CHAPTER 4

CREATING TASKS

InFocus

WPL_J403

A project normally consists of *tasks*. *Tasks* are defined as activities required to complete your project.

Tasks are entered in Microsoft Project into rows and columns much the same as data is entered into a spreadsheet like Microsoft Excel.

In this session you will:

- ✓ gain an understanding of tasks and how they are created
- ✓ gain an understanding of the symbols and icons associated with tasks
- ✓ gain an understanding of the case study tasks
- √ learn how to review an existing project
- ✓ learn how to enter tasks into a project
- ✓ learn how to create summary tasks
- ✓ learn how to create additional summary tasks
- ✓ learn how to move around a task sheet
- ✓ learn how to manipulate summary tasks and outlining
- ✓ learn how to work with the various views of a task table
- learn how to work with tasks using the *Task Information* dialog box
- ✓ gain an understanding of task durations
- ✓ learn how to enter durations for a task
- ✓ learn how to check project progress and status
- ✓ learn how to enter task milestones.

UNDERSTANDING TASKS

Tasks are the activities that make up your project. They form the very structure of your project and it is important that some thought and planning goes into their creation. Tasks are

entered into a project file in a table-like way with each task entered into a separate row of its own. Tasks are automatically assigned an *ID* number which appears at the left of the table.

Organising Tasks

Tasks can be grouped into phases. Microsoft Project allows you to display the phases as well as the tasks – the phase headings are actually referred to as **summary tasks**.

A summary task is created when the detail tasks below it are *demoted* in the hierarchy. The summary task is automatically calculated to start at the start date of its earliest subordinate and will finish at the end date of its latest subordinate. Microsoft Project will also sum all project costs as well as calculate summary start and finish dates.

Now this is where we get into a chicken and egg scenario. Should you enter the phase headings first and then the sub-ordinate tasks, or should you enter all of the tasks and then the phase headings later? It really doesn't matter; it's horses for courses.

Entering tasks can be done in two ways:

- *top down*, where specific summary tasks are worked out first, and then the detail tasks required to complete the summaries
- **bottom up**, where the tasks are worked out and then grouped according to specific summaries.

You can elect to enter the *tasks* first, then the *summaries*, or you can enter the *summaries* then the *tasks*.

When you have both *summaries* and *tasks* in a project your project has a *hierarchy*. Project managers traditionally use a hierarchical organisation known as a *work breakdown structure* to identify major components of a project and then the detail required for each of those components.

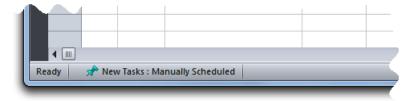
The trick is not which you enter first: **summaries** or **tasks**. The trick is being organised to begin with. It is a good idea to have your task list well and truly determined before you enter it into Microsoft Project.

Scheduling Modes

Tasks comprise of details such as *duration*, *start date* and *finish date*. In addition tasks are related to one another and these relationships together with the durations and dates form the overall project schedule.

In Microsoft Project tasks can be either *automatically scheduled*, where Microsoft Project takes care of assigning and adjusting start and finish times, or *manually scheduled* where you control when dates and times will be adjusted and calculated.

Tasks can be switched between automatic and manual scheduling at any time. When a new project file is created the tasks are manually scheduled as a default. This is indicated in the status bar at the bottom left of the screen.

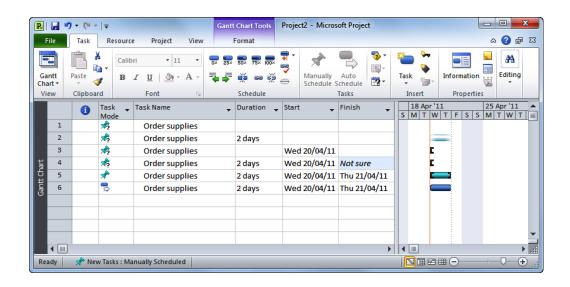


Manual scheduling only became available in Microsoft Project 2010. Prior to this version projects were automatically scheduled. If you open a project in Microsoft Project 2010 that was created in a previous version it will still remain automatically scheduled.

UNDERSTANDING SCHEDULING ICONS

As you enter tasks into a project file various icons and symbols appear indicating what is going on or where there are information shortfalls. These icons and symbols appear in the *task mode*

column of a task sheet and in the *Gantt Chart*. The *Gantt Chart* view of Microsoft Project is a good place to begin entering tasks.



