99 Tricks and Traps

for

Microsoft® Project

2013 and 2016

The Casual User's "Survival Guide"

By

Paul E Harris

of

Eastwood Harris Pty Ltd

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8 UPDATING ESSENTIALS

8.1 Baselines and Updating a Project

After a schedule has been reviewed and approved, it should be baselined before it is updated for the first time. Setting the Baseline copies the **Early Start** and **Early Finish**, the **Original Duration** and each resource's **Costs** and **Work** into Baseline fields.

A Microsoft Project Baseline is not a complete baseline because it does not record Constraints, Relationships, Float or the Critical Path.

Once the Baseline is set you will be able to update your plan and compare the progress with the original plan and be able to see:

- If the planned progress has been achieved,
- If the project is ahead or behind schedule, and
- By how much in time and cost.

A Baseline is set by selecting **PROJECT**, **Schedule** group, **Set Baseline**.

There are a number of options and forms available to update project tasks after setting the Baseline.

Irrespective of which forms are used, there are two main methods to update a project:

- Auto Status the schedule by allowing the software to automatically update the tasks, as if the project progressed exactly according to schedule. Then, if required, adjust tasks to reflect actual events and revisions, or
- Update each task one by one.

8.2 Which Baseline Should Be Used?

After a project has progressed it may be necessary to set a new Baseline.

This may occur when the scope of a project has changed and a new baseline is required to measure progress against, but at the same time you may also want to keep a copy of the original baseline.

A new Baseline may be used to display the effect of scope changes on a plan by setting a Baseline, adding the scope change and comparing the revised schedule with the Baseline.

The **Baseline** data may be reviewed in some Views such as the **Task Details Form**, in columns and on the Bar Chart. You will be able to display the **Baseline 1** to **10** and **Interim Plan** dates and durations in columns and as bars on the Gantt Chart but not in the forms. **Baseline 1** to **10** also do not have variance columns.

Therefore, it is recommended that the current baseline be saved as the **Baseline** since the data is more accessible from the **Baseline** than **Baseline 1** to **10**. Previous baselines should be copied to **Baselines 1** to **10** and preserved as a record.

Another benefit of using **Baseline** is that it has **Variance Start**, **Variance Finish** and **Variance Duration** columns that are not available with other Baselines, but may be calculated using a Calculated Field.

Note: The downside of using one of the Baselines 1 to 10 is that it is not possible to easily identify what the Baseline was set for as there is not inbuilt way of naming these baselines.

8.3 Principles of Updating a Program

Ideally, scheduling software has one current **Data Date** and the function of it is to:

- Separate the completed parts of tasks from incomplete parts of tasks,
- Calculate or record all costs and hours to date before the **Data Date**, and to forecast costs and hours to go after the **Data Date**,
- Calculate the **Finish Date** of an in-progress task from the **Data Date** plus the **Remaining Duration** over the **Task Calendar**.

Therefore a properly updated Microsoft Project program the **Status Date** should be used as the **Data Date:**

- Completed Tasks would have Actual Start and Actual Finish Dates in the past.
- In progress tasks would have the Actual Start and Actual Duration in the past, and the Early Finish and Remaining Duration in the Future.
- Unstarted tasks should be in the future.

In Microsoft Project is relatively simple to be in a situation where you have complete or in-progress tasks with start dates later than the **Status Date**, and/or incomplete or un-started tasks with a finish date earlier than the **Status Date**. This is an unrealistic situation, which is more difficult to achieve in other scheduling software packages. Care should be taken to avoid this situation and checks made after the schedule has been updated.

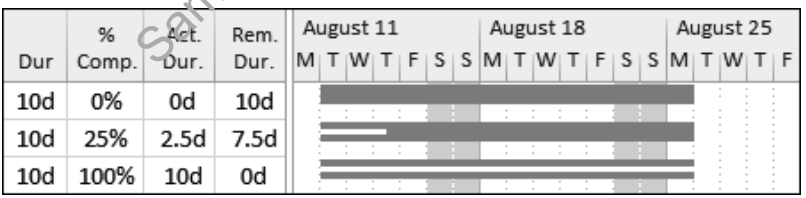
Note: The Eastwood Harris template found at the **www.eh.com.au** website **Software & Downloads** page has a **Tracking Table** with an additional column showing what is required to do to ensure the tasks are correctly updated.

8.4 In-progress Task Finish Date Calculation

Many planning and scheduling packages calculate a task Finish Date from the Data Date plus the Remaining Duration over the Task or Resource Calendar, whichever is applicable.

