



Microsoft Project 2016

Level 2

INFocus COURSEWARE

Designed to fast-track you through the process of learning about computers and information technology, the *In Focus* range is a unique and innovative concept in learning.

A quick reference summary of key procedures is provided at the bottom of each page together with handy tips and additional information.

Each title in the *In Focus* series can be used as:

- a classroom workbook for instructor-led teaching and training;
- a self-study guide for self-paced learning;
- a tutorial guide for distance education programs;
- a resource collection of just-in-time support and information for help desk users and support staff;
- a handy, desk-side reference for computer users.

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MICROSOFT PROJECT 2016

LEVEL 2

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MICROSOFT PROJECT 2016

LEVEL 2

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READ ME FIRST

In case you're not familiar with the terminology, *Read Me First* is quite often the name given to a computer file that contains important information for people to know prior to using an application.

This section contains some important information to help you use this book so we thought we'd start with a *Read Me First* section.

What skills and knowledge you will acquire...

Microsoft Project 2016 - Level 2 is designed for existing users of Microsoft Project who wish to extend their skills and knowledge beyond the creation of simple projects.

What you'll need to know before beginning this course...

Microsoft Project 2016 - Level 2 assumes that the learner can create basic and simple projects using Microsoft Project. It is also beneficial for the learner to have a general understanding of personal computers and the Windows operating system environment.

The objectives of this guide...

At the completion of this course you should be able to:

- use various techniques for levelling over allocation of resources
- assign material resources in a project
- assign and track costs within a project
- apply constraints and deadlines to tasks in a project
- track the progress of a project
- work more productively with project views
- work with tables in **Project**
- work with some of the features that allow you to control your data
- format projects to make them more appealing and relevant
- print data from **Gantt Charts** in a variety of ways and presentations

What you get in a chapter...

Each chapter begins with a summary page listing the topics covered in that chapter. The chapter then consists of single-page topic sheets pertaining to the theme of the chapter.

What you'll need to have before commencing this course...

Many of the topics in this learning guide require you to open an existing file with data in it. These files can be downloaded free of charge from our website at www.watsoniapublishing.com. Simply follow the student files link on the home page. You will need the product code for this course which is **INF1665**.

As you work through this guide...

It is strongly recommended that you close all open files, if any, prior to commencing each new chapter in this learning guide. Each chapter, where relevant, has its own set of exercise files and any from a previous chapter are no longer required.

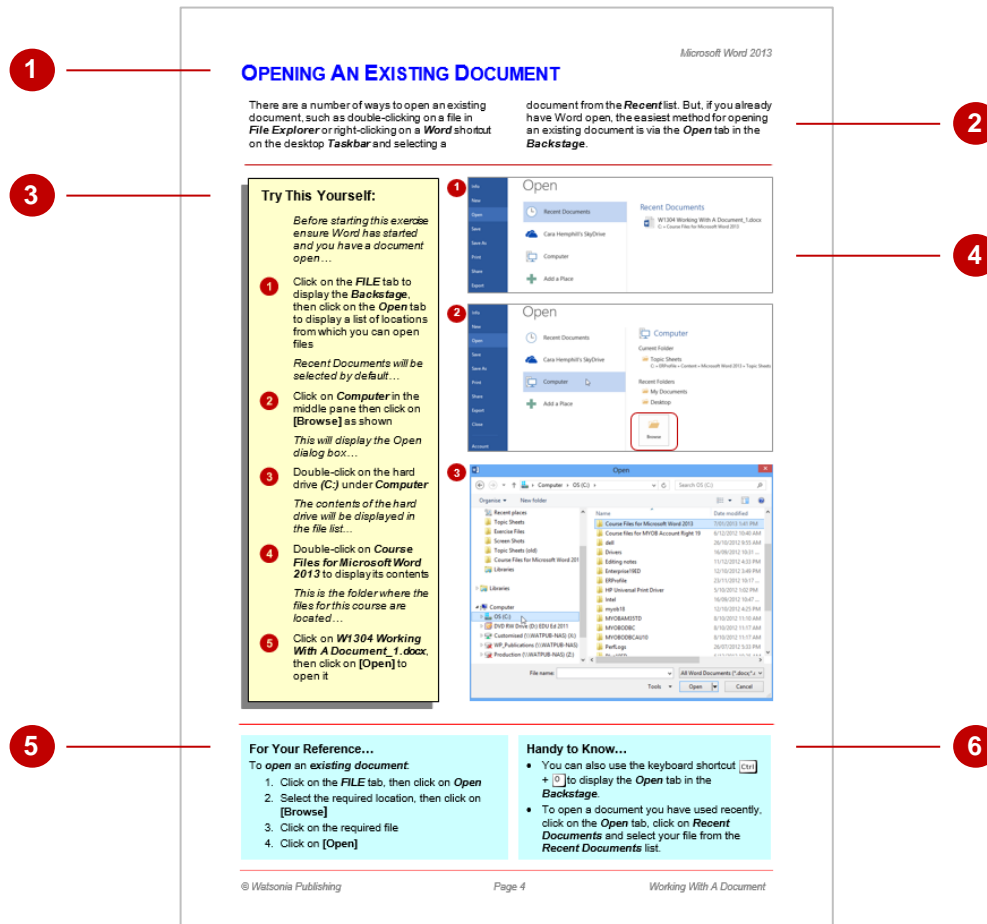
Where to from here...

Have a look at the next page which explains how a topic page works, ensure that you have access to the exercise files (see above), and you're ready to make a start.

WORKING WITH TOPIC SHEETS

The majority of this book comprises single-page topic sheets. There are two types of topic sheets: **task** and **reference**. The layout of both is similar – an *overview* at the top, *detail* in the centre and

additional reference (optional) material at the bottom. *Task* sheets contain a *Try This Yourself* step-by-step exercise panel in the detail area as shown below.



- 1 Topic name
- 2 General topic overview provides an introduction to the topic
- 3 *Try This Yourself* (task-based topic sheets) is a detailed step-by-step practice exercise for you to work through. In *Reference* topic sheets this is usually replaced by a box with reference information.
- 4 In *Task* topic sheets screen shots and graphics provide a visual clue as to what will happen when you work through the *Try This Yourself* practice exercise. In *Reference* topic sheets the screen shots and graphics are used to visually represent information and concepts.
- 5 The *For Your Reference* (optional) element provides a quick summary of the steps required to perform a task. These usually only appear in task-based topic sheets.
- 6 The *Handy To Know* (optional) element provides additional information such as alternative ways of accomplishing a task or further information providing handy tips.

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CHAPTER 1

InFocus

RESOURCE LEVELLING

Ideally you will always have enough resources to complete the tasks in your project. However, this is not always the case and sometimes you will not have enough resources for the work you've scheduled. This is known as **over-allocation**.

Resources become **over-allocated** in a project when they are scheduled to do more work than can be accomplished in the specified time. Resource levelling resolves any over-allocations which exist in your project.

Project gives you two options when levelling – letting Project level the schedule for you, or resolving the resource over-allocations yourself.

In this session you will:

- ✓ gain an understanding of resource over allocations
- ✓ learn how to create resource chaos in a project
- ✓ learn how to track down resource over allocations using the **Resource Graph**
- ✓ learn how to check **Resource Usage** for over-allocations
- ✓ learn how to create an over-allocated resources report
- ✓ learn how to change work effort to fix over allocations
- ✓ gain an understanding of assigning overtime to resources
- ✓ learn how to assign overtime to fix over-allocations
- ✓ learn how to assign contract labour to fix over-allocations
- ✓ learn how to switch work assignments to fix over allocations
- ✓ learn how to reschedule tasks to fix over allocations.

UNDERSTANDING RESOURCE LEVELLING

Levelling refers to the even allocation of resources. When you assign more resources to a task than you have available the resource is said to be **over-allocated** and requires levelling.

Sometimes over-allocation is also referred to as a resource conflict – you simply have too much work for a resource to do.

Resolving Resource Conflict Using Levelling

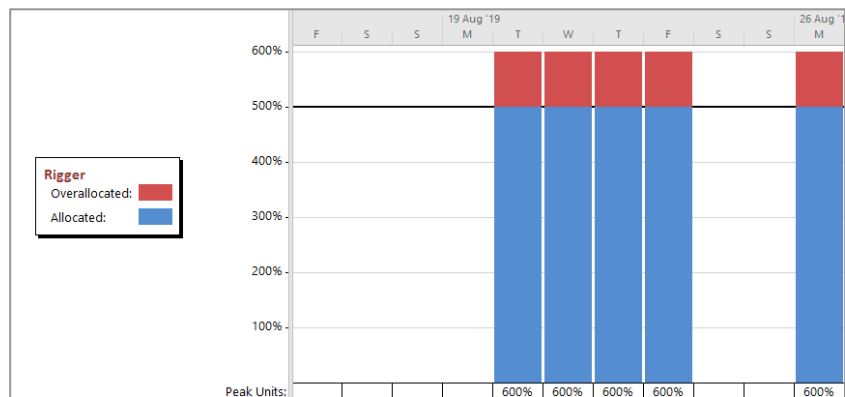
Resource conflicts occur normally when you are entering the resources against the tasks. You may not have noticed that the same resource is required in more than one place. However, because Project is constantly recalculating the start and finish dates it is able to provide you with accurate details about these overlaps, or **over-allocations**, in work commitments.

The process of resolving these over-allocations is called **levelling** (or **leveling**). This term stems from the fact that in an ideal project, all of your resources will be spread evenly, or flatly, across the scope of tasks. An over-allocation suggests that you have a bump or peak usage that needs to be evened out.

Project has a special **Resource Graph** view as shown below which demonstrates this concept of over-allocation and levelling.

In the graph, the thicker line at 500% indicates that this is the maximum units that we have in the resource pool. Any bar above this line indicates an over-allocation of resources. This peaking needs to be eliminated.

Project provides you with the ability to automatically or manually level over-allocations.



If you choose **automatic levelling**, Project will attempt to resolve the conflict for you. Usually this is done by **slipping** the task dates out. It does this by adding delay to the tasks so that resources are not required at the same time. However, with automatic levelling you do forfeit control over your project. Most people prefer to resolve over-allocations manually.

This can be done by:

- **moving a task** that has an over-allocated resource within the project so that the task dates are changed to a date when the resource is free
- **increasing the maximum units** of the resource (usually by hiring or seconding additional staff)
- **assigning a different resource** that is currently free to the task
- **assigning overtime**
- **extending working days** on the calendar used by the resource so that more time is available to work on the tasks.

Obviously not all of these options are practical. For example, if you have a deadline to meet, slipping the task dates by moving the task further down the timeframe is not a good idea. In this circumstance you may be better off hiring more staff or allocating another resource to the task.

Similarly, if your project is constrained by costs then you may need to slip the dates out rather than hire or buy additional resources or allocate overtime to the task.

CREATING RESOURCE PROBLEMS

Our case study project is functional – we have ample resources to complete the required tasks. However, the project manager has just been advised that a second project is to begin

elsewhere and some of the resources he has in the resource pool will be taken away to work on the new project. Having carefully assigned resources to the various tasks this will now cause problems.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Levelling_1.mpp...*

- 1 Click on the **Project** tab, then click on **Project Information** in the **Properties** group
The case study project is currently scheduled to finish on Wednesday April 22...
- 2 Click on [OK] to close the dialog box
- 3 Click on the **View** tab, then click on **Resource Sheet** in the **Resource Views** group
- 4 Click on **200%** in **Max** for **Draftsperson**, type **100%** and press **Enter**
- 5 Point to the warning icon and read the message that appears
- 6 Repeat step 4 and change the number of resource units for the following resources: **Rigger 500%**, **Carpenter 600%**, **Driver 200%**

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	Architect	Work		Arc	Consultar	100%	\$0.00/hr
2	Draftsperson	Work		Dft	Staff	100%	\$0.00/hr
3	Building Clerk	Work		BC	Staff	100%	\$0.00/hr
4	Supervisor	Work		Sup	Staff	100%	\$0.00/hr
5	Rigger	Work		Rig	Wages	600%	\$0.00/hr
6	Boilermaker	Work		BM	Wages	600%	\$0.00/hr
7	Welder	Work		Weld	Wages	500%	\$0.00/hr
8	Carpenter	Work		Car	Wages	800%	\$0.00/hr
9	Painter	Work		Ptr	Wages	500%	\$0.00/hr

- 4 This action has effectively halved the drafting resources in your project. Since there were more resources available when you did the initial assignments there are now times when the resource is over committed. Our committed (allocated) resources appear in red. A warning icon appears in the left column.

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	Architect	Work		Arc	Consultar	100%	\$0.00/hr
2	Draftsperson	Work		Dft	Staff	100%	\$0.00/hr
3	Building Clerk	Work		BC	Staff	100%	\$0.00/hr
4	Supervisor	Work		Sup	Staff	100%	\$0.00/hr
5	Rigger	Work		Rig	Wages	500%	\$0.00/hr
6	Boilermaker	Work		BM	Wages	600%	\$0.00/hr
7	Welder	Work		Weld	Wages	500%	\$0.00/hr
8	Carpenter	Work		Car	Wages	600%	\$0.00/hr
9	Painter	Work		Ptr	Wages	500%	\$0.00/hr
10	Labourer	Work		Lab	Wages	1,000%	\$0.00/hr
11	Driver	Work		Drv	Wages	200%	\$0.00/hr
12	No Barrier Fencing	Work		NBF	Contractc	100%	\$0.00/hr
13	Rock Solid Concrete	Work		RSC	Contractc	100%	\$0.00/hr

6

For Your Reference...

To **create resource problems**:

- Reduce the number of units of a resource

Handy to Know...

- Over-allocations occur when more resources are assigned to a task than there are units in the resource pool. For example, Project will allow you to assign ten carpenters to a task even though only five exist in the resource pool.

TRACKING DOWN OVER ALLOCATIONS

Over allocations aren't immediately apparent, unless they arise when you are changing data in the resource sheet as we have done. Over-allocations can be problematic and it is a

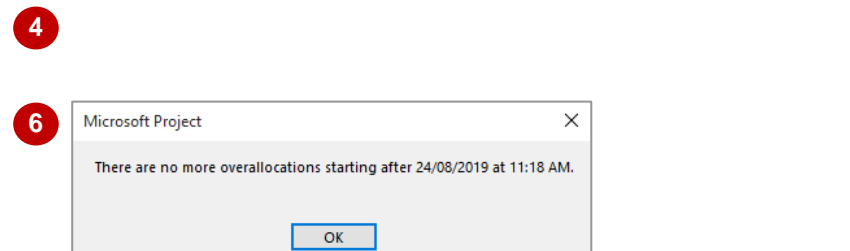
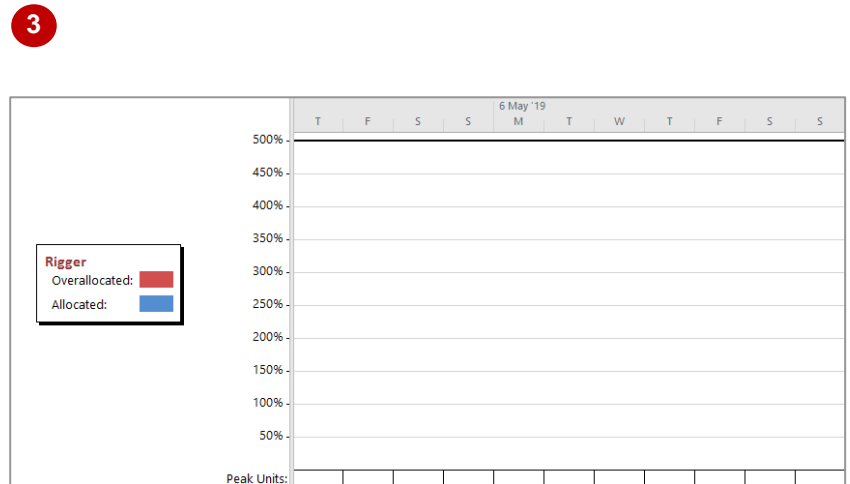
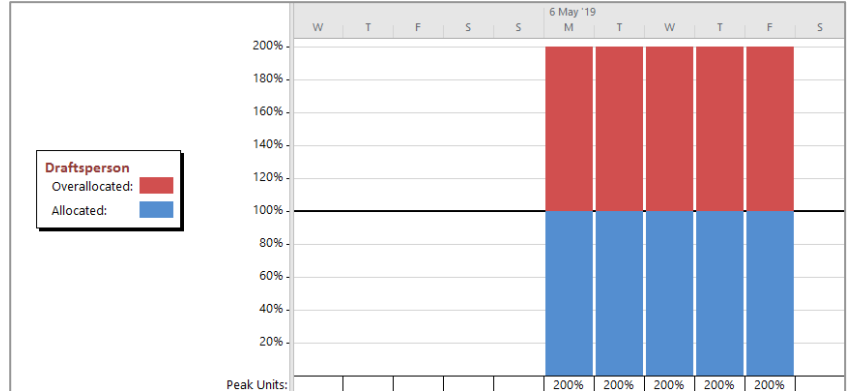
good idea to check the resource pool on a regular basis to see whether there are over-allocations in your project. Remember, over-allocated resources appear bolded red in the resource pool.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Levelling_2.mpp...*

- 1 Click on the **View** tab, then click on **Other Views** in the **Resource Views** group and select **Resource Graph**
- 2 Press **Ctrl** + **Home**, then **Alt** + **Home** to move to the start of the project
- 3 Press **Pg Dn** until the **Draftsperson** comes into view
This resource is over-allocated as indicated by the colouring of the name and in the chart...
- 4 Press **Pg Dn** until you can see the **Rigger**, then press **Alt** + **Home** to return to the start of the project
- 5 Click on the **Resource** tab, then click on **Next Overallocation** in the **Level** group to see the over-allocation for the **Riggers**
- 6 Click on **Next Overallocation** again – you will be advised that there are no more over-allocations for this resource
- 7 Click on **[OK]**
- 8 Repeat steps 4 to 7 with the **Carpenter** resource



For Your Reference...

To **display over-allocations** as a **chart**:

1. Click on the **View** tab, then click on **Other Views** in the **Resource Views** group and select **Resource Graph**
2. Click on the over-allocated resource
3. Click on the **Resource** tab, then click on the **Next Overallocation** command

Handy to Know...

- There are a few ways to resolve over-allocation issues, including changing how long a task will take to complete and assigning more resources to a task.

CHECKING RESOURCE USAGE

Another great way of tracking over-allocations, and more importantly the extent of over-allocation, is through the **Resource Usage** view. This view presents a sheet to the left which is

organised in order of resources and the tasks that they are working on. To the right is a timeline view which shows the hours the resource works. Over allocated resources appear in red colouring.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Levelling_3.mpp...*

- 1 Click on the **View** tab, then click on **Resource Usage** in **Resource Views**
- 2 Press **Ctrl** + **Home** to move to the top of the resource list
- 3 Scroll to and click on **Draftsperson**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group to display the usage information for this resource
- 4 Scroll to and click on **Rigger** and click on **Scroll to Task** in the **Editing** group to display the usage information for this resource

	Resource Name	Work	Add New Column	Details	F	S	S	9 May '16	M	T
	Unassigned	0 hrs		Work						
	Planning Con	0 hrs		Work						
	Site Works Co	0 hrs		Work						
	Building Cons	0 hrs		Work						
	Fit Out Comp	0 hrs		Work						
	Obtain safety	0 hrs		Work						
	Official openi	0 hrs		Work						
	Commissioning	0 hrs		Work						
1	Architect	165.5 hrs		Work						
	Create archite	112.5 hrs		Work						

2

	Resource Name	Work	Add New Column	Details	F	S	S	6 May '19	M	T
	Create archite	112.5 hrs		Work					7.5h	
	Submit plans	8 hrs		Work						
	Test control r	37.5 hrs		Work						
	Obtain offic	7.5 hrs		Work						
2	Draftsperson	273.75 hrs		Work					15h	
	Create archite	225 hrs		Work					15h	
	Order materi	48.75 hrs		Work						
3	Building Clerk	54.38 hrs		Work					1.88h	1.
	Create archite	28.13 hrs		Work					1.88h	1.
	Order materi	18.75 hrs		Work						

3

	Resource Name	Work	Add New Column	Details	S	S	19 Aug '19	M	T	W
	Test roof mec	37.5 hrs		Work						
	Test control r	37.5 hrs		Work						
	Obtain offic	7.5 hrs		Work						
5	Rigger	187.5 hrs		Work					45h	45h
	Erect steelwo	2,700 hrs		Work					45h	45h
	Install roofin	375 hrs		Work						
	Install roof re	75 hrs		Work						
	Test roof mec	37.5 hrs		Work						
6	Boilermaker	3,525 hrs		Work					45h	45h
	Erect steelwo	2,700 hrs		Work					45h	45h

4

For Your Reference...

To **check** for **over-allocations** in **resource usage**:

1. Click on the **View** tab, then click on **Resource Usage** in the **Resource Views** group
2. Scroll to over-allocated resources

Handy to Know...

- At the time of writing, we found that the **Next Overalllocation** command (to move to the task in the timeline) in the **Resource Usage** view was erratic and inconsistent due to a bug when used in **Resource Usage** view.

CREATING AN OVER ALLOCATION REPORT

Project contains a number of in-built and pre-defined reports which help you locate all sorts of information about, and problems in, your project. One such report, the **Overallocated Resources**

report, lists all of the resources that are over allocated in your project and which tasks contain those over allocations. This is a handy report to use when levelling your project.

Try This Yourself:

Same File

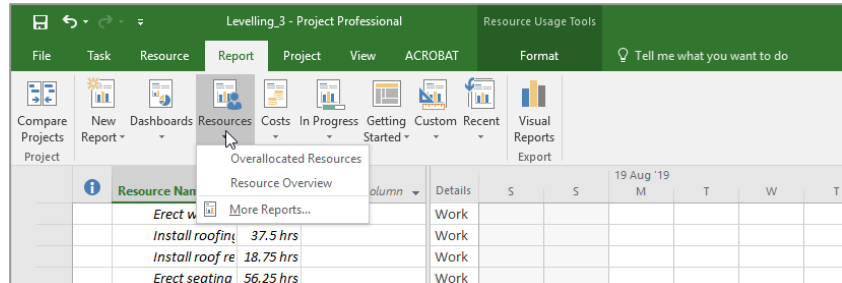
Continue using the previous file with this exercise, or open the file *Levelling_3.mpp...*

- 1 Click on the **Report** tab, then click on **Resources** in the **View Reports** group to display a list of reports

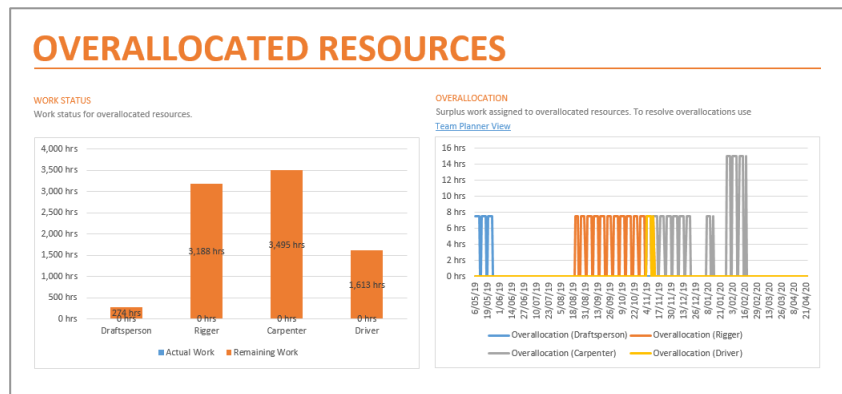
- 2 Select **Overallocated Resources** to display the report

The report shows which resources are over allocated and when the over allocations occur...

- 3 Click on the **File** tab, then click on **Print**
- 4 Click on **[Print]** to print the report, or click on the **Back** arrow if you prefer not to print
- 5 Click on the **View** tab, then click on **Resource Usage** in the **Resource Views** group



1



2

For Your Reference...

To **create** an **over-allocated resources report**:

1. Click on the **Report** tab, then click on **Resources** in the **View Reports** group
2. Select **Overallocated Resources**

Handy to Know...

- It is recommended that you print the over-allocated resources report before commencing levelling operations so that you have an idea of what is required as well as a record to refer back to.

CHANGING WORK EFFORT

There is no right or wrong way to level over-allocations – the methods that you choose are determined by the nature of your project. The best way to tackle over-allocations is one at a

time. We'll start with the **Draftsperson**. We identified a work requirement for two draftspersons to create the architectural plans. It has been decided that there is only enough work for one.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Levelling_3.mpp*...

- 1 Click on the **View** tab, then click on **Resource Usage** in the **Resource Views** group to display the **Resource Usage** sheet
- 2 Scroll to and click on **Draftsperson**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group to display usage information for this resource
- 3 Click on **Gantt Chart** in the **View** group to see a **Gantt Chart** view
- 4 Point to the information icon next to **Create architectural plans** under **Planning**, then right-click on it and select **Fix in Task Inspector**
- 5 Click on **[Reduce Work]** to remove the over-allocation
- 6 Click on **Create architectural plans**, then click on **Details** in the **Properties** group to see a task form in the lower pane of the screen
Notice that the hours for the draftsperson show 112.5h (3w x 37.5h)...
- 7 Click on the close button of the **Task Inspector**

Resource Name	Work	Details	W	T	F	S	S	19 Aug '19
Unassigned	0 hrs	Work						M
Planning Con	0 hrs	Work						
Site Works Cc	0 hrs	Work						
Building Cons	0 hrs	Work						
Fit Out Comp	0 hrs	Work						
Obtain safety	0 hrs	Work						
Official openi	0 hrs	Work						
Commissioni	0 hrs	Work						
Architect	165.5 hrs	Work						

1

Resource Name	Work	Details	S	S	6 May '19	M	T	W	T
Obtain offici	7.5 hrs	Work							
Draftsperson	273.75 hrs	Work			15h	15h	15h	15h	15h
Create archit	225 hrs	Work			15h	15h	15h	15h	15h
Order materi	48.75 hrs	Work							
Building Clerk	54.38 hrs	Work			1.88h	1.88h	1.88h	1.88h	1.88h
Create archit	28.13 hrs	Work			1.88h	1.88h	1.88h	1.88h	1.88h
Order materi	18.75 hrs	Work							
Obtain offici	7.5 hrs	Work							
Supervisor	750 hrs	Work							

2

The problem here is that the task **Create architectural plans** requires/shows 15 hours of draftsperson work on most days – since a day is 7.5 hours this means that there is a requirement for 2 draftspersons.

5 Planning Completed 0 days Wed 3/07/19 Wed 3/07/19

6 Site Works 27 days Thu 4/07/19 Fri 5/07/19

Name: Create architectural plans Duration: 3 wks ☐ Effort driven ☐ Manually Scheduled Previous Next

Dates Start: Mon 6/05/19 Constraint As Soon As Possible Task type: Fixed Units Finish: Fri 24/05/19 Date: NA WBS code: 1.1

☒ Current ☐ Baseline ☐ Actual Priority: 500 % Complete: 0%

ID	Resource Name	Units	Work	ID	Predecessor Name	Type	Lag
1	Architect	100%	112.5h				
2	Draftsperson	100%	112.5h				
3	Building Clerk	25%	28.13h				

6

For Your Reference...

To **resolve over-allocation** by **changing work effort**:

1. Right-click on the icon next to the task with the over-allocation and click on **Fix in Task Inspector**
2. Click on **[Reduce Work]** to remove the over allocation

Handy to Know...

- If you know that reducing the Work will fix an over-allocation, you could manually type the desired hours in the Work field for the resource rather than using the **Task Inspector**.

UNDERSTANDING OVERTIME

You can reduce the overall duration of a resource assignment in a task by assigning **overtime** to the resource. The total work for the assigned resources remains the same, but the task

duration is reduced. In Project, overtime is defined as the work scheduled to take place beyond the regular working hours of the resource.

The Effect of Overtime On Task Duration

We have an over-allocation with the riggers. As you'll soon see, this is only in one task – **erecting the steelwork**. In our case study there is a specific amount of work to be done on this. The riggers prepare and assemble some of the steelwork units that are then lifted into place.

We are short one rigger. This shortfall can be overcome by assigning overtime to the other riggers – they'll work enough overtime to cover the shortfall of one rigger.

In Project, assigning overtime can shorten the duration of a task. A task requires a specific amount of work effort by the resources to complete the task within the required duration. The duration of the task is calculated on the basis that the work effort will be done in regular work time.

However, if some of that work effort is done in overtime (that is, outside of **regular work time**) then the duration of the task will shorten – providing effort from other resources doesn't come into play. Consider the table below:

Total Work	Ovt Hours	Reg Work Time	Duration
15h	0h	15h	2 days
15h	3.75h	11.25h	1.5 days

Our task is effort driven and currently requires six riggers per day to complete.

Task Details Form

Name: Erect steelwork

Duration: 3 mons

Effort driven: ☐ Manually Scheduled: ☐

Constraint: As Soon As Possible

Task type: Fixed Units

WBS code: 3.2

Priority: 500

% Complete: 0%

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
4	Supervisor	50%	225h	0h	0h
5	Rigger	600%	2,700h	0h	0h
6	Boilermaker	600%	2,700h	0h	0h
7	Welder				
10	Labourer				
11	Driver				
18	High Jib Crane				
21	Utility				

If we take one rigger away, the duration will be longer – assuming that the same amount of work needs to be done by the five remaining riggers.

Task Details Form

Name: Erect steelwork

Duration: 3.6 mons

Effort driven: ☐ Manually Scheduled: ☐

Constraint: As Soon As Possible

Task type: Fixed Units

WBS code: 3.2

Priority: 500

% Complete: 0%

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
4	Supervisor	50%	225h	0h	0h
5	Rigger	500%	2,700h	0h	0h
6	Boilermaker	600%	2,700h	0h	0h
7	Welder				
10	Labourer				
11	Driver				
18	High Jib Crane				
21	Utility				

However, by assigning overtime we should be able to return the duration to its original amount. This is presented numerically in the form below.

Task Details Form

Name: Erect steelwork

Duration: 3 mons

Effort driven: ☐ Manually Scheduled: ☐

Constraint: As Soon As Possible

Task type: Fixed Units

WBS code: 3.2

Priority: 500

% Complete: 0%

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work
4	Supervisor	50%	225h	0h	0h
5	Rigger	500%	2,700h	450h	0h
6	Boilermaker	600%	2,700h	0h	0h
7	Welder	500%	2,250h	0h	0h
10	Labourer	600%	2,700h	0h	0h
11	Driver	200%	900h	0h	0h
18	High Jib Crane	100%	450h	0h	0h
21	Utility	100%	450h	0h	0h

ASSIGNING OVERTIME

To resolve a resource over-allocation, you may need to assign **overtime**. By definition, overtime is something that happens outside of the normal working hours. The value in **Work** represents

total hours for a resource. Any value in overtime is subtracted from the total **Work** and this in turn may impact on the task **duration**. Generally, more overtime results in a shorter task duration.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Levelling_4.mpp...*

- 1 Ensure you have a split screen view with the **Gantt Chart** and the **Task Details Form**, click in the top pane, click on the **View** tab, then click on **Resource Usage** in the **Resource Views** group
- 2 In the **Gantt Chart**, scroll down, click on **Rigger**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group to display this task in the timeline
- 3 Click in the **Task Details Form**, click on the **Task Form Tools: Format** tab, then ensure **Work** is selected in the **Details** group
- 4 Click on **600%** in **Units** for **Rigger**, type **500** and click on **[OK]**
- 5 Click on **0h** in **Ovt. Work** for **Rigger**, type **450h** and click on **[OK]**

The task is back to 3 months and the Rigger resource is no longer over-allocated

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
4	Supervisor	50%	225h	0h	0h	0h	225h
5	Rigger	500%	2,700h	450h	0h	0h	2,700h
6	Boilermaker	600%	2,700h	0h	0h	0h	2,700h
7	Welder	500%	2,250h	0h	0h	0h	2,250h
10	Labourer	600%	2,700h	0h	0h	0h	2,700h
11	Driver	200%	900h	0h	0h	0h	900h
18	High Jib Crane	100%	450h	0h	0h	0h	450h
21	Utility	100%	450h	0h	0h	0h	450h

- 4 The duration has extended to 3.6 months because the Work for the Riggers (2,700h) is now divided by 5 riggers to derive total work of 540 hours for each rigger. Since there are 150 hours of work per week (37.5 x 5) when you divide the total hours (540h) for a rigger by 150 you get 3.6 months.

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
4	Supervisor	50%	225h	0h	0h	0h	225h
5	Rigger	500%	2,700h	450h	0h	0h	2,700h
6	Boilermaker	600%	2,700h	0h	0h	0h	2,700h
7	Welder	500%	2,250h	0h	0h	0h	2,250h
10	Labourer	600%	2,700h	0h	0h	0h	2,700h
11	Driver	200%	900h	0h	0h	0h	900h
18	High Jib Crane	100%	450h	0h	0h	0h	450h
21	Utility	100%	450h	0h	0h	0h	450h

- 5

For Your Reference...

To **assign overtime** to a **resource**:

1. Ensure a **Task Form** appears with the **Work** format selected
2. Type the appropriate overtime in the **Ovt. Work** field, then click on **[OK]**

Handy to Know...

- Project subtracts overtime from total **Work** (2,700 – 450 = 2,250), then divides this by the number of specific resources (2,250 / 5 = 450). This in turn is then divided by the number of hours per week (450 / 150 = 3) to determine how many weeks of work are required by this resource.

HIRING CONTRACT LABOUR

Our case study project doesn't have enough carpenters to complete the work that needs to be done. If it is absolutely necessary, we have permission to bring in additional contract

tradespeople. We will have to add a new resource to the pool, then assign the resource to the task, being careful that we don't accidentally change the duration due to the effort-driven nature of the task.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Levelling_5.mpp...*

- 1 Scroll down the Gantt chart until the **Carpenter** resource can be seen, click on **Erect wall**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group
- 2 In the **Task Details Form** click in **Resource Name** below **Plumber**, type **On The Hammer**, then click on [OK]
We can hire contract labour from this agency to perform some of the carpentry work...
- 3 Click on **700%** in **Units** for **Carpenter** and type **600%**, click on **2,100h** in **Work** and type **1800**, then click on [OK]
- 4 Double-click on **On The Hammer** to display the **Resource Information** dialog box
- 5 Change the **Units** to **1000%**, type **OTH** in **Initials** and type **Contract Labour** in **Group**
- 6 Click on [OK]

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
4	Supervisor	50%	150h	0h	0h	0h	150h
8	Carpenter	600%	1,800h	0h	0h	0h	1,800h
10	Labourer	400%	1,200h	0h	0h	0h	1,200h
11	Driver	100%	300h	0h	0h	0h	300h
19	Grader	100%	300h	0h	0h	0h	300h
20	Air Compressor	100%	300h	0h	0h	0h	300h
27	Electrician	75%	225h	0h	0h	0h	225h
26	Plumber	25%	75h	0h	0h	0h	75h
28	On The Hammer	100%	300h	0h	0h	0h	300h

3

5

Available From	Available To	Units
NA	NA	1,000%

For Your Reference...

To **add a new resource** to **cover over-allocations**:

1. Click in **Resource Name**, type the name of the resource, then click on [OK]
2. Enter the appropriate Work for this new resource, then deduct the same amount from the over-allocated resource

Handy to Know...

- If you have access to an endless supply of contract labour, you will be able to enter a large sum of units (such as 1000%).

SWITCHING WORK ASSIGNMENTS

The task of erecting the seating tiers requires eight carpenters, but there are only six in the pool. We could use the contract labour, but we only have permission to do so if it is absolutely

necessary. Instead, we can give some of the more menial carpentry tasks to the labourers we already have.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Levelling_6.mpp*...

1 Click on **Erect seating tiers** in the Gantt chart, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group

2 In the **Task Details Form**, type **600%** in **Units** for **Carpenter**, then type **675h** in **Work**

This represents 3 weeks work for 6 carpenters ($6 \times 3 \times 37.5 = 675$)...

3 Type **700%** in **Units** for **Labourer** and type **787.5h** in **Work**

This represents 3 weeks work for 7 labourers ($7 \times 3 \times 37.5 = 787.5$)...

4 Click on **[OK]** to record the revised assignments

The carpenter resource no longer appears over-allocated

Task Details form for 'Erect seating tiers'. Duration: 3 wks. Task type: Fixed Units. WBS code: 3.6. Priority: 500. % Complete: 0%.

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
4	Supervisor	50%	56.25h	0h	0h	0h	56.25h
8	Carpenter	600%	675h	0h	0h	0h	900h
7	Welder	200%	225h	0h	0h	0h	225h
6	Boilermaker	200%	225h	0h	0h	0h	225h
10	Labourer	500%	562.5h	0h	0h	0h	562.5h
11	Driver	100%	112.5h	0h	0h	0h	112.5h
21	Utility	100%	112.5h	0h	0h	0h	112.5h
20	Air Compressor	100%	112.5h	0h	0h	0h	112.5h

2

Resource Name	Work	Add New Column	Details	S	M	T	W	T	F
Erect seating	225 hrs		Work						
Erect handra	300 hrs		Work			15h	15h	15h	15h
8 Carpenter	2,970 hrs		Work			45h	45h	45h	45h
Erect site buil	120 hrs		Work						
Erect wall	1,800 hrs		Work						
Erect seating	675 hrs		Work			45h	45h	45h	45h
Fit all window	375 hrs		Work						
9 Painter	750 hrs		Work						
Paint rooms,	750 hrs		Work						

4

For Your Reference...

To **switch work assignments**:

1. Select the task
2. Adjust the units and/or work effort for the over allocated resource
3. Click on **[OK]**

Handy to Know...

- Switching assignments in Project is relatively easy to do, providing you take into consideration the effort-driven nature of your tasks.

RESCHEDULING TASKS

We have an over-allocation of drivers. This over-allocation has arisen because the resource is required on two different tasks at the same time. We don't want to use additional resources, and

overtime isn't practical as the work of the driver is required in normal working time. We need to reschedule the tasks in such a way that allows us to still meet the project deadlines and timeframes.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Levelling_7.mpp*...

- 1 Scroll down in the top pane and click on the **Driver** resource, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group
- 2 Use the scroll bar below the timeline to scroll right until red values appear in the **Driver** row
- 3 Click on **Erect wall** in the upper pane, then click on the **Task Details Form** (lower pane)
- 4 Click on the **Task Form Tools: Format** tab, then click on **Predecessors & Successors** in the **Details** group
- 5 Click on **-10%** in **Lag**, type **0** and click on **[OK]** to remove the over allocation
- 6 Click on the **Project** tab, then click on **Project Information** in the **Properties** group
The finish date is now Thursday, May 7...
- 7 Click on **[OK]**
- 8 Double-click on the divider line between the panes to remove the lower pane, click on the **Task** tab, then click on **Gantt Chart** in the **View** group

ID	Predecessor Name	Type	Lag	ID	Successor Name
15	Erect steelwork	FS	0%	17	Install roofing superstructure
				20	Building Construction Completed

5

Custom Field Name	Value

6

For Your Reference...

To **reschedule** an **over-allocated task**:

1. Display the predecessors in a task form
2. Adjust for lag or predecessor relationships

Handy to Know...

- When you want to switch to another view from a combination view, remember to remove the split in the window. For example, double-click on the line between the two panes, then select **Resource Sheet** view to check that all over-allocations have gone.

CHAPTER 2

InFocus

ASSIGNING MATERIALS

Project has three types of resources: **work**, **costs**, and **materials**. Work resources are used for assigning labour and equipment, costs resources are used for special costs such as travel, and material resources are used for assigning and tracking materials that are consumed during the project.

Material resources need to be assigned to tasks much the same way as work resources need to be assigned to tasks. The methods of assignment, however, differ between them.

When a new resource is added to the project resource pool it must be clearly identified as either a work resource or a material resource.

The resource type you choose determines which other fields are available for that resource and how it can be assigned.

Material resources can generally only be assigned in a variable material consumption method or in a fixed material consumption method. With the variable material consumption method, the material is assigned as a unit with a usage rate based on a time period. With fixed material consumption the total consumption is added in the Work field of a task without any notion of a duration.

In this session you will:

- ✓ learn how to assign fixed material consumption
- ✓ learn how to contour material consumption
- ✓ learn how to supplement materials in a project
- ✓ learn how to assign variable usage materials
- ✓ learn how to add more materials to a task
- ✓ learn how to view material quantities and levels.

ASSIGNING FIXED MATERIAL CONSUMPTION

Two materials will be consumed in our case study project: the turf laid on the oval, and the paint. Since there is a fixed amount of both required, these can be entered as **fixed material**

consumption items. These are entered into the work field of the resource assignment in the same way that hours are entered for a **Work** resource.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *Materials_1.mpp...*

- 1 Double-click on the **Lay astro turf** task to display the **Task Information** dialog box, then click on the **Resources** tab
- 2 Click below **Pure Grass Turf**, then click on the drop arrow and select **Astro Turf**
- 3 Click on **1 Square Metre** in **Units**, then type **17850** and click on [OK]
- 4 Double-click on **Paint rooms, fixtures, fittings, etc.** in the **Gantt Chart** to display the **Task Information** dialog box
- 5 Click immediately below **Painter**, then click on the drop arrow and select **Paint**
- 6 Click on **1 Litre**, then type **1500** and click on [OK]

Task Information

General | Predecessors | Resources | Advanced | Notes | Custom Fields

Name: Lay astro turf Duration: 1 wk ☐ Estimated

Resources:

Resource Name	Assignment Owner	Units	Cost
Pure Grass Turf		100%	\$0.00
Astro Turf		1 Square Metre	

Help OK Cancel

Task Information

General | Predecessors | Resources | Advanced | Notes | Custom Fields

Name: Paint rooms, fixtures, fittings, etc. Duration: 1 mon ☐ Estimated

Resources:

Resource Name	Assignment Owner	Units	Cost
Painter		500%	\$0.00
Paint		1 Litre	

Help OK Cancel

For Your Reference...

To **assign fixed material consumption**:

1. Double-click on the task, then click on the **Resources** tab
2. Click on the **Resource Name** drop arrow and select the appropriate material
3. Enter the quantity in **Units**

Handy to Know...

- Notice that Project automatically adds descriptive labels (e.g. litres, square metre, etc.) after the quantities of material resources that you enter. These are the labels from the **Material** field in the resource pool. Whatever you typed in this field will be used by Project as the descriptor.

