

99 Tricks and Traps

for

Microsoft® Project

2013, 2016 & 2019

The Casual User's "Survival Guide"

By

Paul E Harris

of

Eastwood Harris Pty Ltd

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1	IMPORTANT THINGS	1
1.1	The “Delete” Key.....	1
1.2	Typing a Date or Dragging a Task Sets a Constraint!	1
1.3	Indicators Column.....	2
1.4	Why Are Tasks Scheduled before the Predecessors?	3
1.4.1	<i>Understanding the Actual Start Date</i>	<i>3</i>
1.4.2	<i>Tasks Will Always Honor Their Constraint Dates</i>	<i>3</i>
1.5	The Project Will Not Open!	5
1.6	The Logic Keeps Changing!.....	6
1.7	Why Do New Tasks Have an Early Start Constraint?	8
1.8	Recommended Schedule Options	9
1.9	Manually Scheduled and Auto Scheduled Tasks.....	10
1.10	Sorting out the Menus.....	11
2	CALENDAR SURVIVAL GUIDE	13
2.1	Role of the Project Calendar	13
2.2	Guidelines for Creating Calendars.....	14
2.3	Display of Duration in Days	15
2.4	How to Assign Task Calendars.....	17
2.5	Other Things Task Calendars Affect	18
2.5.1	<i>Float.....</i>	<i>18</i>
2.5.2	<i>Lags.....</i>	<i>18</i>
2.6	Resource Calendars	19
2.7	Which Calendar is the Task Using?	20
2.8	Default Start and End Time.....	21
2.9	Finish Variance Calculation.....	22
3	TRICKY STUFF	23
3.1	Task Naming Issues	23
3.2	Task Splitting	25
3.2.1	<i>What is Splitting?.....</i>	<i>25</i>
3.2.2	<i>Splitting a Task Manually</i>	<i>26</i>
3.2.3	<i>Splitting In-progress Tasks.....</i>	<i>26</i>
3.2.4	<i>Removing a Bar Split</i>	<i>27</i>
3.2.5	<i>Hiding a Bar Split.....</i>	<i>28</i>
3.3	Deadline Date	29
3.4	Negative and Free Float Bars.....	30
3.5	Where is the Gant Chart Wizard?.....	32
3.6	As Late As Possible Constraint.....	32
4	INTERESTING FEATURES	34
4.1	Wildcard Filters for Text Searching.....	34
4.2	Interactive Filters	35
4.3	AutoFilters	35
4.4	Selecting Dates.....	37
4.5	Understanding Start and Finish Milestones.....	37
4.6	Converting a Finish Milestone into a Start Milestone.....	39

4.7	Creating a Hammock or a LEO Task	40
4.8	Elapsed Durations, Leads and Lags	41
4.8.1	<i>Elapsed Durations</i>	41
4.8.2	<i>Float on Tasks with Elapsed Durations</i>	41
4.8.3	<i>Elapsed Leads and Lags</i>	42
4.9	Establishing Two Relationships between Two Tasks	42
4.10	Ladder scheduling.....	43
4.11	% Lags.....	44
4.12	Tracing Logic	45
4.12.1	<i>Task Drivers and Task Inspector</i>	45
4.12.2	<i>Tracing the Logic</i>	47
4.12.3	<i>Finding a Chain of Driving Predecessors of Successors - Displaying the Task Path</i>	48
4.12.4	<i>Finding Tasks with Lags</i>	48
5	MAKING IT LOOK RIGHT	49
5.1	Date Format Dangers.....	49
5.2	Preventing the Date Format from Changing on Other Computers	50
5.3	The Smart Way to Create Views	51
5.4	Bar Formatting	52
5.4.1	<i>Bar Date Format</i>	52
5.4.2	<i>Bar Heights</i>	52
5.4.3	<i>Always Roll Up Gantt Bars</i>	53
5.4.4	<i>Round Bars to Whole Days</i>	54
5.5	Putting Text on Bars.....	55
5.5.1	<i>Placing a Single Field on Bars</i>	55
5.6	Placing Multiple Fields in a single position on a Bar.....	56
5.7	Format Colors	57
5.8	How to Stop Text Wrapping	58
5.9	Display Tasks without Successors as Critical.....	59
5.10	Preventing Descriptions from Indenting	60
5.11	Reducing Column Widths	61
5.12	How to Display a Task ID that Will Not Change	62
5.13	Hiding Task Information.....	63
5.13.1	<i>Hiding Bars</i>	63
5.13.2	<i>Hiding Text</i>	63
5.13.3	<i>Marking Tasks Inactive</i>	63
5.14	Anchor a Vertical Line to a Milestone	64
5.15	Zoom Slider Dangers	65
5.16	Why is the Non-working Time Displayed Incorrectly?.....	66
5.17	Multiple Baseline Bar Display.....	67
5.18	Ordinal Date Display	68
5.19	Displaying an S-Curve	69
5.20	Displaying Cumulative Histogram	70
5.21	Displaying a Project Summary Task.....	70