Unlike most planning and scheduling software packages, Microsoft Project ignores the **Current Date** and **Status Date** when calculating an in-progress task. It calculates a task **Finish Date** from the **Actual Start Date** plus the **Duration** and effectively ignores the **Remaining Duration** for normal progress calculation.

There is an in-built proportional link between **Duration**, % **Complete, Actual Duration** and **Remaining Duration**. It is not possible to unlink these fields (as in other scheduling software) and therefore not possible to enter the **Remaining Duration** independently of the **% Complete**.

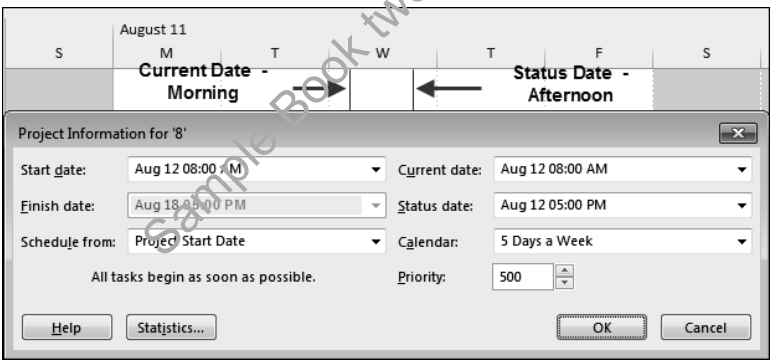


Thus **% Complete** field is the **% Duration** of a task.

8.5 Current Date and Status Date

Microsoft Project has two project data date fields that may be displayed as vertical lines on the schedule. These dates may be edited from the **PROJECT**, **Properties**, **Project Information** form:

- **Current Date** – This date is set to the computer's date each time a project file is opened. It is used for calculating **Earned Value** data when a **Status Date** has not been set. The time of the **Current Date** is set by default to the start time of a day, see the picture below.
- **Status Date** – This field is blank by default with a value of **NA**. The Status Date will not change when the project is saved and reopened at a later date. It overrides the **Current Date** for calculating **Earned Value** data and is set by default to the finish time of a day, see the picture below.



Note: It is recommend that the **Status Date** is set and displayed as a vertical line on a progressed schedule and the **Current Date** not displayed, because the **Current Date** represents the date today and does not normally represent any scheduling significance.

10 OTHER THINGS OF INTEREST

10.1 Editing Tool Bars

It is recommend you customize your menus by:

- Firstly to allow more buttons to be displayed on the **Quick Access Toolbar**, right click on the Toolbar and select **Show Quick Access Toolbar Below the Ribbon** to move the Quick Access Toolbar below the Ribbon Toolbar.
- Secondly it is recommend that you hide the Ribbon Toolbar by Right-clicking on the Ribbon Toolbar and display the Ribbon Toolbar Menu. Then click on **Collapse the Ribbon** to hide the Ribbon Toolbar. When you click in the Gantt Chart area the Ribbon will minimize and more work area will be available allowing you to see more tasks.
- Thirdly it is recommend that you download the **Microsoft Project Quick Access Toolbar** from the **www.eh.com.au** website **Software & Downloads** page, unzip it by double clicking on the file and dragging it to your Desk top. Then import the toolbar using **FILE**, **Options**, **Quick Access Toolbar**, **Import/Export**. This has all the commonly used commands on the Quick Access Toolbar.

To do further editing to the Tool bar icons:

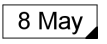
- **Right-Click** in the toolbar area,
- Select **Customize the Ribbon...**,
- Select the **All Commands** option,
- Drag icons onto the required tool bar, or
- Drag icons off the toolbar to remove them.

Note: Unfortunately Microsoft Project 2016 has wide spacing between the Quick Access Toolbar and thus

displays less buttons than Microsoft Project 2016 making the Quick Access Toolbar less useful.

