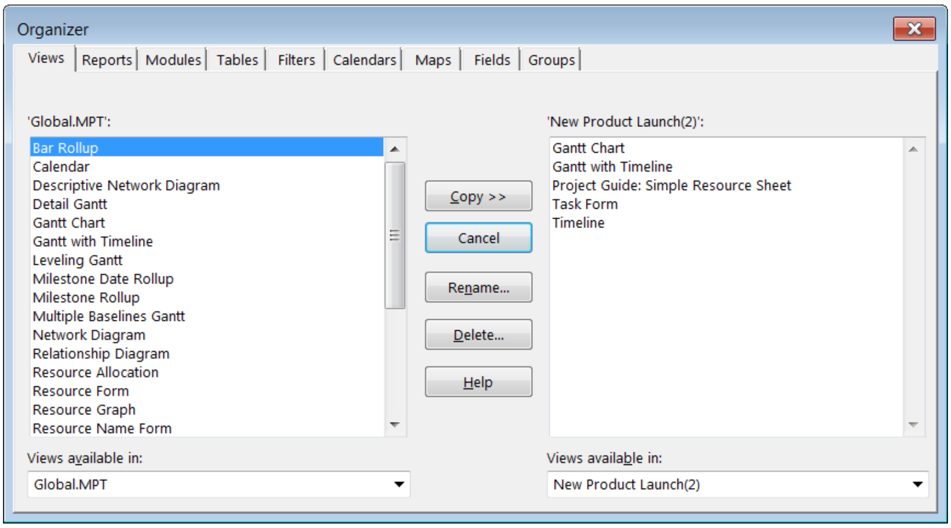
To access the Organizer select



Select File, Info

Click Organizer

The dialog box that next displays contains a tab for all the different objects that can be moved between projects.



On the left side of the screen the template that the project is based on will be shown. This is called **Global.MPT** which is the default project template.

On the right side of the dialog box the open project is displayed.

To copy an object

Move to the tab that describes the object, for example the view tab.

Select the object to be copied by clicking on the object name.

If an item on the left of the screen is selected the copy button will copy right.

If an item on the right of the screen is selected the copy button will copy left.

Click on the copy button and the selected object will appear on the opposite side of the screen.

If the view that is being copied already exists on the other side of the screen, a prompt will appear warning that the object already exists in the project or template

Options given are:

Click Yes to proceed

Click No to cancel

Click Rename to amend the view name before the copy takes place

When all objects have been copied click on the Close icon in the top right corner of the screen.

Appendix

Shortcut		Action Performed
Ctrl	*	Zoom out
Ctrl	/	Zoom in
Ctrl	b	Bold
Ctrl	c	Copy
ctrl	d	Fill Down
ctrl	f	Find
	F2	Edit Task name
	F3	Remove Filter
Ctrl	F3	Reapply filter (must be done before it is removed)
Shift	F3	Remove sort or group
Alt	F3	Display column definition dialogue box
	F5	Go to
Alt	F5	Go to next over allocation
	F6	Activate other pane when screen split
Alt	F8	Display macro dialogue box
ctrl	h	Replace
ctrl	i	Italics
ctrl	k	Insert Hyperlink
ctrl	n	New Project File
ctrl	o	Open Project File
ctrl	p	Print
ctrl	r	Fill Right
ctrl	s	Save
ctrl	u	Underline
ctrl	v	Paste
ctrl	x	Cut
ctrl	z	Undo

E&OE