Icon/symbol	Location	Description
*	Task Mode column	A push pin indicates that the task is manually scheduled and that all of the information required for scheduling has been supplied.
鸡	Task Mode column	A push pin with a question mark indicates that the task is manually scheduled but that further information (such as a duration, start or end date) is still required.
3	Task Mode column	This icon indicates that the task is automatically scheduled.
	Gantt Chart	A coloured bar with end caps indicates that the task is manually scheduled and that all information has been provided for scheduling.
	Gantt Chart	A coloured bar with no caps indicates that the task is manually scheduled but that dates still need to be provided
C	Gantt Chart	An end cap indicates that the start date has been provided but that there is no start or end date.
	Gantt Chart	This icon indicates that the task is automatically scheduled.

THE ROSTADIUM CASE STUDY TASKS

In our case study, Scott Harris, the Project Manager at The Rostrum, has consulted with his project group and together they have determined that the construction of the new stadium should be broken into five phases. Each of the phases (known as *summary tasks*) and their respective tasks are shown in the table below.

Phase	Tasks	
Planning	Create architectural plans	
	Submit plans for approval	
	Order materials	
Site Works	Erect fencing	
	Erect site buildings	
	Clear and level site	
	Prepare drainage infrastructure	
	Prepare cabling infrastructure	
Building Construction	Pour foundations	
	Erect steelwork	
	Erect walls	
	 Install roofing superstructure 	
	Install roof retracting mechanism	
	Erect seating tiers	
Fit Out	Fit all windows and doors	
	 Install electrical cabling 	
	 Install electrical fittings and fixtures 	
	 Install all plumbing 	
	Install plumbing fittings and fixtures	
	Lay astro turf	
	Erect handrails and fencing	
	Paint rooms, fixtures, fittings, etc	
	Install PA system	
	 Install video imaging equipment Fit out control room 	
	Fit out control room	
Commissioning	 Test roof mechanism 	
	Test PA system	
	Test video imaging equipment	
	Test control room equipment	
	Obtain official occupancy certificates	
	Obtain safety certification	
	Official opening	

REVIEWING THE PROJECT

You are about to enter tasks into a newly created project file. Even though this project file is currently empty it still contains some basic project information that can be reviewed. Reviewing

project information on a regular basis is a good way of ensuring that data is entered correctly. We'll have a look at the information now, and then again after the tasks are entered.

Try This Yourself:

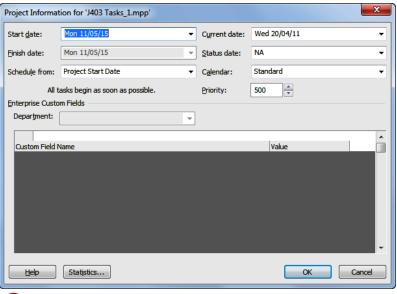
- Before starting this exercise you MUST open the file J403 Tasks_1.mpp...
- Notice how the Gantt Chart timeline in the project begins with the week that the project commences (May 11, 2015) in view
- Click on the *Project* tab in the *Ribbon* and click on *Project Information* in the *Properties* group to display the *Project Information* dialog box

The start and finish dates here are identical because no scheduling has yet been done...

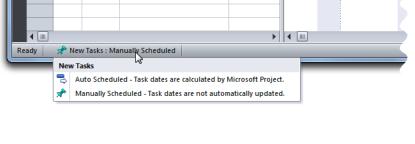
- Click on [Statistics] to see the *Project Statistics*
- Click on [Close] to close the dialog box

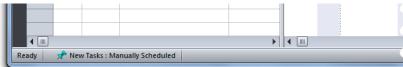
While we are here we'll ensure that manual scheduling is switched on...

- 5 Click on the current scheduling mode button at the bottom left of the screen
- 6 Click on Manually Scheduled









For Your Reference...

To manually schedule all project tasks:

- 1. Click on the current scheduling mode button at the bottom left of the screen
- 2. Click on Manually Scheduled

Handy to Know...

 Get into the habit of reviewing your project statistics regularly. This is especially useful after entering task durations and dependencies.