10.2 Dynamically Linking Cells

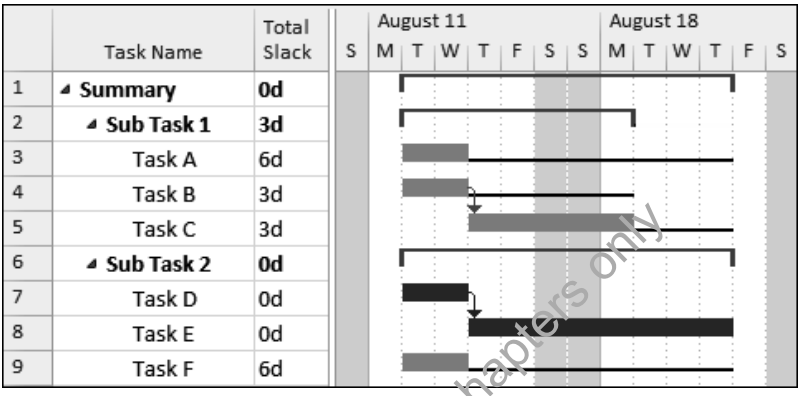
It is also possible to dynamically link data to other programs such as an Excel spreadsheet:

- Copy the data from the spreadsheet,
- Select the cell position in the table where the data is to be pasted in Microsoft Project,
- Select **Paste Special** and then select the **Paste Link** and **Text Data** options,
- The data will be pasted into the cell(s) and changes to linked cells in the spreadsheet or other program will be reflected in Microsoft Project.
- The linked cell will have a little triangle in the bottom right-hand side: 

- Be careful when linking date fields as this may set an unwanted constraint.
- When you reopen the project schedule at a later date you will be asked if you wish to refresh the data from the other application.
- Delete or change the cell data to remove a link.
- Double-click on the little triangle in the bottom right hand side of the cell to open the link.
- It is also possible to link one or more cells in a schedule with another cell in the same schedule so a change in one cell will change all the other linked cell(s). Again use the **Paste Link** option.

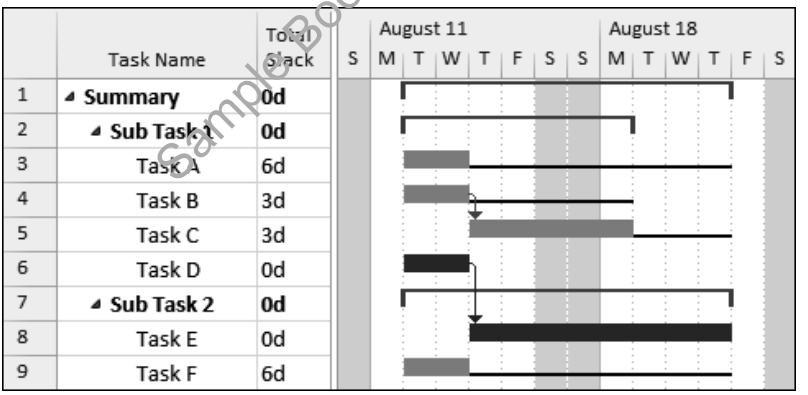
10.3 How Does Negative Float Calculate for Summary Activities?

The lowest value of the Total Float of incomplete tasks is adopted by the summary task, Sub Task 1 in the picture below and has adopted 3 days:



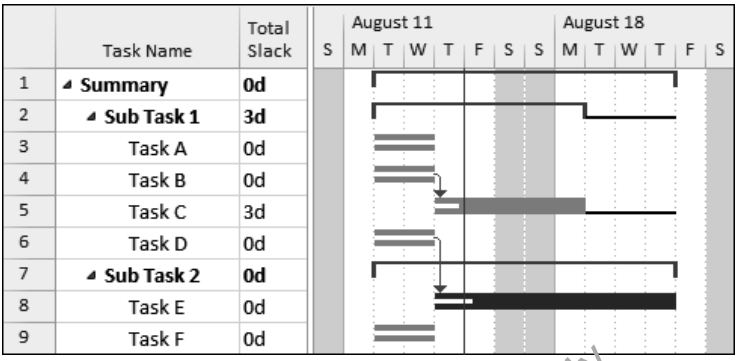
	Task Name	Total Slack
1	**Summary**	**0d**
2	**Sub Task 1**	**3d**
3	Task A	6d
4	Task B	3d
5	Task C	3d
6	**Sub Task 2**	**0d**
7	Task D	0d
8	Task E	0d
9	Task F	6d

In the picture below, Task C is the latest task under Sub Task 1 and has Float, but Sub Task 1 has adopted zero float from Task D the lowest float value.