CONTOURING MATERIALS USAGE

When you enter fixed material consumption amounts, Project will contour the usage over the duration of the task. The default methodology is a flat line where an equal usage is assigned to

every hour of the duration of the task. Just like work resources, however, you can get in and change the contouring of the assignment to suit the needs of your project.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Materials_2.mpp...*

- 1 Click on the **View** tab, then click on **Details** in the **Split View** group to split the screen
- 2 Click on the drop arrow for **Details** and select **Resource Usage** to display the resource usage details in the lower form
- 3 Click on the **Paint rooms, fixtures, fittings, etc.** task in the top pane, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group
- 4 Click on the first **75** (white background) in the **Resource Usage** timeline, then type **25** and press **Tab** to move to the next day
- 5 Repeat step 4 and enter the values as shown – the total should show 1,500 when you have finished
- 6 Click on the **View** tab, then click on **Details** in the **Split View** group to return to a single pane view

Task Mode	Task Name	Duration	Start	16 Mar '20	M	T
28	Erect handrails and fencing	2 wks	Wed 4/03/20			
29	Paint rooms, fixtures, fittings, etc.	1 mon	Mon 16/03/20			
30	Install PA system	2 days	Wed 11/03/20			

Resource Name	Work	Add New Column	16 Mar '20	M	T
9 Painter	750 hrs				
23 Paint rooms, fixtures, fittings, etc.	750 hrs				
Paint	1,500 Litre				

3

Task Mode	Task Name	Duration	Start	16 Mar '20	M	T
28	Erect handrails and fencing	2 wks	Wed 4/03/20			
29	Paint rooms, fixtures, fittings, etc.	1 mon	Mon 16/03/20			
30	Install PA system	2 days	Wed 11/03/20			

Resource Name	Work	Add New Column	16 Mar '20	M	T
9 Painter	750 hrs				
23 Paint rooms, fixtures, fittings, etc.	750 hrs				
Paint	1,450 Litre				

4

Day	Date	Litres	Day	Date	Litres
Tue	17/3	30	Tue	31/3	90
Wed	18/3	35	Wed	1/4	100
Thu	19/3	45	Thu	2/4	100
Fri	20/3	50	Fri	3/4	100
Mon	23/3	70	Mon	6/4	130
Tue	24/3	70	Tue	7/4	130
Wed	25/3	80	Wed	8/4	100
Thu	26/3	80	Thu	9/4	80
Fri	27/3	80	Fri	10/4	15
Mon	30/3	90			

5

For Your Reference...

To **contour materials usage**:

1. Display the **Resource Usage** form
2. Click on the task and scroll to it on the timeline
3. Type the new values into the timeline cells

Handy to Know...

- Once costs are entered for materials, Project will allow you to monitor the cost of resources. This can be used to project cash flows. In many situations however, materials are really only used after some preparation work and therefore should be contoured towards the later part of the task.

ADDING MORE MATERIAL ASSIGNMENTS

Material resources are the supplies or other consumable items used to complete tasks in a project. Information about resources is maintained in a resource list, which can be

created using the **Resource Sheet**. This list of resources can be added to at any stage during the project.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Materials_3.mpp...*

- 1 Click on the **View** tab, then click on **Resource Sheet** in the **Resource Views** group to display the resource pool
- We need to add unleaded petrol and diesel to the project...
- 2 Scroll to the bottom of the list of resources, then click in the next available **Resource Name** cell (below **On The Hammer**)
- 3 Type **Diesel Fuel** and press **Tab** to move to **Type**
- 4 Type **M** for **Material** and press **Tab** to move to **Material**
- 5 Type **Litre** and press **Tab** to move to **Initials**
- 6 Type **DF** and press **Tab** to move to **Group**
- 7 Type **Fuel** and press **Enter**
- 8 Repeat steps 2 to 7 and add the petrol resource as shown

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$0.00/hr	\$0.00/hr
27	Electrician	Work		E		300%	\$0.00/hr	\$0.00/hr
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$0.00/hr	\$0.00/hr
27	Electrician	Work		E		300%	\$0.00/hr	\$0.00/hr
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr
29	Diesel Fuel	Work		D		100%	\$0.00/hr	\$0.00/hr

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$0.00/hr	\$0.00/hr
27	Electrician	Work		E		300%	\$0.00/hr	\$0.00/hr
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr
29	Diesel Fuel	Material	Litre	DF	Fuel		\$0.00	

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$0.00/hr	\$0.00/hr
27	Electrician	Work		E		300%	\$0.00/hr	\$0.00/hr
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr
29	Diesel Fuel	Material	Litre	DF	Fuel		\$0.00	
30	Unleaded Petrol	Material	Litre	UP	Fuel		\$0.00	

For Your Reference...

To **add more material resources**:

1. Click on **View**, then click on **Resource Sheet** in the **Resource Views** group
2. Click in the next available **Resource Name** cell
3. Type in the necessary details, e.g. *Resource Name*, *Type* etc.

Handy to Know...

- You can sort a resource by any of its columns simply by clicking on the small arrow that appears to the right of the **field** (column) heading.

ASSIGNING VARIABLE USAGE MATERIAL

Unlike the turf and the paint, we have no idea how much fuel will be used during the life of the project. We might be able to calculate this but it really makes no sense to do so. These material

resources can therefore be assigned as variable material consumption resources, where they are assigned at a certain consumption rate per hour.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Materials_4.mpp*...

- 1 Click on the **View** tab, then click on **Details** in the **Split View** group to select it to split the screen if necessary
- 2 Click on the drop arrow for **Details** and select **Task Sheet** – this view will show the tasks that a resource is assigned to
- 3 Click on **Grader** in the **Resource Sheet** to see all of the tasks for the grader in the **Task Sheet**
- 4 Double-click on Clear and level site in the **Task Sheet** to display the **Task Information** dialog box, then click on the **Resources** tab
Notice that there are two graders used for this task...
- 5 Click in the **Resource Name** cell below **Supervisor**, then click on the drop arrow and select **Diesel Fuel**
- 6 Type **16/h** in **Units**, then press **Enter**
- 7 Click on **[OK]**
- 8 Repeat steps 3 to 7 to add the additional fuel materials as shown

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use
16	Pure Grass Turf	Work		PGT	Contract	100%	\$0.00/hr	\$0.00/hr	\$0.00
17	Building Inspector	Work		BI	Government	100%	\$0.00/hr	\$0.00/hr	\$0.00
18	High Jib Crane	Work		HJC	Equipment	100%	\$0.00/hr	\$0.00/hr	\$0.00
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr	\$0.00/hr	\$0.00
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr	\$0.00/hr	\$0.00
21	Utility	Work		Ute	Equipment	200%	\$0.00/hr	\$0.00/hr	\$0.00

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Name
9		Clear and level site	3 wks	Mon 15/07/19	Fri 2/08/19	8	Driver[200%],
16		Erect wall	2 mons	Tue 12/11/19	Tue 21/01/20	15	Supervisor[50]

3
6

Task Information

General | Predecessors | Resources | Advanced | Notes | Custom Fields

Name: Clear and level site Duration: 3 wks ☐ Estimated

Resources:

Resource Name	Assignment Owner	Units	Cost
Driver		200%	\$0.00
Grader		200%	\$0.00
Supervisor		100%	\$0.00
Diesel Fuel		16 Litre/h	

Help OK Cancel

8

Grader	Erect Wall	Diesel Fuel	8/h
High Jib Crane	Erect Steelwork	Diesel Fuel	12/h
	Install roofing superstructure	Diesel Fuel	12/h
	Install roof retracting mechanism	Diesel Fuel	12/h
Utility	Erect Steelwork	Unleaded Petrol	4/h
	Install roofing superstructure	Unleaded Petrol	4/h
	Erect seating tiers	Unleaded Petrol	4/h
Air Compressor	Erect seating tiers	Diesel Fuel	6/h

For Your Reference...

To **assign variable material resources**:

1. Double-click on the task, then click on the **Resources** tab
2. Select the material to assign
3. Type the unit and follow it with **/h** to indicate hourly usage, then click on **[OK]**

Handy to Know...

- Expressions such as **16/h** or **2/d** are defined as 16 **per** hour or 2 **per** day. For example, if **16/h** represents 16 litres/h in a project, this means the resources together use 16 litres per hour of working time.

ADDING TO A MATERIAL ASSIGNMENT

You may need to apply the same material resource several times in the same task. For example, the **Erect wall** task requires the use of a grader and the air compressor, both of which

use diesel fuel. We would like to assign the appropriate fuel for both of these items. Unfortunately, Project doesn't allow you to add the same resource twice to a task.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Materials_5.mpp...*

- 1 Click on **Air Compressor** in the **Resource Sheet** to see all of the tasks for this resource in the **Task Sheet**

We've already entered the fuel assignment for the grader...

- 2 Double-click on **Erect wall** to display the **Task Information** dialog box

Notice that **Diesel Fuel** already appears here. The compressor uses 6 litres per hour. We can adjust the present unit rate to include this usage...

- 3 Click on **8 litre/h** in **Unit for Diesel Fuel**

- 4 Type **14/h** and press **Enter**

- 5 Click on **[OK]** to record this entry

- 6 Repeat steps 2 through to 5 and increase the usage of **Diesel Fuel** for the **Install roofing superstructure** task that uses the air compressor to **18/h**

Resource Name	Assignment Owner	Units	Cost
Supervisor		50%	\$0.00
Carpenter		600%	\$0.00
Labourer		400%	\$0.00
Driver		100%	\$0.00
Grader		100%	\$0.00
Air Compressor		100%	\$0.00
Electrician		75%	\$0.00
Plumber		25%	\$0.00
On The Hammer		100%	\$0.00
Diesel Fuel		8 Litre/h	\$0.00

Resource Name	Assignment Owner	Units	Cost
Labourer		400%	\$0.00
Driver		100%	\$0.00
Grader		100%	\$0.00
Air Compressor		100%	\$0.00
Electrician		75%	\$0.00
Plumber		25%	\$0.00
On The Hammer		100%	\$0.00
Diesel Fuel		14 Litre/h	\$0.00

For Your Reference...

To **add** to a **material assignment**:

1. Double-click on the task that has the material resource already assigned, then click on the **Resources** tab
2. Adjust the units for the material resource
3. Click on **[OK]**

Handy to Know...

- Project will appear to let you enter the same assignment twice. You can type it into the **Task Information** dialog box. However, when you click on **[OK]**, the previous assignment will be deleted and replaced with the one you've just typed.

CHECKING WORK FOR MATERIALS

Project allows you to view the tasks that material resources have been applied to in exactly the same way as you view work resources. The easiest view to use is the **Task Entry** view as it

shows you detailed information about the resource assignment in the lower pane.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Materials_6.mpp*...

- 1 Scroll to and click on **Diesel Fuel** in the top pane to see all of the tasks that use this resource in the lower pane
While this is useful it doesn't provide a guide to actual usage or quantities...
- 2 Click on the **View** tab, then click on the drop arrow for **Details** in the **Split View** group and select **Resource Usage** to see the proposed fuel usage for each task
- 3 Click on some of the other materials in the top pane to see quantities required and usage in the lower pane
- 4 Click on the **View** tab, click on **Gantt Chart** in the **Task Views** group, then click on **Details** in the **Split View** group to return to a single view

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr	\$0.00
29	Diesel Fuel	Material	Litre	DF	Fuel		\$0.00		\$0.00
30	Unleaded Petrol	Material	Litre	UP	Fuel		\$0.00		\$0.00

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Name
9		Clear and level site	3 wks	Mon 15/07/19	Fri 2/08/19	8	Driver[200%]
15		Erect steelwork	3 mons	Tue 20/08/19	Mon 11/11/19	14FS+100 eh	Supervisor[50]
16		Erect wall	2 mons	Tue 12/11/19	Tue 21/01/20	15	Supervisor[50]
17		Install roofing superstr	2 wks	Wed 22/01/20	Tue 4/02/20	16	Supervisor[50]
18		Install roof retracting r	1 wk	Wed 5/02/20	Tue 11/02/20	17	Supervisor[50]
19		Erect seating tiers	4 wks	Wed 5/02/20	Tue 3/03/20	18SS	Supervisor[50]

1

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use
28	On The Hammer	Work		OTH	Contract	1,000%	\$0.00/hr	\$0.00/hr	\$0.00
29	Diesel Fuel	Material	Litre	DF	Fuel		\$0.00		\$0.00
30	Unleaded Petrol	Material	Litre	UP	Fuel		\$0.00		\$0.00

	Resource Name	Work	Add New Column	Details	4 Nov '19	M	T
29	Diesel Fuel	1,100 Litre		Work (90		90
	Clear and level site	1,800 Litre		Work (
	Erect steelwork	5,400 Litre		Work (90		90
	Erect wall	4,200 Litre		Work (
	Install roofing sup	1,350 Litre		Work (
	Install roof retract	450 Litre		Work (
	Erect seating tiers	900 Litre		Work (

2

For Your Reference...

To **check** for **material resource quantities**:

1. Split the view with resources at the top and resource usage at the bottom
2. Click on the material in the top pane to see the usage and quantities in the bottom pane for each task

Handy to Know...

- The **Resource Usage** view has the added benefit of showing you the quantities required on a regular and periodic basis. This is useful for ordering purposes.

NOTES:

[illegible]

CHAPTER 3

InFocus

COSTS

Money is one of the primary elements of a project that must be kept under strict control.

Project can assist you in planning, forecasting and tracking **costs** associated with a project.

Most costs accumulated in a project are generated through the variable use of resources, although there are also fixed costs and special one-off costs such as permits, travel, and the like.

In this session you will:

- ✓ gain an understanding of costs in **Project**
- ✓ learn how to review the current cost status of a project
- ✓ learn how to assign variable costs to resources
- ✓ gain an understanding of how variable costs are assigned to many resources
- ✓ learn how to assign daily costs to resources
- ✓ learn how to assign per usage costs to resources
- ✓ learn how to assign fixed costs to tasks
- ✓ learn how to assign costs to materials
- ✓ learn how to create multiple cost tables for a resource
- ✓ learn how to apply a different cost rate table
- ✓ learn how to assign changing cost rates
- ✓ learn how to assign a **Cost Resource** to a task
- ✓ learn how to view the overall project costs.

UNDERSTANDING PROJECT COSTS

Project can perform some very elaborate and sophisticated cost analyses on your projects. The tools and features in Project will allow you to create an overall project budget and to track

actual expenses with relative ease. Project allows you to create **variable** costs, **fixed** costs and **cost-per-use** costs.

Variable Resource Costs

The most common type of costing in Project is the variable costing assigned to a resource. This is usually the hourly standard and overtime rates for labour, or an hourly standard rate assigned to machinery usage. The way this works in Project is similar to a spreadsheet – you enter an hourly rate into a resource sheet, and Project will apply that rate to all areas where the resource has been assigned to calculate a total costing for you.

A useful feature with variable costs is that you can tell Project when to accrue these variable costs. Variable costs can be accrued at the beginning or end of a task, or prorated as the task is underway. The table below explains the differences.

Accrual Type	Usage
Beginning	All costs are accrued at the start of the task. This is used when an upfront payment is required before work commences.
Prorata	Costs are accrued according to the amount of work that has been performed. If 50% of the work is completed, then 50% of the costs will be shown.
End	All costs are accrued at the end of the task. This is used in situations where you might be invoiced for the services of a contractor – the invoice is generally raised at the completion of the work.

A slight variation on these variable costs is a **per usage cost**. Let's say you need to hire equipment to dig holes. The hire company may charge you on an hourly basis and this would be the **variable** costing. However, they may charge you an administration fee each time you hire the equipment. In Project you would enter this administration cost into the **cost-per-use** field for the resource.

Fixed Costs

Project allows you to assign a fixed cost against a task. For example, you may have negotiated some contract work at a fixed price for your project. In our case study, the project manager has negotiated for the foundations to be poured by a concrete company. We pay a fixed contract price for everything to do with this task – materials, labour, equipment, and the like.

The Cost Resource

In Project there is also a **cost resource**. Generally, costs are associated with a *resource* – an hourly rate for labour or a cost-per-use for machinery. But there are some costs, such as those associated with travel, training, permits, or even a party that may not be appropriate to link to a particular resource. Project provides you with a **cost resource** for these situations – in our case study we have created two of them: one for building permits and the other for our end-of-project party. You only ever enter a cost value for these at the time they are assigned to a task.

Benefits For Project Managers

One of the advantages of Project is that you can mix and match all of these cost elements within your project and check the status of the costing at any time. You may, for example, have tasks that have variable cost labour, cost-per-use equipment, and some fixed cost contractual components. When you enter all of these elements, Project will calculate a total cost for the task and extrapolate that up into the total cost of the summary tasks and then ultimately up into the total project level.

milestones, resources and resource assignments. But it doesn't yet have any cost data. The best way to check the cost status of a project is to use the **Project Statistics** dialog box.

**Open
File**

1

- 2

- 3

- 1

2

Project Statistics for 'Costs_1'			
	Start		Finish
Current	Mon 6/05/19		Thu 7/05/20
Baseline	NA		NA
Actual	NA		NA
Variance	0d		0d
	Duration	Work	Cost
Current	253d	26,151.13h	\$0.00
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$0.00
Percent complete:			
Duration: 0% Work: 0%			
			Close

- It is a good idea to regularly display the **Project Statistics** dialog box as you enter costs just to ensure things are progressing as they should.

ENTERING VARIABLE COSTS

In a project, most of your costs come from the resources that are carrying out the tasks. Typically this will be either labour or machinery which is costed on an hourly basis. The costs are

calculated by the duration of the task, or the working hours of the resource multiplied by the amount entered in the **Std Rate** and the **Ovt Rate** in the **Resource Sheet**.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Costs_1.mpp*...

- 1 Click on the **View** tab, then click on **Resource Sheet** in the **Resource Views** group to display the data in this view
- 2 Click on **\$0.00/hr** in **Std. Rate** for **Architect**
- 3 Type **160** and press **Tab** to move to **Ovt. Rate**, then type **160** and press **Tab** twice to move to **Accrue At**
- 4 Click on the drop arrow that has appeared and select **End**
The Architect will invoice us when his work is done...
- 5 Click on **\$0.00/hr** in **Std. Rate** for **Draftsperson**
- 6 Type **48000/y** and press **Tab** to move to **Ovt. Rate**, then type **57000/y** and press **Tab** to complete the entry
- 7 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]**
- 8 Click on **[Close]**
- 9 Repeat steps 2 to 6 to enter the information shown on the following page

Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use	Accrue	B
Architect	Work		Arc	Consultar	100%	\$160.00/hr	\$160.00/hr	\$0.00	Prorate	St
Draftsperson	Work		Dft	Staff	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Building Clerk	Work		BC	Staff	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Supervisor	Work		Sup	Staff	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Rigger	Work		Rig	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Boilermaker	Work		BM	Wages	600%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Welder	Work		Weld	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Carpenter	Work		Car	Wages	600%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Painter	Work		Ptr	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Labourer	Work		Lab	Wages	1,000%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St

3

Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use	Accrue	B
Architect	Work		Arc	Consultar	100%	\$160.00/hr	\$160.00/hr	\$0.00	End	St
Draftsperson	Work		Dft	Staff	100%	3,000.00/yr	7,000.00/yr	\$0.00	Prorated	St
Building Clerk	Work		BC	Staff	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Supervisor	Work		Sup	Staff	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Rigger	Work		Rig	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Boilermaker	Work		BM	Wages	600%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Welder	Work		Weld	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Carpenter	Work		Car	Wages	600%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Painter	Work		Ptr	Wages	500%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St
Labourer	Work		Lab	Wages	1,000%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	St

6

7

Project Statistics for 'Costs_1' ✕

	Start	Finish
Current	Mon 6/05/19	Thu 7/05/20
Baseline	NA	NA
Actual	NA	NA
Variance	0d	0d

	Duration	Work	Cost
Current	253d	26,151.13h	\$30,449.23
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$30,449.23

Percent complete:

Duration: 0% Work: 0%

Close

For Your Reference...

To **assign variable costs** to a **resource**:

1. Display a **Resource Sheet** view
2. Type a variable cost rate in **Std. Rate** and **Ovt. Rate**

Handy to Know...

- Always enter an amount for overtime. In some cases, such as salaried professionals who do not get paid overtime, you may be inclined to leave the field blank. If you then assign overtime, they will be charged at zero. The overtime hours should be charged at cost as an absolute minimum.

CASE STUDY VARIABLE COSTS

Most larger projects will require you to enter quite a deal of information about the variable costs for the resources. In our case we have about 30 resources, many of which will require variable

rates for both **Std.** and **Ovt.** to be entered. This is part of the hard slog associated with setting up a project. There aren't any real tricks or traps here so enter the amounts shown below.

Resource Name	Std. Rate	Ovt. Rate
Building Clerk	42000/y	63000/y
Supervisor	45000/y	67500/y
Rigger	18.95	28.43
Boilermaker	20.66	30.99
Welder	20.25	30.38
Carpenter	21.50	32.25
Painter	12.90	19.35
Labourer	15.50	23.25
Driver	17.56	26.34
Listen Ear Audio	116.80	116.80
In Focus Video	178.00	178.00
Pure Grass Turf	195.00	195.00
Plumber	22.65	33.98
Electrician	21.56	32.34
On The Hammer	65.25	97.88

Large amounts, such as 42000, are annual salaries. That is why they are entered with a /y after them to indicate that this is an annual amount. Project will convert this amount into an hourly basis for calculation purposes.

Note that in order to provide a bit more "realism" the list of resources at the left here isn't the same as the order of resources in the project file!

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use	Accrue	Base
1	Architect	Work		Arc	Consultar	100%	\$160.00/hr	\$160.00/hr	\$0.00	End	Standard
2	Draftsperson	Work		Dft	Staff	100%	\$1,000.00/yr	\$1,000.00/yr	\$0.00	Prorated	Standard
3	Building Clerk	Work		BC	Staff	100%	\$1,000.00/yr	\$1,000.00/yr	\$0.00	Prorated	Standard
4	Supervisor	Work		Sup	Staff	100%	\$1,000.00/yr	\$1,500.00/yr	\$0.00	Prorated	Standard
5	Rigger	Work		Rig	Wages	500%	\$18.95/hr	\$28.43/hr	\$0.00	Prorated	Standard
6	Boilermaker	Work		BM	Wages	600%	\$20.66/hr	\$30.99/hr	\$0.00	Prorated	Standard
7	Welder	Work		Weld	Wages	500%	\$20.25/hr	\$30.38/hr	\$0.00	Prorated	Standard
8	Carpenter	Work		Car	Wages	600%	\$21.50/hr	\$32.25/hr	\$0.00	Prorated	Standard
9	Painter	Work		Ptr	Wages	500%	\$12.90/hr	\$19.35/hr	\$0.00	Prorated	Standard
10	Labourer	Work		Lab	Wages	1,000%	\$15.50/hr	\$23.25/hr	\$0.00	Prorated	Standard
11	Driver	Work		Drv	Wages	200%	\$17.56/hr	\$26.34/hr	\$0.00	Prorated	Standard
12	No Barrier Fencing	Work		NBF	Contractc	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	GBWU Award
13	Rock Solid Concrete	Work		RSC	Contractc	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
14	Listen Ear Audio	Work		LEA	Contractc	100%	\$116.80/hr	\$116.80/hr	\$0.00	Prorated	Standard
15	In Focus Video	Work		IFV	Contractc	100%	\$178.00/hr	\$178.00/hr	\$0.00	Prorated	Standard
16	Pure Grass Turf	Work		PGT	Contractc	100%	\$195.00/hr	\$195.00/hr	\$0.00	Prorated	Standard
17	Building Inspector	Work		BI	Governm	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
18	High Jib Crane	Work		HJC	Equipmer	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
19	Grader	Work		Grd	Equipmer	200%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
20	Air Compressor	Work		AC	Equipmer	100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
21	Utility	Work		Ute	Equipmer	200%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
22	Astro Turf	Material	Square Metr	Grass	Material		\$0.00		\$0.00	Prorated	
23	Paint	Material	Litre	Paint	Material		\$0.00		\$0.00	Prorated	
24	Building Permit	Cost		BPerm	Cost					Prorated	
25	End of Project Party	Cost		Party	Cost					Prorated	
26	Plumber	Work		P		200%	\$22.65/hr	\$33.98/hr	\$0.00	Prorated	Standard
27	Electrician	Work		E		300%	\$21.56/hr	\$32.34/hr	\$0.00	Prorated	Standard
28	On The Hammer	Work		OTH	Contract l	1,000%	\$65.25/hr	\$97.88/hr	\$0.00	Prorated	Standard
29	Diesel Fuel	Material	Litre	DF	Fuel		\$0.00		\$0.00	Prorated	
30	Unleaded Petrol	Material	Litre	UP	Fuel		\$0.00		\$0.00	Prorated	

ASSIGNING DAILY COSTS

A number of projects involve the hire of equipment, which is charged out on a daily basis. You can enter these types of charges into Project in much the same way as you enter the salaries

for labour. To enter a daily charge for an item simply type the rate followed by /d. When you do this Project will still internally convert the rate to an hourly rate.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_2.mpp...*

- 1 Click on **\$0.00/hr** in **Std. Rate** for the **High Jib Crane**

- 2 Type **2700/d** and press

Since we pay a daily hire cost there is no need to enter an overtime amount. If the equipment is used in overtime hours, there is no additional charge to us...

- 3 Repeat steps 1 and 2 and add a daily rate for the following:

Grader **1565/d**
Air Compressor **1280/d**
Utility **215/d**

- 4 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]**

- 5 Click on **[Close]** to close the dialog box and return to the project

	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.	Cost/Use
16	Pure Grass Turf	Work		PGT	Contract	100%	\$195.00/hr	\$195.00/hr	\$0.00
17	Building Inspector	Work		BI	Government	100%	\$0.00/hr	\$0.00/hr	\$0.00
18	High Jib Crane	Work		HJC	Equipment	100%	700.00/day	\$0.00/hr	\$0.00
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr	\$0.00/hr	\$0.00
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr	\$0.00/hr	\$0.00
21	Utility	Work		Ute	Equipment	200%	\$0.00/hr	\$0.00/hr	\$0.00
22	Astro Turf	Material	Square Metr	Grass	Material		\$0.00		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00		\$0.00

2

	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.	Cost/Use
16	Pure Grass Turf	Work		PGT	Contract	100%	\$195.00/hr	\$195.00/hr	\$0.00
17	Building Inspector	Work		BI	Government	100%	\$0.00/hr	\$0.00/hr	\$0.00
18	High Jib Crane	Work		HJC	Equipment	100%	700.00/day	\$0.00/hr	\$0.00
19	Grader	Work		Grd	Equipment	200%	\$65.00/day	\$0.00/hr	\$0.00
20	Air Compressor	Work		AC	Equipment	100%	280.00/day	\$0.00/hr	\$0.00
21	Utility	Work		Ute	Equipment	200%	215.00/day	\$0.00/hr	\$0.00
22	Astro Turf	Material	Square Metr	Grass	Material		\$0.00		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00		\$0.00

3

4

Project Statistics for 'Costs_2'

	Start	Finish
Current	Mon 6/05/19	Thu 7/05/20
Baseline	NA	NA
Actual	NA	NA
Variance	0d	0d

	Duration	Work	Cost
Current	253d	26,151.13h	\$913,363.95
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$913,363.95

Percent complete:

Duration: 0%Work: 0%

Close

For Your Reference...

To **assign** a **daily cost**:

1. Display a **Resource Sheet** view
2. Type the daily cost (/d to make it a daily rate) in **Std. Rate** for the desired resource
3. Repeat step 2 for **Ovt. Rate**
4. Press

Handy to Know...

- You should be careful when it comes to allocating the **accrual** method. If you have to pay for the resource in advance, you should change accrual to **Beginning**. If you pay on invoice at the end of the usage, you should change the accrual to **End**.

ASSIGNING PER USAGE COSTS

Some resources are charged on a cost-per-use basis. The **Per Use Cost** field is used to include a charge that is added once for each unit of a resource that is assigned to any task. It is a one-

time cost for a resource used on a task. It is great for one-off costs such as a call-out charge for a tradesman or the flag-fall charge in a taxi.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_3.mpp*...

- 1 Double-click on **High Jib Crane** to display the **Resource Information** dialog box
- 2 Click on the **Costs** tab to display the **Costs** information
In our case study the hire equipment incurs a daily hire charge. It also incurs an additional expense to cover insurance and administration. This is charged to us on a cost-per-use basis. It doesn't matter whether we hire the equipment for a day or for a year, we only incur the additional expense once...
- 3 Type **1200** in **Per Use Cost**, then press **Enter**
- 4 Click on **[OK]**
- 5 Repeat steps 1 to 4 for the resources as shown
Let's see how this has affected the costs...
- 6 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]**
- 7 Click on **[Close]**

Resource Information

General Costs Notes Custom Fields

Resource Name: High Jib Crane

Cost rate tables

For rates, enter a value or a percentage increase or decrease from the previous rate. For instance, if a resource's Per Use Cost is reduced by 20%, type -20%.

A (Default)	B	C	D	E
	Effective Date	Standard Rate	Overtime Rate	Per Use Cost
--		\$2,700.00/d	\$0.00/h	\$1,200.00

Cost accrual: Prorated

Help Details... OK Cancel

Resource	Per Use Cost
Grader	600
Air Compressor	200
Utility	67
On The Hammer	75

6 Project Statistics for 'Costs_3'

	Start	Finish
Current	Mon 6/05/19	Thu 7/05/20
Baseline	NA	NA
Actual	NA	NA
Variance	0d	0d

	Duration	Work	Cost
Current	253d	26,151.13h	\$919,639.95
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$919,639.95

Percent complete:
Duration: 0% Work: 0%

Close

For Your Reference...

To **assign one time usage costs**:

1. Double-click on the resource, then click on the **Costs** tab
2. Type the one-time usage cost in **Per Use Cost**
3. Click on **[OK]**

Handy to Know...

- You can have the **Cost Per Use** charge on its own. You can also have it in combination with the **Std. Rate** and **Ovt. Rate**, as would be the case where a call-out fee and an hourly rate is charged for service calls.
- Use **Resource Usage** view to see how and where specifically a resource is used.

ASSIGNING FIXED COSTS

The **Per Use Cost** field for resources allows you to assign a **fixed** usage cost to a resource. Each time you use that resource you incur that fixed cost. If you want that cost to occur only once, you

can assign a fixed cost to the task rather than the resource. In our case study this is handy for contract charges, which have been negotiated for a particular activity or task.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Costs_4.mpp*...

- 1 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **Task Sheet** to display this view

This sheet doesn't have any cost fields so we'll need to adjust the table...

- 2 Click on **Tables** in the **Data** group and select **Cost** to display this table

This table gives you a break up of costs. We'll use it for entering fixed costs for a task...

- 3 Click in **Fixed Cost** for **Erect fencing**, then type **15900** and press **Enter**

- 4 Under **Site Works**, click in the **Fixed Cost** column for **Pour foundations**, then type **895000** and press **Enter**

- 5 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]**

- 6 Click on **[Close]**

- 2

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual
1	Planning	\$0.00	Prorated	\$24,258.85	\$0.00	\$24,258.85	\$0.00
2	Create architectural	\$0.00	Prorated	\$21,375.00	\$0.00	\$21,375.00	\$0.00
3	Submit plans for a	\$0.00	Prorated	\$1,280.00	\$0.00	\$1,280.00	\$0.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$0.00	\$1,603.85	\$0.00
5	Planning Complete	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$41,228.60	\$0.00	\$41,228.60	\$0.00
7	Erect fencing	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$0.00	\$6,992.31	\$0.00
9	Clear and level site	\$0.00	Prorated	\$29,246.65	\$0.00	\$29,246.65	\$0.00
10	Prepare drainage i	\$0.00	Prorated	\$2,131.44	\$0.00	\$2,131.44	\$0.00

- 3

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual
1	Planning	\$0.00	Prorated	\$24,258.85	\$0.00	\$24,258.85	\$0.00
2	Create architectural	\$0.00	Prorated	\$21,375.00	\$0.00	\$21,375.00	\$0.00
3	Submit plans for a	\$0.00	Prorated	\$1,280.00	\$0.00	\$1,280.00	\$0.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$0.00	\$1,603.85	\$0.00
5	Planning Complete	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$57,128.60	\$0.00	\$57,128.60	\$0.00
7	Erect fencing	\$15,900.00	Prorated	\$15,900.00	\$0.00	\$15,900.00	\$0.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$0.00	\$6,992.31	\$0.00
9	Clear and level site	\$0.00	Prorated	\$29,246.65	\$0.00	\$29,246.65	\$0.00
10	Prepare drainage i	\$0.00	Prorated	\$2,131.44	\$0.00	\$2,131.44	\$0.00

- 4

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual
10	Prepare drainage i	\$0.00	Prorated	\$2,131.44	\$0.00	\$2,131.44	\$0.00
11	Prepare cabling in	\$0.00	Prorated	\$2,858.19	\$0.00	\$2,858.19	\$0.00
12	Site Works Complete	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00
13	Building Construction	\$0.00	Prorated	\$634,058.75	\$0.00	\$634,058.75	\$0.00
14	Pour foundations	\$895,000.00	Prorated	\$895,000.00	\$0.00	\$895,000.00	\$0.00
15	Erect steelwork	\$0.00	Prorated	\$395,788.81	\$0.00	\$395,788.81	\$0.00
16	Erect wall	\$0.00	Prorated	\$187,254.29	\$0.00	\$187,254.29	\$0.00
17	Install roofing sup	\$0.00	Prorated	\$72,988.26	\$0.00	\$72,988.26	\$0.00
18	Install roof retract	\$0.00	Prorated	\$21,138.32	\$0.00	\$21,138.32	\$0.00
19	Erect seating tiers	\$0.00	Prorated	\$61,889.08	\$0.00	\$61,889.08	\$0.00

- 5

Project Statistics for 'Costs_4'			
	Start	Finish	
Current	Mon 6/05/19	Thu 7/05/20	
Baseline	NA	NA	
Actual	NA	NA	
Variance	0d	0d	
	Duration	Work	Cost
Current	253d	26,151.13h	\$1,830,539.95
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$1,830,539.95
Percent complete:			
Duration: 0% Work: 0%			
Close			

For Your Reference...

To **assign fixed costs** for a **task**:

1. Display a **Task Sheet** view with the **Costs** table
2. Type the appropriate cost into the **Fixed Cost** field for the desired task, then press **Enter**

Handy to Know...

- You can set the accrual method in the **Fixed Cost Accrual** field in the **Cost** table so that the costs are accrued either at the beginning or the end of the task.

ASSIGNING MATERIAL COSTS

In Project, costs for materials are applied the same way as costs for work resources. You can apply the costs using **Std.** rates where Project will determine the costs based on the usage. This

is ideal for consumable materials such as nails, timber, fuel, and the like, and allows you to track expenditure as the task progresses.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_5.mpp*...

- 1 Click on the **View** tab, then click on **Resource Sheet** in the **Resource Views** group
- For all of the materials, the turf, the paint, and the fuel, we wish to be able to track costs as the materials are consumed. By assigning a cost per metre to Astro Turf, Project will use this rate and multiply it by the total number of metres that we have indicated will be required in the assignment of the turf...
- 2 Click in **Std. Rate** for **Astro Turf**, then type **65.27** and press **Enter**
- 3 Type **8.76** in **Std. Rate** for **Paint** and press **Enter**
- 4 Click in **Std. Rate** for **Diesel Fuel**, then type **1.89** and press **Enter**
- 5 Type **1.76** in **Std. Rate** for **Unleaded Petrol** and press **Enter**
- 6 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]**
- 7 Click on **[Close]**

	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.
19	Grader	Work		Grd	Equipmer	200%	\$65.00/day	\$0.00/hr
20	Air Compressor	Work		AC	Equipmer	100%	\$80.00/day	\$0.00/hr
21	Utility	Work		Ute	Equipmer	200%	\$15.00/day	\$0.00/hr
22	Astro Turf	Material	Square Metr	Grass	Material		\$65.27	
23	Paint	Material	Litre	Paint	Material		\$0.00	
24	Building Permit	Cost		BPerm	Cost			
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$22.65/hr	\$33.98/hr
27	Electrician	Work		E		300%	\$21.56/hr	\$32.34/hr

2

	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.
25	End of Project Party	Cost		Party	Cost			
26	Plumber	Work		P		200%	\$22.65/hr	\$33.98/hr
27	Electrician	Work		E		300%	\$21.56/hr	\$32.34/hr
28	On The Hammer	Work		OTH	Contract l	1,000%	\$0.00/hr	\$0.00/hr
29	Diesel Fuel	Material	Litre	DF	Fuel		\$1.89	
30	Unleaded Petrol	Material	Litre	UP	Fuel		\$1.76	

- 5 These costs are entered as a unit rate in the **Std. Rate** field of the resource sheet. Project assumes that this is a normal rate and multiplies it by the number of units of the material assigned to a task. For example, if you enter \$5.00 for paint in the resource sheet, and then assign 20 units in a task, Project will calculate the cost at \$100.00.

Project Statistics for 'Costs_5'			
	Start	Finish	
Current	Mon 6/05/19	Thu 7/05/20	
Baseline	NA	NA	
Actual	NA	NA	
Variance	0d	0d	
	Duration	Work	Cost
Current	253d	26,151.13h	\$3,040,150.45
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$3,040,150.45
Percent complete:			
Duration: 0%		Work: 0%	
			Close

For Your Reference...

To **assign material costs**:

1. Display a **Resource Sheet** view
2. Type the cost in the **Std. Rate** field and press **Enter**

Handy to Know...

- When assigning material costs, you can also assign a cost-per-use charge, which effectively allows you to create a fixed cost for the materials.

USING ANOTHER COST TABLE

Project lets you assign different rates for the same resource in the project by creating additional **cost rate tables** for the resource. This is useful where a resource may charge different

rates depending upon the task that they are performing. Access to these different tables is made available through the **Resource Information** dialog box.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_6.mpp*...

- 1 Scroll up to and double-click on **Architect** to display the **Resource Information** dialog box, then click on the **Costs** tab to see the costings of this resource
- 2 Click on the **B** tab to see a different series of costs
The architects normally charge us an hourly fee. For special jobs, however, such as submitting important documentation, they significantly up their fee...
- 3 Click in **Standard Rate** and type **450**
- 4 Click in **Overtime Rate**, then type **450** and press **Enter**
- 5 Click on **[OK]** to record the change

1

Resource Information

General Costs Notes Custom Fields

Resource Name: Architect

Cost rate tables

For rates, enter a value or a percentage increase or decrease from the previous rate. For instance, if a resource's Per Use Cost is reduced by 20%, type -20%.

A (Default)	B	C	D	E
Effective Date	Standard Rate	Overtime Rate	Per Use Cost	
--	\$160.00/h	\$160.00/h	\$0.00	

Cost accrual: End

Help Details... OK Cancel

4

Resource Information

General Costs Notes Custom Fields

Resource Name: Architect

Cost rate tables

For rates, enter a value or a percentage increase or decrease from the previous rate. For instance, if a resource's Per Use Cost is reduced by 20%, type -20%.

A (Default)	B	C	D	E
Effective Date	Standard Rate	Overtime Rate	Per Use Cost	
--	\$450.00/h	\$450.00/h	\$0.00	

Cost accrual: End

Help Details... OK Cancel

For Your Reference...

To **use multiple cost tables**:

1. Double-click on the desired resource, then click on the **Costs** tab
2. Click on the drop arrow for **Cost accrual**
3. Click on the desired table, enter the desired rates, then click on **[OK]**

Handy to Know...

- You can specify a percentage rate change in a cost rate table from a set date. Once you have entered the effective date, type in the percentage change in the **Standard Rate**, **Overtime Rate** and **Per Use Cost** fields, e.g. +10% or -7.5%. The actual rate is then calculated and appears in the field.

APPLYING A DIFFERENT COST TABLE

Project allows you to specify different costs for resources at different times throughout the project by using cost rate tables. The default **Cost rate table** applied to resources is 'A'. If you

have more than one cost rate table for a resource, you will need to specify which table is used for different assignments.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_7.mpp...*

- 1 Click on the **View** tab, then click on **Resource Usage** in the **Resource Views** group to display this view
- 2 Scroll to and click on **Submit plans for approval** under **Architect**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group to display details about this task in the right pane
- 3 Click on the **Resource Usage Tools: Format** tab, then click on **Cost** in the **Details** group so it appears ticked
- 4 Scroll to the right until you can see the last cost entry – a value will appear there because the resource costs are accrued at the end of an assignment
- 5 Double-click on **Submit plans for approval** to display the **Assignment Information** dialog box
- 6 Click on the drop arrow for **Cost rate table** and select **B**
- 7 Click on **[OK]** to use this cost table in the task

	Resource Name	Work	Add New Column	Details	F	S
1	Architect	165.5 hrs		Work	3h	
	Create archi	112.5 hrs		Cost	\$1,280.00	
	Submit plans	8 hrs		Work		
	Test control r	37.5 hrs		Cost	\$1,280.00	
	Obtain offic	7.5 hrs		Work		
				Cost		

4

6

Assignment Information

General | Tracking | Notes

Task: Submit plans for approval

Resource: Architect

Work: 8h Units: 100%

Work contour: Contoured

Start: Mon 27/05/19 Booking type: Committed

Finish: Fri 21/06/19 Cost: \$1,280.00

Cost rate table: B Assignment Owner:

OK Cancel

	Resource Name	Work	Add New Column	Details	F	S
1	Architect	165.5 hrs		Work	3h	
	Create archi	112.5 hrs		Cost	\$3,600.00	
	Submit plans	8 hrs		Work	3h	
	Test control r	37.5 hrs		Cost	\$3,600.00	
	Obtain offic	7.5 hrs		Work		
				Cost		

7

For Your Reference...

To **apply a different cost table**:

1. Double-click on a task, then click on the **General** tab of the **Assignment Information** dialog box
2. Click on the drop arrow for **Cost rate table** and select a different table

Handy to Know...

- You can have up to five cost rate tables for each resource, and you can create a graduated scale of rates if you use them all.

CHANGING RATES DURING A PROJECT

Project allows you to enter rate changes for resources in a project. This is done by nominating an effective date for the change and then entering the new rates effective from that

date. In our case study, negotiations with the carpenters' union have resulted in a 25% pay rise for the carpenters effective from January 1, 2020.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_8.mpp*...

- 1 Click on the **View** tab, then click on **Resource Sheet** in the **Resource Views** group
- 2 Double-click on **Carpenter**, then click on the **Costs** tab
- 3 Click in the **Effective Date** cell in the second row, then complete the details as shown
- 4 Click on **[OK]**
Let's see what impact this has had on the project...
- 5 On the **View** tab, click on **Resource Usage** in the **Resource Views** group to display this view
- 6 Click on **Erect wall** below **Carpenter**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group
- 7 Scroll right until you can see **January**
The hours should still show 45 but the new table will be being used and the cost will be higher

3

Resource Information

General Costs Notes Custom Fields

Resource Name: Carpenter

Cost rate tables

For rates, enter a value or a percentage increase or decrease from the previous rate. For instance, if a resource's Per Use Cost is reduced by 20%, type -20%.