6	GETTING IT OUT - PRINTING.....	71
6.1	Printing to One Page Wide.....	71
6.2	Printing a Date Range	72
6.3	Printing a Gantt Chart and Resource Graph or Usage Table on One Page.....	73
6.4	Printing the Calendar.....	73
6.5	Hiding Unwanted Bars in the Legend	74
6.6	What has Happened to the Manual Page Breaks?.....	74
7	RESOURCE BASICS	75
7.1	How Many Resources Should I Have?	75
7.2	The Balance Between the Number of Activities and Resources	76
7.3	Durations and Assignments Change as Resources are Assigned.....	77
7.3.1	<i>Task Type – Fixed Duration, Fixed Units, Fixed Work.....</i>	<i>77</i>
7.3.2	<i>Effort driven or Non Effort driven?.....</i>	<i>79</i>
7.3.3	<i>Task Type and Effort driven Options.....</i>	<i>80</i>
7.4	Assigning Resources to Tasks.....	81
7.5	Resources and Summary Tasks	81
8	UPDATING ESSENTIALS	82
8.1	Baselines and Updating a Project.....	82
8.2	Which Baseline Should Be Used?.....	83
8.3	Principles of Updating a Program	84
8.4	In-progress Task Finish Date Calculation	85
8.5	Understanding the % Completes	86
8.6	Current Date and Status Date	88
8.7	Auto Updating Using Update Project.....	89
8.8	Moving Incomplete Work into the Future by Splitting.....	90
8.9	Where is the Tracking Toolbar?	91
8.10	Why Do Calculation Options – Move end of completed parts Not Work?	93
8.11	Comparing Progress with Baseline	95
8.12	Progress Lines.....	95
8.13	Simple Procedure for Updating a Schedule – Using Auto Status.....	96
8.14	Procedure for Detailed Updating	98
8.15	Preparing to Update with Resources	100
8.16	Updating Resources	103
9	CREATING NEW PROJECTS	104
9.1	Standardizing Projects.....	104
9.2	Global.mpt.....	104
9.3	Microsoft Project Template Changes.....	105
9.4	Understanding Templates	105
9.5	Eastwood Harris Template	106

9.6	Copying Views, Tables and Filters	107
10	OTHER THINGS OF INTEREST	108
10.1	Editing Tool Bars	108
10.2	Dynamically Linking Cells	109
10.3	How Does Negative Float Calculate for Summary Activities?.....	110
10.4	Float and Constraints.....	111
10.5	Using Custom Fields	112
10.6	Custom Columns Formulas and Drop-Down List.....	113
10.7	Creating Graphical Indicators.....	114
10.8	Custom Outline Codes	114
10.8.1	Define a Custom Outline Code Structure.....	115
10.8.2	Assigning the Custom Codes	117
10.8.3	Grouping with Custom Data	118
10.8.4	Grouping with Custom Data with AutoFilters.....	120
10.9	Exporting to Excel.....	121
10.10	Turning Off Getting Started and other POP ups	122
10.11	Contingent Time	122
10.12	Earned Value	123
10.13	Do I Have All the Scope?.....	124
10.13.1	Stakeholder Analysis.....	124
10.13.2	Risk Analysis.....	124
10.14	Preparing for Dispute Resolution.....	125
10.14.1	Keeping Electronic Copies of Each Update	125
10.14.2	Clearly Record the Effect of Each Change.....	125
11	INDEX.....	127

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 no inbuilt way of naming these baselines. One option is the record notes on the baselines in the **Advanced Properties** form, **Comments:** section.

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, in a properly updated Microsoft Project program, the **Status Date** should be used as the **Data Date** and not the Microsoft Project **Current Date** field because the **Current Date** field changes to today's date each time a file is opened:

- ❖ **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.