ENTERING TASKS

There are many ways to enter tasks into a project file. However, the *Gantt Chart*, which is the default view, is a good option. In the *Gantt Chart* view the tasks are entered into the sheet view on

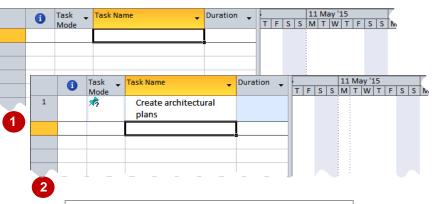
the left of the screen. As you enter a task, a default *duration* of 1 day is automatically assigned to the task and a Gantt bar is drawn in the chart on the right of the screen.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403
 Tasks_1.mpp...
- Click on the *Task Name* cell in the first line
- Type Create architectural plans and press Enter

Wow! A lot of things have happened here. A manually scheduled task pin has appeared with a question mark indicating that more information is required. Also, if the column has not been wide enough word wrapping will occur increasing the height of the row...

- Type Submit plans for approval as the second task and press
- 4 Enter the remaining tasks as shown
- Hold down the ctrl key and press Home to return to the top left corner of the task list





- Order materials
- 4. Erect fencing
- 5. Erect site buildings
- 6. Clear and level site
- 7. Prepare drainage infrastructure
 - Prepare cabling infrastructure
- Pour foundations
- Erect steelwork
- 11. Erect wall

8.

- 12. Install roofing superstructure
- 13. Install roof retracting mechanism
- 14. Erect seating tiers
- 15. Fit all windows and doors
- 16. Install electrical cabling
- 17. Install electrical fittings and fixtures
- 18. Install all plumbing
- 19. Install plumbing fittings and fixtures
- 20. Lay astro turf
- 21. Erect handrails and fencing
- 22. Paint rooms, fixtures, fittings, etc
- 23. Install PA system
- 24. Install video imaging equipment
- Fit out control room
- 26. Test roof mechanism
- 27. Test PA system
- 28. Test video imaging equipment
- 29. Test control room equipment
- 30. Obtain official occupancy certificates
- 31. Obtain safety certification
- Official opening

For Your Reference...

To enter tasks in Gantt Chart view:

- 1. Click in the first available task cell
- 2. Type the name of the task and press Enter

Handy to Know...

 Nothing will appear in the Gantt Chart because not enough information has been provided to draw a timeline. For example, at present there are no durations, no start dates, and no end dates for the tasks.

CREATING SUMMARY TASKS

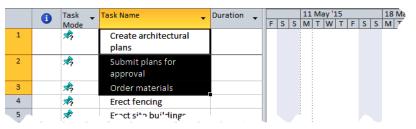
Summary tasks are like headings that represent the phases in a project. They also **summarise** information. **Summary** tasks are general headings that have **subordinate tasks**.

Subordinate tasks are indented to the right and provide a further level of detail for that part of the project. **Summary tasks** can be entered when tasks are first entered or at a subsequent stage.

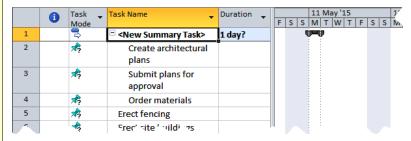
Try This Yourself:

Continue using the previous file with this exercise, or open the file J403 Tasks_2.mpp...

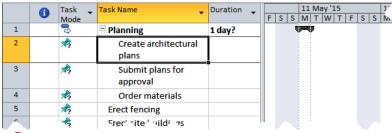
- Click on *Create*architectural plans, hold
 down the left mouse button
 and drag down to *Order*materials to select the
 three tasks
- Click on the *Task* tab on the *Ribbon* and click on *Summary* in the *Insert* group to insert a new summary task
- Type **Planning** as the name for the new summary task and press Enter
- Repeat the above steps and create the additional summary tasks as shown on the next page













For Your Reference...

To create a *summary task*:

- 1. Select the sub-ordinate tasks
- 2. Click on the *Task* tab on the *Ribbon* and click on *Summary* in the *Insert* group
- 3. Type a name for the summary task and press Enter

Handy to Know...

 Summary tasks appear as autoscheduled tasks. A summary task is calculated using the start date of the first task and the end date of the last task. As such they have to be automatically calculated based on their subordinates.