A (Default)	B	C	D	E
	Effective Date	Standard Rate	Overtime Rate	Per Use Cost
	--	\$21.50/h	\$32.25/h	\$0.00
	Wed 1/01/20	\$26.88/h	\$40.31/h	

Cost accrual: Prorated

Help Details... OK Cancel

	Resource Name	Work	Add New Column	Details	T	W
8	Carpenter	2,970 hrs		Work	45h	45h
	Erect site build	120 hrs		Cost	\$967.50	\$967.50
	Erect wall	1,800 hrs		Work	45h	45h
	Erect seating	675 hrs		Cost	\$967.50	\$967.50
	Fit all window	375 hrs		Work		

6

	Resource Name	Work	Add New Column	Details	6 Jan '20	T
8	Carpenter	2,970 hrs		Work		45h
	Erect site build	120 hrs		Cost		\$1,209.60
	Erect wall	1,800 hrs		Work		45h
	Erect seating	675 hrs		Cost		\$1,209.60
	Fit all window	375 hrs		Work		

7

For Your Reference...

To **assign changed rates** from a **specific date**:

1. Double-click on the desired resource
2. Click on the **Costs** tab
3. Click in the next free **Effective Date** cell and enter the relevant date and rate details

Handy to Know...

- It can sometimes be hard to track down changing rates in a project. If you do have to change the rates for a resource, make a note of it in the **Notes** field in the **Resource Information** dialog box. Project will display a notes icon next to resources with **Notes** as a reminder.

ASSIGNING COST RESOURCES

Project has a separate **cost** resource which can be a little hard to get your head around. This is actually a resource that appears in the resource pool but doesn't have a cost value until it is

assigned to a task. It is useful for costs that aren't directly influenced by the duration of a task or the usage of other resources. It is similar to a fixed cost.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_9.mpp*...

1 Click on the **View** tab, then click on **Gantt Chart** in the **Task Views** group to display this view

2 Double-click on **Submit plans for approval** under **Planning** to display the **Task Information** dialog box, then click on the **Resources** tab

3 Click below **Architect**, then click on the drop arrow and select **Building Permit**

Since this is a cost resource there are no units to worry about, only a cost value to assign...

4 Click in **Cost**, then type **2500** and press **Enter**

5 Click on **[OK]**

6 Repeat the above steps and assign the **End of Project Party** at a cost of **15500** to the **Official Opening** task

Resource Name	Assignment Owner	Units	Cost
Architect		100%	\$3,600.00
Building Permit			\$2,500.00

4

Resource Name	Assignment Owner	Units	Cost
End of Project Party			\$15,500.00

6

Tip: If we had assigned the party and permits as a Fixed Cost, you'd only see a total amount for the two tasks rather than being able to itemise the costs associated with each task.

For Your Reference...

To **assign cost resources** to a **task**:

1. Double-click on a task and click on the **Resources** tab
2. Choose a cost resource in **Resource Name** and enter a cost in the **Cost** field

Handy to Know...

- By creating a **Cost Resource** rather than entering amounts as **Fixed Costs** for a task, you can actually itemise the fixed costs associated with a task.

VIEWING PROJECT COSTS

Once all of a project's costs have been entered, there are many ways in Project for you to view those costs. You can use the **Project Statistics** dialog box to see the total project costs, or you

can use different views and tables to see the costs for tasks and also the costs for resources.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Costs_10.mpp*...

- 1 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]** to see the **Project Statistics** dialog box

- 2 Click on **[Close]**

- 3 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **Task Sheet** to display this view

Using a task sheet view you can see the cost breakdown by task...

- 4 On the **View** tab, click on **Tables** in the **Data** group and ensure **Cost** is selected
- 5 On the **View** tab, click on **Resource Sheet** in the **Resource Views** group, then click on **Tables** in **Data** and select **Cost**

Using a resource sheet view you can see the cost breakdown by resource...

- 6 Click on **Gantt Chart** in the **Task Views** group

1

Project Statistics for 'Costs_10'

	Start	Finish
Current	Mon 6/05/19	Thu 30/04/20
Baseline	NA	NA
Actual	NA	NA
Variance	0d	0d

	Duration	Work	Cost
Current	248d	25,926.13h	\$3,043,680.80
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	248d	25,926.13h	\$3,043,680.80

Percent complete:
Duration: 0% Work: 0%

Close

	Task Name	Fixed	Fixed Cost	Total	Baseline	Variance	Actual	Remaining
1	Planning	\$0.00	Prorated	\$29,078.85	\$0.00	\$29,078.85	\$0.00	\$29,078.85
2	Create architecture	\$0.00	Prorated	\$21,375.00	\$0.00	\$21,375.00	\$0.00	\$21,375.00
3	Submit plans for a	\$0.00	Prorated	\$6,100.00	\$0.00	\$6,100.00	\$0.00	\$6,100.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$0.00	\$1,603.85	\$0.00	\$1,603.85
5	Planning Complete	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$60,530.60	\$0.00	\$60,530.60	\$0.00	\$60,530.60
7	Erect fencing	\$15,900.00	Prorated	\$15,900.00	\$0.00	\$15,900.00	\$0.00	\$15,900.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$0.00	\$6,992.31	\$0.00	\$6,992.31
9	Clear and level site	\$0.00	Prorated	\$32,648.65	\$0.00	\$32,648.65	\$0.00	\$32,648.65
10	Prepare drainage i	\$0.00	Prorated	\$2,131.44	\$0.00	\$2,131.44	\$0.00	\$2,131.44
11	Prepare cabling in	\$0.00	Prorated	\$2,858.19	\$0.00	\$2,858.19	\$0.00	\$2,858.19

4

	Resource Name	Cost	Baseline	Variance	Actual Cost	Remaining	Add New Column
1	Architect	\$28,800.00	\$0.00	\$28,800.00	\$0.00	\$28,800.00	
2	Draftsperson	\$3,969.23	\$0.00	\$3,969.23	\$0.00	\$3,969.23	
3	Building Clerk	\$1,171.15	\$0.00	\$1,171.15	\$0.00	\$1,171.15	
4	Supervisor	\$17,307.69	\$0.00	\$17,307.69	\$0.00	\$17,307.69	
5	Rigger	\$64,669.13	\$0.00	\$64,669.13	\$0.00	\$64,669.13	
6	Boilermaker	\$72,826.50	\$0.00	\$72,826.50	\$0.00	\$72,826.50	
7	Welder	\$61,509.38	\$0.00	\$61,509.38	\$0.00	\$61,509.38	
8	Carpenter	\$78,215.10	\$0.00	\$78,215.10	\$0.00	\$78,215.10	
9	Painter	\$9,675.00	\$0.00	\$9,675.00	\$0.00	\$9,675.00	
10	Labourer	\$88,001.25	\$0.00	\$88,001.25	\$0.00	\$88,001.25	
11	Driver	\$28,315.50	\$0.00	\$28,315.50	\$0.00	\$28,315.50	

5

For Your Reference...

To **review project costs**:

1. Use the **Project Statistics** dialog box (**Project > Project Information**)
2. Display a **Task Sheet** view with a **Cost** table
3. Display a **Resource Sheet** view with a **Cost** table

Handy to Know...

- The views, such as a **Task Sheet** view with a **Cost** table, can be printed if you require a quick hard copy summary of the costs.

CHAPTER 4

InFocus

CONSTRAINTS AND DEADLINES

All tasks which are created in Project are automatically assigned the constraint **As Soon As Possible**. This particular constraint requires each task to begin as early as possible, depending on the project start date and any relationships which have been set.

Constraints allow you to place restrictions on the way Project calculates task start and finish dates. This may be necessary when you need to take into account external factors such as resource availability.

Project also gives you the option to set a **deadline** on tasks. This simply indicates when you want a task to be completed, without limiting the schedule calculations by setting a constraint.

In this session you will:

- ✓ gain an understanding of constraints and deadlines
- ✓ learn how to review project status
- ✓ learn how to add a constraint to a task
- ✓ learn how to resolve conflicts caused by constraints
- ✓ learn how to reschedule tasks to overcome constraint issues
- ✓ learn how to create a deadline
- ✓ learn how to quickly move a project's start date.

UNDERSTANDING CONSTRAINTS AND DEADLINES

Every new task that you create in a project has a constraint imposed upon it. It is the type of constraint that dictates to Project which calculation methodology to use for scheduling.

When you add a new task to a project the task is constrained by As Soon As Possible for a project based on a start date, and by As Late As Possible for a project based on a finish date.

Constraints

Project considers the sequencing requirements based on the task's predecessors and then schedules the task after these requirements are completed – in the literal sense of the word, there are no real constraints placed on the task.

Constraints are rules or directives that will affect the outcome of a task. For example, a specific task might have to start on a particular day, or it may have to be finished by a certain date. These are constraints.

However, the default constraint can be changed to one of the following.

- As Late As Possible
- As Soon As Possible
- Finish No Earlier Than
- Finish No Later Than
- Must Finish On
- Must Start On
- Start No Earlier Than
- Start No Later Than

They can easily be changed in the **Task Information** dialog box.

Constraints in Project can be either **hard** or **soft**.

A **hard constraint** is one where the constraint must be honoured even if the predecessor links must be violated. This is the default setting in Project.

A **soft constraint** is one where the predecessor relationship is honoured rather than the constraint.

Changing constraints to either hard or soft is done using the **Tasks will always honour their constraint dates** option in the **Schedule** tab of the **Options** dialog box.

Deadlines

Project also allows you to assign a **deadline** to a task. Unlike a constraint, which can determine the outcome of the project, a schedule deadline is simply a marker placed against a task and a time. If the task fails to be completed within the deadline, an indicator appears in the project but the schedule remains unaffected.

review where the project is at in terms of start and end dates and financial matters.

**Open
File**

1

2

3

4

Project Information for 'Constraints_1'

Start date: Current date:

Finish date: Status date:

Schedule from: Calendar:

All tasks begin as soon as possible. Priority:

Enterprise Custom Fields

Department:

Custom Field Name	Value

3

Project Statistics for 'Constraints_1'			
	Start		Finish
Current	Mon 6/05/19		Thu 7/05/20
Baseline	NA		NA
Actual	NA		NA
Variance	0d		0d
	Duration	Work	Cost
Current	253d	26,151.13h	\$3,069,993.05
Baseline	0d	0h	\$0.00
Actual	0d	0h	\$0.00
Remaining	253d	26,151.13h	\$3,069,993.05
Percent complete:			
Duration: 0% Work: 0%			
			Close

- Reviewing the project information and statistics should be done regularly. Even the smallest change to a task can throw a project schedule out. By regularly checking the schedule and statistics, you will pick up changes before they become too entrenched.

ADDING A CONSTRAINT

The project manager has been told that the official opening of the new **Rostadium** complex must take place on Saturday, May 2 at 7:30 pm. Our stadium will need to be completed by this

date – this is a constraint imposed on our project. The opening's start time is a *hard* constraint so it's going to have to be set up as a **Must Start On** constraint.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Constraints_1.mpp...*

1 Scroll down the list of tasks, double click on **Official opening** under **Commissioning** to display the **Task Information** dialog box, then click on the **Advanced** tab

2 Click on the drop arrow for **Constraint type** and select **Must Start On**

3 Click on **NA** in **Constraint date** and type **2/5/20 07:30PM**

4 Click on **[OK]**
The **Planning Wizard** will appear because the constraint can't be met given the current state of the project – the critical path makes it impossible to have the ceremony on April 25...

5 Click on **Continue. A Must Start On constraint will be set** and click on **[OK]**

This time the **Planning Wizard** will advise of a scheduling conflict...

6 Click on **Continue. Allow scheduling conflict** and click on **[OK]**

3

4

5

Note: In our case study, the Gantt Chart has become quite convoluted – notice that some tasks prior to the official opening are now scheduled to be done after the opening.

For Your Reference...

To **apply a constraint** to a **task**:

1. Double-click on the task, then click on the **Advanced** tab on the dialog box
2. Click on the **Constraint type** drop arrow and select the appropriate constraint
3. Type a constraint date

Handy to Know...

- When a task is constrained a scheduling icon will appear next to the task.

USING ELAPSED TIME

It is pretty clear that we need to resolve the scheduling conflict in the project. The conflict has occurred because the tasks on the critical path cannot be completed in time to honour the

constraint on the **Official Opening** task. One problem we have is that the opening celebrations take place outside normal working hours.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Constraints_2.mpp*...

1

In the task list under **Commissioning**, click on the **Official opening** task, click on the **View** tab, then click on **Details** in the **Split View** group to see a **Task Form** in the lower pane

Notice that even though we said this started on Saturday at 7.30 PM it still occupies all of Monday. The task should be 3 hours, not 1 day. Let's change the duration...

2

In the Gantt chart, click in the **Duration** column for the **Official opening** task, then type 3h and press **Enter**

3

If the **Planning Wizard** has appeared click on **Continue**, click on **Don't tell me about this again**, then click on **[OK]**

4

In the Gantt chart, click in the **Duration** column for the **Official opening** task, then type 3eh and press **Enter**

5

Click on **Details** in the **Split View** group to return to a single pane view

Task Mode	Task Name	Duration	Start	Finish	6 Apr '20	13 Apr '20
	Obtain safety certification	2 days	Tue 5/05/20	Wed 6/05/20		
	Official opening	1 day	Sat 2/05/20	Mon 4/05/20		
	Commissioning Completed	0 days	Wed 6/05/20	Wed 6/05/20		

Name:	Official opening	Duration:	1 day	<input type="checkbox"/> Effort driven	<input type="checkbox"/> Manually Scheduled	Previous	Next
Start:	Sat 2/05/20	Finish:	Mon 4/05/20	Task type:	Fixed Units	% Complete:	0%
ID	Resource Name	Units	Work	ID	Predecessor Name	Type	Lag
25	End of Project Party			40	Obtain safety certification	FS	0d

1

Task Mode	Task Name	Duration	Start	Finish	6 Apr '20	13 Apr '20
	Obtain safety certification	2 days	Tue 5/05/20	Wed 6/05/20		
	Official opening	3 hrs	Sat 2/05/20	Mon 4/05/20		
	Commissioning Completed	0 days	Wed 6/05/20	Wed 6/05/20		

Name:	Official opening	Duration:	3 hrs	<input type="checkbox"/> Effort driven	<input type="checkbox"/> Manually Scheduled	Previous	Next
Start:	Sat 2/05/20	Finish:	Mon 4/05/20	Task type:	Fixed Units	% Complete:	0%
ID	Resource Name	Units	Work	ID	Predecessor Name	Type	Lag
25	End of Project Party			40	Obtain safety certification	FS	0d

2

This has reduced the duration but it still spills into Monday because we scheduled the start outside of normal working time. Project has to assign the 3 hours in work time. The next available work period starts at 7:30 am on Monday morning.

Task Mode	Task Name	Duration	Start	Finish	6 Apr '20	13 Apr '20
	Obtain safety certification	2 days	Tue 5/05/20	Wed 6/05/20		
	Official opening	3 eh	Sat 2/05/20	Sat 2/05/20		
	Commissioning Completed	0 days	Wed 6/05/20	Wed 6/05/20		

Name:	Official opening	Duration:	3 eh	<input type="checkbox"/> Effort driven	<input type="checkbox"/> Manually Scheduled	Previous	Next
Start:	Sat 2/05/20	Finish:	Sat 2/05/20	Task type:	Fixed Units	% Complete:	0%
ID	Resource Name	Units	Work	ID	Predecessor Name	Type	Lag
25	End of Project Party			40	Obtain safety certification	FS	0d

4

By changing the duration to elapsed time we have adjusted the timeline. The duration is now applicable only to the Saturday.

For Your Reference...

To **specify elapsed time**:

- Click in the duration cell of the desired task
- Insert the letter **e** (for elapsed) between the amount and type of duration (e.g. **3d** becomes **3ed**)
- Press **Enter**

Handy to Know...

- The method you choose to resolve your scheduling problems should be determined by the circumstances and situations within your project, and each project is different.

RESCHEDULING TASKS

Our case study project has reached a crisis point. The official opening must be held on May 2 but, given the current schedule, there is no way this can happen. We need to go back and make

some changes to the schedule. The problem lies towards the end of the project in the **Commissioning** phase and it is here that we'll look for solutions.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Constraints_3.mpp*...

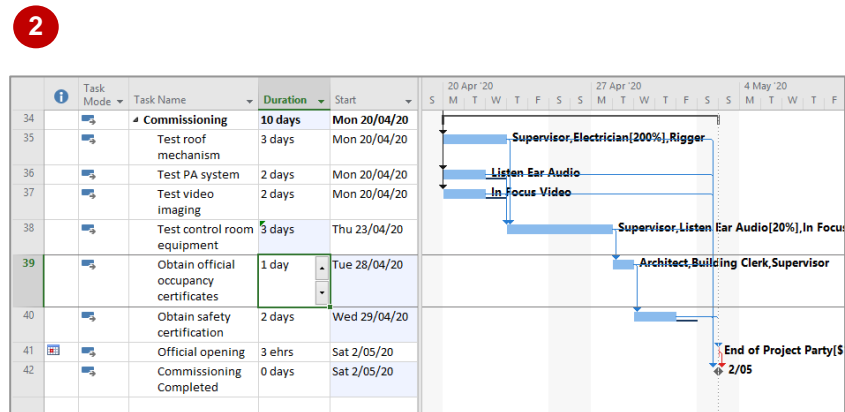
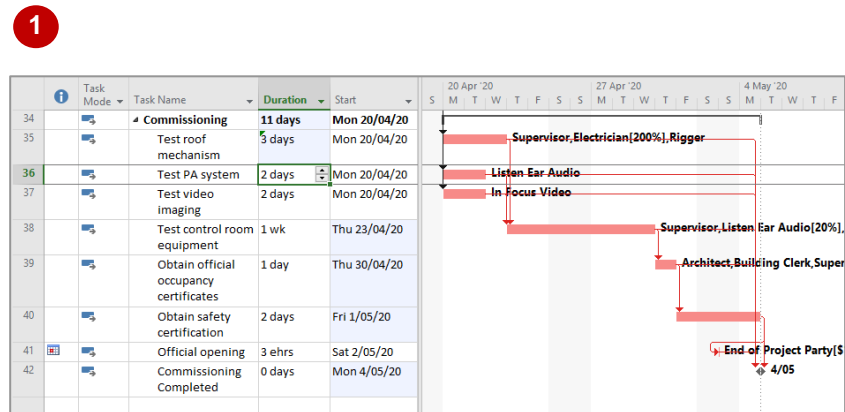
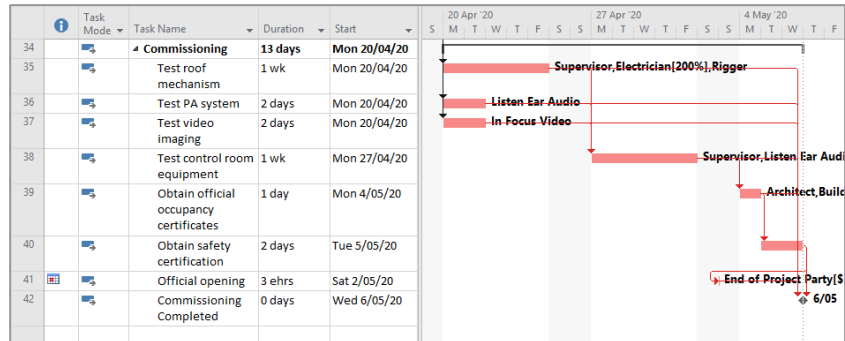
- 1 Scroll down in the Gantt Chart so that you can see all of the **Commissioning** tasks, then scroll the timeline to the right until you can see the timelines for all of the **Commissioning** tasks

- 2 Click on **1 wk** in **Duration** for **Test roof mechanism**, then type **3d** and press **Enter**

Our schedule still doesn't fit within the constraint. If a message box displays, click on [OK]...

- 3 Click on **1 wk** for **Test control room equipment**, then type **3d** and press **Enter**

The project can now be completed by May 2



For Your Reference...

To **reschedule tasks**:

1. Review the problem area using a **Gantt Chart** view
2. Determine a strategy for overcoming the problem – e.g. change durations, task dependencies or resources

Handy to Know...

- Rescheduling some tasks in your project might help to fix scheduling problems. Look also to see whether you can change the dependencies in some of the tasks, setting them to start at the same time. However, you will have to watch out for resource conflicts if one resource is used in most of the tasks.

CREATING A DEADLINE

Project allows you to assign deadlines to tasks. Unlike constraints, deadlines do not impact in any way on the outcome of a schedule and are not used by Project to calculate schedule dates.

Deadlines are simply visual cues that can be placed on a Gantt chart to show that a task was completed after a finish date.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Constraints_4.mpp...*

1 Press **Ctrl** + **Home**, then **Alt** + **Home** to move to the top and the start of the project

2 Double-click on **Submit plans for approval** to display the **Task Information** dialog box, then click on the **Advanced** tab

3 Click on **NA** in **Deadline** and type **21/06/19**

4 Click on **[OK]**

A deadline icon will appear at the end of the task. Our task will be placed on the critical path

3

Task Information

General | Predecessors | Resources | Advanced | Notes | Custom Fields

Name: Submit plans for approval Duration: 1 mon ☐ Estimated

Constrain task

Deadline: 21/06/19

Constraint type: As Soon As Possible Constraint date: NA

Task type: Fixed Duration ☐ Effort driven

Calendar: None ☐ Scheduling ignores resource calendars

WBS code: 1.2

Earned value method: % Complete

☐ Mark task as milestone

Help OK Cancel

4

Task Mode	Task Name	Duration	Start	T	F	S	S	M	T	W	T
1	Planning	43 days	Mon 6/								
2	Create architectural plans	3 wks	Mon 6/								
3	Submit plans for approval	1 mon	Mon 27								
4	Order materials	8 days	Mon 24								
5	Planning Completed	0 days	Wed 3/								
6	Site Works	27 days	Thu 4/0								
7	Erect fencing	3 days	Thu 4/0								

For Your Reference...

To **add** a **deadline** to a **task**:

1. Double-click on the desired task, then click on the **Advanced** tab
2. Click on or type the **Deadline** date
3. Click on **[OK]**

Handy to Know...

- Deadlines appear visually only after the due date has elapsed and if the task is not completed by that date. They also appear in a **Deadline** field and can be used as part of the filtering system. For example, you can create a filter that shows only tasks that have deadlines, or that are due on a specific date.

MOVING A PROJECT'S START DATE



When you are working with a project it is important to set a start date. If the project is delayed in starting, or perhaps you are building a new project from an existing project file, you can

quickly **move** the start date using the **Move Project** option in the **Schedule** group on the **Project** tab.

Try This Yourself:

Open File

*Before starting this exercise
you MUST open the file
Constraints_5.mpp...*

- 1 Click on the **Prepare Plans** task, then hold down the  key and press  to move to the start of the project
- 2 Click on the **Project** tab, then click on **Project Information** in the **Properties** group and note the start date
This project was originally supposed to start in March 2010...
- 3 Click on **[Cancel]**
- 4 On the **Project** tab, click on **Move Project** in the **Schedule** group to see the **Move Project** dialog box
- 5 Click on the drop arrow next to the date and select **[Today]** to use the current date as the new start
- 6 Click on **[OK]**
- 7 On the **Project** tab, click on **Project Information** in the **Properties** group to view the new start date
- 8 Click on **[Cancel]**

Project Information for 'Files_2'

Start date: Mon 1/03/10

Current date: Thu 9/06/16

Finish date: Fri 15/10/10

Status date: NA

Schedule from: Project Start Date

Calendar: Standard

All tasks begin as soon as possible.

Priority: 500

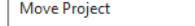
Enterprise Custom Fields

Department:

Custom Field Name	Value

Help Statistics... OK Cancel

2



5

Move Project

Original project start date: Mon 1/03/10

New project start date: Thu 9/06/16

☒ Move deadlines

Help OK Cancel

6

	i	Task Name	uration	Start	'16							6 Jun '16			
					F	S	S	M	T	W	T	F			
1		Prepare plans	2 wks	Thu 9											
2		Environmental impact study	1 wk	Thu 23											
3		Consult with all parties	5 wks	Thu 30											
4		Redraw plans	1 wk	Thu 4											
5		Lay foundations	18 wks	Thu 11											
6		Lay asphalt	12 wks	Thu 13											
7		Test	1 wk	Thu 5											
8		Commission	2 wks	Thu 12											

For Your Reference...

To **move** a **project's start date**:

1. Click on the **Project** tab, then click on **Move Project** in the **Schedule** group
2. Set the appropriate date, then click on **[OK]**

Handy to Know...

- You don't have to use today's date as the start date. You can type any date you like in the **Move Project** dialog box.

CHAPTER 5

InFocus

PROJECT TRACKING

Once you have entered your tasks and resources and created a project schedule, you are ready to start tracking the progress of your project.

As a project manager you will need to monitor expenditure to see if you are exceeding the limits, and monitor the tasks to see whether they are in front of or behind your plan. Project can help with these activities.

Once the project has been scheduled you are ready to commit it to a **baseline** or **plan**.

The **baseline** becomes a yardstick against which **actual** performance can be measured and will provide the foundation for updating the **current** schedule relying on progress to date.

Once the project has been committed to a plan, Project will provide you with three sets of data to work with: a **baseline**, **actual** data and **current** data.

In this session you will:

- ✓ learn how to create a baseline
- ✓ learn how to automatically update actual progress
- ✓ learn how to manually update project progress
- ✓ learn how to enter delayed tasks
- ✓ learn how to track actuals on the **Gantt Chart**
- ✓ learn how to track actuals using the **Tracking Box**
- ✓ learn how to view task slippage.

CREATING A BASELINE

Once you are happy with the task allocation and **resource levelling** of your project you can commit it to a **baseline** plan. Creating a baseline is simply a matter of transferring information from

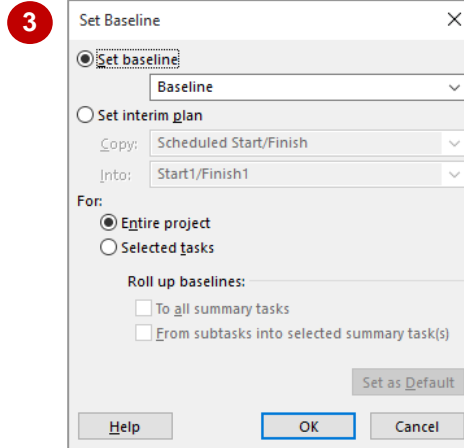
the current schedule fields to special baseline fields where the data will not change. This then provides you with a fixed set of data that can be used to measure the performance of the project schedule.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Tracking_1.mpp*...

- 1 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **Task Sheet** to display this view
- 2 On the **View** tab, click on **Tables** in the **Data** group and select **Variance** to display this table
- 3 Click on the **Project** tab, then click on **Set Baseline** in the **Schedule** group and select **Set Baseline** to display the **Set Baseline** dialog box
- 4 Click on **[OK]** to copy the data from the schedule columns to the baseline columns
- 5 On the **Project** tab, click on **Project Information** in the **Properties** group to display the **Project Information** dialog box, then click on **[Statistics]**
The current and baseline dates are identical – for now...
- 6 Click on **[Close]**



Task	Task Name	Start	Finish	Baseline Start	Baseline	Start	Finish
1	Planning	Mon 6/05/19	Fri 3/07/19	Mon 6/05/19	Wed 3/07/19	0 days	0 days
2	Create architect	Mon 6/05/19	Fri 24/05/19	Mon 6/05/19	Fri 24/05/19	0 days	0 days
3	Submit plans for	Mon 27/05/19	Fri 21/06/19	Mon 27/05/19	Fri 21/06/19	0 days	0 days
4	Order materials	Mon 24/06/19	Fri 3/07/19	Mon 24/06/19	Wed 3/07/19	0 days	0 days
5	Planning Comm	Wed 3/07/19	Fri 3/07/19	Wed 3/07/19	Wed 3/07/19	0 days	0 days
6	Site Works	Thu 4/07/19	Fri 9/08/19	Thu 4/07/19	Fri 9/08/19	0 days	0 days
7	Erect fencing	Thu 4/07/19	Mon 8/07/19	Thu 4/07/19	Mon 8/07/19	0 days	0 days
8	Erect site build	Tue 9/07/19	Fri 12/07/19	Tue 9/07/19	Fri 12/07/19	0 days	0 days
9	Clear and level	Mon 15/07/19	Fri 2/08/19	Mon 15/07/19	Fri 2/08/19	0 days	0 days
10	Prepare drainage	Mon 5/08/19	Fri 9/08/19	Mon 5/08/19	Fri 9/08/19	0 days	0 days

4

	Start	Finish
Current	Mon 6/05/19	Sat 2/05/20
Baseline	Mon 6/05/19	Sat 2/05/20
Actual	NA	NA
Variance	0d	0d

	Duration	Work	Cost
Current	249d	26,025.13h	\$3,064,438.49
Baseline	249d	26,025.13h	\$3,064,438.49
Actual	0d	0h	\$0.00
Remaining	249d	26,025.13h	\$3,064,438.49

Percent complete:
Duration: 0% Work: 0%

5

For Your Reference...

To **set a baseline**:

1. Click on the **Project** tab, then click on **Set Baseline** in the **Schedule** group and select **Set Baseline**
2. Click on **[OK]**

Handy to Know...

- The **Variance** table will highlight differences (variances) between the baseline and actuals when they are entered.

AUTOMATICALLY UPDATING TASKS

Once the baseline has been created you are ready to start entering actual information. There are a variety of ways of doing this. In some situations, your tasks will have performed exactly

as planned and you can get Project to convert the **scheduled** data into the **actual** data. This is by far the easiest way to update the tracking of a project.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tracking_2.mpp...*

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group and select **Tracking** to display the **Tracking** table
- 2 Click on **Create architectural plans** under **Planning**, then hold down **Shift** and click on **Planning Completed** to select the **Planning** tasks
- 3 Click on the **Project** tab, then click on **Update Project** in the **Status** group to display the **Update Project** dialog box
- 4 Click on the date, type **27/6/19**, then click on **Selected tasks** to select it
- 5 Click on **[OK]**
Notice that only the first 2 tasks are 100% completed...
- 6 On the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]** to see how much of the project is marked as completed
- 7 Click on **[Close]**

	Task Name	Act. Start	Act. Finish	% Comp	Phys. % Comp	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
1	Planning	NA	NA	0%	0%	0 days	43 days	\$0.00	0 hrs
2	Create archite	NA	NA	0%	0%	0 wks	3 wks	\$0.00	0 hrs
3	Submit plans f	NA	NA	0%	0%	0 mons	1 mon	\$0.00	0 hrs
4	Order materia	NA	NA	0%	0%	0 days	8 days	\$0.00	0 hrs
5	Planning Comj	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs
6	Site Works	NA	NA	0%	0%	0 days	27 days	\$0.00	0 hrs
7	Erect fencing	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs

2

4

Update Project

☒ Update work as complete through: 27/6/19

☒ Set 0% - 100% complete

☐ Set 0% or 100% complete only

☐ Reschedule uncompleted work to start after: Wed 18/05/16

For: ☐ Entire project ☒ Selected tasks

Help OK Cancel

	Task Name	Act. Start	Act. Finish	% Comp	Phys. % Comp	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
1	Planning	Mon 6/05/19	NA	89%	0%	1.07 days	4.93 days	\$25,541.15	284.13 hrs
2	Create archite	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks	\$21,375.00	253.13 hrs
3	Submit plans f	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon	0 mons	\$3,600.00	8 hrs
4	Order materia	Mon 24/06/19	NA	38%	0%	1.07 days	4.93 days	\$566.15	23 hrs
5	Planning Comj	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs
6	Site Works	NA	NA	0%	0%	0 days	27 days	\$0.00	0 hrs
7	Erect fencing	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs

5

Order materials is only 38% complete as it is scheduled to end on 3/7/2019. Since we updated the schedule to 27/6/2019, Project has marked this task as only 38% complete.

6

Project Statistics for 'Tracking_2'

	Start	Finish
Current	Mon 6/05/19	Sat 2/05/20
Baseline	Mon 6/05/19	Sat 2/05/20
Actual	Mon 6/05/19	NA
Variance	0d	0d

	Duration	Work	Cost
Current	249d	26,025.13h	\$3,064,438.49
Baseline	249d	26,025.13h	\$3,064,438.49
Actual	30.34d	284.13h	\$25,541.15
Remaining	218.66d	25,741h	\$3,038,897.34

Percent complete:
Duration: 12% Work: 1%

Close

For Your Reference...

To **automatically update actuals**:

1. Select the tasks to update
2. Click on the **Project** tab, then click on **Update Project** in the **Status** group
3. Enter a date, specify selected tasks only, then click on **[OK]**

Handy to Know...

- When working with a real project, you would begin tracking the project as it commenced and in real time rather than setting a future date.

MANUALLY UPDATING TASKS

To update the tracking of a task you can enter a value into one of a number of fields such as Start Date, End Date, % Comp, Act Dur, Rem Dur, and Project will then calculate the amount of work

done. This provides you with a great deal of flexibility in how you track the progress of tasks.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tracking_3.mpp*...

1 Under **Planning**, click in the **% Comp** column for **Order materials**, then type **100** and press **Enter**

2 Type **100** in **% Comp** for **Planning Completed**, then press **Enter**

3 Type **100** in **% Comp** for **Site Works**, then press **Enter**

Notice how all of the subordinate tasks are also marked as completed...

4 Click in **% Comp** for **Building Construction**, then type **40** and press **Enter** to see how the update is applied

Calculations also work in reverse where the summary is updated as a subordinate is changed...

5 Click in **% Comp** for **Erect steelwork**, then type **100** and press **Enter**

Notice how the **% Comp** for **Building Construction** updates...

6 Type **100** in **% Comp** for **Erect wall** and press **Enter**

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
1	Planning	Mon 6/05/19	NA	99%	0%	43 days	0 days	\$26,578.85	128.63 hrs
2	Create architect	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks	\$21,375.00	253.13 hrs
3	Submit plans for	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon	0 mons	\$3,600.00	8 hrs
4	Order materials	Mon 24/06/19	Fri 3/07/19	100%	0%	8 days	0 days	\$1,603.85	67.5 hrs
5	Planning Completed	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs
6	Site Works	NA	NA	0%	0%	0 days	27 days	\$0.00	0 hrs
7	Erect fencing	NA	NA	0%	0%	0 days	3 days	\$0.00	0 hrs

1

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
1	Planning	Mon 6/05/19	NA	99%	0%	43 days	0 days	\$26,578.85	128.63 hrs
2	Create architect	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks	\$21,375.00	253.13 hrs
3	Submit plans for	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon	0 mons	\$3,600.00	8 hrs
4	Order materials	Mon 24/06/19	Fri 3/07/19	100%	0%	8 days	0 days	\$1,603.85	67.5 hrs
5	Planning Completed	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs
6	Site Works	Thu 4/07/19	Fri 9/08/19	100%	0%	27 days	0 days	\$60,530.60	975 hrs
7	Erect fencing	Thu 4/07/19	Mon 8/07/19	100%	0%	3 days	0 days	\$15,900.00	22.5 hrs
8	Erect site building	Tue 9/07/19	Fri 12/07/19	100%	0%	4 days	0 days	\$6,992.31	390 hrs
9	Clear and level	Mon 15/07/19	Fri 2/08/19	100%	0%	3 wks	0 wks	\$32,648.65	337.5 hrs
10	Prepare drainage	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,131.44	93.75 hrs
11	Prepare cabin	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,858.19	131.25 hrs
12	Site Works Complete	Fri 9/08/19	Fri 9/08/19	100%	0%	0 days	0 days	\$0.00	0 hrs
13	Building Construction	Mon 12/08/19	NA	40%	0%	14.4 days	81.6 days	\$247,055.88	172.45 hrs

3

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
10	Prepare drainage	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,131.44	93.75 hrs
11	Prepare cabin	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,858.19	131.25 hrs
12	Site Works Complete	Fri 9/08/19	Fri 9/08/19	100%	0%	0 days	0 days	\$0.00	0 hrs
13	Building Construction	Mon 12/08/19	NA	40%	0%	14.4 days	81.6 days	\$247,055.88	172.45 hrs
14	Pour foundation	Mon 12/08/19	Thu 15/08/19	100%	0%	4 days	0 days	\$95,000.00	30 hrs
15	Erect steelwork	Tue 20/08/19	Mon 11/11/19	86%	0%	58 mons	1.42 mons	\$352,055.88	142.45 hrs
16	Erect wall	NA	NA	0%	0%	0 mons	2 mons	\$0.00	0 hrs

4

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
10	Prepare drainage	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,131.44	93.75 hrs
11	Prepare cabin	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks	\$2,858.19	131.25 hrs
12	Site Works Complete	Fri 9/08/19	Fri 9/08/19	100%	0%	0 days	0 days	\$0.00	0 hrs
13	Building Construction	Mon 12/08/19	NA	75%	0%	1.76 days	4.24 days	\$21,593.20	17,055 hrs
14	Pour foundation	Mon 12/08/19	Thu 15/08/19	100%	0%	4 days	0 days	\$95,000.00	30 hrs
15	Erect steelwork	Tue 20/08/19	Mon 11/11/19	100%	0%	3 mons	0 mons	\$409,162.81	12,375 hrs
16	Erect wall	Tue 12/11/19	Tue 21/01/20	100%	0%	2 mons	0 mons	\$217,430.39	4,650 hrs
17	Install roofing	NA	NA	0%	0%	0 wks	2 wks	\$0.00	0 hrs
18	Install roof tiles	NA	NA	0%	0%	0 wks	1 wk	\$0.00	0 hrs

6

For Your Reference...

To **manually update actuals**:

1. Change the view to the **Tracking** table
2. Click in **% Comp** of the desired task and enter a value

Handy to Know...

- If you enter a value in a summary task % Comp field, Project will apply a percentage to the dependent sub-tasks. Alternatively, if you enter a value in the % Comp field of the sub-tasks, Project will apply a percentage to the summary task.

ENTERING DELAYED TASKS

Projects are often more complicated than our case study. You may find that many of your tasks aren't started or completed according to plan. You can type actual dates into the project and

Project will take this detail and update the current status to provide you with an up-to-date schedule. Sometimes, however, you may find problematic consequences as a result of slippage in tasks.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tracking_4.mpp...*

- Under **Building Construction**, click on **NA** in **Act. Start** for **Install roofing superstructure**

This task was scheduled to commence Wed 22/1, but has been delayed to Mon 27/1...

- Type **27/1/20** and press **Enter**

A message box displays notifying you that this causes a scheduling conflict...

- Click on **[OK]**

- Click in **% Comp** for **Install roofing superstructure**, then type **100** and press **Enter**

- Click on the **View** tab, then click on **Tables** in the **Data** group and select **Variance** to see where the tasks are slipping behind the schedule

	Task Name	Act. Start	Act. Finish	% Comp	Phys. % Comp	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
13	Building Construction	Mon 12/08/19	NA	75%	0%	1.76 days	4.24 days	521,593.20	17,055 hrs
14	Pour foundation	Mon 12/08/19	Tue 15/08/19	100%	0%	4 days	0 days	895,000.00	30 hrs
15	Erect steelwork	Tue 20/08/19	Mon 11/11/19	100%	0%	3 mons	0 mons	409,162.81	12,375 hrs
16	Erect wall	Tue 12/11/19	Tue 21/01/20	100%	0%	2 mons	0 mons	217,430.39	4,650 hrs
17	Install roofing	NA	NA	0%	0%	0 wks	2 wks	\$0.00	0 hrs
18	Install roof ret	NA	NA	0%	0%	0 wks	1 wk	\$0.00	0 hrs
19	Erect seating t	NA	NA	0%	0%	0 wks	4 wks	\$0.00	0 hrs
20	Building Const	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs

1

Microsoft Project

Task '40 Obtain safety certification' in 'The Rostadium Project' cannot be completed in the time allocated because there is a scheduling conflict between this task and another one to which it is linked.

Try the following:

- Change the type of constraint on the successor tasks to As Soon As Possible or some other constraint that doesn't fix it to a specific date.
- Remove the link between the conflicting tasks.
- Shorten the duration of one of the tasks.
- Change the start and finish dates of one of the tasks.
- If the task to which '40 Obtain safety certification' is linked is not constrained and it is a summary task, check the constraints on the subtasks.

Show Help >>

OK

2

	Task Name	Act. Start	Act. Finish	% Comp	Phys. % Comp	Act. Dur.	Rem. Dur.	Act. Cost	Act. Work
13	Building Construction	Mon 12/08/19	NA	82%	0%	114 days	25 days	597,660.96	18,855 hrs
14	Pour foundation	Mon 12/08/19	Tue 15/08/19	100%	0%	4 days	0 days	895,000.00	30 hrs
15	Erect steelwork	Tue 20/08/19	Mon 11/11/19	100%	0%	3 mons	0 mons	409,162.81	12,375 hrs
16	Erect wall	Tue 12/11/19	Tue 21/01/20	100%	0%	2 mons	0 mons	217,430.39	4,650 hrs
17	Install roofing	Mon 27/01/20	Fri 7/02/20	100%	0%	2 wks	0 wks	\$76,067.76	1,800 hrs
18	Install roof ret	NA	NA	0%	0%	0 wks	1 wk	\$0.00	0 hrs
19	Erect seating t	NA	NA	0%	0%	0 wks	4 wks	\$0.00	0 hrs
20	Building Const	NA	NA	0%	0%	0 days	0 days	\$0.00	0 hrs

4

	Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
13		Building Construction	Mon 12/08/19	Fri 6/03/20	Mon 12/08/19	Tue 3/03/20	0 days	3 days
14		Pour foundation	Mon 12/08/19	Tue 15/08/19	Mon 12/08/19	Thu 15/08/19	0 days	0 days
15		Erect steelwork	Tue 20/08/19	Mon 11/11/19	Tue 20/08/19	Mon 11/11/19	0 days	0 days
16		Erect wall	Tue 12/11/19	Tue 21/01/20	Tue 12/11/19	Tue 21/01/20	0 days	0 days
17		Install roofing	Mon 27/01/20	Fri 7/02/20	Wed 22/01/20	Tue 4/02/20	3 days	3 days
18		Install roof ret	Mon 10/02/20	Fri 14/02/20	Wed 5/02/20	Tue 11/02/20	3 days	3 days
19		Erect seating t	Mon 10/02/20	Fri 6/03/20	Wed 5/02/20	Tue 3/03/20	3 days	3 days
20		Building Const	Fri 6/03/20	Fri 6/03/20	Tue 3/03/20	Tue 3/03/20	3 days	3 days

5

For Your Reference...