Note: In Microsoft Project it 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. This is created in Text 30 as a Calculated Field.

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**.

Dur	% Comp.	Act. Dur.	Rem. Dur.	August 11					August 18					August 25				
				M	T	W	T	F	S	S	M	T	W	T	F	S	S	M
10d	0%	0d	10d	[Gantt bar from Aug 11 to Aug 25]														
10d	25%	2.5d	7.5d	[Gantt bar from Aug 11 to Aug 25, with 25% completion shaded]														
10d	100%	10d	0d	[Gantt bar from Aug 11 to Aug 25, fully shaded]														

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

8.5 Understanding the % Completes

Microsoft Project has three inbuilt % completes:

- ❖ **% Complete** – This is the **Duration % Complete**.
 - In **Detailed Tasks** the **Duration, Actual Duration, Remaining Duration** and **% Complete** are linked and may not be unlinked,
 - The **% Complete** is calculated by dividing the **Actual Duration** by the **Duration**.
 - In **Summary Tasks** it is calculated by the sum of the **Detailed Tasks Actual Durations** and dividing by the sum of the **Detailed Tasks Durations**.
 - A **Milestone** assigned a 100% Complete will not always contribute to the Summary % Complete:

					9 Jan '23						
	i	Task Name	Dur	% Complete	S	M	T	W	T	F	S
1		▲ Summary	5d	0%							
2	✓	A	0d	100%							
3		B	5d	0%							
4		C	0d	0%							
5											
6		▲ Summary	5d	99%							
7	✓	A	0d	100%							
8	✓	B	5d	100%							
9		C	0d	0%							

- ❖ **% Work** – This represents the amount of work completed:
 - The **Work, Actual Work, Remaining Work, Work** and **% Work** are linked and may not be unlinked,
 - The **% Work** is calculated by dividing the **Actual Work** by the **Work**.
 - The **% Work** and **% Complete** are normally linked, thus a change in the **% Complete** will change the **% Work**. Thus the Actual Work is updated automatically.

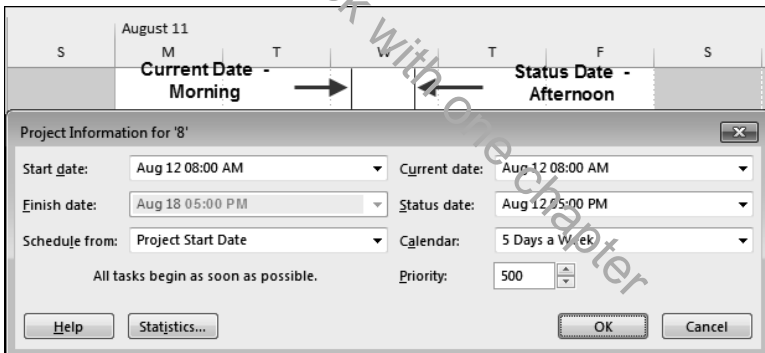
- The **% Work** and **% Complete** are unlinked in the **Updating task status updates resource status** option in the **File, Options, Schedule** tab. When this is unchecked, then the **Actual Work** and **Remaining Work** may be edited separately from the **Actual Durations** and **Remaining Durations**. This should be unchecked if you wish to enter the actual work from timesheets etc.
- ❖ **Physical % Complete** – It is useful in the situation when the % complete of completed work is required to be displayed, based on completed deliverables and not durations or labor hours.
 - This is independent of durations and work.
 - It is not summarized against summary tasks.
 - It may be displayed by creating a bar as per below:

Name	Appearance	Show For ... Tasks	Row	From	To
Progress		Normal	1	Actual Start	CompleteThrough
Physical Complete				Actual Start	Physical % Complete

8.6 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:

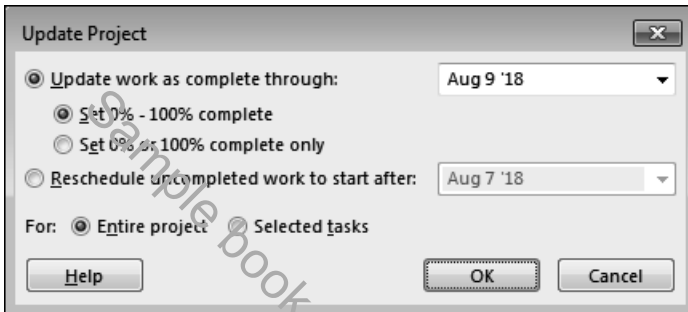
- ❖ **Current Date** – This date is set to the computer’s date each time a project file is opened. It is used for calculating **Earned Value** data when a **Status Date** has not been set. The time of the **Current Date** is set by default to the start time of a day, see the picture below.
- ❖ **Status 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. It is unfortunate that the default Microsoft Project Views do not display the **Status Date** in the Gantt chart.