ASSIGNMENT – CREATING SUMMARY TASKS

Using the steps outlined in the previous exercise, create the following summary tasks as shown. Take care when selecting the required subordinate tasks. You should check that you have

selected the correct tasks. If you make a mistake use the *Undo* tool on the *Quick Access Toolbar* to undo the mistake.

		Planning Create architectural plans Submit plans for approval Order materials
Add		Site Works
		Erect fencing Erect site buildings Clear and level site Prepare drainage infrastructure Prepare cabling infrastructure
Add		Building Construction
		Pour foundations Erect steelwork Erect wall Install roofing superstructure Install roof retracting mechanism Erect seating tiers
Add		Fit Out
A.1.1		Fit all windows and doors Install electrical cabling Install electrical fittings and fixtures Install all plumbing Install plumbing fittings and fixtures Lay astro turf Erect handrails and fencing Paint rooms, fixtures, fittings, etc Install PA system Install video imaging equipment Fit out control room
Add		Commissioning
		Test roof mechanism Test PA system Test video imaging equipment Test control room equipment Obtain official occupancy certificates Obtain safety certification Official opening

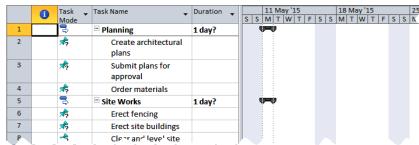
WORKING IN A SHEET VIEW

A *task sheet* displays your data in columns and rows. The columns to the left of the Gantt chart actually represent part of a *sheet*. As you scroll around and enter or change data you can

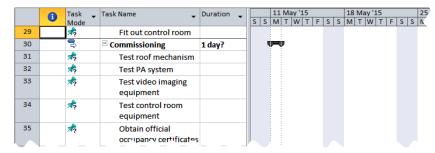
sometimes get lost in a task or resource sheet. There are some basic keyboard keys that will help you to move about and, if necessary, re-orientate the project sheet so that you can get your bearings.

Try This Yourself:

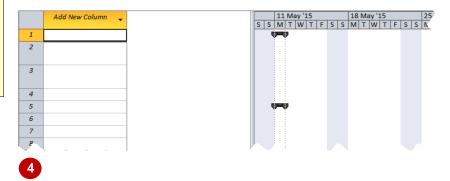
- Continue using the previous file with this exercise, or open the file J403
 Tasks_3.mpp...
- Hold down the ctrl key and press Home to return to the top left corner of the table
- Press Pg Dn to jump down one screen
- Press Pg Up to jump up one screen
- Press and to move right in the table to the last column in the current row
- Press Home to move left in the table to the first column in the current row













To **move** about a **sheet view**:

- takes you to the top left hand corner of the sheet
- Ctrl + End takes you to the bottom right hand corner of the sheet

Handy to Know...

Alt + Home moves the Gantt view to the first timeline bar while Alt + End moves the Gantt view to the end of the last timeline bar.

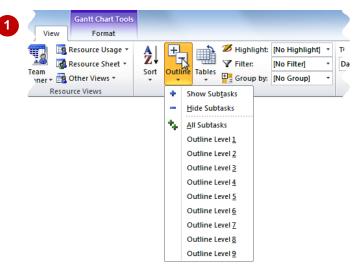
WORKING WITH SUMMARY TASKS

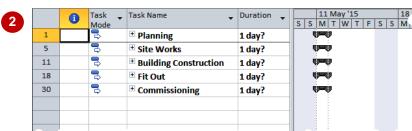
Summary tasks allow you to *hide* unnecessary detail. For example, you can *collapse* a project so that the detail tasks below the summary tasks are no longer visible. This is an excellent way of

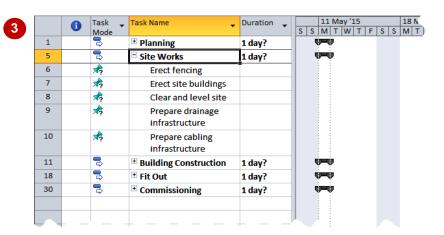
seeing a bird's eye view of your project. You can **collapse** and **expand** (display) all of the detail tasks, or just specific ones using the tools on the toolbar and the summary task headings.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403
 Tasks_3.mpp...
- Click on the *View* tab on the *Ribbon* and click on *Outline* in the *Data* group to display a menu of options
- Click on Outline Level
 1 to see only the
 summary tasks
- Click on the plus sign
 next to Site Works
 to see the detail tasks
- Click on *Outline* in the *Data* group and click on *All Subtasks* to see everything again







For Your Reference...