To enter delayed actuals:

- Display the **Tracking** table
- Type the delayed start into the **Act. Start** column of the task

Handy to Know...

- The **Variance** table will compare the actual start and finish to those recorded in the baseline of the project. The variance will then be reported as days in the variance columns.

TRACKING ACTUALS ON A GANTT CHART

Project allows you to enter actual data on a Gantt Chart or other graphic view as well as in a sheet view. You can do this in a couple of ways. Project has special Tracking tools that allow you to

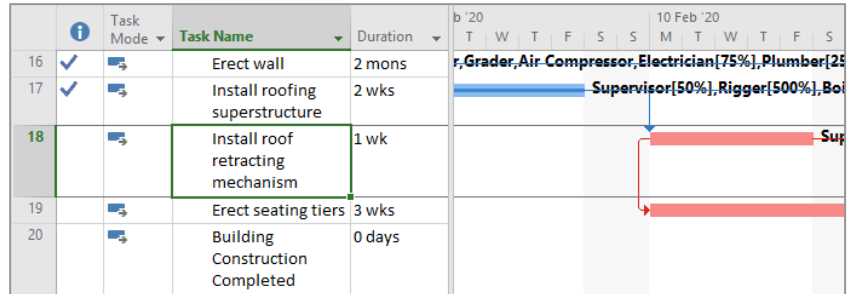
quickly update the progress of a task. Alternatively, you can enter actual data in the Gantt Chart by dragging the mouse along the task bar you wish to update.

Try This Yourself:

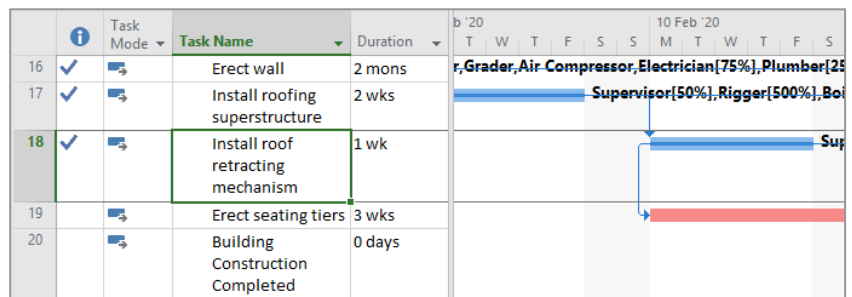
Same File

Continue using the previous file with this exercise, or open the file *Tracking_5.mpp*...

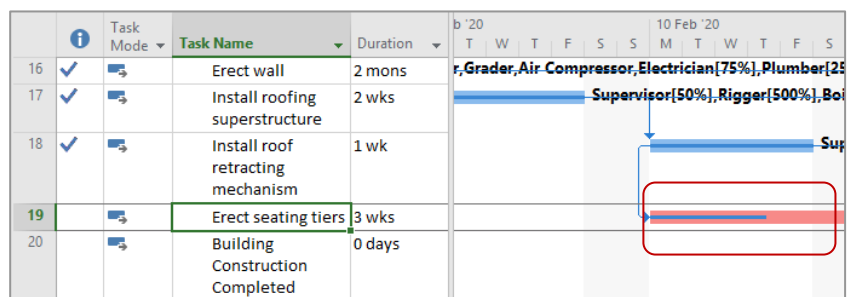
- 1 Click on the **View** tab, then click on **Gantt Chart** in the **Task Views** group
- 2 Under **Building Construction**, click on **Install roof retracting mechanism**, click on the **Task** tab, then click on **Scroll to Task** in the **Editing** group to display the Gantt bar for this task
- 3 On the **Task** tab, click on **100% Complete** in the **Schedule** group to mark the task as completed – if a message box displays, click on **[OK]**
- 4 Click on **Erect seating tiers** under **Building Construction**, then on the **Task** tab click on **25% Complete** in the **Schedule** group – if a message box displays, click on **[OK]**
Notice the progress line displayed in the task's bar...
- 5 On the **Task** tab, click on **50% Complete**, then click on **75% Complete**
- 6 Click on the **Project** tab, click on **Project Information** in the **Properties** group, then click on **[Statistics]** to see how much is complete now
- 7 Click on **[Close]**



2



3



4

For Your Reference...

To **enter actuals** on a **Gantt chart**:

1. Display a **Gantt Chart**, then click on the **Task** tab
2. Click on any of the percentage completed commands in the **Schedule** group

Handy to Know...

- As a task is being tracked, the **Gantt Chart** timeline will display a bar within the timeline bar to show how much of the task is completed. Also, tasks that are **100%** completed are no longer critical and are therefore no longer on the critical path.

USING THE TRACKING BOX

Project allows you to perform many tasks by using dialog boxes. For example, when working with tasks you can double-click to display the Task Information dialog box. The **Update Tasks**

dialog box provides a convenient way of updating the progress of a specific task when tracking your project.

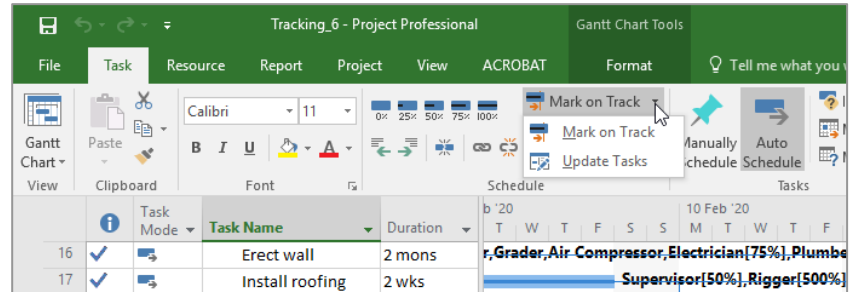
Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tracking_6.mpp...*

- 1 Click on **Erect seating tiers** under **Building Construction**
- 2 Click on the **Task** tab, then click on the drop arrow for **Mark on Track** in the **Schedule** group
- 3 Select **Update Tasks** to display the **Update Tasks** dialog box
- 4 Click on **NA** in **Finish**, type **28/2/20**, then click on **[OK]**

This task actually finished a few days ahead of schedule, which helped the scheduling problem created by a task that started later than scheduled

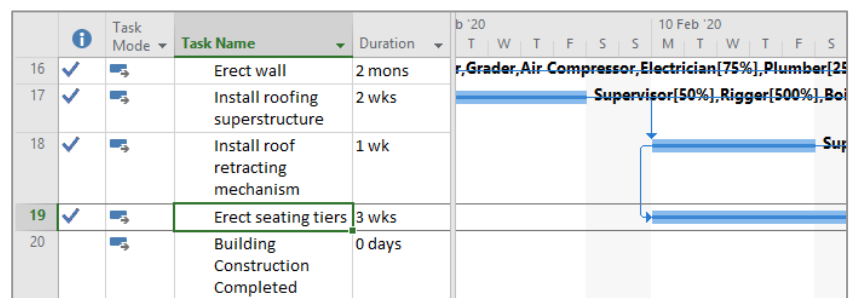


2

3

The 'Update Tasks' dialog box is shown. It contains the following fields: Name: 'Erect seating tiers', Duration: '4w', % Complete: '75%', Actual dur: '3w', Remaining dur: '1w'. Under the 'Actual' section, Start is 'Mon 10/02/20' and Finish is 'NA'. Under the 'Current' section, Start is 'Mon 10/02/20' and Finish is 'Fri 6/03/20'. Buttons for 'Help', 'Notes...', 'OK', and 'Cancel' are at the bottom.

4



For Your Reference...

To **update actuals** using the **Tracking Box**:

1. Click on the task that you want to update
2. Click on the **Task** tab, then click on the drop arrow for **Mark on Track** and select **Update Tasks**
3. Type a finish date, then click on **[OK]**

Handy to Know...

- The **Update Tasks** dialog box is handy for entering a variety of information for tracking a task. You can use it to enter dates, percent completed and actual durations.

VIEWING TASK SLIPPAGE

The plan in a project is the baseline that was originally defined. There are a number of ways of seeing how the project is progressing according to the original baseline. You can see the

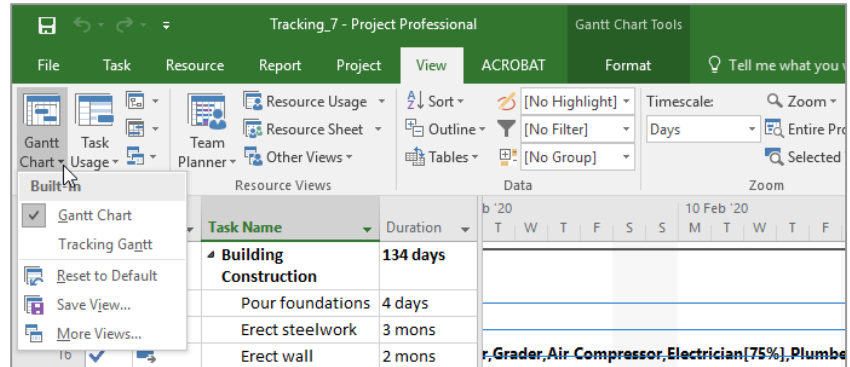
comparison to baseline through the Tracking Gantt view. This chart shows two bars for each task. One bar represents the original baseline, while the other represents the revised schedule.

Try This Yourself:

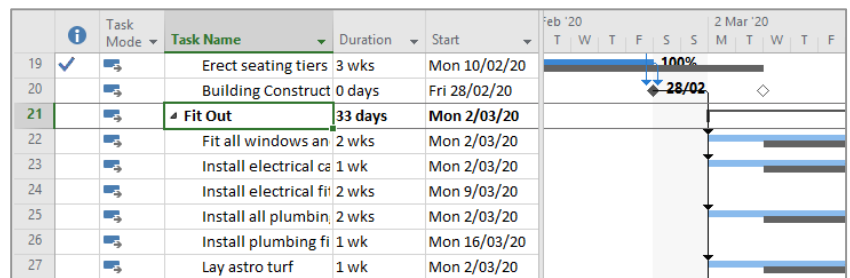
Same File

Continue using the previous file with this exercise, or open the file *Tracking_7.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Gantt Chart** in the **Task Views** group
- 2 Select **Tracking Gantt** to see a variation on the **Gantt Chart** showing slippage timelines
- 3 In the Gantt chart scroll to and click on **Fit Out**, click on the **Task** tab, then click on **Scroll To Task** in the **Editing** group to display the relevant tasks in the timeline
- 4 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **Task Sheet** to display this view
- 5 On the **View** tab, click on **Tables** in the **Data** group and select **Variance**
- 6 Click on the drop arrow for **Gantt Chart** in the **Task Views** group, then select **Gantt Chart** to see the normal chart again



1



3

Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.	Ad
16	Erect wall	Tue 12/11/19	Tue 21/01/20	Tue 12/11/19	Tue 21/01/20	0 days	0 days	
17	Install roofing	Tue 27/01/20	Fri 7/02/20	Wed 22/01/20	Tue 4/02/20	3 days	3 days	
18	Install roof ret	Tue 10/02/20	Fri 14/02/20	Wed 5/02/20	Tue 11/02/20	3 days	3 days	
19	Erect seating t	Tue 10/02/20	Fri 28/02/20	Wed 5/02/20	Wed 3/03/20	3 days	-2 days	
20	Building Const	Fri 28/02/20	Fri 28/02/20	Tue 3/03/20	Tue 3/03/20	-2 days	-2 days	
21	Fit Out	Mon 2/03/20	Tue 15/04/20	Wed 4/03/20	Fri 17/04/20	-2 days	-2 days	
22	Fit all window	Mon 2/03/20	Fri 13/03/20	Wed 4/03/20	Tue 17/03/20	-2 days	-2 days	
23	Install electric	Mon 2/03/20	Fri 6/03/20	Wed 4/03/20	Tue 10/03/20	-2 days	-2 days	
24	Install electric	Mon 9/03/20	Fri 20/03/20	Wed 11/03/20	Tue 24/03/20	-2 days	-2 days	

5

For Your Reference...

To **view task slippage**:

1. Click on the **View** tab, then click on the drop arrow for **Gantt Chart** and select **Tracking Gantt**
2. Change the view to a **Task Sheet** and change the table to a **Variance** table

Handy to Know...

- You can display the original start and end dates for tasks and compare them to the revised schedule in a Variance table. This table also shows the number of days that each task has slipped from its original baseline dates.

CHAPTER 6

InFocus

PROJECT VIEWS

The main way of displaying your data with Project is with **views** and there are really many more options and variations and flavours here than you may first perceive.

Views allow you to juxtapose tasks and resources. For example, you can choose a view that shows tasks, or one that shows resources, another that shows tasks and the resource required for each task, or another that shows resources and the tasks that each is working on.

In this session you will:

- ✓ gain an understanding of project views
- ✓ learn how to work with the standard built-in views in **Project**
- ✓ learn how to split the views on the screen
- ✓ learn how to create a custom view
- ✓ learn how to create a custom split view
- ✓ learn how to display custom views
- ✓ learn how to display views on the view menus
- ✓ learn how to save the current settings as a new view
- ✓ learn how to delete unwanted views from a project
- ✓ learn how to keep views local
- ✓ learn how to work with multiple project files
- ✓ learn how to hide project files that are currently open.

UNDERSTANDING PROJECT VIEWS

Whenever you are working in Project, you are **viewing** your project data. There are different types of **views** – for example you may be viewing *tasks* or *resources*, you may have a full screen

view or a split screen view. Options for changing views can be found on the **Task** tab, the **Resource** tab, as well as the dedicated **View** tab on the ribbon.

Built-In Project Views

Project contains 27 different built-in views for you in its default mode. Seven of these views are available from the **Task Views** and **Resource Views** groupings on the **View** tab, while the full 27 are available from the More Views dialog box. Here is a list of the 27 views – the ones marked with a (**T**) or (**R**) are accessible directly from the **View** tab of the ribbon.

Bar Rollup	Multiple Baselines Gantt	Task Details Form
Calendar (T)	Network Diagram (T)	Task Entry
Descriptive Network Diagram	Relationship Diagram	Task Form
Detail Gantt	Resource Allocation	Task Name Form
Gantt Chart (T)	Resource Form	Task Sheet
Gantt with Timeline	Resource Graph	Task Usage (T)
Levelling Gantt	Resource Name Form	Team Planner (R)
Milestone Date Rollup	Resource Sheet (R)	Timeline
Milestone Rollup	Resource Usage (R)	Tracking Gantt

Components of a View

Views are presented either in a **tabular** format (similar to a spreadsheet screen) or in a **form** style. These are the macro or big-ticket items that views are comprised of.

There are also micro items that determine how or what data is displayed in the sheets or forms. These are **tables**, **filters**, **groups** and **layouts** (in the case of forms).

Split or Combination Views

Project actually allows you to display a full-screen view or a split-screen view. If you are interested only in tasks or resources, you would most likely use a full-screen view. However, if you want to work with both tasks and resources at the same time, a split-screen view is very useful.

A split-screen view divides the screen horizontally and is easily created using the options in the **Split View** group on the **View** tab. Here you can nominate which view you'd like for the top split (also known as the **primary** view) and which for the bottom (known as the **details** view). When the screen is split, a dividing bar that separates the top from the bottom can be dragged up or down to make either view larger or smaller than the other.

Custom Views

There's a lot you can change when viewing your project. Should you find that you prefer working with a certain view, with either a full-screen or split-screen layout, with tables and filters that hit just the right buttons, then you can opt to **save** this view as a **custom view**. The **custom view** will be added to the **More Views** dialog box where you can access it again at any time.

Project Templates

Like most other software applications, a project file is based upon a **template**. Unless you specify otherwise your project will be created using the **Global** template. Any custom views that you create will be placed in this template so that the custom view can be used with other project files that you develop.

WORKING WITH THE STANDARD VIEWS

The standard views that are built into Project are really quite extensive and allow you to view the tasks and resources that make up your project in many different ways. Most are single screen

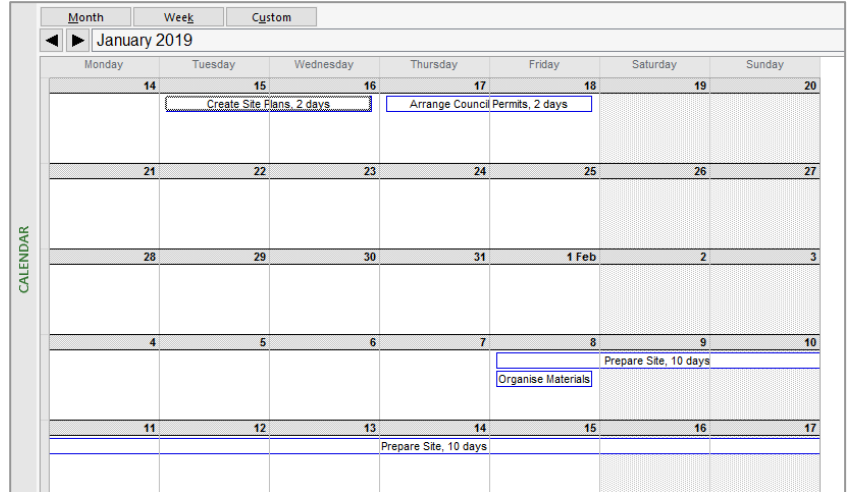
while some are split screen. These views can be accessed from the **Task**, **Resource**, or **View** tabs on the ribbon. With most of them you'll need to open the **More Views** dialog box.

Try This Yourself:

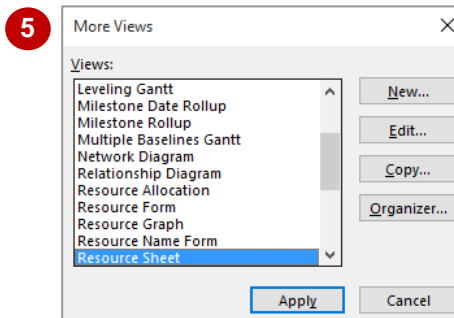
Open File

Before starting this exercise you **MUST** open the file *Views_1.mpp...*

- 1 Under the **Plans and Site** summary task click on the **Create Site Plans** task
- 2 Click on the **View** tab, then click on **Calendar** in the **Task Views** group
- 3 Click on the next month ► and previous month ◀ buttons several times to scroll through the months
- 4 On the **View** tab, click on **Resource Sheet** in **Resource Views** to see the resources used in the project
- 5 On the **View** tab, click on **Other Views** in the **Resource Views** group and select **More Views** to display the **More Views** dialog box
 Notice that the current view is selected in the list...
- 6 Scroll to and click on **Task Sheet**, then click on [Apply]
- 7 On the **View** tab, click on **Gantt Chart** in **Task Views** to return to the Gantt Chart view



- 2 Calendar view shows the tasks of a project as bars overlaid on a calendar



For Your Reference...

To **display standard views**:

1. Click on the **View** tab
2. Click on **Other Views** in the **Resource Views** group and select **More Views**
3. Scroll to and click on the desired view, then click on [Apply]

Handy to Know...

- It is recommended that you try all of the views listed in the **More Views** dialog box, as you may find a view that is more useful than you thought it would be.

CREATING SPLIT VIEWS

In Project you can **split** your screen so that it shows two views concurrently. When you have two views the screen is split into an upper pane and a lower pane. Only one pane can be active

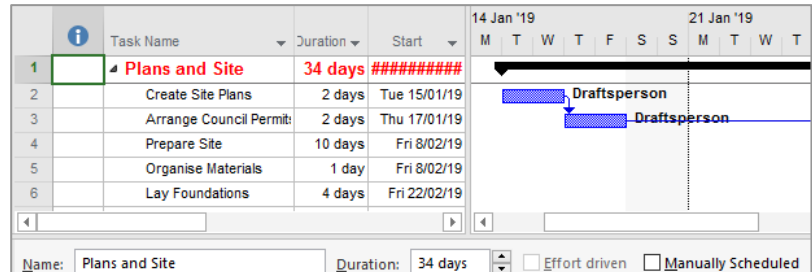
at any time and a pane is made active by clicking anywhere within it. The name of a view in a pane appears at the left and the writing of the active pane will normally appear in green.

Try This Yourself:

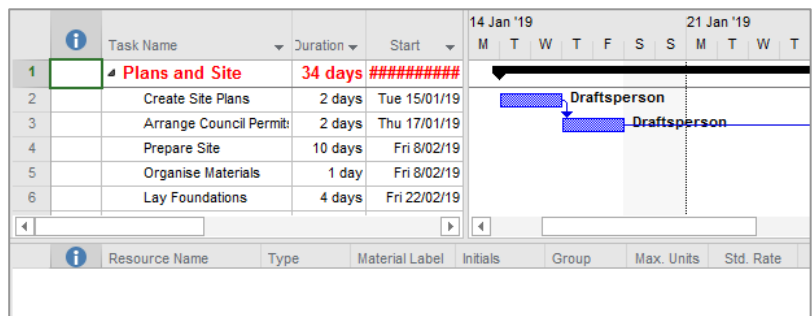
Same File

Continue using the previous file with this exercise, or open the file Views_1.mpp...

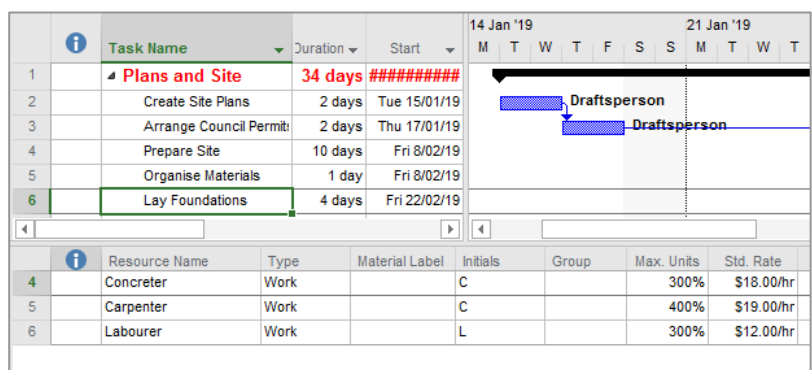
- 1 Ensure that the **Gantt Chart** view is currently active
- 2 Click on the **View** tab, then click on **Details** in the **Split View** group so it appears ticked
- 3 On the **View** tab, click on the drop arrow for **Task Form** in the **Split View** group and select **Resource Sheet** in the lower view
- 4 Click on the **Lay Foundations** task under **Plans and Site** to see the resources required for this task
- 5 On the **View** tab, click on **Other Views** in the **Task Views** group and select **Task Sheet** to see a task sheet view in the top pane
- 6 Right click on **RESOURCE SHEET** at the left in the lower pane and select **Resource Usage** to see a resource usage in the lower pane
- 7 On the **View** tab, click on **Details** in the **Split View** group to remove the tick, then click on **Gantt Chart** in the **Task Views** group



- 2 Here the Gantt Chart has remained in the top pane and a Task Form has appeared in the lower pane...



- 3 Here the Gantt Chart remains in the top pane but the Task Form in the lower pane is replaced by the Resource Sheet view...



- 4

For Your Reference...

To **display a split screen**:

1. Click in the **Details** tick box in the **Split View** group on the **View** tab
2. Click on the drop arrow and select the desired view for the lower pane

Handy to Know...

- In split view the options on the **Format** tab on the ribbon change according to the pane that is currently active. The options on the left on the **View** tab work only on the top pane irrespective of which pane is active.

CREATING A CUSTOM VIEW

A **view** is made up of a **screen layout**, a **table**, a **group**, and a **filter**. The existing views in Project have all been created with these elements. You can create your own **custom views** in Project by

specifying in the **Define New View** dialog box which of these elements you'd like. Custom views can be saved so that you can display them at any time in the future.

Try This Yourself:

Same File

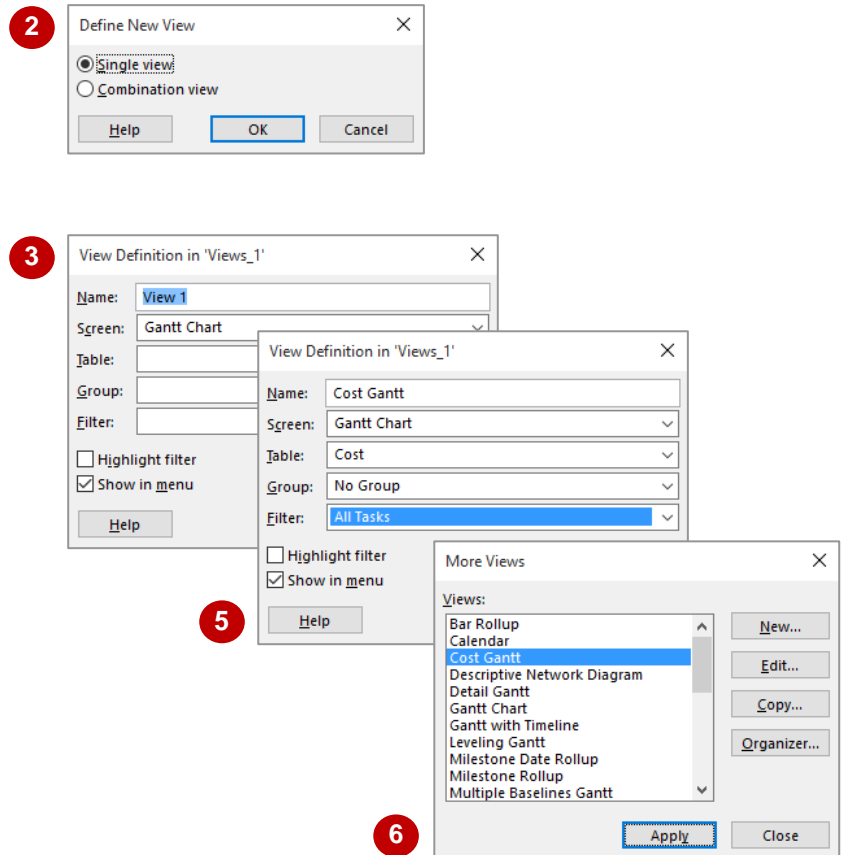
Continue using the previous file with this exercise, or open the file Views_1.mpp...

- 1 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **More Views** to display the **More Views** dialog box
- 2 Click on **[New]** to display the **Define New View** dialog box
- 3 Click on **Single View**, then click on **[OK]** to display the **View Definition** dialog box
- 4 Type **Cost Gantt** in **Name** and ensure that **Gantt Chart** is selected in **Screen**
- 5 Click on the drop arrow for **Table** and select **Cost**, click on the drop arrow for **Group** and select **No Group**, then click on the drop arrow for **Filter** and select **All Tasks**

- 6 Click on **[OK]** to return to the **More Views** dialog box

Notice that the custom view appears in the box...

- 7 Ensure **Cost Gantt** is selected, then click on **[Apply]** to see the new view



	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	T	F	S	S	M	T	W
1	Plans and Site	\$0.00	Prorated	\$8,816.00	\$0.00							
2	Create Site Plans	\$0.00	Prorated	\$640.00	\$0.00							
3	Arrange Council Permit	\$0.00	Prorated	\$640.00	\$0.00							
4	Prepare Site	\$0.00	Prorated	\$4,400.00	\$0.00							
5	Organise Materials	\$0.00	Prorated	\$224.00	\$0.00							
6	Lay Foundations	\$0.00	Prorated	\$1,952.00	\$0.00							
7	Plumbing for Sewerage	\$0.00	Prorated	\$280.00	\$0.00							
8	Pour Slab	\$0.00	Prorated	\$680.00	\$0.00							
9	Site Complete	\$0.00	Prorated	\$0.00	\$0.00							
10	To Lock Up	\$0.00	Prorated	\$9,696.00	\$0.00							

For Your Reference...

To **create** a **custom view**:

1. Click on the **View** tab, then click on **Other Views** and select **More Views**
2. Click on **[New]**, click on **Single View**, then click on **[OK]**
3. Enter the appropriate settings

Handy to Know...

- The title bar of the **View Definition** dialog box indicates that the view is being created in the current project file. The **Organiser** button on the **More Views** dialog box allows you to copy this view to other project files.

CREATING A CUSTOM COMBINATION VIEW

Project allows you to create both single-screen **custom views** and split-screen **custom views**. When you create a single-screen custom view you can specify which screen, filter, group, and

table to use. When you specify a split-screen view you can only select the view screen layout to use in the upper and lower panes.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file Views_2.mpp...

- 1 Click on the **View** tab, then click on **Other Views** in the **Resource Views** group and select **More Views** to display the **More Views** dialog box
- 2 Click on **[New]** to display the **Define New View** dialog box, click on **Combination View**, then click on **[OK]**
- 3 Type **Resource Costs** in **Name**
- 4 Click on the drop arrow for **Primary View** and select **Resource Sheet**
- 5 Click on the drop arrow for **Details Pane** and select **Cost Gantt**
- 6 Click on **[OK]** to return to the **More Views** dialog box, ensure **Resource Costs** is selected, then click on **[Apply]**
- 7 Click on the various resources in the top pane and study their various costs in the **Details** pane at the bottom

2

View Definition in 'Views_2'

Name: View 1

Views displayed:

Primary View: View 1

Details Pane: View 1

☒ Show in menu

Help OK Cancel

5

View Definition in 'Views_2'

Name: Resource Costs

Views displayed:

Primary View: Resource Sheet

Details Pane: Cost Gantt

☒ Show in menu

Help OK Cancel

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate
1	Draftsperson	Work		D		100%	\$40.00/hr	\$0.00/hr
2	Electrician	Work		E		100%	\$33.00/hr	\$0.00/hr
3	Plumber	Work		P		100%	\$35.00/hr	\$0.00/hr
4	Concrete	Work		C		300%	\$18.00/hr	\$0.00/hr
5	Carpenter	Work		C		400%	\$19.00/hr	\$0.00/hr
6	Labourer	Work		L		300%	\$12.00/hr	\$0.00/hr
7	Painter	Work		P		300%	\$14.00/hr	\$0.00/hr
8	Supervisor	Work		S		100%	\$28.00/hr	\$0.00/hr
9	Back Hoe Operator	Work		B		100%	\$85.00/hr	\$0.00/hr

Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	T	F	S	S	M	T	W	T
2 Create Site Plans	\$0.00	Prorated	\$640.00	\$0.00								
3 Arrange Council Permit	\$0.00	Prorated	\$640.00	\$0.00								

- 6 With this custom combination view, when a resource is selected in the top pane, all of the tasks and associated task costs for that resource will appear in the bottom pane...

For Your Reference...

To create a **custom split view**:

1. Click on the **View** tab, then click on **Other Views** and select **More Views**
2. Click on **[New]**, click on **Combination View**, then click on **[OK]**
3. Enter the appropriate settings

Handy to Know...

- Once a custom combination view has been created, it can also be selected from the **Details** settings in the **Split View** group on the **View** tab.

USING CUSTOM VIEWS

Once custom views have been created they are ready for use. When a custom view is created, the **Show in menu** setting in the **View Definition** dialog box is automatically on, which means that

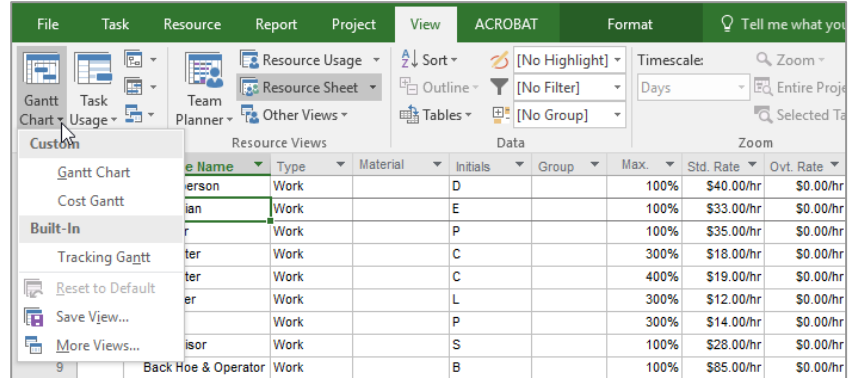
the view should appear in either the **Resource** or the **Task** menus. If you can't find the custom view on the menu it will always appear in the **More Views** dialog box.

Try This Yourself:

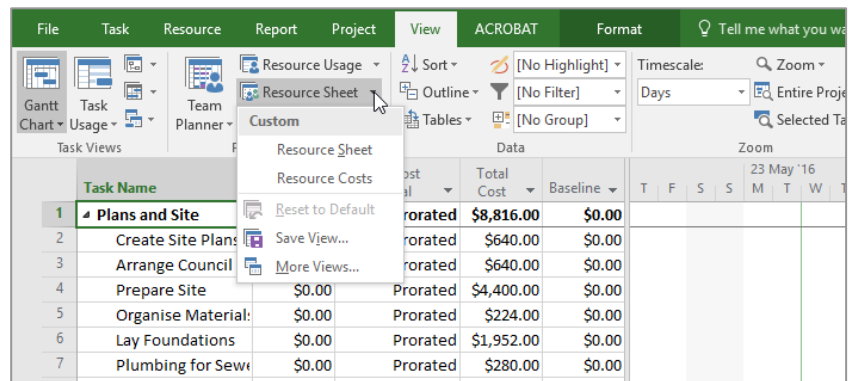
Same File

Continue using the previous file with this exercise, or open the file *Views_3.mpp*...

- 1 Click on the **View** tab, then click on **Details** in the **Split View** group so it appears unticked – this will ensure that we have a single screen view
- 2 Click on the drop arrow for **Gantt Chart** in the **Task Views** group to display a menu of views
- 3 Select **Cost Gantt** to see the custom **Cost Gantt** view
- 4 On the **View** tab, click on the drop arrow for **Resource Sheet** in the **Resource Views** group to display a menu of resource views
- 5 Select **Resource Costs** to display the custom split-screen view
- 6 On the **View** tab, click on **Details** in **Split View** so it appears unticked
- 7 On the **View** tab, click on **Other Views** in the **Task Views** group and select **More Views**
- 8 Scroll up to and click on **Cost Gantt**, then click on [Apply]



2



4

For Your Reference...

To **display a custom view**:

1. Click on an appropriate resource or task view on the **View** tab that will display a menu of views
2. Click on the desired custom view

Handy to Know...

- If the custom views have not appeared in the menus (as shown above), the **Show in menu** setting must have been unticked when the custom view was being defined.
- Remember, if you can't find a view on the menu it will always be in the **More Views** dialog box.

CUSTOMISING THE VIEW MENUS

The **View Definition** dialog box is used to create custom views. But it can also be used to make changes to existing views in a project. One of the settings on the dialog box, **Show in menu**,

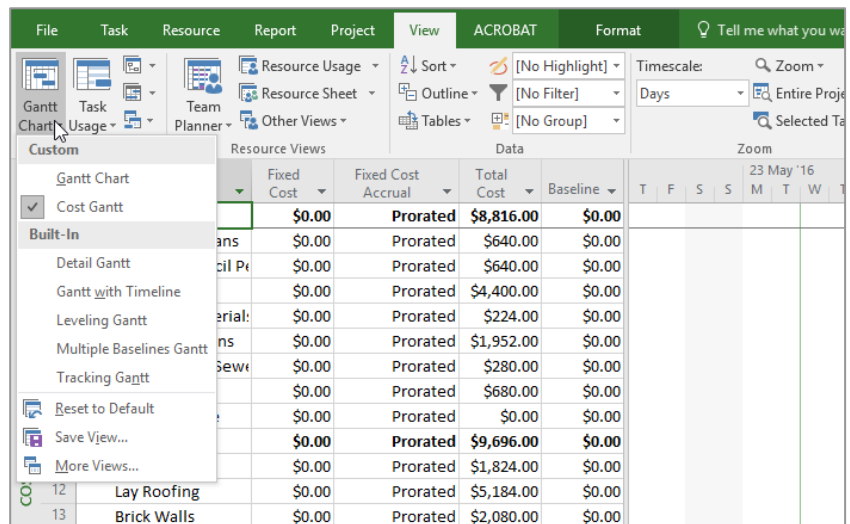
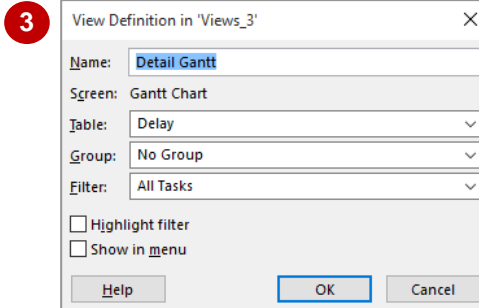
determines whether the view is displayed in a menu list on the ribbon. You can use this setting to perform a rudimentary customisation of the menus so that they show only the views you want.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Views_3.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Gantt Chart** in the **Task Views** group
- 2 Select **More Views** to display the **More Views** dialog box
- 3 Click on **Detail Gantt**, then click on **[Edit]** to display the **View Definition** dialog box
- 4 Click on **Show in menu** so it appears ticked, then click on **[OK]**
- 5 Repeat steps 3 and 4 for the following:
Gantt with Timeline
Levelling Gantt
Multiple Baselines Gantt
- 6 Click on **[Close]** to close the **More Views** dialog box
- 7 On the **View** tab, click on the drop arrow for **Gantt Chart** to see that these views now appear on the menu
- 8 Select **Gantt Chart**



For Your Reference...

To **put views** on the **menu**:

1. Click on the view in the **More Views** dialog box, then click on **[Edit]**
2. Tick the **Show in menu** setting to see the view on the menu
3. Click on **[OK]**

Handy to Know...

- Views can be removed from the menu again simply by unticking the **Show in menu** setting in the **View Definition** dialog box.
- Views where the primary screen is based on tasks will appear on **Task** menus, while ones with resource primary screens will appear in **Resource** menus.

SAVING AN EXISTING VIEW

Custom views can be created by manipulating settings in the **View Definition** dialog box. However, the downside of this is that you can't see what these changes are doing until you

actually apply the custom view. Project allows you to **save** all of the settings currently on your screen into a **custom view** – this process effectively allows you to prototype a view.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file Views_4.mpp...

- 1 Click on the **View** tab, then click on the drop arrow for **Gantt Chart** in the **Task Views** group and select **Gantt Chart**
- 2 On the **View** tab, click on the drop arrow for **Tables** in the **Data** group and select **Work** to use the **Work** table in the view
- 3 Click and drag the table divider across until the first four columns are clearly visible
- 4 On the **View** tab, click on the drop arrow for **Gantt Chart** in the **Task Views** group and select **Save View** to display the **Save View** dialog box
- 5 Ensure **Save as a New View** is selected, type **Gantt with Work**, then click on [OK]
- 6 On the **View** tab, click on the drop arrow for **Gantt Chart** in the **Task Views** group and notice that the new view appears
- 7 Select **Gantt Chart**, then click on the drop arrow for **Tables** in the **Data** group and select **Entry** to restore the original table to this view

Task Name	Work	Baseline	Variance	
1 Plans and Site	536 hrs	0 hrs	536 hrs	
2 Create Site Plans	16 hrs	0 hrs	16 hrs	
3 Arrange Council Permits	16 hrs	0 hrs	16 hrs	
4 Prepare Site	320 hrs	0 hrs	320 hrs	
5 Organise Materials	8 hrs	0 hrs	8 hrs	
6 Lay Foundations	128 hrs	0 hrs	128 hrs	
7 Plumbing for Sewerage	8 hrs	0 hrs	8 hrs	
8 Pour Slab	40 hrs	0 hrs	40 hrs	
9 Site Complete	0 hrs	0 hrs	0 hrs	

3

4

Save View

☐ Update Current View
 ☒ Save as a New View

Name:

File	Task	Resource	Report	Project	View	ACROBAT	Format	Tell me what you want
Gantt Chart	Task Views	Resource Usage	Resource Sheet	Other Views	Tables	[No Highlight]	[No Filter]	[No Group]
Custom	Resource Views	Data						
Gantt Chart	Work	Baseline	Variance					
Cost Gantt	16 hrs	0 hrs	16 hrs					
Gantt with Work	16 hrs	0 hrs	16 hrs					
Detail Gantt	320 hrs	0 hrs	320 hrs					
Gantt with Timeline	8 hrs	0 hrs	8 hrs					
Leveling Gantt	128 hrs	0 hrs	128 hrs					
Multiple Baselines Gantt	8 hrs	0 hrs	8 hrs					
Tracking Gantt	40 hrs	0 hrs	40 hrs					
Reset to Default	0 hrs	0 hrs	0 hrs					
Save View...	672 hrs	0 hrs	672 hrs					
More Views...	96 hrs	0 hrs	96 hrs					
	384 hrs	0 hrs	384 hrs					
	160 hrs	0 hrs	160 hrs					
	32 hrs	0 hrs	32 hrs					

6

For Your Reference...

To **save** an **existing view** to a **new view**:

1. Define the screen elements in the way you wish
2. On the **View** tab, click on the drop arrow for **Gantt Chart** and select **Save View**
3. Type a name for the view, then click on [OK]

Handy to Know...

- The currently active view will appear with a tick when the menu is displayed.

DELETING UNWANTED VIEWS

Custom views can be created for permanent or temporary use. The problem is that once you get the hang of custom views there is a good chance you'll readily and quickly create them for all forms

of usage. There comes a time, however, when some management and maintenance is required. You can delete unwanted views in Project through the special **Organiser** facility.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file Views_5.mpp...

- 1 Click on the **View** tab, then click on **Other Views** in **Task Views** and select **More Views**

- 2 Click on **[Organiser]** to display the **Organiser** dialog box

- 3 Click on **Cost Gantt** in the right pane, then click on **[Delete]**

A warning message is displayed...

- 4 Click on **[Yes]**

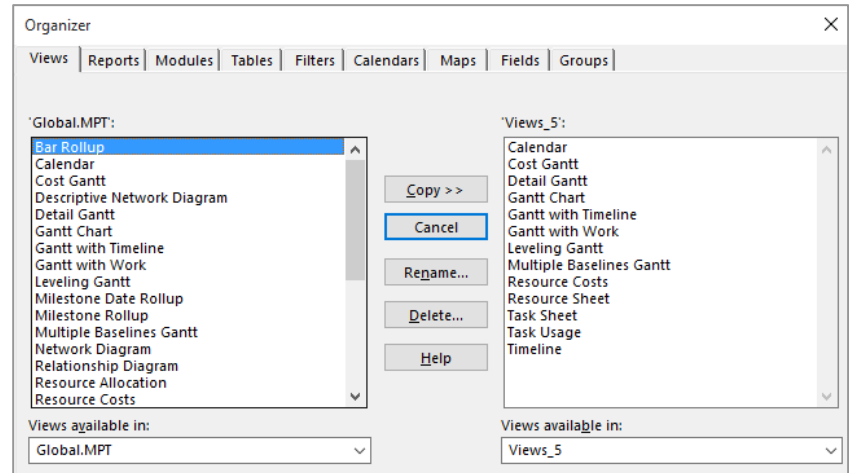
Notice that the view still appears in the Global template even though it has been deleted from the project file on the right...