8.7 Auto Updating Using Update Project

The Microsoft Project facility titled **Update Progress** is used for updating a project as if it had progressed according to plan. This function sets **Actual Start** and **Actual Finish** dates, % **Complete** and **Remaining Durations** in proportion to a user-assigned date, and also sets the **Status Date**. Select **PROJECT, Update Project** located in the **Status** group to open the **Update Project** form:



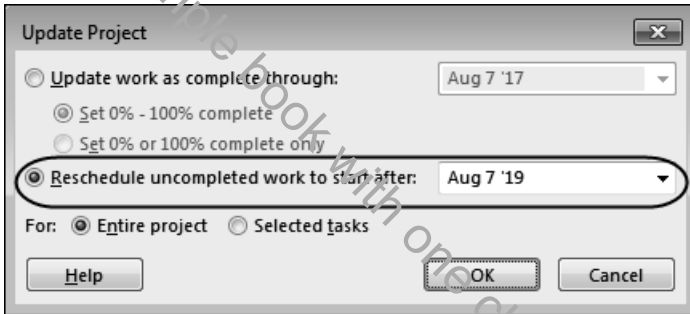
There are two options under **Update work as complete through:** which apply to in-progress tasks only.

- ❖ **Set 0% - 100% complete** and this is the recommended option which sets the progress in line with the **Status Date**, or
- ❖ **Set 0% or 100% complete only**. This option leaves the % Complete at zero until the task is 100% complete. This option supports the progress measurement philosophy of not awarding progress until the task is complete, but tasks often look behind schedule and the Actual and Remaining Durations are calculated incorrectly.

8.8 Moving Incomplete Work into the Future by Splitting

There is a feature which will schedule the **Incomplete Work** of an **In-Progress** task to start on a specific date in the future:

- ❖ If you want to apply this operation to some tasks, then these tasks should be selected first.
- ❖ Select the **FILE, Options, Schedule** tab and ensure the **Split in-progress tasks** option is checked otherwise this function will not operate.
- ❖ Select **PROJECT, Update Project** located in the **Status** group to open the **Update Project** form:



- ❖ Click on the **Reschedule uncompleted work to start after:** radio button.
- ❖ Specify the date after which incomplete work should commence in the drop-down box to the right and click on the **OK** button.

Note: This function does not set the **Status Date** and may be different to the **Status Date**. It is therefore effectively another **Data Date**.



8.9 Where Is the Tracking Toolbar?

Microsoft Project 2010, 2013, 2016 and 2019 do not have a dedicated **Tracking** toolbar as in earlier version and some tracking commands can be found in the **TASK, Schedule** group and **PROJECT, Status** tab.


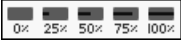



To create a complete **Tracking** toolbar; go to **FILE, Options, Customize Ribbon**, click on , click on and name both the tab and the group **Tracking**. Now select and add the commands listed on the left side of the pane to the newly created **Tracking** toolbar.

Alternatively you may add the missing buttons to the existing toolbars.

You may find the following commands very useful and should be added to your Quick Access Toolbar:

- ❖  **Mark on Track** updates the selected task as if it has proceeded exactly as it was scheduled. An in-progress or completed task could be dragged to where it actually happened and then the button clicked to progress the task.
- ❖  **Reschedule Work** will split a task that is behind schedule and place the incomplete portion after the Status Date. For this function to work the check the **Split in Progress task** box in the **FILE, Options, Schedule** tab, **Split in-progress tasks** must be checked.