	Task Name	Total Slack
1	**Summary**	**0d**
2	**Sub Task 1**	**0d**
3	Task A	6d
4	Task B	3d
5	Task C	3d
6	Task D	0d
7	**Sub Task 2**	**0d**
8	Task E	0d
9	Task F	6d

Now the project has progressed and the task with zero float is complete. Sub Task 1 has 3 days' Float:



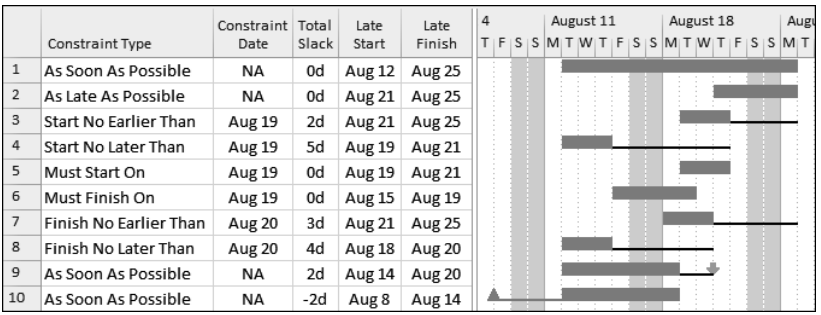
	Task Name	Total Slack
1	Summary	0d
2	Sub Task 1	3d
3	Task A	0d
4	Task B	0d
5	Task C	3d
6	Task D	0d
7	Sub Task 2	0d
8	Task E	0d
9	Task F	0d

10.4 Float and Constraints

The following principles apply to constraints:

- **Early** constraints operate on **Early dates**,
- **Late** constraints operate on **Late dates**,
- **Start** constraints operate on **Start dates**, and
- **Finish** constraints operate on **Finish dates**.

The picture below demonstrates how constraints affect Total Float (Slack) calculations of tasks (without predecessors or successors) against the first task of 10 days duration.



	Constraint Type	Constraint Date	Total Slack	Late Start	Late Finish
1	As Soon As Possible	NA	0d	Aug 12	Aug 25
2	As Late As Possible	NA	0d	Aug 21	Aug 25
3	Start No Earlier Than	Aug 19	2d	Aug 21	Aug 25
4	Start No Later Than	Aug 19	5d	Aug 19	Aug 21
5	Must Start On	Aug 19	0d	Aug 19	Aug 21
6	Must Finish On	Aug 19	0d	Aug 15	Aug 19
7	Finish No Earlier Than	Aug 20	3d	Aug 21	Aug 25
8	Finish No Later Than	Aug 20	4d	Aug 18	Aug 20
9	As Soon As Possible	NA	2d	Aug 14	Aug 20
10	As Soon As Possible	NA	-2d	Aug 8	Aug 14

Tasks 9 and 10 have a **Deadline Date** assigned which allows a second constraint to be applied to a task and operates like a Finish No Later Than constraint.

The **Late** constraints reduce the amount of Total Float (Slack) a task has and may generate **Negative Float**.

The **Must** constraints act like an Early and Late constraint in one.

10.5 Using Custom Fields

Select the **PROJECT**, **Properties**, **Custom Fields** to open the **Custom Fields** form. This function includes a number of predefined fields for both Task and Resources.

- Task fields may be used for recording additional information about Tasks (such as responsibility, location, floor, system) and may be displayed in Task Views such as the Gantt Chart.
- Resource fields may record information such as telephone number, address, office and skills and may be displayed in Resource Views such as the Resource Sheet.
- The fields may be renamed. For example, the Task Text 1 field may be renamed "Responsibility" and the name of the person responsible for the task (this may not be the resource assigned to the task) placed in the Responsibility (Text 1) column.
- A renamed field is then available in the Task Information or Resource Information Custom Fields tab.
- Formulas may be created to populate the task fields with calculated data.
- Tasks and Resources may be Grouped using Custom Fields.

These predefined fields fall into the following categories: Cost, Date, Duration, Finish (date), Flag, Number, Outline Code, Start (date) and Text.

10.6 Custom Columns Formulas and Drop-Down List

The **Custom Attributes** section of the **Custom Fields** form is used to define Lookup lists and Formulas:

- The option **None** allows data to be entered, without any restrictions, from either a column or the **Task** or **Resource Information** forms.
- Lookup... opens the **Edit Lookup Table** where a table of values and descriptions may be entered. The Value is displayed in columns and Description in bands when the tasks are grouped by this field. Data entry restrictions may be set here.
- Formula... allows the assigning of formulas for the calculation of field values from other task and project fields.

The **Calculation for task and group summary rows** specifies how Summary Tasks calculate their values, such as Maximum, Minimum, Sum, None and Average:

- Dates could be Minimum or Maximum, and
- Cost would use Sum.