- 5 Click on **Cost Gantt** in the left pane, click on **[Delete]**, then click on **[Yes]**

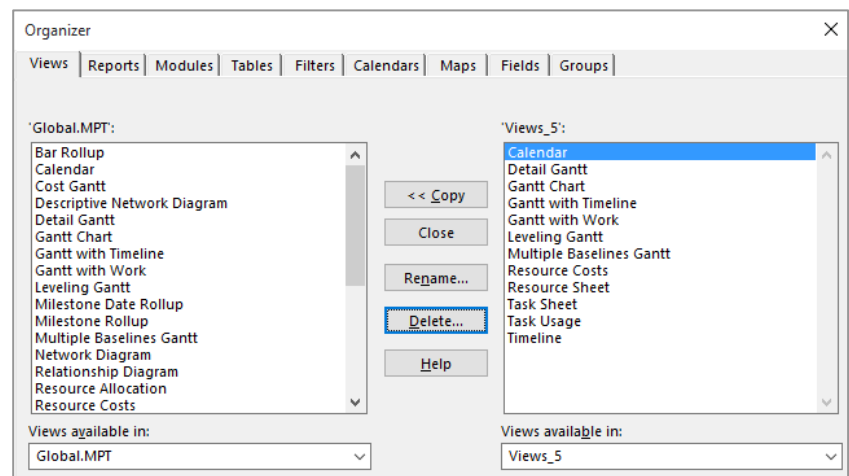
- 6 Click on **[Close]** to close the **Organiser**, then click on **[Close]** to close the **More Views** dialog box

- 7 On the **View** tab, click on the drop arrow for **Gantt Chart**

The **Cost Gantt** view no longer appears in the menu of options



- 2 This dialog box shows the views in the Global template on the left and in the current project on the right. Unless you've specified otherwise new views have been created globally – which means they'll appear in all project files, including the one in which they were created...



- 4

For Your Reference...

To **delete** a **view**:

1. Click on the **View** tab, click on **Other Views** and select **More Views**, then click on **[Organiser]**
2. Click on the name of the view, then click on **[Delete]**

Handy to Know...

- When you create a custom view it is automatically added by Project to the **global template** so that it can immediately be used by other projects you create. You must remember to delete it from the current project as well as the global template if you no longer need that view.

KEEPING NEW VIEWS LOCAL

Project automatically saves new views, tables, filters, and groups to the **global template** so that they are available to other projects you create. If you are working with other people, however, this

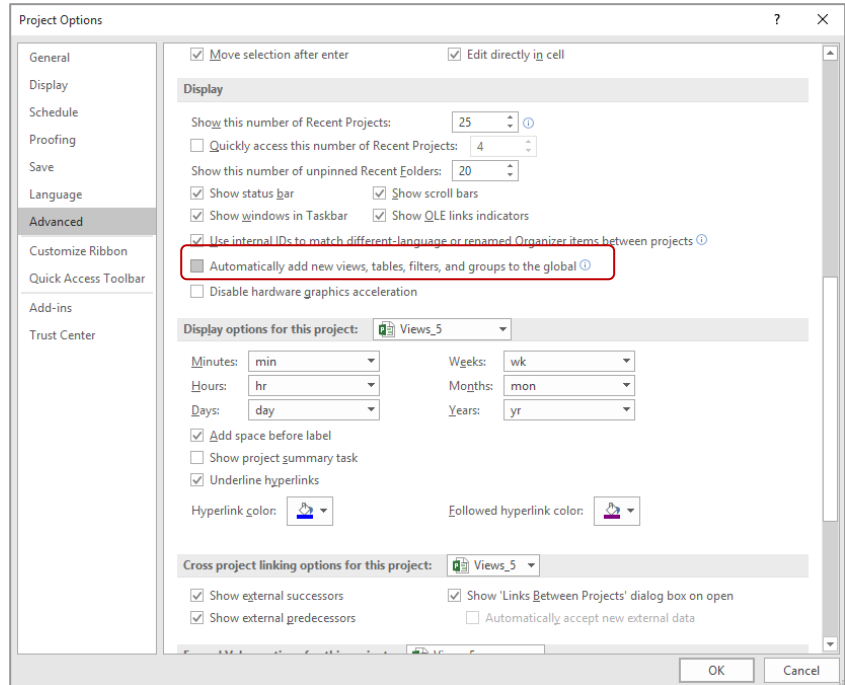
process can cause problems as each one of you applies your own custom features to Project. The automatic saving to the global template can be switched off.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Views_5.mpp...*

- 1 Click on the **File** tab, then click on **Options** to display the **Project Options** dialog box
- 2 Click on the **Advanced** tab at the left
- 3 Scroll to the **Display** settings
- 4 Click on **Automatically add new views, tables, filters, and groups to the global** so it appears unticked
- 5 Click on [OK]



For Your Reference...

To **keep views local**:

1. Click on the **File** tab, then click on **Options**
2. Click on the **Advanced** tab
3. Un-tick **Automatically add new views, tables, filters, and groups to the global**

Handy to Know...

- If you are sharing your copy of Project with other users, you should keep your own views, tables, filters, etc. local. **Local** just means that they will be saved to your file rather than to the global template.

WORKING WITH MULTIPLE FILES

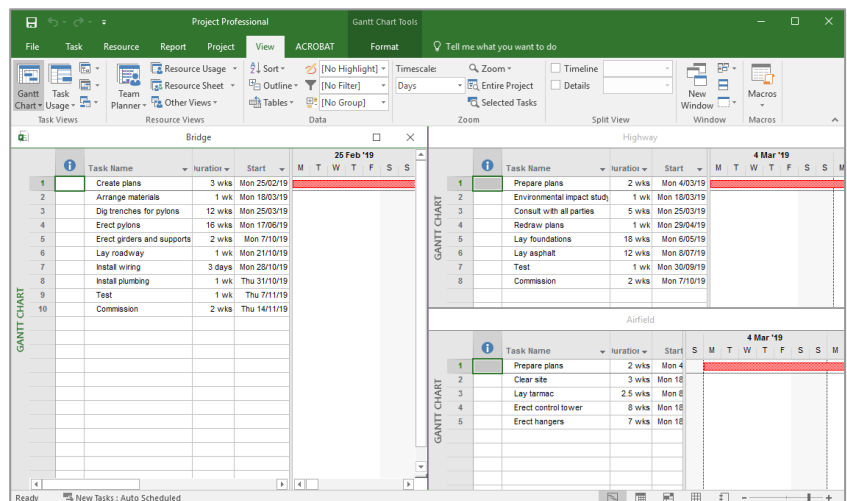
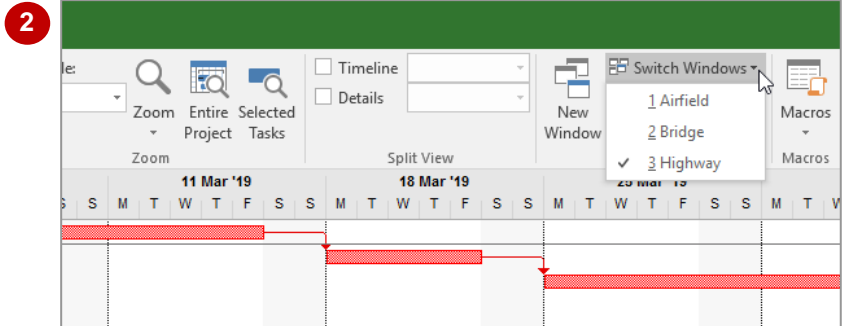
The normal way to open files in Project is via the **Open** command on the **File** tab. Theoretically you can have up to 50 files open at one time. When multiple files are opened they can be

managed from the **Windows** group of commands on the **View** tab. Here you can **switch** between open project files and **arrange** them so that several can be seen on screen.

Try This Yourself:

Before starting this exercise use the Close command on the File tab to close all project files that are currently open...

- 1 Use the **Open** command in the Backstage to open **Airfield.mpp**, **Bridge.mpp**, and **Highway.mpp**
- 2 Click on the **View** tab, then click on **Switch Windows** in the **Window** group to see a list of open project files
- 3 Click on **2 Bridge.mpp** to switch to this file
- 4 Click on **Arrange All** in the **Window** group to see all of the open projects on the screen
- 5 Click on the title bar of the **Airfield** project to make it the active project
- 6 Click on the maximise button of the **Bridge** project to make it the sole occupier of the screen



For Your Reference...

To **switch between open project files**:

1. Click on the **View** tab, then click on **Switch Windows** in the **Window** group
2. Click on the desired project

Handy to Know...

- There can only be one **active** project at any time. This is the project that the commands on the ribbon act upon. If there are several projects visible on the screen, a small Project icon will appear in the title bar of the active file and its file name will be black. The file name for the other files will be a paler grey.

HIDING OPEN FILES

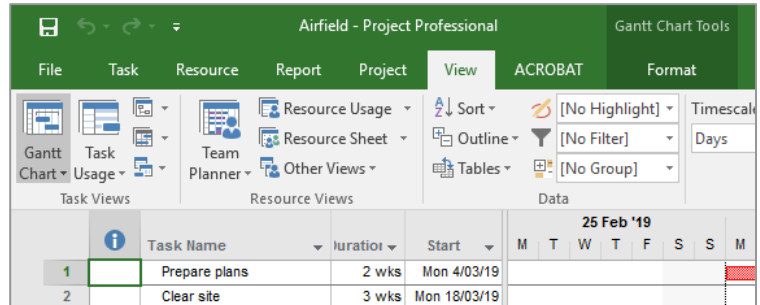
It might sound a bit strange to open a file and then want to **hide** it from view. However, hiding files allows you to have files containing sensitive data such as pay rates open for use but hidden

from view. This is handy when information and data is linked between files and where one file uses the data from another, such as with a resource pool file.

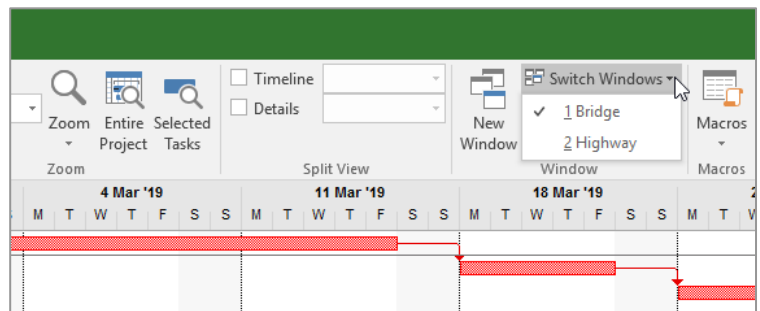
Try This Yourself:

Continue using the previous file with this exercise...

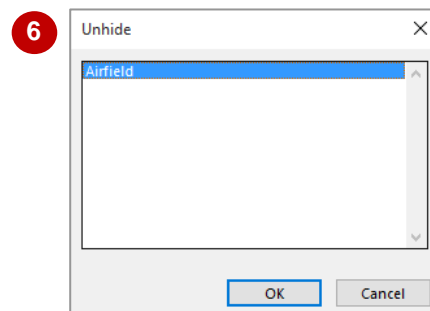
- 1 Ensure the three files **Airfield.mpp**, **Highway.mpp**, and **Bridge.mpp** are currently open
- 2 Click on the **View** tab, then click on **Switch Windows** in the **Window** group and select **1 Airfield.mpp** to make it the active window
- 3 On the **View** tab, click on **Hide** in the **Window** group and select **Hide** to hide the active window
The Airfield project will disappear from view and will be replaced by another file as the active window...
- 4 On the **View** tab, click on **Switch Windows** in the **Window** group to see which windows are available to you now
- 5 Select **2 Highway.mpp**
- 6 On the **View** tab, click on **Hide** in the **Window** group and select **Unhide** to display the **Unhide** dialog box
- 7 Ensure that **Airfield** is selected, then click on **[OK]** to see the file again
- 8 Use the **Close** command on the **File** tab to close all of the project files that have been opened



2



4



6

For Your Reference...

To **hide** a **project file**:

1. Open the file and view it on the screen
2. Click on the **View** tab, then click on **Hide** in the **Window** group and select **Hide**

Handy to Know...

- The **Switch Window** command does not list files that have been hidden.

NOTES:

This image shows a blank sheet of white paper designed for handwriting practice. On the left side, there is a vertical red line that serves as a margin. At the top left corner, where the red lines meet, there is a small red circle. The main body of the page is filled with horizontal blue lines, providing space for writing. There are 18 such blue lines in total, evenly spaced across the page.

CHAPTER 7

InFocus

TABLES

Tables in Project allow you to see the resources and tasks in a project in a tabular format in much the same way as you see data in a spreadsheet.

In this session you will:

- ✓ learn how to explore and dissect the tables that are in **Project**
- ✓ learn how to create a custom table from scratch
- ✓ learn how to add fields to a table using the **Add New Columns** feature
- ✓ learn how to add fields to any position in a table using the **Insert Column** command
- ✓ learn how to quickly add simple custom fields
- ✓ learn how to format fields in a table
- ✓ learn how to create a custom field with a lookup table
- ✓ learn how to enter data into a custom table
- ✓ learn how to use a hyperlink field.

EXPLORING TABLES

Project stores its data in two data **tables** – one for **tasks** and the other for **resources**. Options on the **View** tab allow you to see data from these tables. Both of these tables have many columns

(or **fields**) of data. To make it easier to see the data, these two tables have been broken down into a series of smaller tables, each of which includes only a handful of the available columns.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file **Tables_1.mpp...**

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group to see a list of some of the other tables that are available
- 2 Select **Cost** to see only fields relevant to costs
- 3 Click and drag the divider line to the right until **Add New Column** is in view
- 4 On the **View** tab, click on **Tables** in the **Data** group and select **More Tables** to display the **More Tables** dialog box

Here you can view all of the available tables...

- 5 Ensure that **Cost** is selected, then click on **[Edit]** to display the **Table Definition** dialog box
- 6 Spend a few moments studying the options here
- 7 Click on **[Cancel]** to close the **Table Definition** dialog box
- 8 Click on **[Cancel]** to close the **More Tables** dialog box

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining	Add New Column
1	Design Stand Layout	\$0.00	Prorated	\$816.00	\$0.00	\$816.00	\$0.00	\$816.00	
2	Order Furniture	\$0.00	Prorated	\$108.00	\$0.00	\$108.00	\$0.00	\$108.00	
3	Order Supplies	\$0.00	Prorated	\$108.00	\$0.00	\$108.00	\$0.00	\$108.00	
4	Order Literature	\$0.00	Prorated	\$2,622.00	\$0.00	\$2,622.00	\$0.00	\$2,622.00	
5	Staff Briefing	\$0.00	Prorated	\$621.00	\$0.00	\$621.00	\$0.00	\$621.00	
6	Issue Passes	\$0.00	Prorated	\$34.00	\$0.00	\$34.00	\$0.00	\$34.00	
7	Move In	\$0.00	Prorated	\$188.00	\$0.00	\$188.00	\$0.00	\$188.00	
8	Exhibition	\$0.00	Prorated	\$7,274.00	\$0.00	\$7,274.00	\$0.00	\$7,274.00	
9	Move Out	\$0.00	Prorated	\$188.00	\$0.00	\$188.00	\$0.00	\$188.00	
10	Debrief	\$0.00	Prorated	\$621.00	\$0.00	\$621.00	\$0.00	\$621.00	

3

4

More Tables

Tables: ☒ Task ☐ Resource

Baseline
Constraint Dates
Cost
Delay
Earned Value
Earned Value Cost Indicators
Earned Value Schedule Indicators
Entry
Export
Gantt with Work Table 1
Hyperlink

New...
Edit...
Copy...
Organizer...

Apply Cancel

A quick method for displaying the available tables and More Tables command is to right-click on the **Select All** cell in the top left corner of the table.

Table Definition in 'Tables_1'

Name: **&Cost** ☒ Show in menu

Table

Cut Row Copy Row Paste Row Insert Row Delete Row

Field Name	Align Data	Width	Title	Align Title	Header Wrapping	Text Wrapping
ID	Center	6		Left	Yes	No
Name	Left	24	Task Name	Left	Yes	Yes
Fixed Cost	Right	11		Left	Yes	No
Fixed Cost Accrual	Right	17		Left	Yes	No
Cost	Right	11	Total Cost	Left	Yes	No
Baseline Cost	Right	12	Baseline	Left	Yes	No
Cost Variance	Right	12	Variance	Left	Yes	No

Date format: Default Row height: 1

☒ Lock first column
☒ Auto-adjust header row heights
☒ Show 'Add New Column' interface

Help OK Cancel

5

For Your Reference...

To **display a table** in a **project**:

1. Click on the **View** tab, then click on **Tables** in the **Data** group
2. Select on the desired table

Handy to Know...

- The **Add New Column** heading in a table allows you to add another **field** (column) to that table. If you do this the field will be added to the right of the current fields and a new **Add New Column** heading will appear allowing you to add yet another column.

CREATING A NEW TABLE

You can create your own **custom table** from options available on the **More Tables** dialog box. You can create a new table from scratch as we will do here, or you can copy an existing table

and tweak it to do the specific things you need. Any table that you create can be included on the menu system so that it can easily be selected when required.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tables_2.mpp...*

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group and select **More Tables**
- 2 Click on **Resource**, then click on **[New]** to display the **Table Definition** dialog box
- 3 Type **&Personal Details** in **Name**
- 4 Click in **Field Name** on the first line to display a drop arrow
- 5 Click on the drop arrow, press **i** to move to the first field starting with this letter, then select **ID**
- 6 Click on **Auto-adjust header row heights** so it appears ticked
- 7 Click on **Show 'Add New Column' interface** so it appears ticked
This makes it easy to add new columns to the table...
- 8 Click on **[OK]** to return to the **More Tables** dialog box, then click on **[Close]**

- 2 You can display your new table in the Table drop down in the Data group by clicking on Show in menu, as shown here. All custom tables will appear at the top of the list under Custom.

- 7 You can create a new table by copying an existing one and then editing it as desired. To do this, display the table you wish to copy, then click on Table and click on Save Fields as a New Table. The newly created table will be displayed. To edit it, click on Table, click on More Tables, then click on [Edit] to display the Table Definition dialog box.

For Your Reference...

To **create** a **new table** from **scratch**:

1. Click on the **View** tab, then click on **Tables** in the **Data** group and select **More Tables**
2. Click on **Task** or **Resource**, then click on **[New]**

Handy to Know...

- The **ampersand** (&) is used in the name so that if you decide to show the table in the menu the letter immediately following the ampersand will appear with an underline. This allows the table to be selected using the keyboard.

ADDING FIELDS USING ADD NEW COLUMN

You can add fields to a table through the **Table Definition** dialog box. This is handy if you have a sound idea of what you want in your table and also want to alter things such as default column

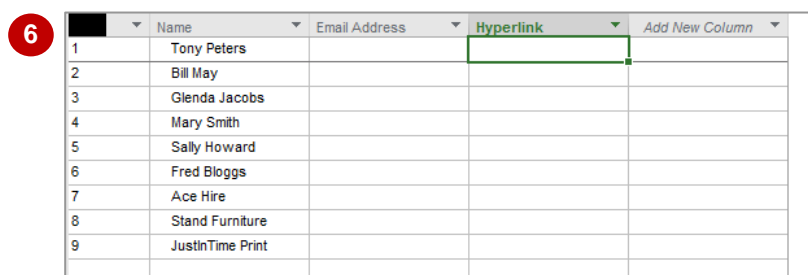
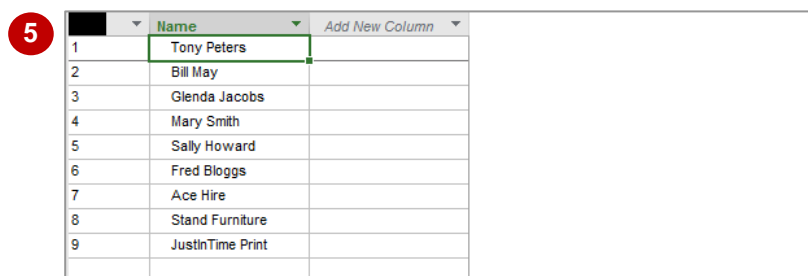
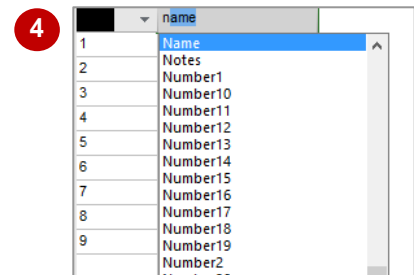
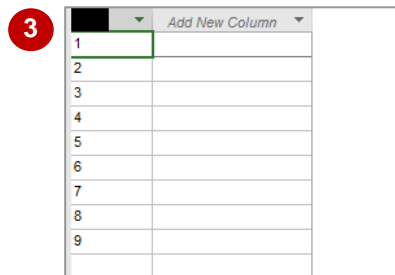
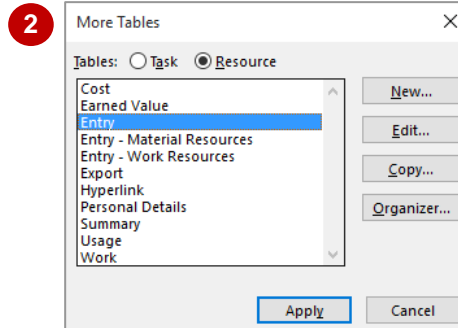
widths. However, a more interactive approach to adding fields to a table is through the **Add New Column** interface that appears when a table is on display which adds columns to the end of the table.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tables_3.mpp...*

- 1 Click on the **View** tab, then click on **Resource Sheet** in **Resource Views**
- 2 Click on **Tables** in the **Data** group and select **More Tables**
- 3 Click on **Personal Details** in the list box, then click on **[Apply]** to see this table
- 4 Click on the drop arrow for **Add New Column**, then press **n** to see fields beginning with that letter
- 5 Select **Name**
Because the Name field is used in several tables and data has already been added to it, it also appears in our new table...
- 6 Repeat steps 4 and 5 and add the following fields:
Email Address
Hyperlink



For Your Reference...

To **add fields** to a **table** using **Add New Column**:

1. Click on the drop arrow for **Add New Column**
2. Scroll to and click on the desired field

Handy to Know...

- The **Adding New Column** command inserts the fields with their properties. You can quickly check or alter these properties, if needed, by right-clicking on the column heading and selecting **Field Settings**. Here you can alter properties such as the title, width, and title and data alignment.

ADDING FIELDS USING INSERT COLUMN

Although adding fields using the **Add New Column** feature is easy, it does mean that you have to enter the columns in the order in which you wish them to be displayed in the table. If

you've forgotten a field or simply want to insert additional fields between other columns in your table, you can use the **Insert Column** command to insert a field to the left of a selected column.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Tables_4.mpp...*

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group and select **More Tables**

- 2 Ensure **Personal Details** is selected, then click on **[Apply]**

Let's insert two columns between **Name** and **Email Address**...

- 3 Right-click on the **Email Address** column heading to display the shortcut menu, then select **Insert Column** to insert a new column

The new column will always be inserted to the left of the selected column...

- 4 Type **g**, then select **Group** to insert this column

- 5 Repeat steps 3 and 4 to insert **Standard Rate** to the left of **Email Address**

	Name	Type Column Name	Email Address	Hyperlink	Add New Column
1	Tony Peters	% Work Complete			
2	Bill May	Accrue At			
3	Glenda Jacobs	Active			
4	Mary Smith	Actual Cost			
5	Sally Howard	Actual Finish			
6	Fred Bloggs	Actual Overtime Cost			
7	Ace Hire	Actual Overtime Work			
8	Stand Furniture	Actual Start			
9	JustinTime Print	Actual Work			
		ACWP			
		Assignment			
		Assignment Delay			
		Assignment Owner			
		Assignment Units			

3

	Name	Group	Email Address	Hyperlink	Add New Column
1	Tony Peters	Staff			
2	Bill May	Staff			
3	Glenda Jacobs	Staff			
4	Mary Smith	Staff			
5	Sally Howard	Staff			
6	Fred Bloggs	Staff			
7	Ace Hire	Contractor			
8	Stand Furniture	Hire Equipment			
9	JustinTime Print	Printing			

4

	Name	Group	Standard Rate	Email Address	Hyperlink
1	Tony Peters	Staff	\$34.00/hr		
2	Bill May	Staff	\$34.00/hr		
3	Glenda Jacobs	Staff	\$36.00/hr		
4	Mary Smith	Staff	\$54.00/hr		
5	Sally Howard	Staff	\$25.00/hr		
6	Fred Bloggs	Staff	\$24.00/hr		
7	Ace Hire	Contractor	\$0.00/hr		
8	Stand Furniture	Hire Equipment	\$0.00/hr		
9	JustinTime Print	Printing	\$0.00/hr		

5

For Your Reference...

To **add** a **field** to a **table**:

1. Right-click on the heading of the column to the right of where you want to insert the new field
2. Click on **Insert Column**
3. Type the first character of the field name, then click on the desired field

Handy to Know...

- To insert a field using the ribbon, click on the header of the column that is to the right of where you wish to insert the new column, click on **Resource Sheet Tools: Format** tab, then click on **Insert Column** in the **Columns** group. Type the first letter of the field and then click on the desired field.

ADDING SIMPLE CUSTOM FIELDS

As well as standard built-in fields, Project provides several different types of custom fields that you can include in your project. Here we will insert two commonly used types. Firstly, we'll add

two **text fields** which can store up to 255 characters of custom text information. We'll also add a **flag field** which will let us mark specific tasks by adding either Yes or No to the task information.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Tables_5.mpp...*

- 1 In the **Personal Details** table in the **Resource Sheet**, right-click on the **Hyperlink** column header and select **Insert Column**
- 2 Type **t** and select **Text1** to insert this custom column
- 3 Repeat steps 1 and 2 to insert **Flag1** then **Text2** to the left of the **Hyperlink** column, as shown

Notice that **No** has been inserted into the **Flag1** field as the default value. This means that when you wish to flag one of the tasks for further action or identification of some sort, you can simply select **Yes** in that task

	Name	Group	Standard Rate	Email Address	Text1	Hyperlink
1	Tony Peters	Staff	\$34.00/hr			
2	Bill May	Staff	\$34.00/hr			
3	Glenda Jacobs	Staff	\$36.00/hr			
4	Mary Smith	Staff	\$54.00/hr			
5	Sally Howard	Staff	\$25.00/hr			
6	Fred Bloggs	Staff	\$24.00/hr			
7	Ace Hire	Contractor	\$0.00/hr			
8	Stand Furniture	Hire Equipment	\$0.00/hr			
9	JustnTime Print	Printing	\$0.00/hr			

Standard Rate	Email Address	Text1	Flag2	Text2	Hyperlink
\$34.00/hr			No		
\$34.00/hr			No		
\$36.00/hr			No		
\$54.00/hr			No		
\$25.00/hr			No		
\$24.00/hr			No		
\$0.00/hr			No		
\$0.00/hr			No		
\$0.00/hr			No		

For Your Reference...

To **add custom fields**:

1. Right-click on the heading of the column to the right of where you want to insert the new field
2. Click on **Insert Column**
3. Type the first character of the custom field name, then select the desired field

Handy to Know...

- The **Text** and **Flag** fields are special custom fields that can be used for whatever purposes you like. **Text fields** store custom text (alphanumeric) about tasks, resources or assignments, while the **flag fields** have only two possible values – **Yes** or **No**. Project provides 30 text fields and 20 flag fields.

FORMATTING TABLE FIELDS

As well as specifying which **fields** (columns) you want to see in your table, you can also specify how you want those fields presented. For example, you can specify the default **width** for

the field, its **alignment** (left, right, centre), and its **title**. The title is particularly important for the **Text** and **Flag** custom fields to provide more meaningful headings for these fields.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tables_6.mpp...*

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group and select **More Tables**
- 2 Ensure that **Personal Details** is selected, then click on **[Edit]** to display the **Table Definition** dialog box
- 3 Click on the **Title** cell for the **Name** field, then type **Resource** and press **Enter**
- 4 Adjust the data alignment, width, title, title alignment and text wrapping for the other fields, as shown
- 5 Ensure that **Lock first column**, **Auto-adjust header...** and **Show "Add New..."** are ticked
- 6 Click on **[OK]** to return to the **More Tables** dialog box
- 7 Ensure that **Personal Details** is selected, then click on **[Apply]**

Table Definition in 'Tables_6'

Name: &Personal Details ☐ Show in menu

Table

Cut Row Copy Row Paste Row Insert Row Delete Row

Field Name	Align Data	Width	Title	Align Title	Header Wrapping	Text Wrapping
ID	Left	10		Center	Yes	No
Name	Left	20	Resource	Left	Yes	No
Group	Left	20		Left	Yes	No
Standard Rate	Left	20		Left	Yes	No
Email Address	Left	20		Left	Yes	No
Text1	Left	20		Left	Yes	No
Flag2	Left	20		Left	Yes	No

Date format: Default Row height: 1

☐ Lock first column
☐ Auto-adjust header row heights
☒ Show 'Add New Column' interface

Help OK Cancel

3

Table Definition in 'Tables_6'

Name: &Personal Details ☐ Show in menu

Table

Cut Row Copy Row Paste Row Insert Row Delete Row

Field Name	Align Data	Width	Title	Align Title	Header Wrapping	Text Wrapping
Group	Left	20	Category	Left	Yes	Yes
Standard Rate	Right	20	Hourly Rate	Right	Yes	No
Email Address	Left	20	Email Address	Left	Yes	Yes
Text1	Left	20	Phone No.	Left	Yes	No
Flag2	Center	20	Use Again?	Center	Yes	No
Text2	Left	20	Comments	Left	Yes	Yes
Hyperlink	Right	20	Special Information	Left	Yes	No

Date format: Default Row height: 1

☐ Lock first column
☐ Auto-adjust header row heights
☒ Show 'Add New Column' interface

Help OK Cancel

4

For Your Reference...

To **format table fields**:

1. Click on the **View** tab, then click on **Tables** in the **Data** group and select **More Tables**
2. Click on the desired table, then click on **[Edit]**
3. Change the **width**, **alignment**, **title** etc. values as appropriate

Handy to Know...

- **Flag** fields are Yes/No fields. It is a good idea to end the title of a flag field with a question mark so that it appears to pose a question that the user can answer with either a yes or a no.

CREATING A SIMPLE LOOKUP TABLE

As well as creating simple free-format custom fields, you can also create custom fields that contain lookup tables of allowable values. Lookup tables are useful for several reasons. Not only

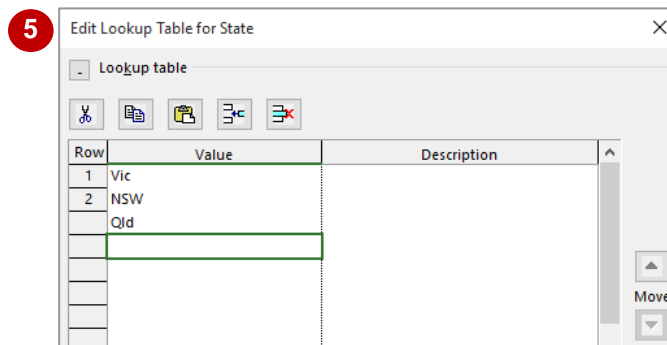
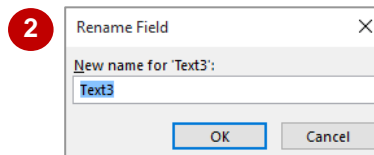
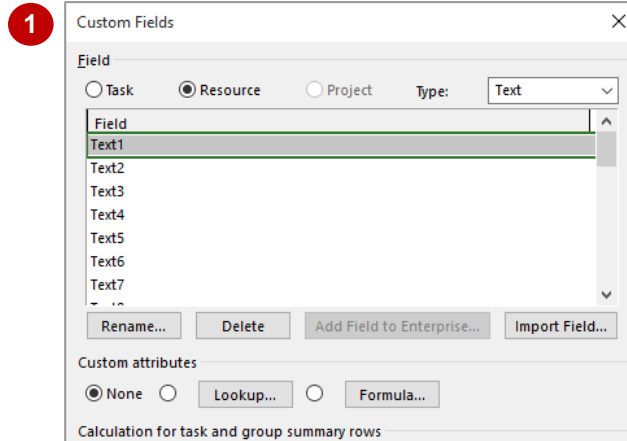
can they help to speed up data entry, especially if the values are lengthy, but they will also ensure that the data that is being entered is accurate.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tables_7.mpp...*

- 1 Click on the **Project** tab, then click on **Custom Fields** in the **Properties** group to display the **Custom Fields** dialog box
- 2 Ensure that **Resource** is selected, click on **Text3**, then click on **[Rename]** to open the **Rename Field** dialog box
- 3 Type **State**, then click on **[OK]** to rename this custom field
- 4 Click on **[Lookup]** to display the **Edit Lookup Table** dialog box
- 5 Type the following in **Value**
Vic
NSW
Qld
- 6 Click on **[Close]**, then click on **[OK]**
Now let's insert this field...
- 7 Right-click on **Use Again?** and select **Insert Column**, type **t**, then select **Text3 (State)** to insert the field
The drop arrow in this field shows that it has a lookup table



Resource	Category	Hourly Rate	Email Address	Phone No.	State
1 Tony Peters	Staff	\$34.00/hr			
2 Bill May	Staff	\$34.00/hr			
3 Glenda Jacobs	Staff	\$36.00/hr			
4 Mary Smith	Staff	\$54.00/hr			
5 Sally Howard	Staff	\$25.00/hr			
6 Fred Bloggs	Staff	\$24.00/hr			
7 Ace Hire	Contractor	\$0.00/hr			
8 Stand Furniture	Hire Equipment	\$0.00/hr			
9 JustinTime Print	Printing	\$0.00/hr			

For Your Reference...

To **create** a **custom field** with a **lookup table**:

1. Click on the **Project** tab, then click on **Custom Fields** in the **Properties** group
2. Select and rename the field
3. Click on **[Lookup]**, then enter the desired values

Handy to Know...

- As well as creating a lookup table for a custom text field, you can use the same process to create a lookup table for other types of custom fields such as cost, data and number fields. However, you can't use the same process for creating a lookup table for an outline code custom field.

USING A CUSTOM TABLE

A **custom table** that you create in Project behaves and operates exactly like one of the standard, built-in tables. This is because the built-in tables are actually custom tables that have

been created by Microsoft. To display a custom table, you must use the **More Tables** dialog box. Once a custom table is on display you can enter or change values in the table.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Tables_8.mpp*...

- 1 Ensure that the **Personal Details** table is on display (use the **More Tables** dialog box to display it if it is not)
- 2 Click in **Email Address** for **Tony Peters**, type **tpeters@xyz.com.zz** and press **Tab**
- 3 Type **61 3 9666 7744** and press **Tab**
- 4 Click on the drop arrow for **State** and select **Vic**
- 5 Complete the remaining details as shown
- 6 Click in the **Comments** field for **Ace Hire**
- 7 Type the following:
This company is too expensive. Their range of equipment is also quite limited.
- 8 Press **Enter** to complete the entry

2

Resource	Category	Hourly Rate	Email Address	Phone No.
<input type="checkbox"/> Tony Peters	Staff	\$34.00/hr	tpeters@xyz.com.zz	
<input type="checkbox"/> Bill May	Staff	\$34.00/hr		
<input type="checkbox"/> Glenda Jacobs	Staff	\$36.00/hr		
<input type="checkbox"/> Mary Smith	Staff	\$54.00/hr		
<input type="checkbox"/> Sally Howard	Staff	\$25.00/hr		
<input type="checkbox"/> Fred Bloggs	Staff	\$24.00/hr		
<input type="checkbox"/> Ace Hire	Contractor	\$0.00/hr		
<input type="checkbox"/> Stand Furniture	Hire Equipment	\$0.00/hr		
<input type="checkbox"/> JustinTime Print	Printing	\$0.00/hr		

Resource	Category	Hourly Rate	Email Address	Phone No.
<input type="checkbox"/> Tony Peters	Staff	\$34.00/hr	tpeters@xyz.com.zz	61 3 9666 7744
<input type="checkbox"/> Bill May	Staff	\$34.00/hr	bmayer@xyz.com.zz	61 3 9666 7745
<input type="checkbox"/> Glenda Jacobs	Staff	\$36.00/hr	gjacob@xyz.com.zz	61 3 9666 7742
<input type="checkbox"/> Mary Smith	Staff	\$54.00/hr	msmith@xyz.com.zz	61 3 9666 7733
<input type="checkbox"/> Sally Howard	Staff	\$25.00/hr	showard@xyz.com.zz	61 3 9666 7322
<input type="checkbox"/> Fred Bloggs	Staff	\$24.00/hr	fbloggs@xyz.com.zz	61 3 9666 7723
<input type="checkbox"/> Ace Hire	Contractor	\$0.00/hr	sales@ace.com.zz	9765 4453
<input type="checkbox"/> Stand Furniture	Hire Equipment	\$0.00/hr	furn@hire.com.zz	9584 3221
<input type="checkbox"/> JustinTime Print	Printing	\$0.00/hr	info@jtp.com.zz	9454 3444

Email Address	Phone No.	State	Use Again?
tpeters@xyz.com.zz	61 3 9666 7744	Vic	Yes
bmayer@xyz.com.zz	61 3 9666 7745	Vic	Yes
gjacob@xyz.com.zz	61 3 9666 7742	Vic	Yes
msmith@xyz.com.zz	61 3 9666 7733	Vic	Yes
showard@xyz.com.zz	61 3 9666 7322	Vic	Yes
fbloggs@xyz.com.zz	61 3 9666 7723	Vic	Yes
sales@ace.com.zz	9765 4453	NSW	No
furn@hire.com.zz	9584 3221	Qld	Yes
info@jtp.com.zz	9454 3444	Qld	Yes

The tiny squares appear next to the names because we've typed an email address for the resources. This square indicates that a contact card can be linked to your email software.

8

Email Address	Phone No.	State	Use Again?	Comments
msmith@xyz.com.zz	61 3 9666 7733	Vic	Yes	
showard@xyz.com.zz	61 3 9666 7322	Vic	Yes	
fbloggs@xyz.com.zz	61 3 9666 7723	Vic	Yes	
sales@ace.com.zz	9765 4453	NSW	No	This company is too expensive. Their range of equipment is also quite limited.
furn@hire.com.zz	9584 3221	Qld	Yes	
info@jtp.com.zz	9454 3444	Qld	Yes	

For Your Reference...

To **populate** a **custom table** with **data**:

1. Display the custom table on the screen
2. Enter the data into the fields as you would a built-in table

Handy to Know...

- **Custom Text fields**, such as the **Comments** field, can be a little tricky to use when you type extended data into them. To edit the data in the field, click on the field once, then again to place it into **edit mode**.

USING A HYPERLINK FIELD

Hyperlinks are normally associated with the internet and web pages. Hyperlinks in these situations are used to move from one site to another. Hyperlinks in Project can be used to do

the same – go to websites. However, they can also be linked to a number of other things, such as spreadsheets and even **Word** documents.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Tables_9.mpp...*

1 Ensure that the **Personal Details** table appears on the screen

2 Click in the **Special Information** cell for **Stand Furniture**

3 Type **Custom – Contract.docx** and press **Enter**

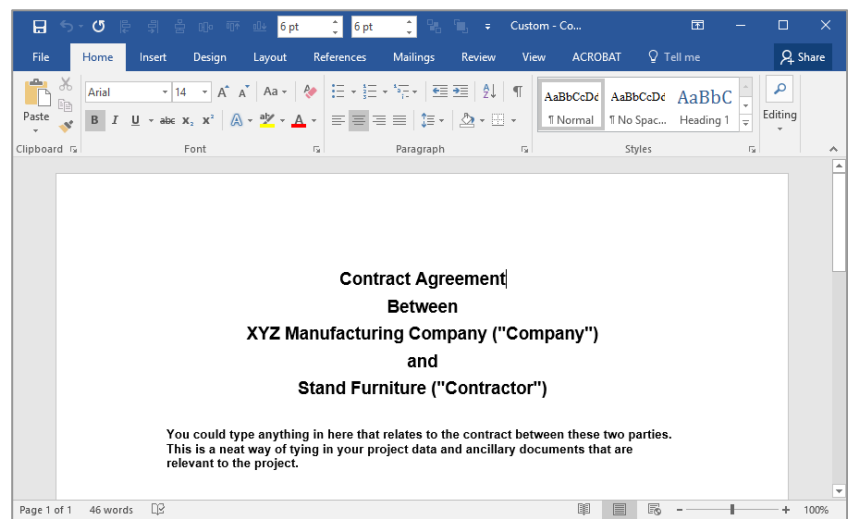
Notice that the text appears underlined because it is a hyperlink...

4 Point to the underlined hyperlink text and click once to open the document in **Microsoft Word**

You may receive a warning at this stage suggesting a security concern – click on **[Yes]** if so...

5 Click on the close button to close **Microsoft Word**

State	Use Again?	Comments	Special
Vic	Yes		
Vic	Yes		
Vic	Yes		
NSW	No	This company is too expensive. Their range of equipment is also quite limited.	
Qld	Yes		Custom - Contract.docx
Qld	Yes		



For Your Reference...

To **use** a **hyperlink field**:

1. Type a link (e.g. web address, email address, file name) into a hyperlink cell
2. Click on the hyperlink

Handy to Know...

- A great use for hyperlinks is for displaying websites. For example, you could have a link to the website of an equipment hire company that you use as a resource. You could then click on the link to go straight to that company's website.

CHAPTER 8

InFocus

CONTROLLING PROJECT DATA

A lot of time and effort goes into entering task and resource data into a project.

Project features a number of useful tools for controlling how and what is displayed with regard to that data. You can **highlight** key aspects of the data, **filter** out unwanted data, and **group** your data into logical categories and groupings.

In this session you will:

- ✓ gain an understanding of the highlighting, filtering and grouping operations
- ✓ learn how to apply a basic highlight filter
- ✓ learn how to highlight a date range
- ✓ learn how to create a task range highlight
- ✓ learn how to highlight tasks that use specific resources
- ✓ learn how to access more highlight filters
- ✓ learn how to apply a standard filter
- ✓ learn how to create a custom filter
- ✓ learn how to use a custom filter
- ✓ learn how to edit an existing filter
- ✓ learn how to delete an unwanted filter from a project
- ✓ learn how to apply grouping to tasks
- ✓ learn how to display and apply autofiltering in a project.

UNDERSTANDING THE DATA TOOLS

Project features three special tools that allow you to control the way that your data is presented. You can **highlight** key data so that specific aspects of your tasks or resources stand out. You

can **filter** the tasks and resources so that only the data you want appears in a report or on the screen. Finally, you can organise tasks and resources into specific **groupings**.