To **outline** a project:

- 1. Click on the *View* tab on the *Ribbon* and click on *Outline* in the *Data* group
- 2. Click on the desired option

Handy to Know...

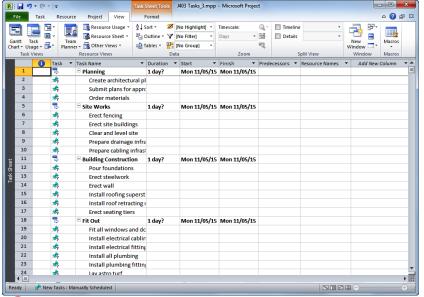
 You can also expand or collapse the summaries by clicking on the plus or minus sign.

WORKING WITH TASK VIEWS

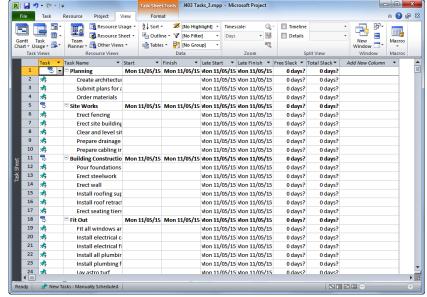
In Microsoft Project it is always amazing to see how much you get even when entering so little! As mentioned before, Microsoft Project is simply two database tables, one for *tasks* and the other for *resources*. Each of these tables contains many fields. To see these fields arranged thematically you can use one of the many table views available on the *View* tab of the *Ribbon*.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403 Tasks_3.mpp...
- Click on the *View* tab of the *Ribbon*, click on *Other Views* in the *Task Views* group and click on *Task Sheet* to see the tasks in a sheet view
- Click on *Tables* in the *Data* group and click on *Schedule* to see tasks with scheduled dates
- Click on *Tables* again and click on *Cost* to see the *Costs* table
- 4 Use the **Tables** command to examine some of the other tables
- 5 Click on *Gantt Chart* in the *Task Views* group to return to the *Gantt Chart* view









For Your Reference...

To work with table views:

- Click on the View tab, click on Other Views in the Task Views group, and click on Task Sheet
- 2. Click on *Tables* in the *Data* group and click on the desired table

Handy to Know...

 There is a lot of repetition in the dates and the scheduling at the moment because no proper durations, relationships, or start and end dates have been entered. As a consequence Microsoft Project defaults to using the project's start date.

EXAMINING TASK INFORMATION

Just as Microsoft Project provides you with a **Project Information** dialog box to see key information about the overall project, there is also a separate **Task Information** dialog box that

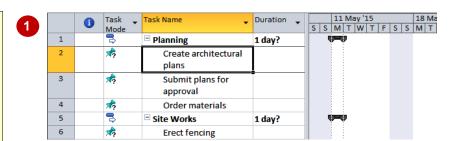
provides all of the information pertaining to a task in one easy location. This dialog box can be accessed using the *Information* command on the *Task* tab, or by double clicking on a task.

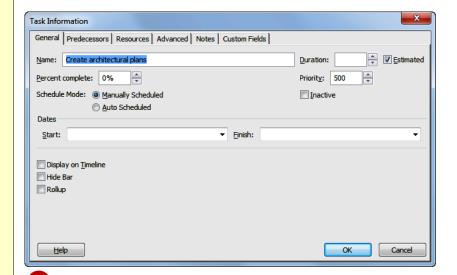
Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403
 Tasks_3.mpp...
- Click on Create
 architectural plans to
 select the task
- Click on the *Task* tab on the *Ribbon* and click on *Information* in the *Properties* group to display the *Task Information* dialog box

This dialog box provides all of the relevant information available for a task...

- Click on the various tabs on the dialog box and examine the options and settings that they contain
- Click on [OK]







For Your Reference...

To examine task information:

- 1. Click on a task to select it
- 2. Click on the *Task* tab on the *Ribbon* and click on *Information* in the *Properties* group

Handy to Know...

 The Task Information dialog box is often used to modify tasks in a project. It provides access to all of the fields of a task in one convenient location.