The following commands you may also find useful:

- ❖  **Progress Line** will add a progress line that shows if tasks are ahead or behind schedule. Right click on the **Gantt Chart** to open the menu and select **Progress Lines** to open the **Progress Lines** form where the lines are formatted. A Baseline should be set to provide a comparison to the original plan. Multiple Progress lines may be recorded.
- ❖  **Percent Complete** buttons set the percent complete as indicated by the button and may be used in conjunction with the Reschedule Work button.
Note: The use of the 25%, 50% and 75% buttons will usually result in an incorrectly updated schedule with complete work in the future or incomplete work in the past, and should be used with caution.
- ❖  **Update Tasks** opens the **Update Tasks** form where you may update individual tasks.
- ❖  **Update Project** opens the **Update Project** form where you may update a complete project to a new **Status Date** as if it went according to plan.
- ❖  Displays the **Project Statistics** form.

8.10 Why Do Calculation Options – Move end of completed parts Not Work?

These new functions, introduced in Microsoft Project 2002, were intended to assist schedulers to place the new tasks as they are added to the schedule in a logical position with respect to the **Status Date**. This function is difficult to use and some practice is required to make it work properly and you should consider **NOT** using it.

Here are some tips if you are unable to get it to work:

- ❖ These options are activated from the **FILE, Options, Schedule** tab, under the **Scheduling** options for this project: 'Project Name':
- ❖ If the **Status Date** has not been set then the Current Date is used, and this is often an irrelevant date, so ensure you set the **Status Date**.
- ❖ For all these options to operate all four of the following parameters must be met:
 - The **Split in-progress tasks option** in the **File, Options, Schedule** tab must be checked, and
 - The required option on the **Schedule** tab must be checked before the task is added or edited, and
 - The **Updating task status updates resource status option** on the Calculation options for this project: section must be checked, and
 - The Task **MUST NOT BE** assigned **Task Duration Type of Fixed Duration**.
- ❖ These options may **NOT** be turned on and off to recalculate all tasks. The options only work on new tasks when they are added to a schedule or when a task is updated by changing the % Complete.
- ❖ This function will ignore constraints, even when the **Schedule Option Tasks will always honor their constraint dates** has been set.

- ❖ This function may not be applied to existing schedules, but only to new tasks if the options are set before the tasks are added, or when a task % Complete is updated.

This function has some restrictions:

- ❖ Existing schedules may not be opened and the function applied.
- ❖ When the **Move start of remaining parts before status date forward to status date** is used, it will change any **Actual Start** date that you have entered prior to entering a % Complete. Changing an Actual Date is not a desirable event.

Notes:

- ❖ This option should be used with caution and users should ensure they fully understand how this function operates by updating a simple practice schedule multiple times.
- ❖ It is recommend that this function should not be used and tasks updated manually, as it is very difficult to perfect the use of these functions and it is simple to make undesirable changes to Actual Data.

8.11 Comparing Progress with Baseline

There will normally be changes to the schedule dates and more often than not these are delays. The full extent of the changes may not be apparent without a Baseline bar to compare with the updated schedule.

To display the **Baseline Bar** in the **Bar Chart** either use:

- ❖ The **FORMAT, Bar Styles** function, or
- ❖ Manually create a Baseline Bar, or
- ❖ Create a View with the Baseline bar displayed.
- ❖ You may use the **Gantt Chart Wizard**, but this should only be used with projects created with schedules created with Microsoft Project 2007 and earlier due to the incompatibility of the formatting options between 2007 and earlier versions and 2010 and later versions; resulting in some bars being hidden.
- ❖ You will need to add the add **Gantt Chart Wizard** button to the **Quick Access Toolbar** to use it.

8.12 Progress Lines

Some users like to display **Progress Lines**, which are usually shown as zigzag lines on the Gantt Chart, showing how far ahead or behind the project tasks are.


Select **FORMAT, Gridlines**, and select **Progress Lines** from the dropdown to open the **Progress line** form where the progress lines may be formatted:

	Task Name	Finish Variance	August 11				August 18				August 25				September			
			T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F
1	Estimate	-2d	[Gantt Chart showing task bars and progress lines]															
2	Installation Requirements	2d	[Gantt Chart showing task bars and progress lines]															
3	Supplier Component Bids	-1d	[Gantt Chart showing task bars and progress lines]															
4	Project Schedule	-3d	[Gantt Chart showing task bars and progress lines]															
5	Technical Specification	-2d	[Gantt Chart showing task bars and progress lines]															

8.13 Simple Procedure for Updating a Schedule – Using Auto Status

The following process should be considered for people who require one simple method of updating a schedule. This may not suit all situations especially when a project is way off plan:



- ❖ Set the Baseline by selecting **PROJECT, Schedule, Set Baseline**.
- ❖ Display the Baseline bars by selecting **FORMAT, Bar Styles** function and select the newly created baseline.
- ❖ Display the **Status Date** gridline, select **FORMAT, Format, Gridlines**, select **Status Date**.
- ❖ Select **PROJECT, Status, Update Project** to open the **Update Project** form and select **Set 0% – 100% Complete**, set the date in the form to the new **Status Date**,
- ❖ The project will be updated as if it has progressed exactly as planned and the **Status Date** should now be displayed in the bar chart.
- ❖ Displaying the **Tracking Table** may assist here. **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.