Highlighting Tasks and Resources

Project contains **highlight filters** which allow you to highlight specific tasks or resources. The highlighting is based on filters – filters require you to specify an example or other criteria. If tasks or resources match that criteria they will be highlighted and thus stand out from the rest of the tasks and resources.

In the **highlight filter** below, Project has been asked to highlight all tasks that still have remaining costs. Two tasks (1 and 3) are highlighted but there are actually more tasks further down out of view.

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining
1	Planning	\$0.00	Prorated	\$29,078.85	\$29,078.85	\$0.00	\$26,578.85	\$2,500.00
2	Create architectural drawings	\$0.00	Prorated	\$21,375.00	\$21,375.00	\$0.00	\$21,375.00	\$0.00
3	Submit plans for approval	\$0.00	Prorated	\$6,100.00	\$6,100.00	\$0.00	\$3,600.00	\$2,500.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$1,603.85	\$0.00	\$1,603.85	\$0.00
5	Planning Complete	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$60,530.60	\$60,530.60	\$0.00	\$60,530.60	\$0.00
7	Erect fencing	\$15,900.00	Prorated	\$15,900.00	\$15,900.00	\$0.00	\$15,900.00	\$0.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$6,992.31	\$0.00	\$6,992.31	\$0.00

Filtering Tasks and Resources

A **filter** works exactly the same way as a highlight filter, except that it hides data that doesn't match the filter criteria. The two operations, highlight filters and filters, are so close in operation that they actually appear on the same menu structure and share criteria selection techniques.

In the filter below the same criteria to the highlight filter shown above is used, i.e. Project is asked to show tasks that have remaining costs. Note that tasks 1 and 3 are displayed together with a group of others. Any task that does not have remaining costs is hidden from view.

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining
1	Planning	\$0.00	Prorated	\$29,078.85	\$29,078.85	\$0.00	\$26,578.85	\$2,500.00
3	Submit plans for approval	\$0.00	Prorated	\$6,100.00	\$6,100.00	\$0.00	\$3,600.00	\$2,500.00
21	Fit Out	\$0.00	Prorated	\$251,065.25	\$251,065.25	\$0.00	\$0.00	\$251,065.25
22	Fit all windows and doors	\$0.00	Prorated	\$12,405.00	\$12,405.00	\$0.00	\$0.00	\$12,405.00
23	Install electrical cabling	\$0.00	Prorated	\$3,588.00	\$3,588.00	\$0.00	\$0.00	\$3,588.00
24	Install electrical fittings and fixtures	\$0.00	Prorated	\$4,851.00	\$4,851.00	\$0.00	\$0.00	\$4,851.00
25	Install all plumbing	\$0.00	Prorated	\$5,722.50	\$5,722.50	\$0.00	\$0.00	\$5,722.50

Grouping Tasks and Resources

Grouping allows you to show tasks and resources that match specific criteria grouped together. For example, you can see all of the incomplete tasks in one group and the complete tasks in another.

	Task Name	Act. Start	Act. Finish	% Comp.	Phys. % Comp.	Act. Dur.	Rem. Dur.
	% Complete: 0%	NA	NA	0%		0 days	42 days
20	Building Construction Completed	NA	NA	0%	0%	0 days	0 days
22	Fit all windows and doors	NA	NA	0%	0%	0 wks	2 wks
23	Install electrical cabling	NA	NA	0%	0%	0 wks	1 wk
24	Install electrical fittings and fixtures	NA	NA	0%	0%	0 wks	2 wks
25	Install all plumbing	NA	NA	0%	0%	0 wks	2 wks
26	Install plumbing fittings and fixtures	NA	NA	0%	0%	0 wks	1 wk

BASIC DATA HIGHLIGHTING

Highlight filters are created using commands on the **View** tab. **Highlight filters** contain a number of predefined filters for performing some of the more common types of highlighting you'd need in

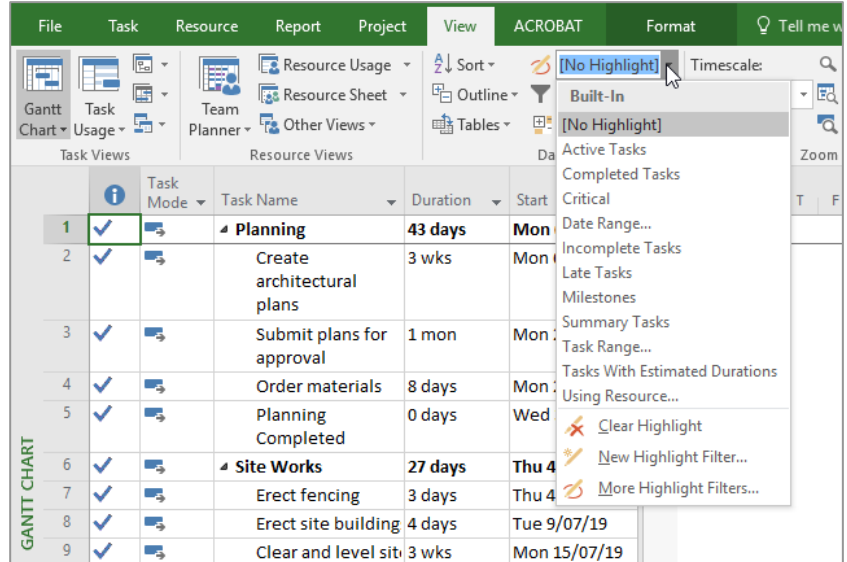
a project. Applying a highlight filter using one of these predefined filters is as simple as clicking on the relevant filter from the menu.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *Project Data_1.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group to see a menu of options
- 2 Select **Completed Tasks** to see tasks marked as completed highlighted in yellow
- 3 On the **View** tab, click on the drop arrow for **Highlight** and select **Incomplete Tasks** to highlight tasks that have not been completed
- 4 Repeat the above steps to view the following highlights:
Active Tasks
Critical
Milestones
Summary Tasks
- 5 On the **View** tab, click on the drop arrow for **Highlight** and select **[No Highlight]** to remove all highlighting



1

	Task Mode	Task Name	Duration	Start	
1	✓	Planning	43 days	Mon 6/05/19	
2	✓	Create architectural plans	3 wks	Mon 6/05/19	
3	✓	Submit plans for approval	1 mon	Mon 27/05/19	
4	✓	Order materials	8 days	Mon 24/06/19	
5	✓	Planning Completed	0 days	Wed 3/07/19	
6	✓	Site Works	27 days	Thu 4/07/19	
7	✓	Erect fencing	3 days	Thu 4/07/19	
8	✓	Erect site building	4 days	Tue 9/07/19	
9	✓	Clear and level site	3 wks	Mon 15/07/19	
10	✓	Prepare drainage infrastructure	1 wk	Mon 5/08/19	
11	✓	Prepare cabling infrastructure	1 wk	Mon 5/08/19	
12	✓	Site Works Completed	0 days	Fri 9/08/19	

2

For Your Reference...

To **apply a highlight filter**:

1. Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group
2. Select the desired highlight filter

Handy to Know...

- If you have a number of tasks, you may need to scroll down the screen to see the ones that have been highlighted. Some highlights too will have no results.

HIGHLIGHTING DATE RANGES

Some of the highlight filters appear with an ellipsis (...) after their name. This shows that these filters are more than just a basic click-and-display style of filter. The ellipsis

indicates that more information will be required before the filter can be put into action. There are date filters, for example, where you are required to specify beginning and end dates – a **date range**.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_1.mpp...*

1 Click on the **View** tab, then click on **Other Views** in the **Task Views** group and select **Task Sheet**

2 On the **View** tab, click on the drop arrow for **Highlight** in the **Data** group and select **Date Range** to display the first date box

3 Type **1/8/19**, then click on **[OK]** to see the second date box

4 Type **1/9/19**, then click on **[OK]** to highlight tasks that start or finish after 1/8/19 and before 1/9/19

2

Date Range

Show tasks that start or finish after:

1/8/19

OK Cancel

3

Date Range

And before:

1/9/19

OK Cancel

	Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
1		Planning	Mon 6/05/19	Wed 3/07/19	Mon 6/05/19	Wed 3/07/19	0 days	0 days
2		Create architect	Mon 6/05/19	Fri 24/05/19	Mon 6/05/19	Fri 24/05/19	0 days	0 days
3		Submit plans f	Mon 27/05/19	Fri 21/06/19	Mon 27/05/19	Fri 21/06/19	0 days	0 days
4		Order materia	Mon 24/06/19	Wed 3/07/19	Mon 24/06/19	Wed 3/07/19	0 days	0 days
5		Planning Com	Wed 3/07/19	Wed 3/07/19	Wed 3/07/19	Wed 3/07/19	0 days	0 days
6		Site Works	Thu 4/07/19	Fri 9/08/19	Thu 4/07/19	Fri 9/08/19	0 days	0 days
7		Erect fencing	Thu 4/07/19	Mon 8/07/19	Thu 4/07/19	Mon 8/07/19	0 days	0 days
8		Erect site buil	Tue 9/07/19	Fri 12/07/19	Tue 9/07/19	Fri 12/07/19	0 days	0 days
9		Clear and leve	Mon 15/07/19	Fri 2/08/19	Mon 15/07/19	Fri 2/08/19	0 days	0 days
10		Prepare drain	Mon 5/08/19	Fri 9/08/19	Mon 5/08/19	Fri 9/08/19	0 days	0 days

4 You may find the results here a little confusing, but the key to understanding what appears is in the prompts for the dates. In the first box you are asked for a date when tasks start "or" finish after. In the example above tasks 6 and 9 start in July which doesn't qualify, but they finish after August 1 and before 1/9/16 – so they qualify because they finish within the date range.

For Your Reference...

To **apply** a **date range** to a **highlight filter**.

1. Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group and select **Date Range**
2. Type a date in the first box, click on **[OK]**, type a date in the second box, then click on **[OK]**

Handy to Know...

- The dates in the date range work only on the **Start** and **Finish** dates, not the **Baseline** dates.
- Dates are not inclusive.

HIGHLIGHTING A RANGE OF TASKS

There are many different ways of highlighting tasks (and resources) in a project. If you need to highlight a group of tasks, perhaps for a specific sub-project within the main project, you can use

the **Task Range** filter. This filter will highlight tasks within a range of **ID** numbers.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Project Data_1.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group and select **Task Range** to display the **Task Range** settings dialog box
- 2 Type **13** in the top box, then click in the second box and type **20**
- 3 Click on **[OK]** to highlight tasks **13** through to **20** in the project

1

Task Range

Show tasks between ID:

And ID:

OK Cancel

2

Task Range

Show tasks between ID:

13

And ID:

20

OK Cancel

	Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
10		Prepare drains	Mon 5/08/19	Fri 9/08/19	Mon 5/08/19	Fri 9/08/19	0 days	0 days
11		Prepare cablin	Mon 5/08/19	Fri 9/08/19	Mon 5/08/19	Fri 9/08/19	0 days	0 days
12		Site Works Cor	Fri 9/08/19	Fri 9/08/19	Fri 9/08/19	Fri 9/08/19	0 days	0 days
13		Building Constr	Mon 12/08/19	Fri 28/02/20	Mon 12/08/19	Tue 25/02/20	0 days	3 days
14		Pour foundati	Mon 12/08/19	Thu 15/08/19	Mon 12/08/19	Thu 15/08/19	0 days	0 days
15		Erect steelwor	Tue 20/08/19	Mon 11/11/19	Tue 20/08/19	Mon 11/11/19	0 days	0 days
16		Erect wall	Tue 12/11/19	Tue 21/01/20	Tue 12/11/19	Tue 21/01/20	0 days	0 days
17		Install roofing	Mon 27/01/20	Fri 7/02/20	Wed 22/01/20	Tue 4/02/20	3 days	3 days
18		Install roof ret	Mon 10/02/20	Fri 14/02/20	Wed 5/02/20	Tue 11/02/20	3 days	3 days
19		Erect seating t	Mon 10/02/20	Fri 28/02/20	Wed 5/02/20	Tue 25/02/20	3 days	3 days
20		Building Const	Fri 28/02/20	Fri 28/02/20	Tue 25/02/20	Tue 25/02/20	3 days	3 days
21		Fit Out	Mon 2/03/20	Fri 15/04/20	Wed 26/02/20	Fri 10/04/20	3 days	3 days
22		Fit all window	Mon 2/03/20	Fri 13/03/20	Wed 26/02/20	Tue 10/03/20	3 days	3 days

3

For Your Reference...

To **highlight** a **range** of **tasks**:

1. Click on the **View** tab, then click on the drop arrow for **Highlight** and select **Task Range**
2. Type a task **ID** number in the top cell and another in the second
3. Click on **[OK]**

Handy to Know...

- Each new highlight will clear the previous one. You cannot therefore create compound highlights where each builds on the previous.

HIGHLIGHTING TASKS WITH SPECIFIC RESOURCES

If you're working with both resources and tasks in your project, you may find the **Using Resource** filter useful. This filter allows you to highlight tasks that use a specific resource. For example,

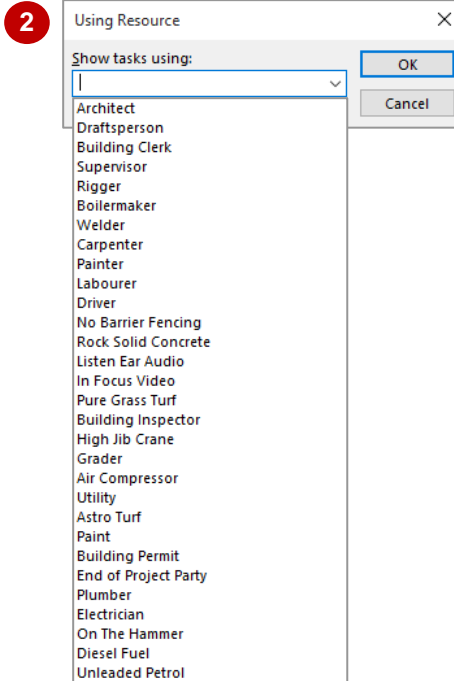
you can use this filter to highlight all of the tasks that require the hire of a compressor, or that use a plumber, and the like.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_1.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group and select **Using Resource** to display the **Using Resource** settings dialog box
- 2 Click on the drop arrow to view a list of resources available to the project
- 3 Select **Draftsperson**, then click on [OK] to highlight all of the tasks that require a **Draftsperson** resource



	Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
1		Planning	Mon 6/05/19	Wed 3/07/19	Mon 6/05/19	Wed 3/07/19	0 days	0 days
2		Create archite	Mon 6/05/19	Fri 24/05/19	Mon 6/05/19	Fri 24/05/19	0 days	0 days
3		Submit plans f	Mon 27/05/19	Fri 21/06/19	Mon 27/05/19	Fri 21/06/19	0 days	0 days
4		Order materia	Mon 24/06/19	Wed 3/07/19	Mon 24/06/19	Wed 3/07/19	0 days	0 days
5		Planning Com	Wed 3/07/19	Wed 3/07/19	Wed 3/07/19	Wed 3/07/19	0 days	0 days
6		Site Works	Thu 4/07/19	Fri 9/08/19	Thu 4/07/19	Fri 9/08/19	0 days	0 days
7		Erect fencing	Thu 4/07/19	Mon 8/07/19	Thu 4/07/19	Mon 8/07/19	0 days	0 days
8		Erect site buil	Tue 9/07/19	Fri 12/07/19	Tue 9/07/19	Fri 12/07/19	0 days	0 days

For Your Reference...

To **highlight specific resources used in tasks**:

1. Click on the **View** tab, then click on the drop arrow for **Highlight** and select **Using Resource**
2. Click on the resource drop arrow and select the desired resource, then click on [OK]

Handy to Know...

- If the **Show tasks using** box in the **Using Resource** dialog box is left empty, tasks that do not require any resources are highlighted.

MORE HIGHLIGHT FILTERS

There are more filters available in Project than are initially visible on the menus. All of the filters, even those presented on the menus, can be viewed and accessed from the **More Filters**

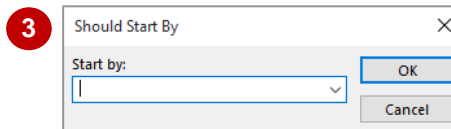
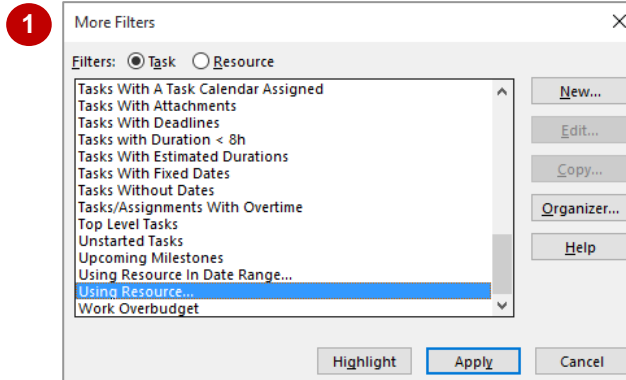
dialog box. It can be worth exploring the options in this dialog box to get a good idea of what you can do with the filters.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_1.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group and select **More Highlight Filters** to display the **More Filters** dialog box
- 2 Spend a few moments scrolling through the list of filters in the **More Filters** dialog box
- 3 Click on **Should Start By**, then click on **[Highlight]** to display a date input box
- 4 Click in the box, type **10/3/20**, then click on **[OK]**
- 5 On the **View** tab, click on the drop arrow for **Highlight**, then select **[No Highlight]** to clear the highlight filter



	Task Mode	Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
19		Erect seating t	Mon 10/02/20	Fri 28/02/20	Wed 5/02/20	Tue 25/02/20	3 days	3 days
20		Building Const	Fri 28/02/20	Fri 28/02/20	Tue 25/02/20	Tue 25/02/20	3 days	3 days
21		Fit Out	Mon 2/03/20	Fri 15/04/20	Wed 26/02/20	Fri 10/04/20	3 days	3 days
22		Fit all window	Mon 2/03/20	Fri 13/03/20	Wed 26/02/20	Tue 10/03/20	3 days	3 days
23		Install electric	Mon 2/03/20	Fri 6/03/20	Wed 26/02/20	Tue 3/03/20	3 days	3 days
24		Install electric	Mon 9/03/20	Fri 20/03/20	Wed 4/03/20	Tue 17/03/20	3 days	3 days
25		Install all plum	Mon 2/03/20	Fri 13/03/20	Wed 26/02/20	Tue 10/03/20	3 days	3 days
26		Install plumbi	Mon 16/03/20	Fri 20/03/20	Wed 11/03/20	Tue 17/03/20	3 days	3 days
27		Lay astro turf	Mon 2/03/20	Fri 6/03/20	Wed 26/02/20	Tue 3/03/20	3 days	3 days
28		Erect handrail	Mon 2/03/20	Fri 13/03/20	Wed 26/02/20	Tue 10/03/20	3 days	3 days
29		Paint rooms, fi	Thu 12/03/20	Ned 8/04/20	Mon 9/03/20	Fri 3/04/20	3 days	3 days
30		Install PA syst	Sat 7/03/20	Sun 8/03/20	Sat 7/03/20	Sun 8/03/20	0 days	0 days
31		Install video ir	Mon 9/03/20	Fri 11/03/20	Wed 4/03/20	Fri 6/03/20	3 days	3 days
32		Fit out control	Thu 9/04/20	Fri 15/04/20	Mon 6/04/20	Fri 10/04/20	3 days	3 days

For Your Reference...

To see more filters:

1. Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group
2. Select **More Highlight Filters**

Handy to Know...

- When you access the **More Highlight Filters** dialog box, the filter that is currently in use appears highlighted in the listing. This is a great way to see whether any filters are currently active in the project.

APPLYING FILTERS

While **highlight filters** will colour any tasks that match the filter criteria, the **filter** operation will hide any tasks that do not match the filter criteria. Other than the results, the way highlight filters

and normal filters work is functionally the same. In fact, both use the same filter settings even though they are presented on their own drop arrow menus.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Project Data_2.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **Incomplete Tasks**

Only incomplete tasks are now displayed...

- 2 On the **View** tab, click on the drop arrow for **Filter** and select **Completed Tasks**

Now only completed tasks are displayed...

- 3 Repeat the above steps and experiment with other filters in the list

- 4 On the **View** tab, click on the drop arrow for **Filter** and select **[No Filter]** to see all of the tasks again

	Task Name	Act. Start	Act. Finish	% Comj	Phys. % Comp.	Act. Dur.	Rem. Dur.
13	Building Construction	Mon 12/08/19	NA	99%	0%	134 days	0 days
20	Building Construction Completed	NA	NA	0%	0%	0 days	0 days
21	Fit Out	NA	NA	0%	0%	0 days	33 days
22	Fit all windows and doors	NA	NA	0%	0%	0 wks	2 wks
23	Install electrical cabling	NA	NA	0%	0%	0 wks	1 wk
24	Install electrical fittings and fixtures	NA	NA	0%	0%	0 wks	2 wks
25	Install all plumbing	NA	NA	0%	0%	0 wks	2 wks
26	Install plumbing fittings and fixtures	NA	NA	0%	0%	0 wks	1 wk
27	Lay astro turf	NA	NA	0%	0%	0 wks	1 wk
28	Erect handrails and fencing	NA	NA	0%	0%	0 wks	2 wks

1

	Task Name	Act. Start	Act. Finish	% Comj	Phys. % Comp.	Act. Dur.	Rem. Dur.
1	Planning	Mon 6/05/19	Wed 3/07/19	100%	0%	43 days	0 days
2	Create architectural plans	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks
3	Submit plans for approval	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon	0 mons
4	Order materials	Mon 24/06/19	Wed 3/07/19	100%	0%	8 days	0 days
5	Planning Completed	Wed 3/07/19	Wed 3/07/19	100%	0%	0 days	0 days
6	Site Works	Thu 4/07/19	Fri 9/08/19	100%	0%	27 days	0 days
7	Erect fencing	Thu 4/07/19	Mon 8/07/19	100%	0%	3 days	0 days
8	Erect site buildings	Tue 9/07/19	Fri 12/07/19	100%	0%	4 days	0 days
9	Clear and level site	Mon 15/07/19	Fri 2/08/19	100%	0%	3 wks	0 wks
10	Prepare drainage infrastructure	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks
11	Prepare cabling infrastructure	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks
12	Site Works Completed	Fri 9/08/19	Fri 9/08/19	100%	0%	0 days	0 days

2

For Your Reference...

To **display a filter**:

1. Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group
2. Select on the desired filter

Handy to Know...

- Unlike highlight filters where all of the data still remains on the screen, the standard filters actually hide unmatched data. Therefore, it is a good idea to use the **[No Filter]** option when you are finished so that all of the data appears again.

CREATING A CUSTOM FILTER

Once you understand how **custom filters** in Project work, you can try creating your own. A filter actually selects a task or resource based upon a **criteria** rule. The criteria rule acts upon

one or more specified **fields** by **testing** the data in the field or fields using a **value**. The testing that is done is based on a comparison such as equal to, greater than, or less than.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_2.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **New Filter** to display the **Filter Definition** dialog box
- 2 Type **Tasks With Remaining Costs** in **Name**
- 3 Click just below **Field Name** to display a drop arrow, click on the drop arrow, then scroll to and select **Remaining Cost**
- 4 Click just below **Test**, then click on the drop arrow and select **is greater than**
- 5 Click in **Value(s)** and type **0**
- 6 Click on **[Save]**

1

5

You can almost translate these filters into normal language – for example, the filter created here asks Project to “display all tasks where the Remaining Cost field shows a value greater than zero”.

For Your Reference...

To **create** a **custom filter**:

1. Click on the **View** tab, then click on the drop arrow for **Filter** and select **New Filter**
2. Specify a name for the filter then a field, a test, and a value
3. Click on **[Save]**

Handy to Know...

- When choosing a field name from the drop arrow list, type its first letter and Project will immediately jump to the first field starting with that letter.

USING A CUSTOM FILTER

When you create a custom filter it will appear in the **More Filters** dialog box of the project file in which it was created. It can be run from this location just like any other filter in the **More**

Filters dialog box. If the **Show in menu** box is ticked in the **Filter Definition** dialog box when the filter is saved, the custom filter will appear in the **Filter** drop arrow menu on the ribbon.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_3.mpp...*

- 1 Click on the **View** tab, then click on **Tables** in the **Data** group and select **Cost** to display the **Cost** table

This will make it possible to see if the filter is working...

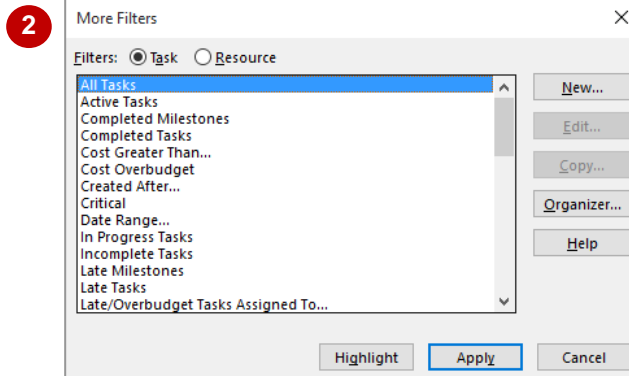
- 2 On the **View** tab, click on the drop arrow for **Highlight** in the **Data** group and select **More Highlight Filters**

- 3 Click on **Tasks With Remaining Costs**, then click on **[Highlight]** to see which tasks still have remaining costs (a value greater than zero)

- 4 Click on the drop arrow for **Highlight** again and select **More Highlight Filters**

- 5 Ensure that **Tasks With Remaining Costs** is selected, then click on **[Apply]** to apply a filter rather than a highlight

- 6 On the **View** tab, click on the drop arrow for **Filter** and select **[No Filter]** to display all of the tasks again



	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remainit
1	Planning	\$0.00	Prorated	\$29,078.85	\$29,078.85	\$0.00	\$26,578.85	\$2,500.00
2	Create architectur	\$0.00	Prorated	\$21,375.00	\$21,375.00	\$0.00	\$21,375.00	\$0.00
3	Submit plans for a	\$0.00	Prorated	\$6,100.00	\$6,100.00	\$0.00	\$3,600.00	\$2,500.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$1,603.85	\$0.00	\$1,603.85	\$0.00
5	Planning Complet	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$60,530.60	\$60,530.60	\$0.00	\$60,530.60	\$0.00
7	Erect fencing	\$15,900.00	Prorated	\$15,900.00	\$15,900.00	\$0.00	\$15,900.00	\$0.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$6,992.31	\$0.00	\$6,992.31	\$0.00

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remainit
1	Planning	\$0.00	Prorated	\$29,078.85	\$29,078.85	\$0.00	\$26,578.85	\$2,500.00
3	Submit plans for a	\$0.00	Prorated	\$6,100.00	\$6,100.00	\$0.00	\$3,600.00	\$2,500.00
21	Fit Out	\$0.00	Prorated	\$251,065.25	\$251,065.25	\$0.00	\$0.00	\$251,065.25
22	Fit all windows an	\$0.00	Prorated	\$12,405.00	\$12,405.00	\$0.00	\$0.00	\$12,405.00
23	Install electrical ca	\$0.00	Prorated	\$3,588.00	\$3,588.00	\$0.00	\$0.00	\$3,588.00
24	Install electrical fittings and	\$0.00	Prorated	\$4,851.00	\$4,851.00	\$0.00	\$0.00	\$4,851.00
25	Install all plumbin	\$0.00	Prorated	\$5,722.50	\$5,722.50	\$0.00	\$0.00	\$5,722.50

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remainit
1	Planning	\$0.00	Prorated	\$29,078.85	\$29,078.85	\$0.00	\$26,578.85	\$2,500.00
2	Create architectur	\$0.00	Prorated	\$21,375.00	\$21,375.00	\$0.00	\$21,375.00	\$0.00
3	Submit plans for a	\$0.00	Prorated	\$6,100.00	\$6,100.00	\$0.00	\$3,600.00	\$2,500.00
4	Order materials	\$0.00	Prorated	\$1,603.85	\$1,603.85	\$0.00	\$1,603.85	\$0.00
5	Planning Complet	\$0.00	Prorated	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	Site Works	\$0.00	Prorated	\$60,530.60	\$60,530.60	\$0.00	\$60,530.60	\$0.00
7	Erect fencing	\$15,900.00	Prorated	\$15,900.00	\$15,900.00	\$0.00	\$15,900.00	\$0.00
8	Erect site building	\$0.00	Prorated	\$6,992.31	\$6,992.31	\$0.00	\$6,992.31	\$0.00

For Your Reference...

To use a custom filter.

1. Click on the **View** tab, then click on the drop arrow for **Highlight** in the **Data** group and select **More Highlight Filters**
2. Click on the desired filter, then click on either **[Apply]** or **[Highlight]**

Handy to Know...

- There is virtually no operational difference between filters and highlight filters. That is why you can access a custom filter from either menu stream. The **[Apply]** button applies the filter, while the **[Highlight]** button applies a highlight filter operation.

EDITING EXISTING FILTERS

The **Filter Definition** dialog box is not only used to create new custom filters – it can also be used to edit existing filters. Indeed, it provides a useful source of information for you allowing you to see

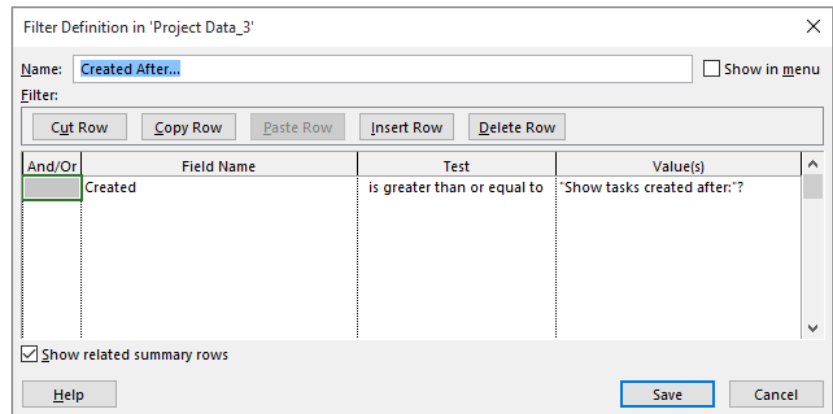
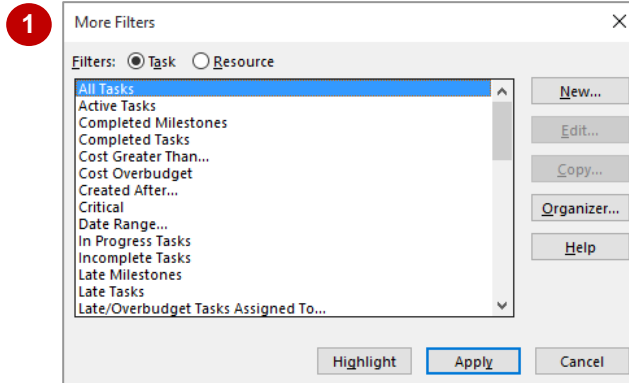
how some of the more complex filters are created. You can use it to *dissect* the filters that stop and prompt for information before they are run.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_3.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **More Filters** to display the **More Filters** dialog box
- 2 Click on **Created After**, then click on **[Edit]** to see the filter in the **Filter Definition** dialog box
Note how the prompt is shown in quotation marks and is followed by a question mark...
- 3 Click on **[Cancel]** to return to the **More Filters** dialog box
- 4 Repeat the above steps and examine some of the other filters
- 5 Click on **[Cancel]** on the **More Filters** dialog box to close it



- 2 An interactive filter, where the user is prompted for information when the filter is run, is created by placing a question mark after a prompt message in the **Value(s)** column as shown above. The prompt message must be placed in quotation marks.

For Your Reference...

To **edit** an **existing filter definition**:

1. Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **More Filters**
2. Click on the desired filter, then click on **[Edit]**

Handy to Know...

- The question mark in the **Value(s)** column forces an input box to be displayed containing the message that has been entered in quotation marks. You can use this same technique in your own custom filters.

DELETING AN UNWANTED FILTER

If you have created several custom filters, the time may come when you no longer need to have those filters. You could leave them in the project as they don't really occupy much room. However,

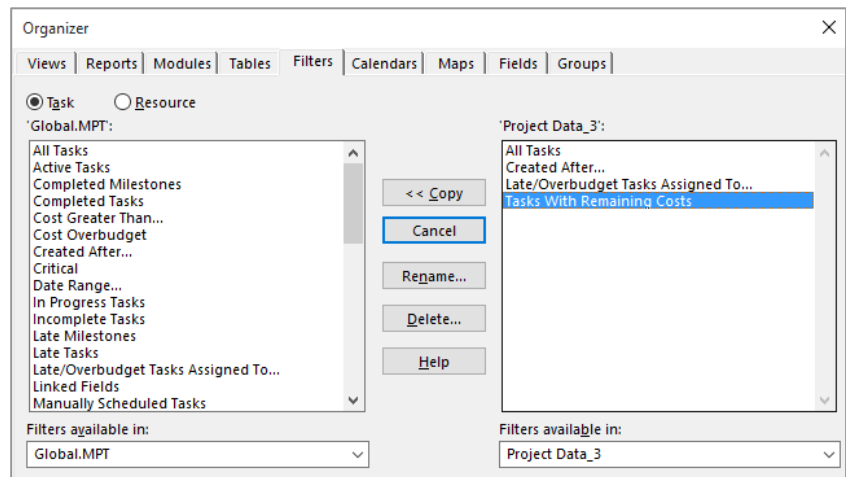
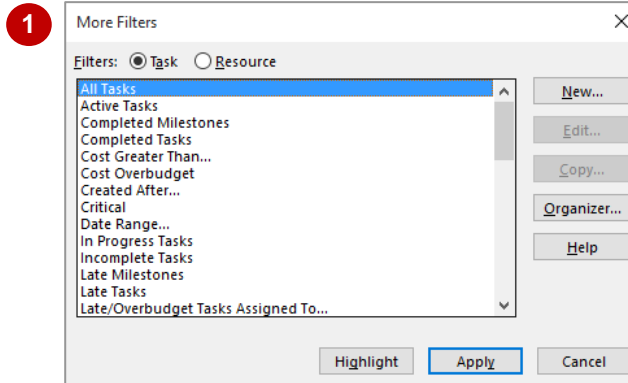
if you really need to delete a filter, perhaps because you no longer want to see the data it generates, you can delete it using Project's maintenance tool – **The Organiser**.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Project Data_3.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **More Filters** to display the **More Filters** dialog box
- 2 Click on **[Organiser]** to display the **Organiser** dialog box
- 3 Scroll to and click on **Tasks With Remaining Costs** in the list on the right side – this is the side of the open project
- 4 Click on **[Delete]**, then click on **[Yes]** when prompted for confirmation
- 5 Click on **[Close]** to close the **Organiser**
- 6 Click on **[Close]** to close the **More Filters** dialog box



For Your Reference...

To **delete** an **unwanted filter**:

1. Click on the **View** tab, then click on the drop arrow for **Filter** and select **More Filters**
2. Click on **[Organiser]**
3. Click on the filter to delete, click on **[Delete]**, then click on **[Yes]**

Handy to Know...

- The **Organiser** is used for a number of reasons, only one of which is to delete unwanted items from a project. Take a little care with this feature. There are always two lists (left and right) that you can delete from. Ensure that the correct one is selected before clicking **[Delete]**.

GROUPING TASKS

Grouping tasks is one of the tools in Project that allows you to quickly get to key data and to see at a glance what is happening in a project. As the name suggests, **grouping** actually lists tasks that

match criteria together so that they appear contiguously in the task table. For example, you can **group** together all of the incomplete tasks, milestones and summaries, and so on.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Project Data_4.mpp*...

- 1 Click on the **View** tab, then click on the drop arrow for **Group by** in the **Data** group and select **Critical**

The tasks will now be grouped into critical and non-critical tasks...

- 2 Click on the drop arrow for **Group by** and select **Complete and Incomplete Tasks** to view this grouping

- 3 Click on the drop arrow for **Group by** and select **Milestones** to view this grouping

- 4 Repeat the above steps and try several other groupings

- 5 Click on the drop arrow for **Group by** and select **[No Group]**

	Task Name	Act. Start	Act. Finish	% Coml	Phys. % Comp.	Act. Dur.	Rem. Dur.
	▲ Critical: No	Mon 6/05/19	Fri 28/02/20	81%		77.39 days	41.61 days
2	Create architectural plans	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks
3	Submit plans for approval	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon	0 mons
4	Order materials	Mon 24/06/19	Wed 3/07/19	100%	0%	8 days	0 days
5	Planning Completed	Wed 3/07/19	Wed 3/07/19	100%	0%	0 days	0 days
7	Erect fencing	Thu 4/07/19	Mon 8/07/19	100%	0%	3 days	0 days
8	Erect site buildings	Tue 9/07/19	Fri 12/07/19	100%	0%	4 days	0 days
9	Clear and level site	Mon 15/07/19	Fri 2/08/19	100%	0%	3 wks	0 wks
10	Prepare drainage infrastructure	Mon 5/08/19	Fri 9/08/19	100%	0%	1 wk	0 wks

1

	Task Name	Act. Start	Act. Finish	% Coml	Phys. % Comp.	Act. Dur.	Rem. Dur.
	▲ % Complete: 0%	NA	NA	0%		0 days	42 days
20	Building Construction Completed	NA	NA	0%	0%	0 days	0 days
22	Fit all windows and doors	NA	NA	0%	0%	0 wks	2 wks
23	Install electrical cabling	NA	NA	0%	0%	0 wks	1 wk
24	Install electrical fittings and fixtures	NA	NA	0%	0%	0 wks	2 wks
25	Install all plumbing	NA	NA	0%	0%	0 wks	2 wks
26	Install plumbing fittings and fixtures	NA	NA	0%	0%	0 wks	1 wk

2

	Task Name	Act. Start	Act. Finish	% Coml	Phys. % Comp.	Act. Dur.	Rem. Dur.
	▲ Milestone: Yes	Wed 3/07/19	Fri 9/08/19	0%		0 days	203 days
5	Planning Completed	Wed 3/07/19	Wed 3/07/19	100%	0%	0 days	0 days
12	Site Works Completed	Fri 9/08/19	Fri 9/08/19	100%	0%	0 days	0 days
20	Building Construction Completed	NA	NA	0%	0%	0 days	0 days
33	Fit Out Completed	NA	NA	0%	0%	0 days	0 days
42	Commissioning Completed	NA	NA	0%	0%	0 days	0 days
	▲ Milestone: No	Mon 6/05/19	Fri 28/02/20	68%		67.28 days	78.72 days
2	Create architectural plans	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks	0 wks

3

For Your Reference...

To **group tasks** in a **project**:

1. Click on the **View** tab
2. Click on the drop arrow for **Group by** in the **Data** group and select the desired grouping

Handy to Know...

- Tasks are rearranged only visually when they are grouped. They still retain their original **IDs** which means that when the grouping is removed the tasks will return to their original positions.

USING AUTOFILTERS

Autofilters are a common feature in Microsoft applications that display data in tables. An **autofilter** allows the data to be filtered in situ and uses values from the actual list as criteria. An

autofilter is available in Project when tiny arrows appear next to the column headings in a table. In Project, **autofiltering** needs to be switched on before it can be used.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file Project Data_4.mpp...

- 1 Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data** group and select **Display AutoFilter** – if small arrows aren't visible next to the column headings, as shown, repeat this step
- 2 Click on the filter arrow for **Task Name** to display the filter menu
- 3 Scroll the slider up and click on the tick box to the left of **Select All** until all ticks are removed
- 4 Click on the tick box next to **Commissioning** so it appears ticked
- 5 Click on **[OK]** to see only the Commissioning tasks
- 6 Click on the **Filter** symbol next to **Task Name** and click on **Clear All Filters** to display all of the tasks again

	Task Name	Act. Start	Act. Finish	% Com	Phys. % Comp.	Act. Dur.
1	Planning	Mon 6/05/19	Wed 3/07/19	100%	0%	43 days
2	Create architectural plans	Mon 6/05/19	Fri 24/05/19	100%	0%	3 wks
3	Submit plans for approval	Mon 27/05/19	Fri 21/06/19	100%	0%	1 mon
4	Order materials	Mon 24/06/19	Wed 3/07/19	100%	0%	8 days
5	Planning Completed	Wed 3/07/19	Wed 3/07/19	100%	0%	0 days
6	Site Works	Thu 4/07/19	Fri 9/08/19	100%	0%	27 days
7	Erect fencing	Thu 4/07/19	Mon 8/07/19	100%	0%	3 days
8	Erect site buildings	Tue 9/07/19	Fri 12/07/19	100%	0%	4 days

- 1
- 2

	Task Name	Act. Start	Act. Finish	% Com	Phys. % Comp.
1	Sort A to Z	Mon 6/05/19	Wed 3/07/19	100%	0%
2	Sort Z to A	Mon 6/05/19	Fri 24/05/19	100%	0%
	Group by	Mon 27/05/19	Fri 21/06/19	100%	0%
	No Group	Mon 24/06/19	Wed 3/07/19	100%	0%
	Clear All Filters	Wed 3/07/19	Wed 3/07/19	100%	0%
	Filters	Thu 4/07/19	Fri 9/08/19	100%	0%
	<input checked="" type="checkbox"/> Pour foundations <input checked="" type="checkbox"/> Commissioning <input checked="" type="checkbox"/> Commissioning Compl <input checked="" type="checkbox"/> Obtain official occupat <input checked="" type="checkbox"/> Obtain safety certificat <input checked="" type="checkbox"/> Official opening <input checked="" type="checkbox"/> Test control room equi <input checked="" type="checkbox"/> Test PA system <input checked="" type="checkbox"/> Test roof mechanism <input checked="" type="checkbox"/> Test video imaging equ <input checked="" type="checkbox"/> Fit Out <input checked="" type="checkbox"/> Erect handrails and fer <input checked="" type="checkbox"/> Fit all windows and dc <input checked="" type="checkbox"/> Fit Out Completed	Thu 4/07/19	Mon 8/07/19	100%	0%
		Tue 9/07/19	Fri 12/07/19	100%	0%
		Mon 15/07/19	Fri 2/08/19	100%	0%
		Mon 5/08/19	Fri 9/08/19	100%	0%
		Mon 5/08/19	Fri 9/08/19	100%	0%
		Fri 9/08/19	Fri 9/08/19	100%	0%
		Mon 12/08/19	NA	99%	0%
		Mon 12/08/19	Thu 15/08/19	100%	0%
		Tue 20/08/19	Mon 11/11/19	100%	0%
		Tue 12/11/19	Tue 21/01/20	100%	0%
		Mon 27/01/20	Fri 7/02/20	100%	0%
		Mon 10/02/20	Fri 14/02/20	100%	0%

For Your Reference...