Calculation for assignment rows determines if the field value is displayed against the resource or the resource and assignment in Task Usage and Resource Usage fields.

Value to display allows the options of displaying the value in the cell or generating graphical indicators such as traffic lights.

10.7 Custom Outline Codes

There are ten hierarchical Task Custom Outline Codes and ten hierarchical Resource Custom Outline Codes that may be renamed to suit the project requirements.

- **Task Custom Outline Codes** may be used for any hierarchical project breakdown structure, such as a PRINCE2 Product Breakdown Structure, Contract Breakdown Structure, Work Breakdown Structure and
- **Resource Custom Outline Codes** may be used for organizational breakdown structures such as the hierarchy of authority, locations and departments.

The process to use this function has the following steps:

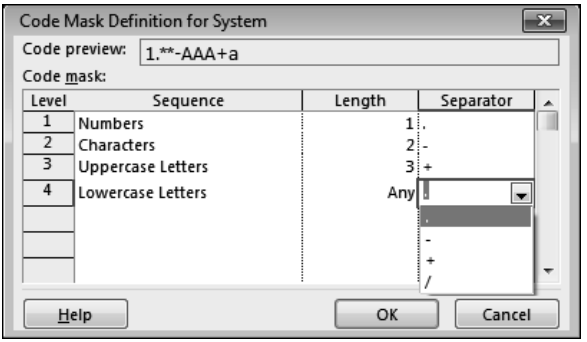
- Define the new Outline Code structure,
- Assign the codes to the tasks or resources, and
- Create a Group to organize the tasks under the new Custom Outline Code structure.

10.7.1 Define a Custom Outline Code Structure

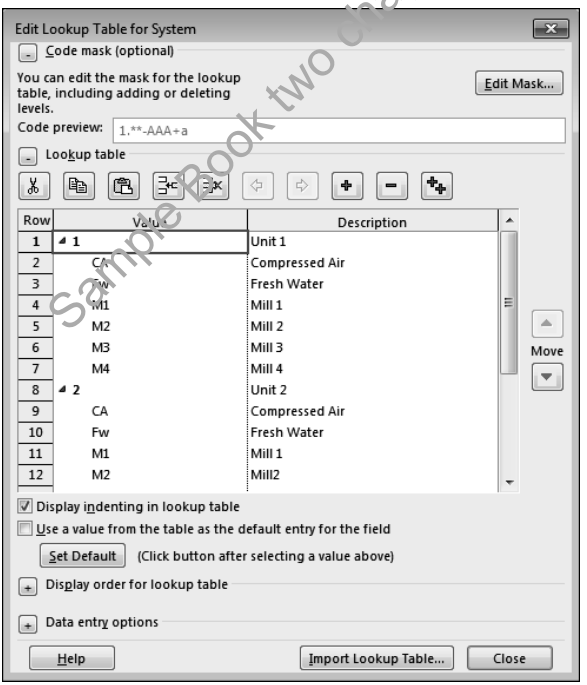
Select the **PROJECT**, **Properties**, **Custom Fields**:

- An Outline Code may be created for either **Task** or **Resource** data by clicking on the appropriate radio button under the title **Field**.
- Select the Outline Code the drop-down box in top right hand side.
- The Import Field... function allows you to copy a code structure from another project in a method similar to Organizer.
- The Rename... button opens a form to edit the name of the Outline Code.
- The Lookup... button in Microsoft Project 2013 and 2016 opens the **Edit Look Up Table** form for the selected Outline Code to create the **Lookup table**.
- Define the **Mask** or code structure by clicking on the Edit Mask... button at the top right-hand side in 2007-2016, before entering the codes. This will open the **Outline Code Definition** form where the code structure is defined:
  - Each **Level** is assigned a number.
  - The **Sequence** defines the type of text that may be entered for the code: Numbers, Upper Case, Lower Case or Characters (text).
  - The **Length** specifies how many characters the Code Level may have: any, or a number between 1 and 10.
  - The **Separator** defines the character that separates each level in the structure.