UNDERSTANDING TASK DURATIONS

To be able to create a project schedule you need to assign a *duration* to each of the tasks, tell Microsoft Project how the tasks are inter-related or dependent upon one another and assign

resources to complete the tasks. Once durations have been entered, Project has sufficient information to be able to calculate a critical path and determine the amount of slack in the tasks.

Task Durations

Once tasks have been entered (or as they are being entered) you can specify the appropriate *duration* details for each task.

Unless specified otherwise, the default duration as set in the *Options* dialog box is used. This duration is in days, and 1 unit is provided. This is why *1 day* has appeared on the tasks that you have entered.

Estimated Durations

Microsoft Project allows you to enter estimated durations if you wish. Estimated durations appear with a question mark at the end of them. The default duration appears with a question mark because the duration has been entered by Microsoft Project and requires you to enter the appropriate value when you are ready.

Abbreviations

You can type the duration in minutes, days, hours, weeks, or months, and you can use a variety of abbreviations for these. For example, you can express a day as **d**, **dy**, or **day**, and a week as **w**, **wk**, or **week**. Minutes are normally entered as **m**, while months are entered as **mo**.

Units

Project internally converts the duration to hourly units as defined by the duration of a day and a week in the *Options* dialog box. If the *Options* dialog box states that a day comprises of 8 hours, and the base calendar says that the day starts at 7:30 am and finishes at 4:00 pm with a half hour lunch break, and you enter a task with a 10 hour duration, the task will be scheduled according to regular working hours. This task will be scheduled to start at 7:30 am and finish at 9:30 am the following day - 8 hours on the first day (7:30 - 4:00), and 2 hours on the second day (7:30 - 9:30).

Elapsed Duration

You can also specify *elapsed duration* where the passing of a certain amount of time is important. Elapsed duration is based on 24 hours. For example, waiting for paint to dry is best measured as elapsed time, rather than the other type of duration, which is based on the hours in a working day. The following abbreviations can be used for durations:

Unit	Abbreviation	Unit	Abbreviation
Minutes	m	Elapsed Minutes	em
Hours	h	Elapsed Hours	eh
Days	d	Elapsed Days	ed
Weeks	W	Elapsed Weeks	ew
Months	mo	Elapsed Months	emo



If you are scheduling down to the hour it helps to actually display hours in the start and end time of project tasks. The way dates and time are displayed can be changed in the *Options* dialog box. The *Options* dialog box is accessed from the *Backstage* (by clicking on the *File* tab) and clicking on [Options]. The date and time display settings are controlled using the *Date Format* option under *Project View* on the *General* tab of the *Options* dialog box.

ENTERING TASK DURATIONS

Once tasks have been entered (or as they are being entered) you can enter the appropriate duration details for each task. Durations can also be entered with a ? suffix. This indicates that the

duration is a rough estimate. You can later change the duration to confirm the estimate.

Try This Yourself:

Continue using the previous file with this exercise, or open the file J403 Durations_1.mpp...

Click in the *Duration* cell to the right of Create architectural plans, type 3w and press Enter

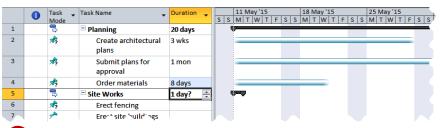
> Here we are setting the duration of this task to 3 weeks...

Enter 1mo for Submit plans for approval, and 8d for Order materials

> Notice that the summary task has a duration derived from the task with the longest duration - in this case 20 days (i.e. 1 month)...

Enter the remaining durations as shown

> Note: Do not enter the durations for the summary tasks as these are automatically calculated...





Site Works	15 days
Erect fencing	3 days
Erect site buildings	4 days
Clear and level site	3 wks
Prepare drainage	
infrastructure	1 wk
Prepare cabling	
infrastructure	1 wk
Building Construction	60 days
Pour foundations	4 days
Erect steelwork	3 mons
Erect wall	2 mons
Install roofing	
superstructure	2 wks
Install roof retracting	
mechanism	1 wk
Erect seating tiers	3 wks

S	instali e
	fixtures
k	Install a
	Install p
k	fittings
s	Lay ast
s	Erect h
s	Paint ro
s	fittings,
_	Install F
s	Install v
	equipm
k	Fit out
s	Comm
	T4 "-