To **use autofilters**:

1. Click on the **View** tab, then click on the drop arrow for **Filter** in the **Data Group** and select **Display Autofilter**
2. Click on the filter drop arrow next to a column heading

Handy to Know...

- When an **autofilter** is actively in use the drop arrow next to the column heading where the filter is being used changes to a filter symbol rather than an arrow.

CHAPTER 9

InFocus

FORMATTING PROJECTS

Formatting in computer applications refers to changing the appearance of objects and data. Formatting is used to either highlight aspects of the data or just make it more visually appealing. It can also be used to create some corporate identity and branding within a project.

Most applications have a generous array of commands or options on the ribbon for formatting data. Project does too, but in reality most of its commands and options are found in dialog boxes rather than specific options on the ribbon.

In this session you will:

- ✓ gain an understanding of the timescale
- ✓ learn how to change the time periods on the timescale
- ✓ learn how to show different levels of tiers on the timescale
- ✓ learn how to modify a specific tier on the timescale
- ✓ learn how to format non-working time in a **Gantt Chart**
- ✓ learn how to change the text styles in a project
- ✓ learn how to work with gridlines in a project
- ✓ learn how to display progress lines in a project
- ✓ learn how to format progress lines
- ✓ learn how to change the layout in a project
- ✓ gain an understanding of formatting **Gantt Chart** bars
- ✓ learn how to change **Gantt Chart** styles
- ✓ learn how to change the text shown on **Gantt Chart** bars
- ✓ learn how to format the bars of selected tasks
- ✓ learn how to change the bar styles in a project.

UNDERSTANDING THE TIMESCALE

The timescale appears at the top of the Gantt Chart. It is used to provide a measure of time within the Gantt Chart across which the progress of tasks can be seen. Since some projects last

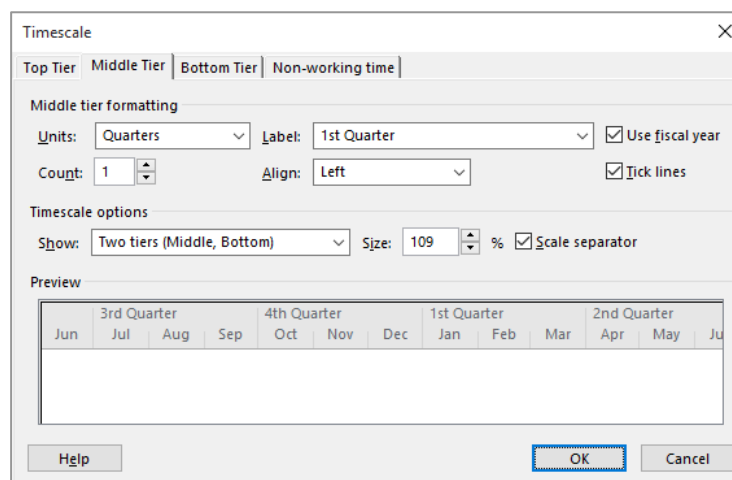
for months or even years, while others may last just days, there must be some adjustment that can be made to the times shown on the scale.

Purpose of the Timescale

The purpose of the timescale is to provide a project with a measure of time. The timescale can be adjusted to show hours at one extreme and years at the other.

Obviously the scale you need will be determined by the length of your project. For long projects you may want to show the timescale in months, quarters, or even years. For short projects you may want to see what is happening on an hourly basis.

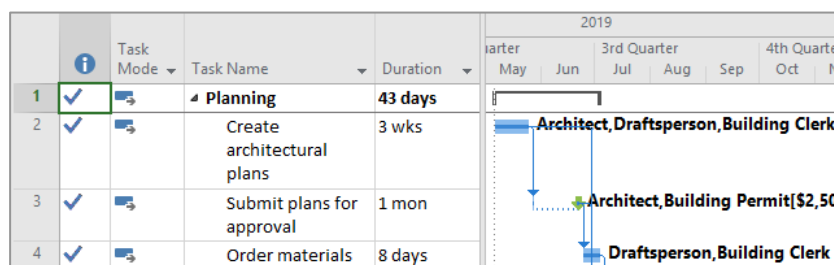
Changes are made to the **Timescale** by clicking on a drop arrow menu or by using the **Timescale** dialog box.



Timescale Tiers

To provide even more detail, the timescale comprises of three tiers. Each tier can represent a different timescale shown in hierarchical order from the bottom tier to the top tier. For example, the top tier can be used to show years, the second months, and the third, or bottom tier, can be used to show days.

Each tier can be customised to show what you want. In addition, you can opt to hide tiers if they are not needed. As a default only the bottom two tiers are shown in a new project.



Non-Working Time

Another part of the timescale is the non-working indicator. Again in a default project non-working time appears as a grey vertical band. For example, if Saturday and Sunday are deemed to be non-working days they will appear as grey in the Gantt Chart.

You can change the way the non-working time appears and even opt to hide any formatting for these periods so that they blend in with the rest of the days.

CHANGING TIME PERIODS

The **Timescale** on a **Gantt Chart** is made up of tiers. There are three **tiers** that can be displayed, but in a default project only two **tiers** are visible. Each tier is made up of time increments which

reflect time periods in the project. The options that appear when you click on the **Timescale** drop arrow can be selected to change the tiers currently on display in your **Gantt** chart.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Formatting_1.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group
- 2 Select **Weeks** and notice how the timescale changes
- 3 On the **View** tab, click on the drop arrow for **Timescale** and select **Thirds of Months** to display this timescale
- 4 Point to **M** for the month of **July** to see which time period is covered
- 5 Repeat the above steps and experiment with the other periods
- 6 Set the timescale to months

1

2

3

4

6

For Your Reference...

To **change time periods** on the **timescale**:

1. Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group
2. Select the desired time period

Handy to Know...

- **Thirds of Months** can be a little tricky to work out. They actually show three periods in a month – the **beginning**, **middle** and **end**.

SHOWING TIERS

The timescale is made up of up to three tiers each representing a time period. The tiers are normally adjusted in tandem when you use the zoom arrow **Timescale** options. However, you

can specifically manipulate the tiers, including making them visible or hidden, using the **Timescale** dialog box.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Formatting_2.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select **Timescale** to display the **Timescale** dialog box
- 2 Click on the drop arrow for **Show** to see the options available
- 3 Select **One tier (Middle)**, then click on [OK] to see only the middle tier in the timescale
- 4 On the **View** tab, click on the drop arrow for **Timescale** and select **Timescale** to display the dialog box
- 5 Click on the drop arrow for **Show** and select **Three tiers (Top, Middle, Bottom)**
- 6 Click on [OK] to see how this has affected the timescale

The image shows two screenshots of the **Timescale** dialog box and a project Gantt chart. The first screenshot shows the **Timescale** dialog box with the **Show** dropdown set to **Two tiers (Middle, Bottom)**. The second screenshot shows the same dialog box with the **Show** dropdown set to **One tier (Middle)**. The third screenshot shows the project Gantt chart with the **Timescale** dialog box open, showing the **Show** dropdown set to **Three tiers (Top, Middle, Bottom)**. The Gantt chart shows a task named **Planning** with a duration of 43 days, and a task named **Site Works** with a duration of 27 days. The Gantt chart also shows a task named **Architect, Draftsperson, Building Clerk** with a duration of 3 wks, and a task named **Architect, Building Permit(\$2,500)** with a duration of 1 mon. The Gantt chart also shows a task named **Draftsperson, Building Clerk** with a duration of 8 days, and a task named **Planning Completed** with a duration of 0 days.

For Your Reference...

To see more tiers on the **timescale**:

1. Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select **Timescale**
2. Click on the drop arrow for **Show** in **Timescale** and select the desired option

Handy to Know...

- Swapping and changing tier levels can make your timescale disorganised. It is a good idea to leave the number of tiers alone once you've finally decided upon how many you need for your project.

MODIFYING SPECIFIC TIERS

If you have badly messed up your timescale, you can edit the time periods shown on the individual **tiers** to make the overall timescale appear and behave as you need. This is done using the

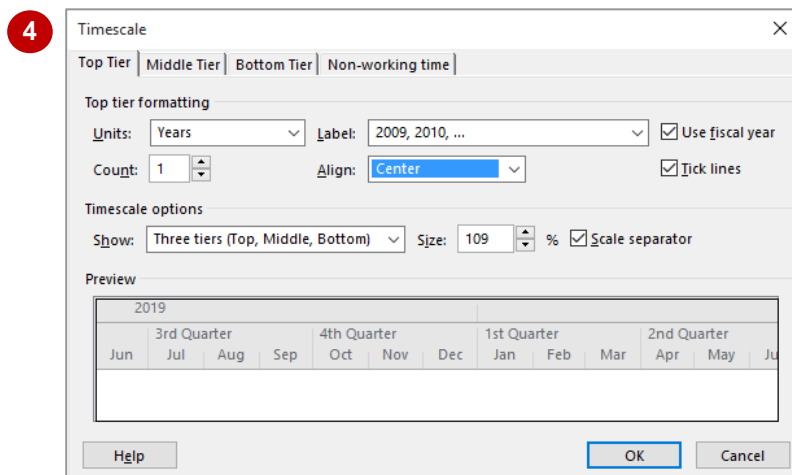
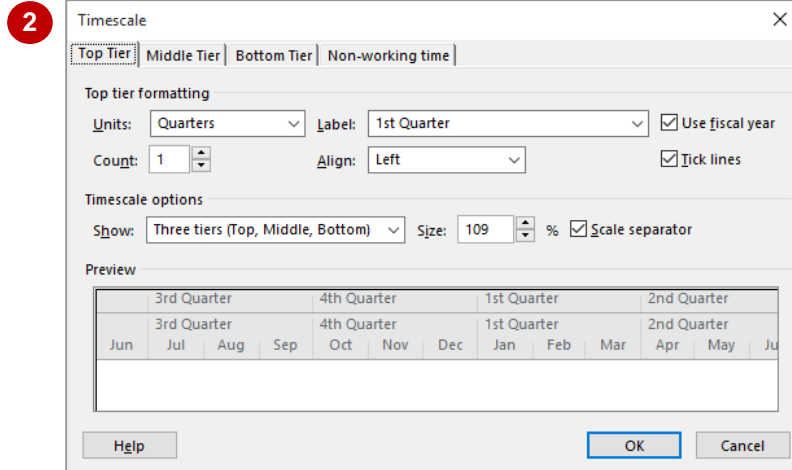
Timescale dialog box which, if you examine it closely, has a tab for each of the tiers in the timescale.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Formatting_3.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select **Timescale** to display the dialog box
- 2 Click on the **Top Tier** tab
- 3 Click on the drop arrow for **Units** and select **Years**
- 4 Click on the drop arrow for **Align** and select **Centre**
- 5 Click on **[OK]** to update the first tier of the timescale



5

	Task Mode	Task Name	Duration	2019
1	✓	Planning	43 days	May Jun Jul Aug Sep Oct Nov Dec
2	✓	Create architectural plans	3 wks	Architect, Draftsperson, Building Clerk
3	✓	Submit plans for approval	1 mon	Architect, Building Permit [\$2,500]
4	✓	Order materials	8 days	Draftsperson, Building Clerk

For Your Reference...

To **modify specific** tiers:

1. Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select **Timescale**
2. Click on the tier to change and make the appropriate adjustments

Handy to Know...

- When using **Years** as a **Unit** you have some interesting label choices. Use the **Label** drop arrow to see the available options.

FORMATTING FOR NON-WORKING TIME

In its default mode, **non-working time** normally appears shaded in the Gantt chart. Using options on the **Non-working time** tab in the **Timescale** dialog box, you can change the colour of the

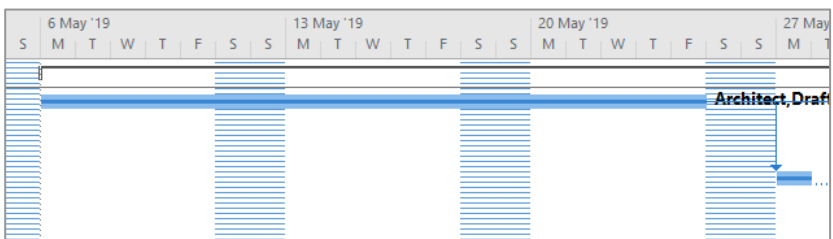
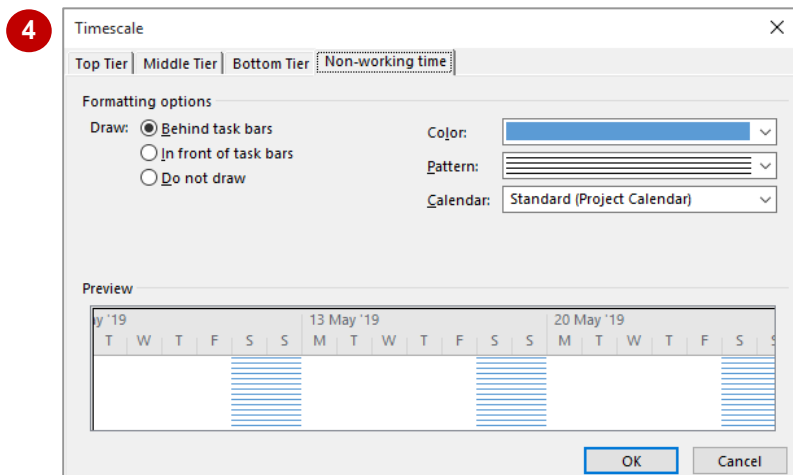
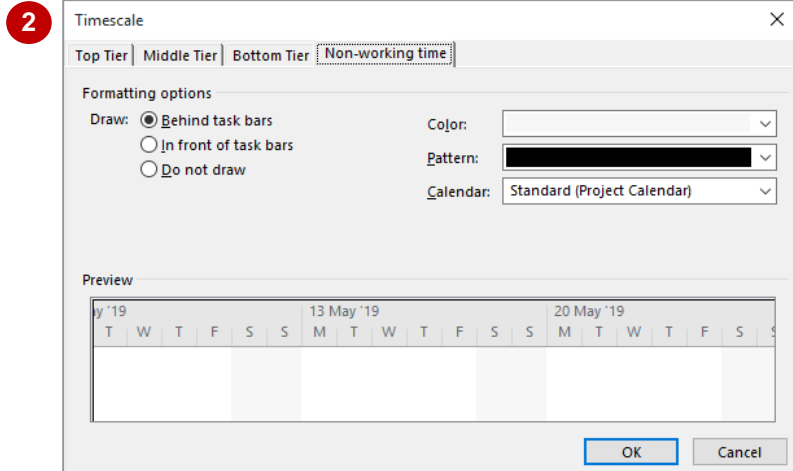
shading and the pattern effect that is used for it. You can even choose to switch off the display of non-working time altogether.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Formatting_4.mpp...*

- 1 Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select **Timescale** to display the **Timescale** dialog box
- 2 Click on the **Non-working time** tab
- 3 Click on the drop arrow for **Colour** and select a bluish colour
- 4 Click on the drop arrow for **Pattern** and select the option with horizontal stripes
- 5 Click on [OK]
A horizontally striped pattern should now appear in the non-working day columns – in our example it will mostly be the weekend days



For Your Reference...

To **format non-working time**:

1. Click on the **View** tab, then click on the drop arrow for **Timescale** in the **Zoom** group and select on **Timescale**
2. Click on the **Non-working time** tab and adjust the settings as appropriate

Handy to Know...

- You can place the non-working time vertical bars in front of or behind the tasks bars or even choose not to display them at all. Placing them in front is not a good idea if you have labels on your task bars.

CHANGING TEXT STYLES

Styles are used in many computer applications to make quick changes to large parts of a document or file. Project allows you to format text using the standard formatting options on the **Task** tab.

However, you can also make changes to the style of specific text such as milestones, summary tasks, bar text, and the like, simultaneously using the **Text Styles** feature.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *Formatting_5.mpp...*

1 Click on the **Gantt Chart Tools: Format** tab, then click on **Text Styles** in the **Format** group to display the **Text Styles** dialog box

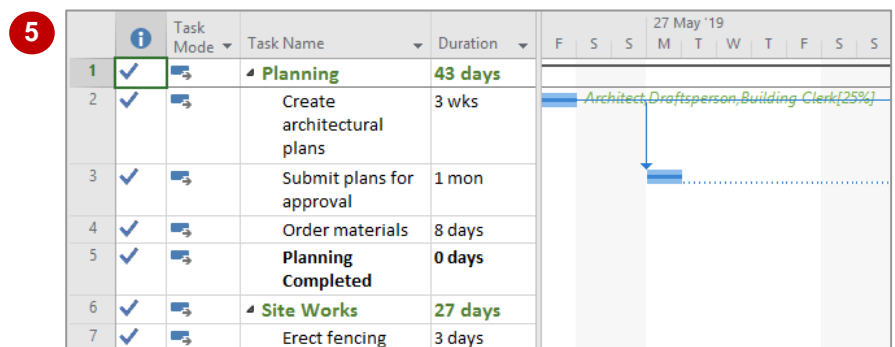
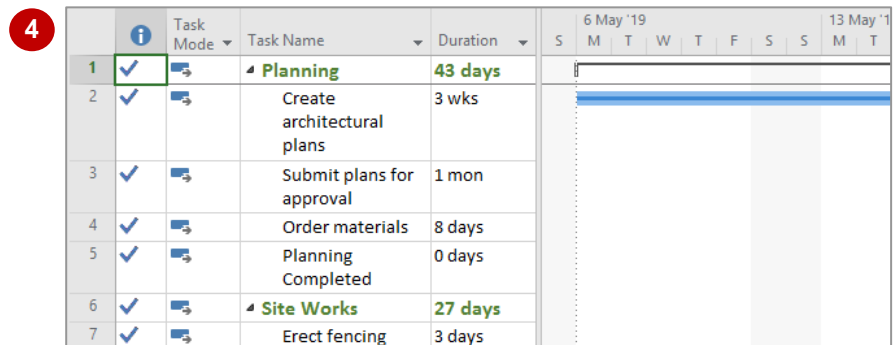
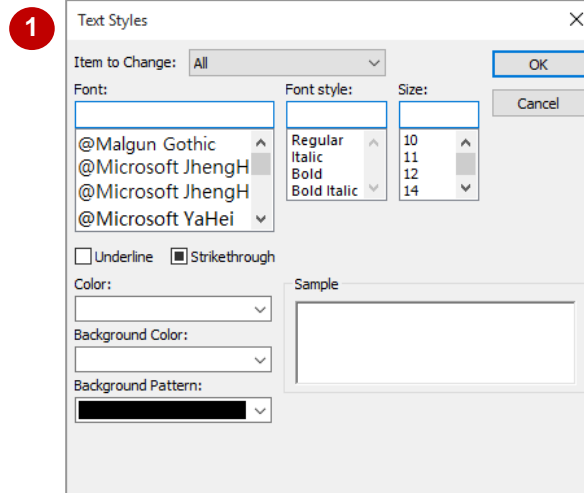
2 Click on the drop arrow for **Item to Change** to see the various text items that can be changed, then select **Summary Tasks**

3 Click on the drop arrow for **Colour** and select **Green, Darker 25%**

4 Click on **12** in **Size**, then click on **[OK]** to apply the changes

5 Repeat the above steps and change the following:

Milestone Tasks – Bold, 11pt
Bar Text Right – Green, Italic, 9 pt



For Your Reference...

To **change** the **text styles** in a **project**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Text Styles** in the **Format** group
2. Select the **Item to Change** and apply the desired formatting

Handy to Know...

- The commands that are presented on the **Format** tab are decided by the current view you are in. The line at the top of the **Format** tab indicates the current view – you will only receive the formatting tools relevant to this view.

WORKING WITH GRIDLINES

For larger projects with many Gantt bars it sometimes pays to display **gridlines** in the Gantt chart to help your readers focus on specific tasks. Project provides a fair bit of scope for displaying

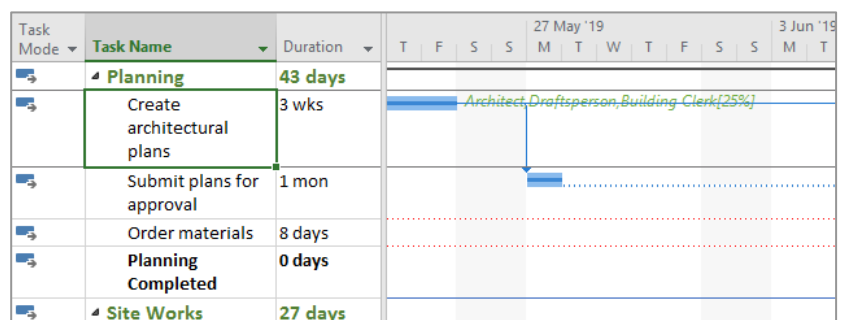
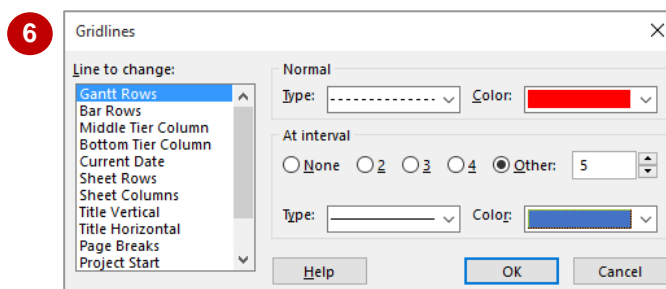
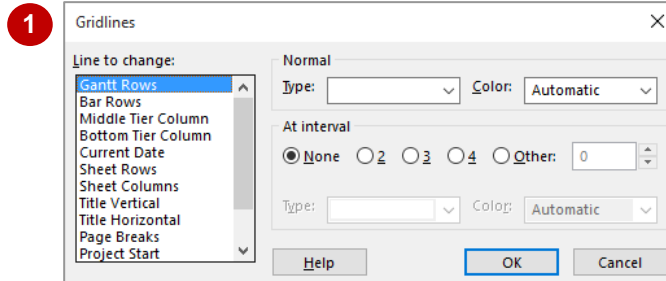
and formatting gridlines in a chart, and even has a **Gridlines** dialog box that contains all of the settings.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Formatting_6.mpp...*

- 1 Click on the **Gantt Chart Tools: Format** tab, then click on **Gridlines** in the **Format** group and select **Gridlines** to display the **Gridlines** dialog box
- 2 Click on the drop arrow for **Type** and select the dotted line
- 3 Click on the drop arrow for **Colour** and select a red colour
- 4 Click on **Other** in **At interval** and ensure that it shows **5**
- 5 Click on the drop arrow for **Type** in **At interval** and select the solid line
- 6 Click on the drop arrow for **Colour** in **At interval** and select a blue colour
- 7 Click on **[OK]** to see horizontal grid lines in the Gantt chart



For Your Reference...

To **display gridlines**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Gridlines** in the **Format** group and select **Gridlines**
2. Select the **Line to change**
3. Adjust the line and colour settings as desired

Handy to Know...

- It's worth investigating the **Line to change** options in the **Gridlines** dialog box. This option allows you to change quite a few lines such as vertical lines for timescale tiers, page breaks, and more.

DISPLAYING PROGRESS LINES

Progress lines are vertical lines that drop from the timescale and descend through the Gantt chart. Progress lines are used to indicate the progress of tasks. If tasks are on schedule, the

lines drop vertically through the task. If a task is ahead of schedule the line points forward, and if the task is behind the line points backwards.

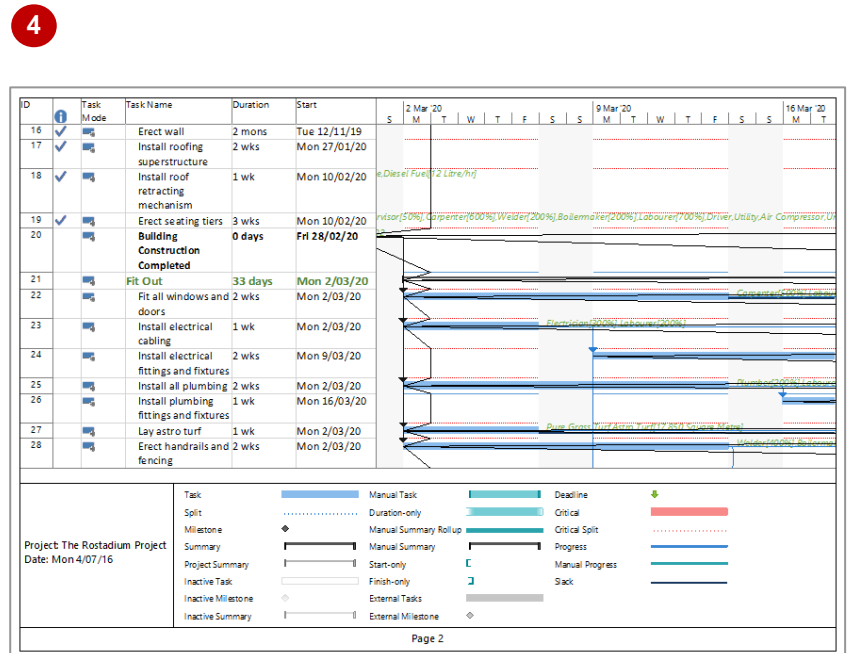
Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Formatting_7.mpp*...

- 1 Scroll the screen and the **Gantt Chart** so that you can see the **Fit Out** tasks
- 2 Click on the **Gantt Chart Tools: Format** tab, then click on **Gridlines** in the **Format** group and select **Progress Lines** to display the **Progress Lines** dialog box
- 3 Click in the tick box for **Display** in **Selected progress lines** so it appears ticked
- 4 Click on the dark cell that has appeared, type **2/3/20**, click in the next cell, type **15/4/20** and click on the next cell
- 5 Click on [OK]
Nothing has changed...
- 6 Click on the **File** tab, then click on **Print** to view the project in Print Preview
- 7 In **Settings**, click in the first **Dates** field and type **2/3/20**, click in the second field and type **15/4/20**, then click through the pages in the right pane to view the progress lines

The progress lines appear as black diagonal lines on the Gantt Chart timeline



- 7 The default formatting for progress lines can make them a little tricky to decipher. Basically, any line that points right indicates a task ahead of schedule, while any line pointing left indicates a task behind schedule.

For Your Reference...

To **display progress lines** in a **project**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Gridlines** in the **Format** group and select **Progress Lines**
2. Enter the period details as desired

Handy to Know...

- At the time this manual was written, Project 2016 had a bug which caused progress lines to not appear in the Gantt Chart timeline. In order to view progress lines, you must display the project in Print Preview.

WORKING WITH PROGRESS LINES

You can have as many or as few **progress lines** in a Gantt chart as you like. When you have more than one and they are relatively close together then it can sometimes be difficult to see precisely

what is going on in the project. Fortunately, you can format progress lines (in much the same way as gridlines) to help make them easier to work with.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Formatting_8.mpp...*

- 1 Ensure that the **Fit Out** tasks and Gantt bars are visible on the screen
- 2 Double-click on **Fit all windows and doors** to display the **Task Information** dialog box, then click on the **General** tab
- 3 Change the percentage complete to **70%**, then click on **[OK]** to change the progress bars
- 4 Click on the **Gantt Chart Tools: Format** tab, click on **Gridlines** and select **Progress Lines** to display the **Progress Lines** dialog box, then click on the **Line Styles** tab
- 5 Click on the top right design, then specify settings for **All other progress lines** as follows:
Line colour – red
Progress point shape – star
Progress point colour – green
- 6 Click on **[OK]**, then display the project in Print Preview to see the progress lines more clearly than before

Task Mode	Task Name	Duration	Start	S	S	M	T	W	T	F	S	S	M	T	W	T	F
21	Fit Out	33 days	Mon 2/03/20														
22	Fit all windows and doors	2 wks	Mon 2/03/20														
23	Install electrical cabling	1 wk	Mon 2/03/20														
24	Install electrical fittings and	2 wks	Mon 9/03/20														

3

Progress Lines

Dates and Intervals | Line Styles

Progress line type

Line style

Current progress line:

All other progress lines:

Line type:

Line color:

Progress point shape:

Progress point color:

Date display

☐ Show date for each progress line

Format: 28/01/09, 29/01/09, ...

Change Font...

Help OK Cancel

5

ID	Task Mode	Task Name	Duration	Start	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T
16	✓	Erect wall	2 mons	Tue 12/11/19																		
17	✓	Install roofing superstructure	2 wks	Mon 27/01/20																		
18	✓	Install roof retracting mechanism	1 wk	Mon 10/02/20																		
19	✓	Erect seating tiers	3 wks	Mon 10/02/20																		
20		Building Construction Completed	0 days	Fri 28/02/20																		
21		Fit Out	33 days	Mon 2/03/20																		
22		Fit all windows and doors	2 wks	Mon 2/03/20																		
23		Install electrical cabling	1 wk	Mon 2/03/20																		
24		Install electrical fittings and fixtures	2 wks	Mon 9/03/20																		
25		Install all plumbing	2 wks	Mon 2/03/20																		
26		Install plumbing fittings and fixtures	1 wk	Mon 16/03/20																		
27		Lay astro turf	1 wk	Mon 2/03/20																		
28		Erect handrails and fencing	2 wks	Mon 2/03/20																		

6

For Your Reference...

To **format progress lines** in a **project**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Gridlines** and select **Progress Lines**
2. Click on the **Line Styles** tab
3. Change the settings as desired

Handy to Know...

- Experiment with the formatting to get the result you desire – it may take a bit of trial and error. Choose the **Show date for each progress line** option if you want the date to appear at the top of each progress line.

CHANGING THE LAYOUT

Sometimes, especially when there are quite a few intricate and complex tasks in a Gantt chart, you may find that the linking lines between the tasks get cluttered. Project allows you to change

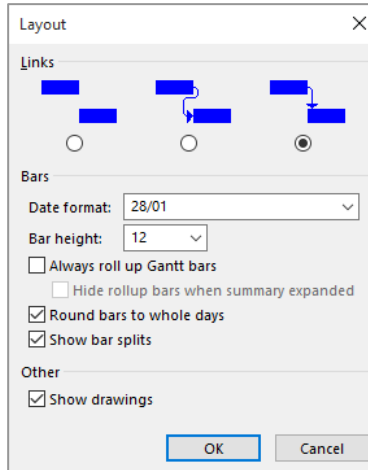
the way the linking lines are presented through its **Layout** dialog box. Here you can specify a link style, the height of the bars, how the dates are formatted on the bars, and more.

Try This Yourself:

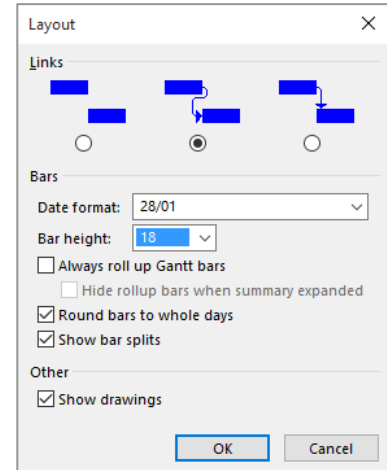
Open
File

Before starting this exercise you **MUST** open the file *Formatting_9.mpp...*

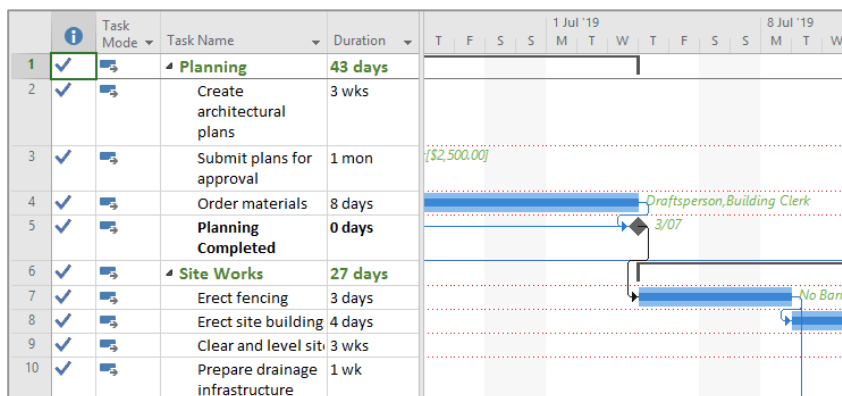
- 1 Click on the **Gantt Chart Tools: Format** tab, then click on **Layout** in the **Format** group to display the **Layout** dialog box
- 2 Click on the middle link style (this is known as the “s” shape)
- 3 Click on the drop arrow for **Bar height** and select **18**
- 4 Click on [OK] to see the changes in the layout
- 5 Repeat the above steps and experiment with some of the other layout changes



1



3



4

For Your Reference...

To **change** the **Gantt chart layout**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Layout** in the **Format** group
2. Change the settings as desired

Handy to Know...

- Of the three link styles available the first has no lines and is the cleanest of all. The “s” shape (middle) separates the lines but can be cluttered. If you need to have link lines the “l” shape (third) presents less clutter than the “s” shape.

UNDERSTANDING GANTT CHART BARS

Project provides you with a great deal of scope for changing the way that the Gantt chart bars appear in a project. You can add or remove text, format the colour and shapes used in selected

bars, or change the appearance of a particular style of bar. However, a good understanding of how all of these options work is important before you proceed.

Applying Quick Styles

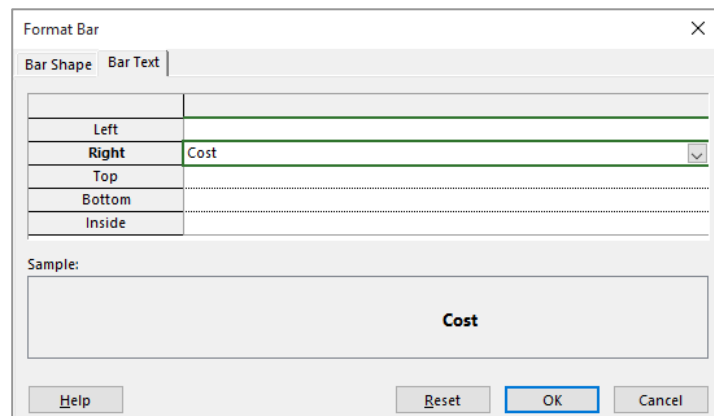
The quickest way to format the appearance of the Gantt chart is to use one of the preset quick **styles** that can be found in the **Gantt Chart Style** grouping on the **Format** tab. These are a great first step in getting your project to appear the way you want. Choose one of the styles here first and then use the options and commands presented below to tweak and fine tune the formatting.



Selective Bar Formatting

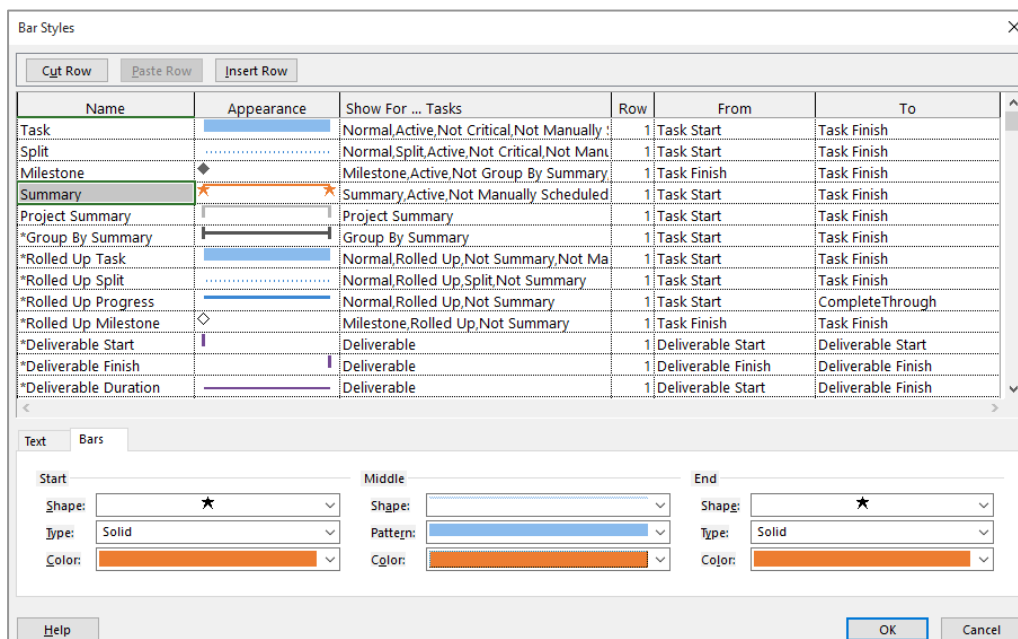
To highlight or draw attention to *specific* tasks in the project through formatting you can use the options available to you in the **Format Bar** dialog box. This dialog box requires you to select the specific tasks to format prior to accessing the dialog box.

This dialog box contains two tabs. **Bar Text** allows you to nominate what text to display inside or around a task bar. **Bar Shape** allows you to specify how the bars for the selected tasks should appear.



Formatting Bar Styles

To change the formatting of bars that belong to a specific style or type of bar you'll need to access the **Bar Styles** dialog box. This complex dialog box allows you to choose the type of bar (e.g. summary task, milestone task, etc.) to format. Once you've made the changes and applied the settings, all of the bars in your project that are of that particular type will change.



CHANGING GANTT CHART STYLES

Microsoft Project provides a number of tools and features for changing the way the Gantt chart appears. **Gantt Chart Styles**, which occupy the larger part of the **Format** tab on the ribbon,

would, at first, appear to offer a lot of options. In reality these are more like quick styles which will change the colouring of your Gantt chart bars but little else.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *Formatting_10.mpp*...

1

Click on the **Gantt Chart Tools: Format** tab, then click on **More** for the **Gantt Chart Style** gallery and spend a few moments studying the options that appear

2

Click on the orange option under **Scheduling Styles**

Notice how the colours of the bars change in the Gantt chart...

3

Click on **More** again for the style gallery to see the entire palette of styles, then click on the second scheduling style

1

2

3

For Your Reference...

To **change Gantt Chart Styles**:

1. Click on the **Gantt Chart Tools: Format** tab
2. Click on the desired style

Handy to Know...

- The only real difference between **Scheduling** and **Presentation** styles is that **Scheduling** provides two colours for bars while **Presentation** only one. Notice also that a name or tip does not appear when a style is highlighted.

CHANGING BAR TEXT

Project allows you to specify text that can be placed around a task bar on the Gantt chart in any of four locations: top, right, bottom and left. Although it would look very cluttered to have text

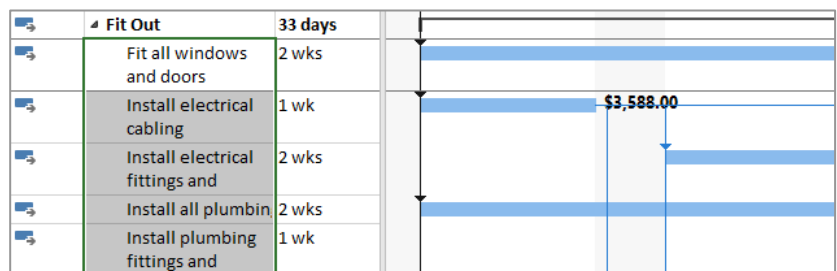
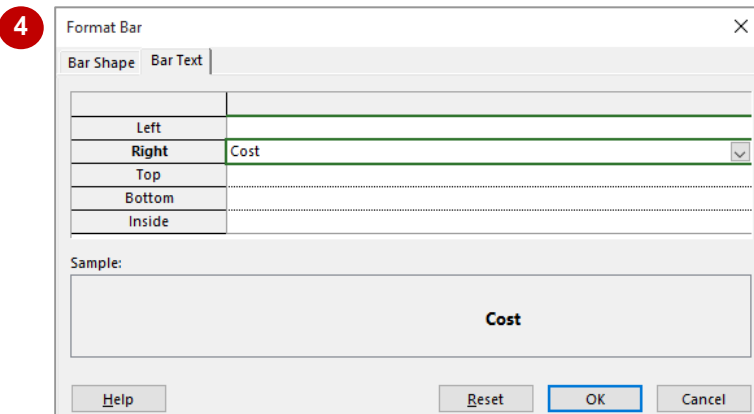
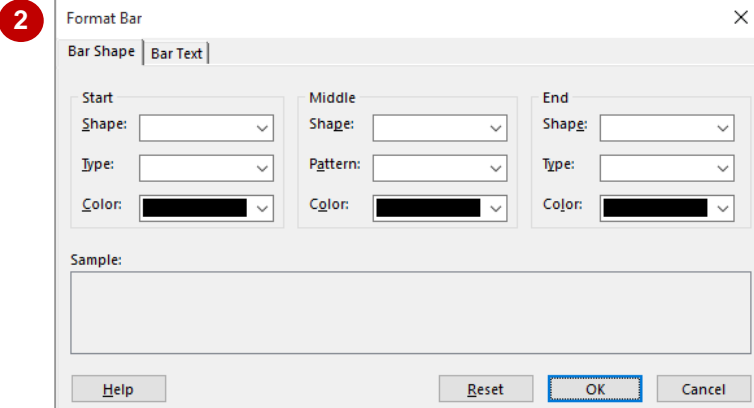
in all four quadrants you could have text either top and bottom, or left and right. The text is displayed by placing the appropriate field in the desired location.

Try This Yourself:

Open
File

Before starting this exercise you **MUST** open the file *Formatting_11.mpp...*

- 1 Click on the **Fit all windows and doors** task, then hold down **Shift** and click on **Fit out control room** to select the fit out tasks
- 2 Click on the **Gantt Chart Tools: Format** tab, then click on **Format** in the **Bar Styles** group and select **Bar** to display the **Format Bar** dialog box
- 3 Click on the **Bar Text** tab to see the bar text settings currently applied to the selected tasks
- 4 Click in the **Right** cell, click on the drop arrow, then scroll to and select **Cost**
- 5 Click on **[OK]** to see the change applied to the bar of the selected tasks



For Your Reference...

To **change** the **text** shown on a **Gantt Chart bar**:

1. Select the task(s) to change
2. Click on the **Gantt Chart Tools: Format** tab, then click on **Format** in the **Bar Styles** group and select **Bar**
3. Click on the **Bar Text** tab and change the settings as desired

Handy to Know...

- You can change the bar text for selected tasks or for the entire task list. To change the entire task list, click on the **Task Name** heading to select all of the tasks and then proceed as shown here.