- The picture displays 4 levels each using a different option for their code:



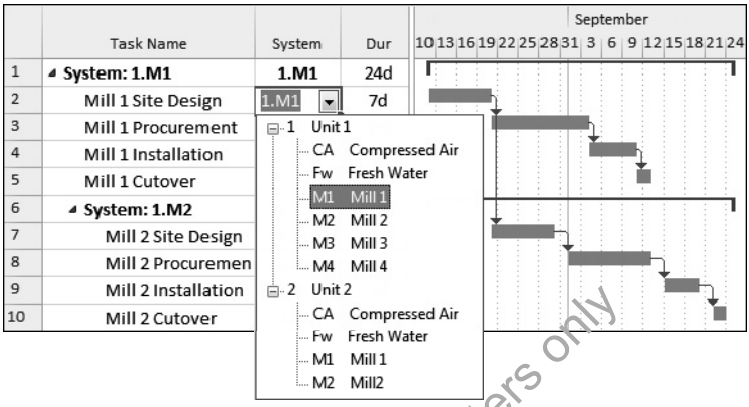
- Click the OK button to return to the **Edit Lookup Table** form where the Code Values and Descriptions are entered. The picture shows two levels for a Power Station Unit and Equipment:



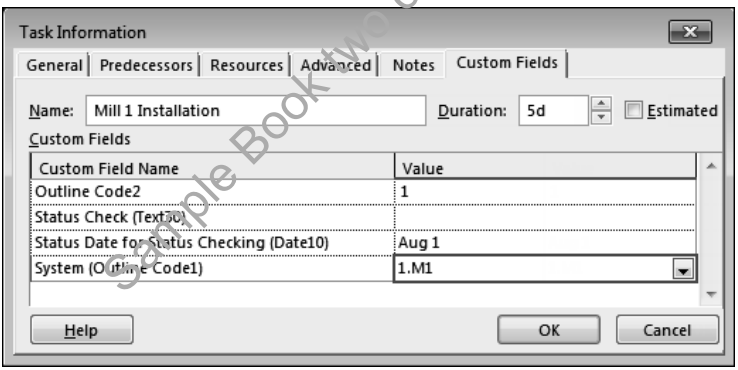
10.7.2 Assigning the Custom Codes

The codes are assigned by:

- Displaying the appropriate column:



- Or by opening the Task Information or Resource Information form:

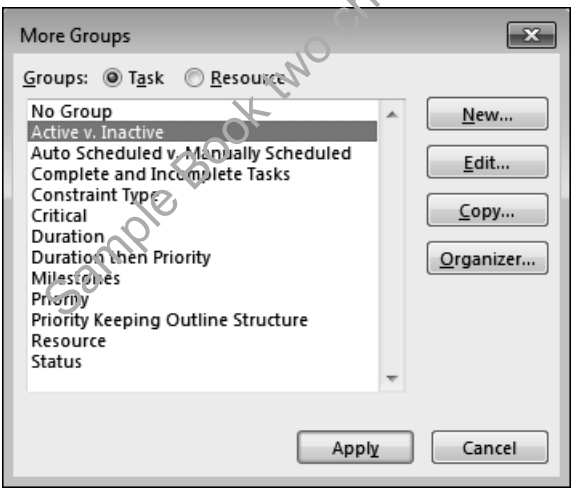


10.7.3 Grouping with Custom Data

Grouping allows grouping of tasks under data items such as Customized fields, Durations, Constraints, etc. This function is useful to group related tasks that are spread throughout a project schedule.

The Grouping function works in a similar way to Filters and Tables. A predefined Group may be assigned by:

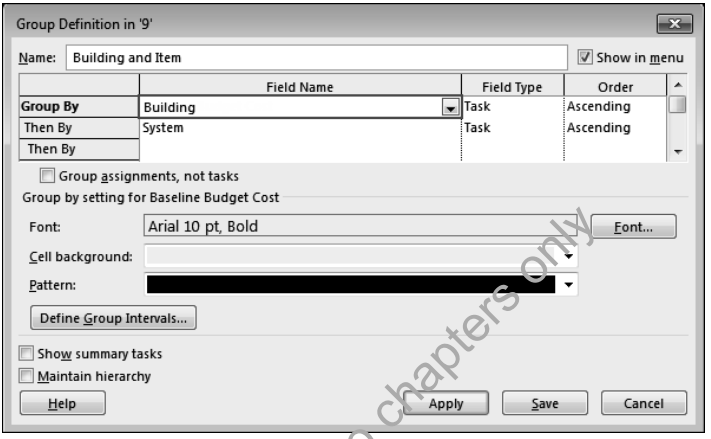
- Selecting **VIEW, Data**, **Group by:** dropdown to open up a sub menu,
- Then either:
  - Selecting a group from the list, or
  - Selecting **More Groups...** to open the **More Groups** form, clicking on the **Task** or **Resource** radio button, and then selecting one from the list, or



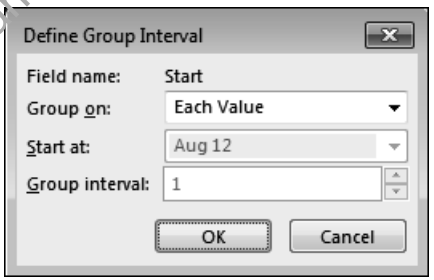
Note: Fields are sorted alphabetically when displayed on the screen so you may need to be careful with your Code Values and consider prefixing them with a number so they sort in the order you desire.