- ❖ Now adjust the task dates by dragging the bars or entering the dates in the appropriate column; the order that the actions take place is important:
 - **Complete tasks** should have the Actual Start and then the Actual Finish dates adjusted, in this order, to match the dates that the task actually started and actually finished. If you adjust the Finish date first then the Start date, you will then have to readjust the Finish date again.
 - **Completed Milestones** will be changed to a Task when an Actual Finish date is entered, so ensure you only enter an Actual Start and 100% if a Milestone is complete. **DO NOT ENTER AN ACTUAL FINISH,**
 - **In-Progress tasks** should have the Actual Start entered first, then the task bar dragged or Duration adjusted so the Finish date is where it is expected to finish, and finally the % **Complete** and/or **Actual Duration** adjusted so the progress is at the **Status Date**. The  **Mark on Track** is useful here as it updates the selected task as if it has proceeded exactly as it was scheduled.
 - **Unstarted tasks** should have their logic and durations revised.
- ❖ Add any scope changes to the schedule.
- ❖ Save the project with a new filename and save for future reference.

8.14 Procedure for Detailed Updating

This procedure is suited to people who wish to update a schedule properly and make sure the Actual dates and Remaining Durations of each Task are correct. It has small but important differences to the previous process:

- ❖ Ensure that everyone on the project team is aware of the reporting cycle, the updating procedure and review process.
- ❖ Collect accurate and complete status information.
- ❖ Set the Baseline by selecting **PROJECT, Schedule, Set Baseline**.
- ❖ Display the Baseline bars by selecting **FORMAT, Format, Baseline** and select the newly created baseline.
- ❖ Select the **Gantt Chart** view and you may find the Tracking Table useful to apply.
- ❖ Display the Variance columns as required; the **Finish Variance** is always a popular column to display.
- ❖ Display the **Status Date** gridline, select **FORMAT, Format, Gridlines**, and select **Status Date**.
- ❖ Now enter the task status for each task one at a time by entering the information in the appropriate column.
- ❖ The order in which the actions take place is important:
 - **Complete tasks** should have the Actual Start and then the Actual Finish dates adjusted, in this order, to the date that the task actually started and actually finished. If you adjust the Finish date first, then the Start date, you will have to readjust the Finish date again.

- **Completed Milestones** will be changed to a Task if an Actual Finish date is entered, so only enter an Actual Start and 100% when a Milestone is complete, **DO NOT ENTER AN ACTUAL FINISH**,
- **In-Progress tasks** should have the Actual Start entered first, then the task bar dragged or Duration adjusted so the Finish Date is where it is estimated to finish and finally the % **Complete** and/or **Actual Duration** adjusted so the progress is at the **Status Date**. This may be adjusted with the  **Mark on Track** button as this function updates the selected task as if it has proceeded exactly as it was scheduled.
- Tasks that are behind schedule may be split with the  **Reschedule Work** icon on the **Tracking** toolbar. Make sure that the **FILE, Options, Schedule** tab, **Split in-progress tasks** box is checked:

Task Name	% Comp.	August 11					August 18					August 25					Sept 1									
		M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	
Before Splitting	20%	[Gantt bar showing 20% completion across the period]																								
After Splitting	20%	[Gantt bar showing 20% completion, split into two segments]																								

- **Unstarted tasks** should have their logic and durations revised.
- ❖ Add any scope changes to the schedule.
- ❖ Save the project with a new filename.

8.15 *Preparing to Update with Resources*

Updating Microsoft Project schedules with resources:

- ❖ Uses a number of features that are very interactive and difficult to comprehend,
- ❖ Requires experience in the software,
- ❖ Needs significant time to complete the process, and
- ❖ As a result, it is often difficult to achieve the desired outcome.