Using the options in the **Format Bar** dialog box you can change the bar formatting for specific tasks in the project. This can be used to highlight one or more tasks so that they stand out from the

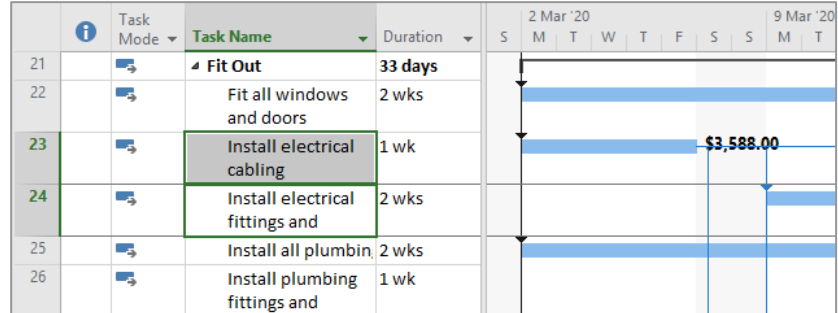
rest of the tasks. Using the options available you can change the colour of the bar, its end markers, and more.

Try This Yourself:

Same File

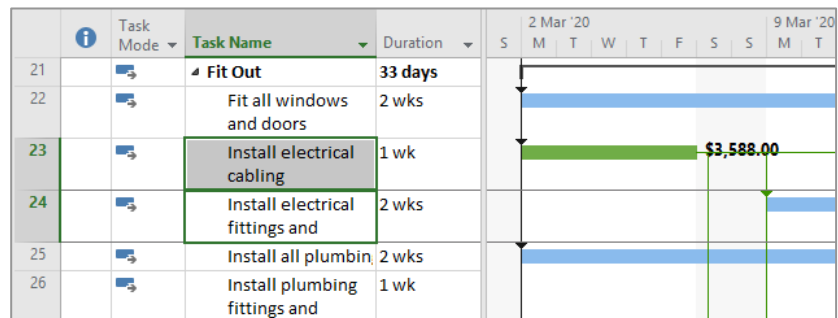
Continue using the previous file with this exercise, or open the file *Formatting_12.mpp...*

- 1 Click on the **Install electrical cabling** task, hold down the **Ctrl** key and click on the **Install electrical fittings and fixtures** task to select both of the tasks
- 2 Click on the **Gantt Chart Tools: Format** tab, then click on **Format** in the **Bar Styles** group and select **Bar** to display the **Format Bar** dialog box
- 3 Click on the **Bar Shape** tab to see the bar shape settings
- 4 Click on the drop arrow for **Colour** in the **Middle** section and select the green colour
- 5 Click on **[OK]** to see only the bars for the selected tasks in a green colour



1

3



5

For Your Reference...

To **format specific bars** on a **Gantt Chart**:

1. Select the tasks to change
2. Click on the **Gantt Chart Tools: Format** tab, then click on **Format** and select **Bar**
3. Click on the **Bar Shape** tab and change the settings as desired

Handy to Know...

- It is recommended that you only format the bars of very important or specific tasks. Using too much bar formatting can make your project confusing and difficult to interpret.

CHANGING BAR STYLES

Project allows you to format the bars of individual tasks – this is done by selecting the tasks to change and using the options in the **Format Bar** dialog box. The **Bar Styles** dialog box allows you

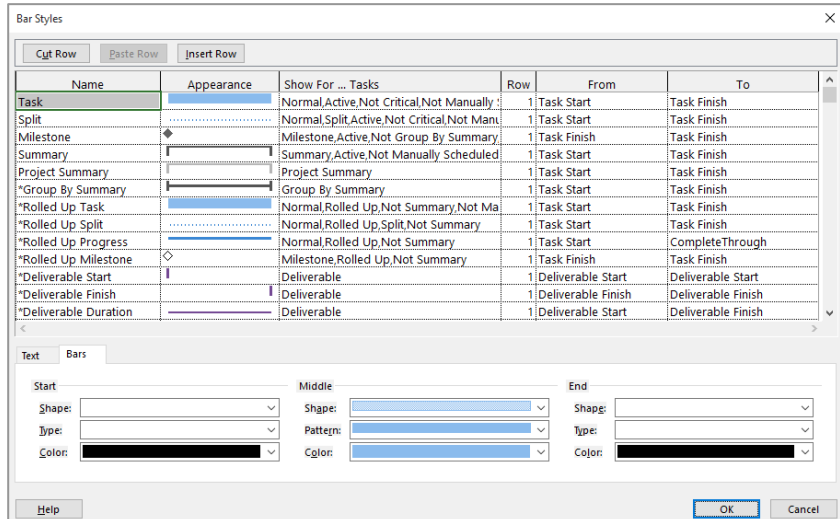
to change the bars of specific types, or **styles**, of task bars such as those belonging to milestone tasks, summary tasks, and the like.

Try This Yourself:

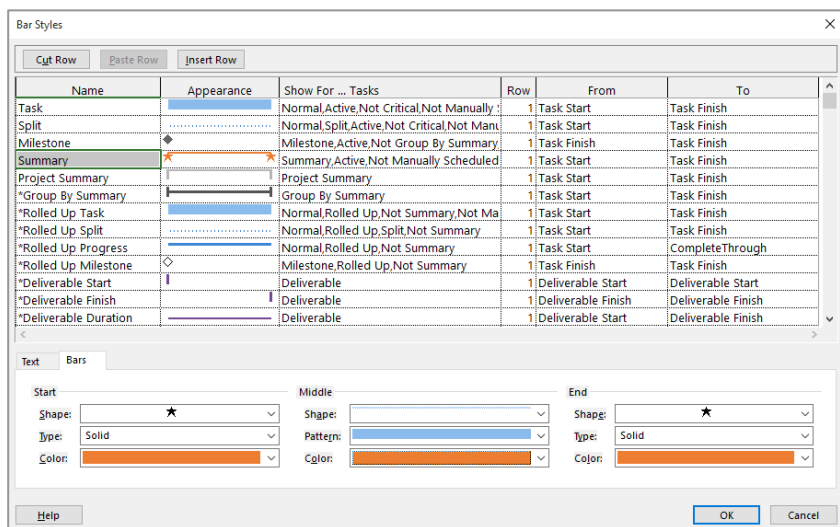
Same File

Continue using the previous file with this exercise, or open the file *Formatting_13.mpp...*

- 1 Click on the **Gantt Chart Tools: Format** tab, then click on **Format** in the **Bar Styles** group and select **Bar Styles** to display the **Bar Styles** dialog box
- 2 Click on **Summary** in **Name** to work on the **Summary** task styles
- 3 Click on the drop arrow for the **Start** shape and select the star shape
- 4 Click on the **Colour** drop arrow and select **orange**
- 5 Repeat steps 3 and 4 for the **End** shape
- 6 Change the **Middle** colour to **orange**
- 7 Click on [OK] to see orange summary bars throughout the project



1



6

For Your Reference...

To **change bar styles** in a **project**:

1. Click on the **Gantt Chart Tools: Format** tab, then click on **Format** and select **Bar Styles**
2. Click on the bar type to change
3. Choose the settings as desired

Handy to Know...

- Changes that you make in the **Bar Styles** dialog box can be undone using the **Undo** option on the **Quick Access Toolbar** at the very top left of the screen.

CHAPTER 10

ADVANCED PRINTING

InFocus

Like printing in most other Microsoft applications, printing in Project is handled through the **Backstage** which is accessed from the **File** tab on the ribbon.

Printing larger projects can involve a few challenges, especially trying to get all of the tasks and bars onto paper in a logical, meaningful way.

In this session you will:

- ✓ learn how to add missing printing commands on to the ribbon
- ✓ learn how to preview a **Gantt Chart** before printing
- ✓ learn how to set a page break at a task
- ✓ learn how to print specific dates and pages
- ✓ learn how to insert headers into a printed report
- ✓ learn how to create a footer in a report
- ✓ learn how to work with the legend in a printed report
- ✓ learn how to squeeze a report onto as little paper as possible
- ✓ learn how to print to a **PDF** file.

PLACING PRINTING COMMANDS ON THE RIBBON

While most of the print commands can be found on the backstage, there are a few options that do not appear in any of the default command groups on the ribbon. Fortunately, the ribbon command

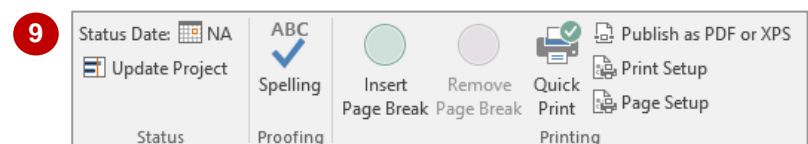
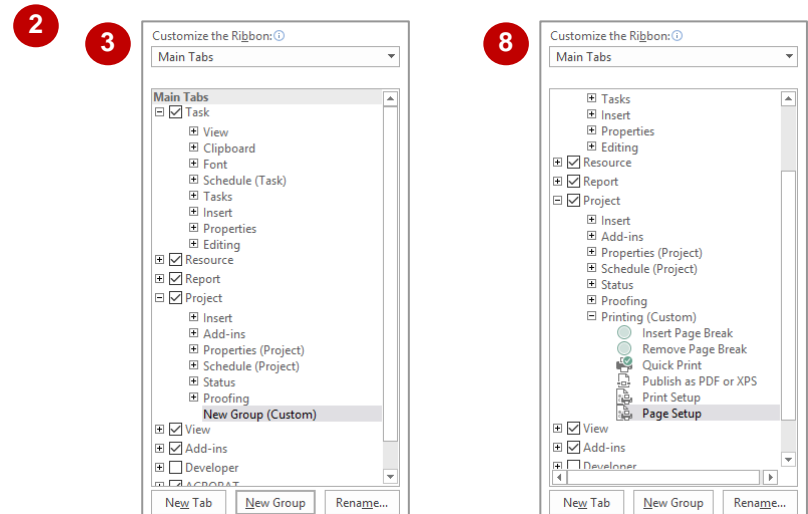
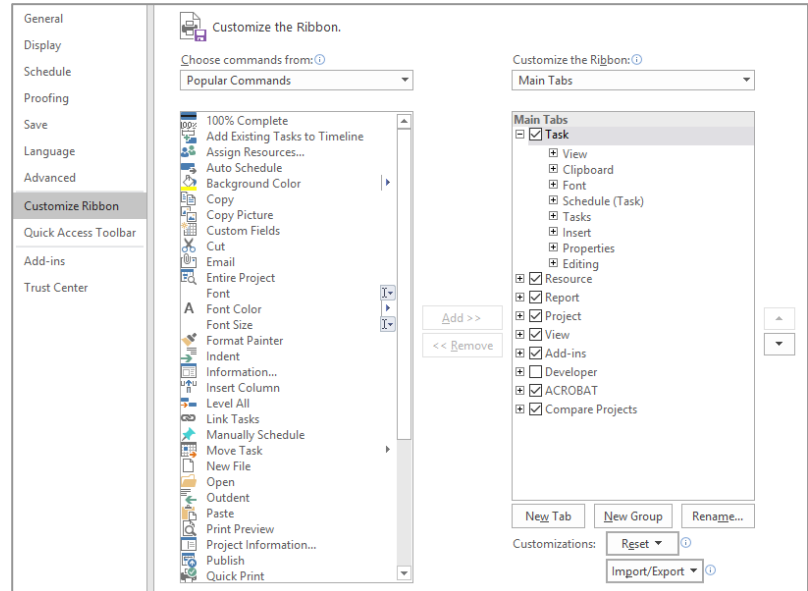
system allows you to create your own custom command groups. Once you've created a custom group you can populate it with some of the missing commands.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file *Advanced Printing_1.mpp...*

- 1 Click on the **File** tab to display the backstage, then click on **Options** to display the **Project Options** dialog box
- 2 Click on **Customise Ribbon** in the pane on the left
- 3 Click on **Project** in the right pane, then click on **[New Group]** to insert a new custom group in the **Project** tab
- 4 Click on the new group, then click on **[Rename]** to display the **Rename** dialog box
- 5 Type **Printing** in **Display name**, then click on **[OK]**
- 6 Click on the drop arrow for **Choose commands from** and select **Commands Not in the Ribbon**
- 7 Scroll to and click on **Insert Page Break**, then click on **[Add]** to add the command to the new group
- 8 Repeat steps 6 and 7 to add the other commands as shown
- 9 Click on **[OK]**, then click on the **Project** tab to see the new group on the ribbon



For Your Reference...

To **display more commands** on the **ribbon**:

1. Click on the **File** tab, click on **Options**, then click on **Customise Ribbon** in the left pane
2. Expand the desired tab for the new group, then click on **[New Group]**
3. Use the **Choose commands from** list to **[Add]** new commands to the group

Handy to Know...

- Adding more commands to a ribbon is a system wide activity. The ribbon is part of Project and will therefore appear with these changes for every project file that you work with.

USING PRINT PREVIEW

In most Microsoft Office applications, you can **preview** your printing simply by choosing the **Print** command in the backstage. As soon as you access the printing feature in the backstage you

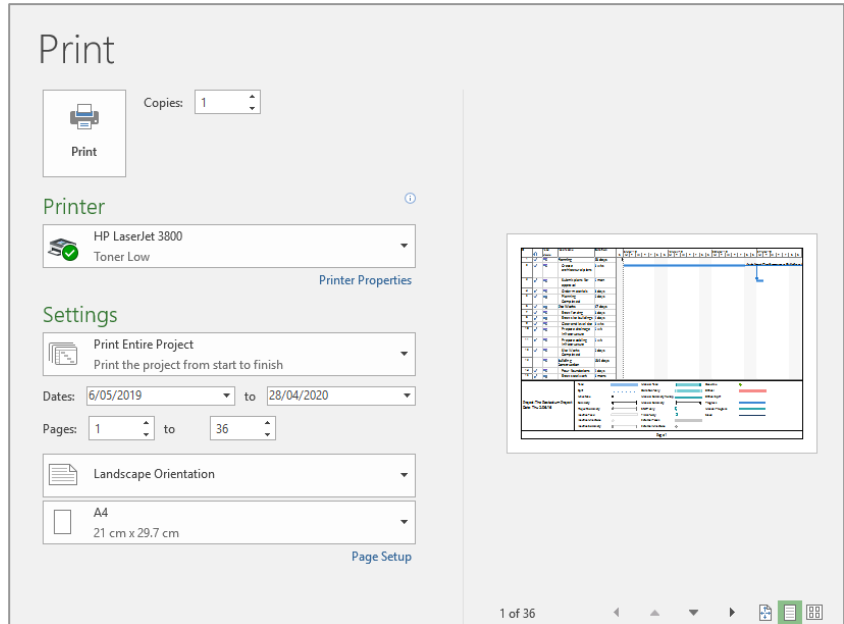
are presented with a **print preview** of whatever is currently on the screen. This will normally be a multipage preview if you have a Gantt chart on view.

Try This Yourself:

Same File

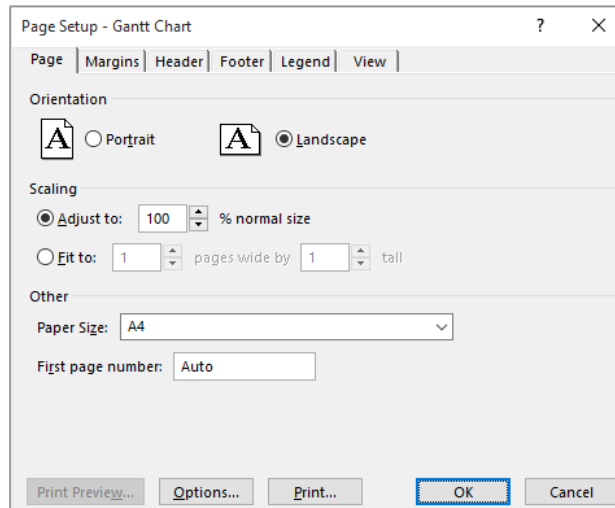
Continue using the previous file with this exercise, or open the file *Advanced Printing_1.mpp...*

- 1 Click on the **File** tab to open the backstage, then click on **Print** to see the preview
- 2 Click on **Multiple Pages** in the bottom right corner to see all of the pages to be printed
- 3 Click on **One Page** to return to a single page again
- 4 Click on **Actual Size** to see the page at the size at which it will be printed
- 5 Click on **Page Setup** under **Settings** to display the **Page Setup** dialog box
- 6 Spend a few moments browsing the tabs, then click on **[Cancel]**
- 7 Click on the **Back** arrow to return to the Gantt Chart view



1

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For Your Reference...

To **display a Gantt chart** in **preview mode**:

1. Click on the **File** tab
2. Click on **Print** to see the preview

Handy to Know...

- You should always preview before you print anything from Project to ensure the data being printed is correct and accurate.

SETTING PAGE BREAKS

If you preview a multiple page Gantt chart, you'll notice that the pages flow in the order in which they fill a page. You will most likely discover that groups of tasks will break in the middle with tasks

you'd like to keep together flowing across two pages. If you want some control over which page a group of tasks prints on you can insert **page breaks** at strategic points.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Advanced Printing_1.mpp...*

- 1 Click on the **Site Works** summary task to select it
- 2 Click on the **Project** tab, then click on **Insert Page Break** in the custom **Printing** group
A page break will be placed as a solid line above the task – however, you'll only be able to see it when the task is deselected...
- 3 Click on the next task down to see the page break more clearly
- 4 Repeat the above steps and insert page breaks at the following summary tasks:
Building Construction
Fit Out
Commissioning

Note: This exercise assumes that you have created a custom Printing group on the Project tab and that the group contains the Insert Page Break command.

		Task Mode ▾	Task Name ▾	Duration ▾	6 May '19	13 May '19
					S M T W T F S S	M T W
1	✓		Planning	43 days		
2	✓		Create architectural plans	3 wks		
3	✓		Submit plans for approval	1 mon		
4	✓		Order materials	8 days		
5	✓		Planning Completed	0 days		
6	✓		Site Works	27 days		
7	✓		Erect fencing	3 days		
8	✓		Erect site building	4 days		

		Task Mode ▾	Task Name ▾	Duration ▾	6 May '19	13 May '19
					S M T W T F S S	M T W
1	✓		Planning	43 days		
2	✓		Create architectural plans	3 wks		
3	✓		Submit plans for approval	1 mon		
4	✓		Order materials	8 days		
5	✓		Planning Completed	0 days		
6	✓		Site Works	27 days		
7	✓		Erect fencing	3 days		
8	✓		Erect site building	4 days		

		Task Mode ▾	Task Name ▾	Duration ▾	6 May '19	13 May '19
					S M T W T F S S	M T W
31			Install video imaging	3 days		
32			Fit out control room	1 wk		
33			Fit Out Completed	0 days		
34			Commissioning	9 days		
35			Test roof mechanism	3 days		
36			Test PA system	2 days		
37			Test video imaging	2 days		
38			Test control room	3 days		

- 4 *Note: The Insert Page Break command acts as a toggle – if you use it on a task that already has a page break, the page break will be removed.*

For Your Reference...

To **insert a page break**:

1. Click on the task that is to appear on the next page
2. Click on the **Project** tab, then click on **Insert Page Break** in the **(Custom) Printing** group

Handy to Know...

- You can tell if there is a page break at a task by clicking on the task to select it and then observing the state of the **Remove Page Break** command – if the command is greyed out there is no page break there, but if the command is fully coloured then there must be a page break that can be removed.

PRINTING SPECIFIC DATES AND PAGES

When printing a Gantt chart you should remember that Project will firstly print whatever is on view, and as a default will print the entire report. If you want to print only part of the project,

you can manipulate the date and page specification features in the print settings on the backstage.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Advanced Printing_2.mpp...*

- 1 Click on the **File** tab, click on **Print**, then click on **Multiple Pages**

Note how the page breaks split the project report...

- 2 Click on **Print Entire Project** in **Settings** and select **Print Custom Dates and Pages**

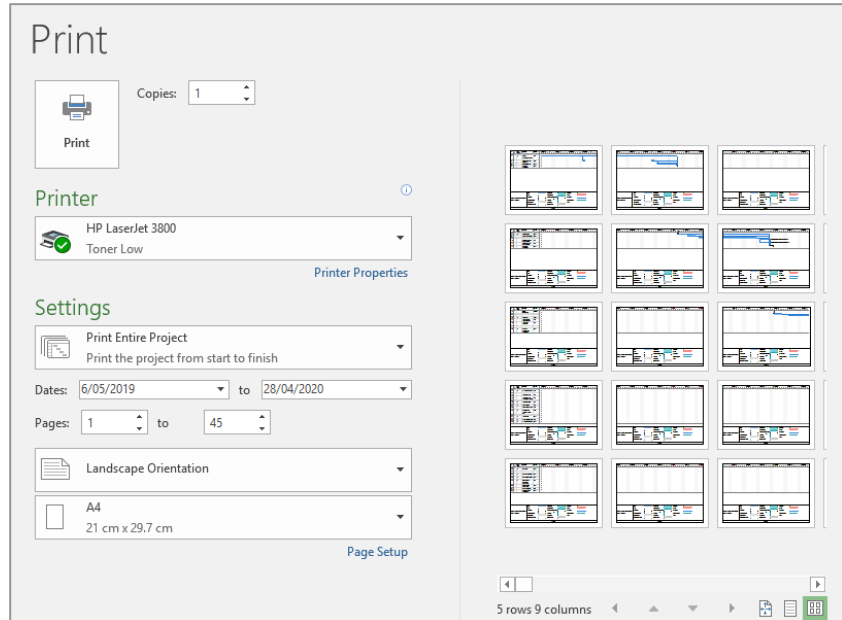
- 3 Click on the first date and type **1/7/19**

- 4 Click on the second date, type **16/8/19**, then press **Tab**

This will limit printing to the specified date range. We can now use the page numbering to specifically pick the page or pages we want to print...

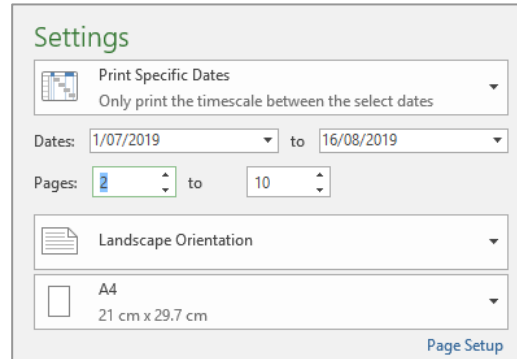
- 5 Change both the **Pages** in the **Settings** to **2**, then click on **[Print]**

- 6 Click on the **Back** arrow to return to the Gantt Chart view



1

4



This is a particularly messy way of printing a part of a Gantt chart. What we have done here is to specify a range of dates to print within. This certainly reduces the number of pages that will be printed (as shown in the **Pages** settings).

For Your Reference...

To **print within dates**:

1. Click on the **File** tab, then click on **Print**
2. Click on **Print Entire Project** in **Settings** and select **Print Custom Dates and Pages**
3. Specify the dates in the date fields

Handy to Know...

- If you only want to print specific tasks or dates, you may prefer to set a filter in the Gantt chart so that only the relevant tasks or dates are on view, and then access the **Print** commands in the backstage and print as normal. Remember, Project prints whatever it sees in the preview.

PRINTING HEADERS

You can place a **header** in a report that will appear at the top of every page that is printed. You can type normal text into a header or choose a specific field which acts as a placeholder for

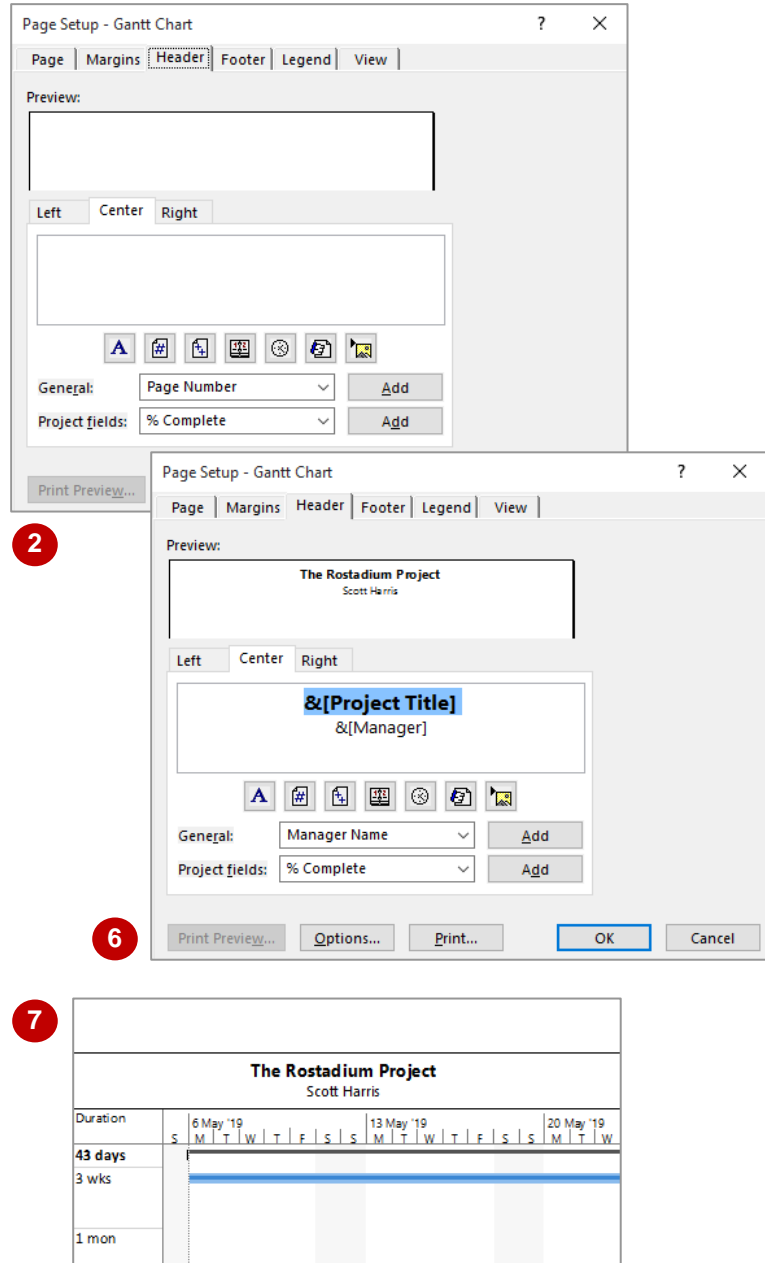
data that is inserted when the report is run, such as the current date and project name. Details can be entered into three areas in the header – *left*, *centre* and *right*.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Advanced Printing_2.mpp...*

- 1 Click on the **File** tab, then click on **Print** to see a preview of the project
- 2 Click on **Page Setup** to display the **Page Setup** dialog box, then click on the **Header** tab
- 3 Click on the drop arrow for **General** and select **Project Title**, then click on **[Add]** to see this in the preview
- 4 Press **Enter** to move the insertion point down to the next line, click on the drop arrow for **General**, select **Manager Name**, then click on **[Add]**
- 5 Click and drag across **&[Project Title]** to select it, then click on the **Format Text Font** button
- 6 Click on **Bold** in **Font Style** and **12** in **Size**, then click on **[OK]**
- 7 Click on **[OK]** to see the **Header** at the top of the report preview
- 8 Click on the **Back** arrow to return to the Gantt Chart view



For Your Reference...

To **insert** a **header** into a **report**:

1. Click on the **File** tab, click on **Print**, click on **Page Setup**, then click on the **Header** tab
2. Enter the header settings as desired

Handy to Know...

- The ampersand (&) is used in report headers to indicate to Project that the field is to be replaced by data when the report is previewed or printed.

PRINTING FOOTERS

While headers appear at the top of a report, footers appear at the bottom. **Footers** operate in almost an identical way to headers. They are made up of left, centre and right areas and you

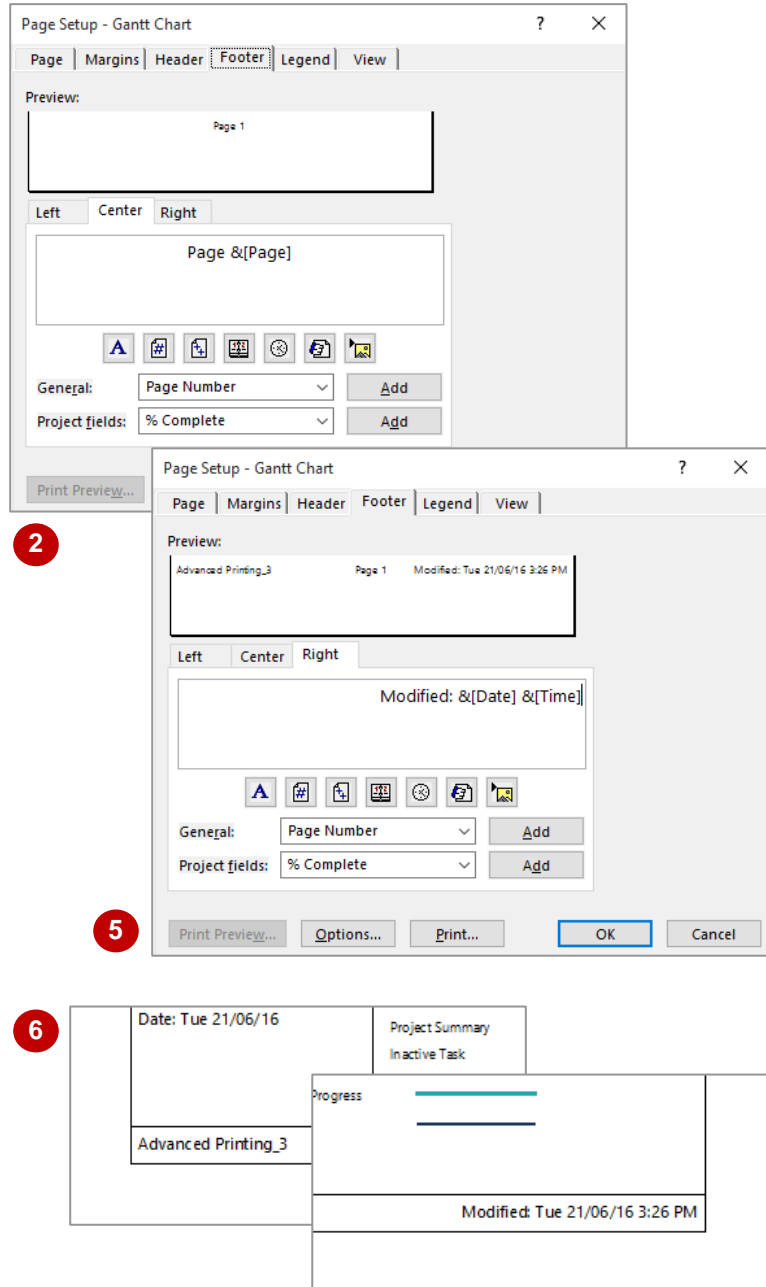
type text or insert field values into them. You can also format the text. Footers often contain page numbering and file information.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Advanced Printing_3.mpp*...

- 1 Click on the **File** tab, then click on **Print** to see a preview of the project
- 2 Click on **Page Setup** to display the **Page Setup** dialog box, then click on the **Footer** tab
- 3 Click on the **Left** tab, then click on the **Insert File Name** button
- 4 Click on the **Right** tab, click in the box, then type **Modified:** and press **Space**
- 5 Click on the **Insert Current Date** button, then click on the **Insert Current Time** button
- 6 Click on **[OK]** to see the new footer in the report preview
- 7 Click on the **Back** arrow to return to the Gantt chart view



For Your Reference...

To **insert** a **footer** into a **report**:

1. Click on the **File** tab, click on **Print**, click on **Page Setup**, then click on the **Footer** tab
2. Enter the footer settings as desired

Handy to Know...

- It is recommended that you insert the file name into the footer of your report so that once you print the report, you can locate the correct project file if needed later. The date and time is extremely handy to keep track of revisions.

WORKING WITH THE LEGEND

There are many symbols and icons on a Gantt chart in Project that may be confusing for the readers of your reports. To make them understandable and easy to read, most print outs

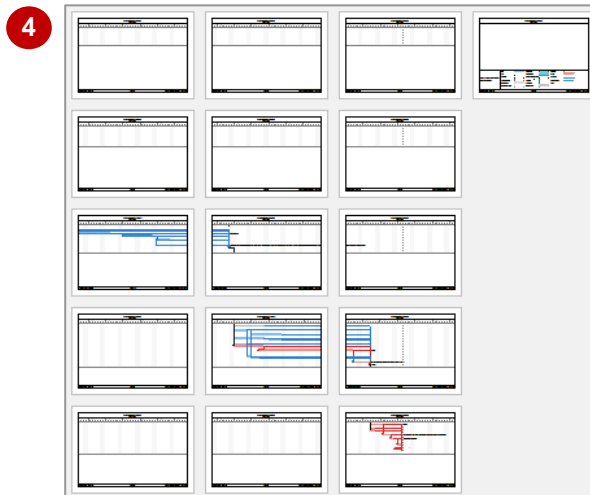
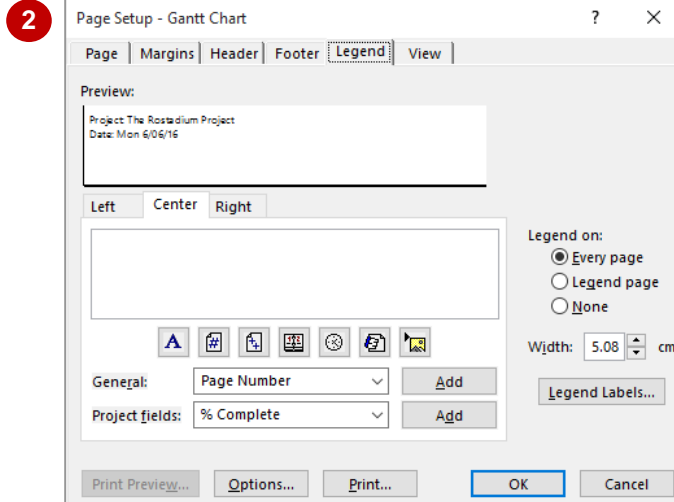
and reports appear with a **legend**. The legend can appear either at the bottom of each page or on a page of its own. You can also choose to leave it off altogether.

Try This Yourself:

Same
File

Continue using the previous file with this exercise, or open the file *Advanced Printing_4.mpp...*

- 1 Click on the **File** tab, then click on **Print** to see a preview of the project
- 2 Click on **Page Setup** to display the **Page Setup** dialog box, then click on the **Legend** tab
- 3 Click on **Legend Page** in **Legend on**, then click on [OK]
There is no longer a legend on the bottom of the preview page...
- 4 Click on **Multiple Pages** to see all of the pages in preview
The final page of the report is the new legend page...
- 5 Click on the **legend** page to view it
- 6 Click on the **Back** arrow to return to the Gantt Chart view



The page ordering in printing goes down and then across. The legend page appears at the top of the last column because this is the last page in the printed report.

For Your Reference...

To **work** with **legends**:

1. Click on the **File** tab, click on **Print**, click on **Page Setup**, then click on the **Legend** tab
2. Enter the settings as desired

Handy to Know...

- If you use page breaks to separate tasks and keep your report organised, it is likely that there will be blank space at the bottom of each page. In such a situation you might like to display the legend on each page rather than adding a legend page to your report.

GETTING THE RIGHT REPORT FIT

Project Gantt chart reports can use a great deal of paper and can also waste a fair bit of space. There are a number of tricks that you can employ to fit as much project on paper as you can. Often

this results in a compromise between minimum paper and maximum legibility and some trial and error may be needed in order to find the right balance.

Try This Yourself:

Same File

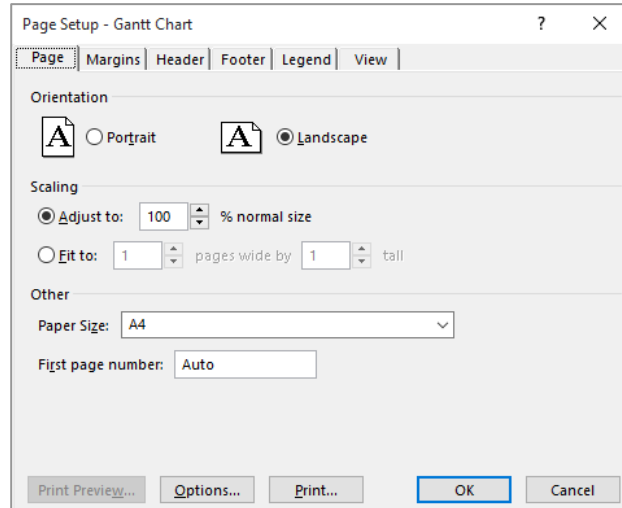
Continue using the previous file with this exercise, or open the file *Advanced Printing_5.mpp...*

- 1 Click on the **File** tab, then click on **Print**
- 2 Click on **Page Setup** to display the **Page Setup** dialog box, then click on the **Page** tab
- 3 Click on **Fit to**, click on the up arrow for **pages wide by** it displays **2**, click on the up arrow for **tall** until it displays **2**, then click on **[OK]**

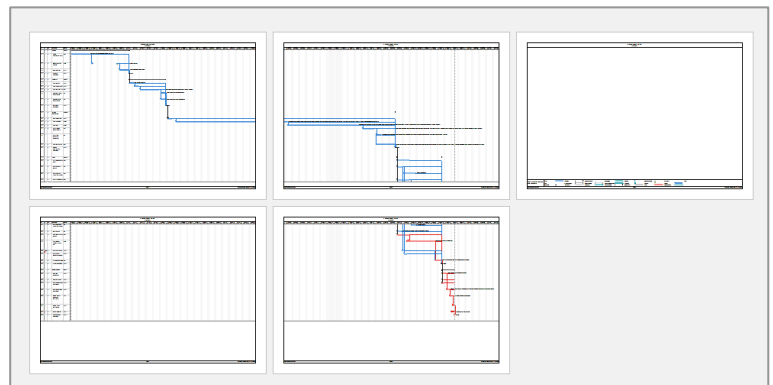
Since we plan to condense the printing to fewer pages we should remove our preview page breaks...

- 4 Click on the **Back** arrow to return to the Gantt Chart view, click on the **Project** tab, click on the **Site Works** summary task, then click on **Remove Page Break** in the custom **Printing** group
- 5 Repeat step 4 for the remaining page breaks on the other summary tasks
- 6 Click on the **File** tab, then click on **Print** to see a fuller preview
- 7 Click on **Multiple Pages** to see that there are now fewer pages
- 8 Click on the **Back** arrow to return to the Gantt Chart view

2



7



For Your Reference...

To **fit** a **report** to **pages**:

1. Click on the **File** tab, click on **Print**, click on **Page Setup**, then click on the **Page** tab
2. Enter the settings as desired

Handy to Know...

- When printing a Gantt chart, it can take some time to adjust the settings so that the chart is printed the way you want it. Don't commit to printing to paper until the preview is exactly the way you want it.

EXPORTING TO PDF

PDF (Portable Document Format) is an efficient way of printing without using paper. It allows you to “print” your project reports and charts to a computer file. This computer file is a

representation of how the Gantt chart would look on paper and is much more detailed and accurate than print preview. You can then use this file for emailing, archiving and even printing to paper.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *Advanced Printing_6.mpp...*

- 1 Click on the **File** tab, then click on **Export** to see the export options

If you have Adobe Reader or Acrobat installed, you may see the **Create Adobe PDF** option. For the purposes of this exercise we will not be using this option...

- 2 Click on **Create PDF/XPS Document** in the middle pane, then click on **[Create PDF/XPS]** in the right pane to display the **Browse** dialog box which allows you to specify a name and location for the **PDF** file you will create

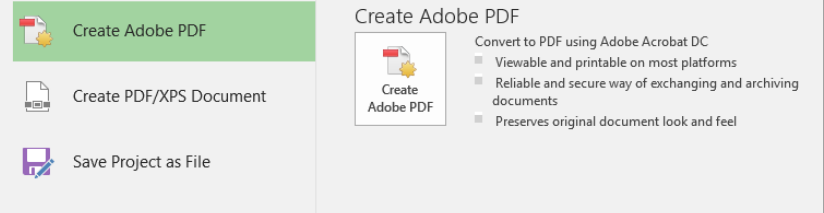
We'll accept the default file name and location...

- 3 Click on **[OK]** to display the **Document Export Options** dialog box which allows you to specify what to print

- 4 Click on **[OK]** to accept the default options

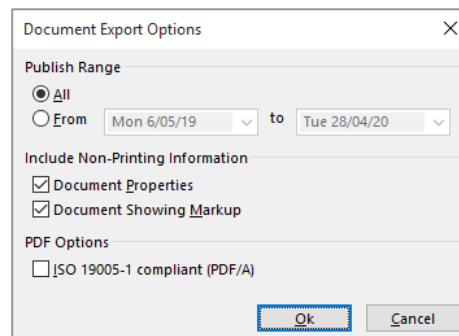
A **PDF** version of the project is created and saved to the course files folder

Export



1

3



For Your Reference...

To **print** to a **PDF** file:

1. Click on the **File** tab, then click on **Export**
2. Click on **Create PDF/XPS Document**, then click on **[Create PDF/XPS]**
3. Specify a file name and location, then click on **[OK]**

Handy to Know...

- PDF files can be opened with **Adobe Acrobat**, **Adobe Acrobat Reader** (Reader is software that can be downloaded from the web without cost), or the **Windows Reader** app.

CONCLUDING REMARKS

Congratulations!

You have now completed Microsoft Project 2016 - Level 2. Microsoft Project 2016 - Level 2 was designed to get you to the point where you can competently perform a variety of operations. We have tried to build up your skills and knowledge by having you work through specific tasks. The step-by-step approach will serve as a reference for you when you need to repeat a task.

Where To From Here?

The following is a little advice about what to do next:

- Spend some time playing with what you have learnt. You should reinforce the skills that you have acquired and use some of the application's commands. This will test just how much of the concepts and features have stuck! Don't try a big task just yet if you can avoid it – small is a good way to start.
- Some aspects of the course may now be a little vague. Go over some of the points that you may be unclear about. Use the examples and exercises in these notes and have another go – these step-by-step notes were designed to help you in the classroom and in the work place!

Here are a few techniques and strategies that we've found handy for learning more about technology:

- read computer magazines – there are often useful articles about specific techniques
- if you have the skills and facilities browse the internet, specifically the technical pages of the application that you have just learnt
- take an interest in what your work colleagues have done and how they did it – we don't suggest that you plagiarise, but you can certainly learn from the techniques of others
- if your software came with a manual (which is rare nowadays) spend a bit of time each day reading a few pages. Then try the techniques out straight away – over a period of time you'll learn a lot this way
- and of course, there are also more courses and books for you to work through.

Hungry for More?

We live in an ever-changing world where we all need to review and upgrade our skills.

If you have received this course book on a training course, why not ask the tutor or trainer for other courses that may be of benefit to you. If you are attending a college ask for one of their brochures.

Alternatively, if you've enjoyed using this course book you can find others that cover a wide range of topics at our website www.watsoniapublishing.com.

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