To create a new Group:

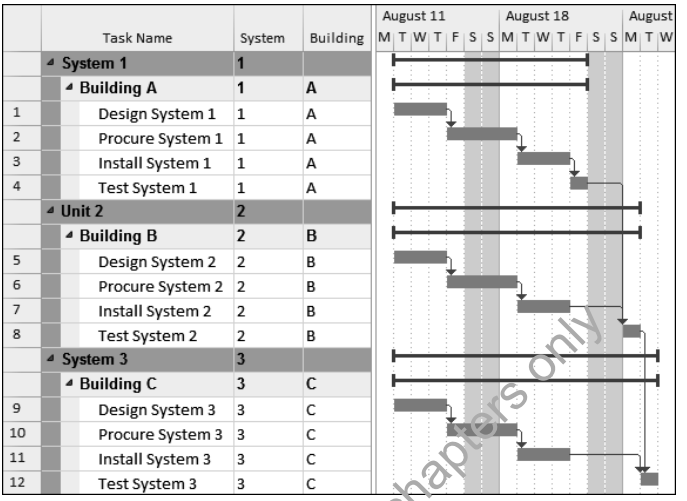
- Select **VIEW, Data**, **Group by:** dropdown, **New Group By…** to open the **Group Definition** form,
- Now create a "Grouping" which may be reapplied at a later date or copy to another project using **Organizer**.



- The **Define Group Interval** form is available with additional **Group By** options for certain fields, such as Start or Finish. This allows further formatting by defining the intervals of the banding. For example all the tasks that start in a week or month may be banded together:



The picture below shows a project Grouped by two text fields that have been renamed Systems and Building. Note the order of the Task IDs:



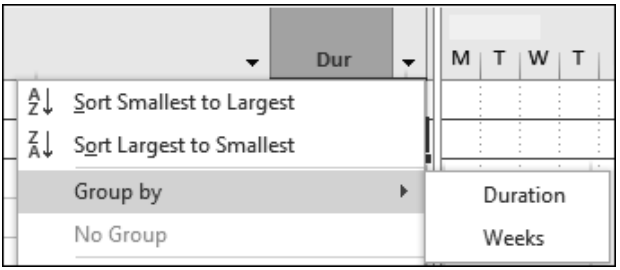
	Task Name	System	Building
	System 1	1	
	Building A	1	A
1	Design System 1	1	A
2	Procure System 1	1	A
3	Install System 1	1	A
4	Test System 1	1	A
	Unit 2	2	
	Building B	2	B
5	Design System 2	2	B
6	Procure System 2	2	B
7	Install System 2	2	B
8	Test System 2	2	B
	System 3	3	
	Building C	3	C
9	Design System 3	3	C
10	Procure System 3	3	C
11	Install System 3	3	C
12	Test System 3	3	C

10.7.4 Grouping with Custom Data with AutoFilters

Grouping with one band may also be achieved by turning on the AutoFilter function by either:

- Selecting **VIEW**, **Data**, **Filter**: and selecting **Display AutoFilter** at the bottom of the list, or add the **AutoFilter** button to the Quick Assess toolbar and clicking on it.
- There will now be a down arrow▼ in the column header,
- Click on the column header to open the menu,
- Click on **Group by**,
- Depending on the data contained in the column you will be offered logical data options to group your tasks,

- The picture below displays the options when Grouping by **Duration**:



10.8 Exporting to Excel

The **Analysis** toolbar is designed to export time-phased data to Excel in earlier versions of Microsoft Project is no longer available in Version 2010 and later.

The options to export to Excel are:

- Select the data in Microsoft Project and Cut and Paste and you have the option of keeping or not keeping the formatting when Pasting.
- Timescale data may be copied and pasted from the **Resource Usage** and **Task Usage** views but the date information must be manually added to the Excel Spreadsheet,
- The **REPORT**, **Export**, **Visual Reports** export to Excel in **Pivot Table** format, so you will need to hone up on your Pivot Table skills to use this function.
- The **FILE**, **Save As**, **Excel** format allows the mapping of specific fields to and from an Excel Spreadsheet. **Maps** made be set up and used to map data to and from Microsoft Project and Excel.