It is suggested that before you work on a live project, that you:

- ❖ Create a simple schedule with a couple of tasks and assign two or three resources against each task,
- ❖ Set the **Options** to reflect the way you want to enter the information and how you want Microsoft Project to calculate, and
- ❖ Go through the updating process with dummy data and then check that the results are as you expected.

You will need to consider how the measure of progress at the summary task level will be displayed:

- ❖ The % **Complete** is the % **Duration Complete** and the **Summary Task % Complete** is based on the proportion of all the Details Tasks Actual Durations divided by the sum of all the Details Tasks Durations. The summary % Complete may often be very misleading. The picture below shows the project is 20% through the duration, but the % Complete shows 60%:


	Task Name	% Comp.	4	11	18	25	Sep 1	8
1	Summary	60%	[Gantt bar from 4 to 25]					
2	Task 1	100%	[Gantt bar from 4 to 4]					
3	Task 2	100%	[Gantt bar from 4 to 4]					
4	Task 3	100%	[Gantt bar from 4 to 4]					
5	Task 4	100%	[Gantt bar from 4 to 4]					
6	Task 5	100%	[Gantt bar from 4 to 4]					
7	Task 6	20%	[Gantt bar from 4 to 8]					

- ❖ The % **Work** field is calculated from the proportion of the **Actual Work** to **Work** and is summarized at summary task correctly:

	Task Name	% Comp.	% Work Comp	Work	Actual Work	August 11							August 18							August 25							Sept							
						M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M
1	Summary	47%	71%	240h	170h	[Resource [3] bar from 4 to 25]																												
2	Task 1	100%	100%	120h	120h	[Resource [3] bar from 4 to 4]																												
3	Task 2	40%	63%	80h	50h	[Resource [2] bar from 4 to 11]																												
4	Task 3	0%	0%	40h	0h	[Resource bar from 4 to 4]																												

- ❖ The % **Work** and % **Complete** fields may be unlinked with the **FILE, Option, Calculation** options for this project: tab **Updating task status updates resource status:** option. If unlinked, the % **Work** may be different from % **Complete**. See the picture above. This allows the editing of **Resource Work** without the % **Complete** being changed with some options.

Other points to consider are:

- ❖ Do you wish Microsoft Project to calculate the resource **Actual Costs** with the option **FILE, Option, Calculation options for this project: Actual costs are always calculated by Microsoft Project** checked?
- ❖ Do you wish your incomplete tasks to be split and scheduled to start after a date using **PROJECT, Status group, Update Project** button , and check **Reschedule uncompleted tasks to start after:** radio button in conjunction with the **Split** task option?
- ❖ Microsoft Project 2013, 2016 and 2019 calculates differently to earlier versions when the option **Actual costs are always calculated by Project** are unchecked when the activity is at 100%.
- ❖ In earlier versions the **Actual Cost** was unchanged, but could be manually changed from that point on.
- ❖ In Microsoft Project 2013, 2016 and 2019 the software changes the **Actual Costs** to zero when unchecked, which would normally be less desirable, and the **Actual Costs** must then be manually entered.

8.16 Updating Resources

There are a number of places that resources may be updated:

- ❖ The **Task Details** form, **Task Information** form, **Task** form, **Resource** form, **Resource Name** form may be used to enter the quantities and costs to date and quantities to complete. Using this method it is simple to end up with actual work and costs in the future or remaining work and cost in the past, which is illogical and should be avoided.
- ❖ The **Task Usage View** and **Resource Usage View** may be used to enter the data per day or week depending on the timescale. This method takes more effort but will ensure Actuals are in the past and Remaining Work and Costs are in the future.

A couple of other points:

- ❖ **Fixed Costs** updates automatically in proportion to the % **Complete**. **Cost Resources** do not have a Quantity, allows a little more flexibility than Fixed Costs.
- ❖ When **Actual costs are always calculated by Project** is unchecked Actual Costs are **NOT** calculated when task progress is assigned and you will need to enter your own **Actual Costs**. This option also applies to **Fixed Costs** which may result in the **Fixed Cost** and **Total Cost** having a different value, whereas with resources the **Cost** always equals the **Actual Cost** plus **Remaining Costs**.
- ❖ **Cost to Complete** are **ALWAYS** calculated by Microsoft Project from the Resource Rates.
- ❖ If you assign Overtime to a resource, make sure you have an Overtime rate; otherwise, as you assign Overtime the Forecast Cost will reduce.