10.9 Turning Off Getting Started and other POP ups

These guides often slow down experienced users as they have to be continually closed:

- To prevent the pane titled **Getting Started** from appearing every time Microsoft Project is opened, select **FILE, Options, General** and uncheck the **Show the start screen when this application starts** box.

The Help suggestions offered by Microsoft project is often misleading, these should be switched off by selecting **FILE, Options, Schedule** and unchecking:

- **Show scheduling Messages**,
- **Show task schedule warnings** and
- **Show task schedule suggestions**.
- The select the **Advanced** tab and uncheck **Advice from Planning Wizard**.

10.10 Contingent Time

This topic should be considered and Contingent Time may be included using a number of techniques:

- Adding one or more tasks that may be reduced in duration to keep the project end date constant as the project progresses and incurs delays.
- Increasing all task durations by a factor.
- Making some calendar work days non work.

10.11 Earned Value

The method that Microsoft Project uses to calculate the Earned Value data is documented in the Help file and should be read carefully, as different versions of Microsoft calculate these fields differently. Should different Earned Value calculations be required then Custom Data Fields should be considered as an alternative.

The column calculations should be checked and you will see the way Microsoft Project calculates the values and you may disagree with their method.

	Task Name	SV	CV	EAC	BAC	VAC
1	**Bid For Facility Extension**	**$468.00**	**-$132.00**	**$55,979.16**	**$55,060.00**	**-$919.16**
2	**Technical Specificatio**	**$468.00**	**-$132.00**	**$20,130.53**	**$19,800.00**	**-$330.53**
3	Approval to Bid	$0.00	$0.00	$0.00	$0.00	$0.00
4	Determine Installat	$0.00	$1,680.00	$5,040.00	$6,720.00	$1,680.00
5	Create Technical Sp	$468.00	-$1,812.00	$21,717.17	$8,600.00	-$13,117.17
6	Identify Supplier Cc	$0.00	$0.00	$1,120.00	$1,120.00	$0.00
7	Validate Technical S	$0.00	$0.00	$3,360.00	$3,360.00	$0.00
8	**Delivery Plan**	**$0.00**	**$0.00**	**$21,520.00**	**$21,520.00**	**$0.00**
14	**Bid Document Submit**	**$0.00**	**$0.00**	**$13,740.00**	**$13,740.00**	**$0.00**

You may wish to use Custom Fields or third party software to calculate these EV fields.

10.12 Do I Have All the Scope?

Many schedules are unrealistic or do not calculate a realistic Critical Path because the whole scope has not been entered into a schedule. There are a couple of techniques that may be employed to ensure the whole scope has been included:

- Stakeholder Analysis, and
- Risk Analysis.

10.12.1 Stakeholder Analysis

Many project managers conduct a **Stakeholder Analysis** at the start of a project. This process identifies all the people and organizations with an interest in the project and their interests.

- You may use a stakeholder analysis to identify all the stakeholders and their associated activities. The activities must be included in the schedule.
- Key project success factors may be identified from the interests of the most influential stakeholders.
- The stakeholder analysis may be used as the basis of a communications plan.

10.12.2 Risk Analysis

The process of planning a project may identify risks and a formal risk analysis should be considered. A risk analysis may identify risk mitigation activities that should be added to the schedule before it is submitted for approval.

10.13 Preparing for Dispute Resolution

Dispute resolution is becoming more frequent. There are some steps that may be taken to prepare for this eventuality which should reduce the cost of this process.

10.13.1 Keeping Electronic Copies of Each Update

Each time you report to the client or management, it is recommended that you save a copy of your project and change the file name (perhaps by appending a date to the file name or using a revision or version number) or create a subdirectory for each version of the project. This allows you to reproduce these reports at any time in the future and an electronic copy will be available for dispute resolution purposes.

10.13.2 Clearly Record the Effect of Each Change

Each change should be clearly recorded. Consider if you should:

- Create a copy of the schedule for each scope change analysis,
- Set the Baseline before entering scope changes,
- For clarity add new task/s for the scope changes and do not extend existing tasks,
- Show delays as tasks, not as lags or constraints,
- Ensure when the elapsed duration of the delay is required calculate this by placing a delay Milestone on a 7day per week calendar.

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