Fit Out	20 days
Fit all windows and doors	2 wks
Install electrical cabling	1 wk
Install electrical fittings and	
fixtures	2 wks
Install all plumbing	2 wks
Install plumbing fixtures and	4 1
fittings	1 wk
Lay astro turf	1 wk
Erect handrails and fencing	2 wks
Paint rooms, fixtures,	
fittings, etc	1 mon
Install PA system	2 days
Install video imaging	
equipment	3 days
Fit out control room	1 wk
Commissioning	5 days
Test roof mechanism	1 wk
Test PA system	2 days
Test video imaging	
equipment	2 days
Test control room	
equipment	1 wk
Obtain official occupancy	
certificates	1 day
Obtain safety certification	2 days
Official opening	1 day



For Your Reference...

To enter task durations:

- 1. Click in the duration cell of the task
- 2. Enter a duration value as a number together with the appropriate abbreviation (e.g. 4d for 4 days)
- 3. Press Enter

Handy to Know...

Notice that the durations of summary tasks (the ones in bold) are automatically calculated for you as you enter the durations for the subordinate tasks.

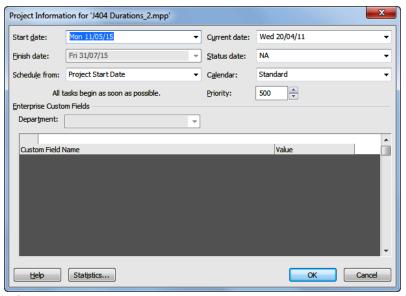
CHECKING PROGRESS

Working with Microsoft Project involves some ritualistic behaviour. For example, you'll constantly be adding or modifying tasks and resource data where even the most trivial update

can cause havoc with a project's schedule. It is therefore imperative that you check project progress and status on a regular basis. Our project now has durations – let's see what has happened.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403 Durations_2.mpp...
- Click on the **Project** tab on the **Ribbon** and click on **Project Information** in the **Properties** group
- Click on [OK] to close the dialog box
 - Let's have a look at the scheduling table to see what is happening...
- Click on the View tab on the Ribbon, click on Other Views in Task Views, and click on Task Sheet
- Click on **Tables** in the **Data** group and click on **Schedule**
- 5 Click on **Gantt Chart** in **Task Views**





Notice that our project is now scheduled to finish in July. There are still no relationships (or dependencies) between the tasks in the project. The finish date is therefore calculated from the task that has the greatest duration.





We still haven't definitely scheduled the tasks. However, given that the project should finish in late July, Microsoft Project has attempted to calculate slack time for each task.

For Your Reference...

To *check* the *progress* of your project:

- Click on the *Project* tab and click on *Project Information* in the *Properties* group
- 2. Click on the *View* tab, click on *Other Views* in *Task Views*, and click on *Task Sheet*
- 3. Click on *Tables* in the *Data* group and click on *Schedule*

Handy to Know...

 Slack time is that period in a task between the earliest date in which a task can start and the latest date in which the task can start. The period is *slack*, meaning that the task can begin anywhere between the earliest and latest start dates.

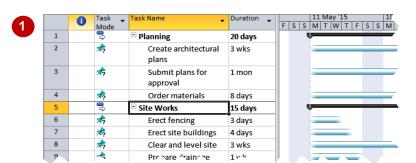
ENTERING MILESTONES

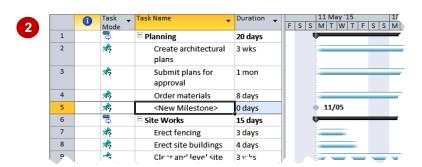
Milestones are significant events that occur in your project. A milestone is entered like a normal task except that it is assigned a duration of zero. Milestones can be entered when you first create

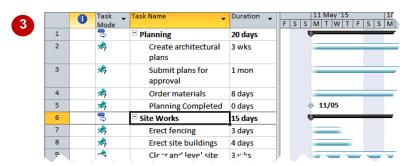
your project, or, as in our case, after you have entered your tasks. *Milestones* are handy to use as reference points in your project to identify key targets or goals that have been achieved.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file J403 Durations_3.mpp...
- Click on the **Site Works** summary task to select it
- Click on the *Task* tab on the *Ribbon* and click on *Milestone* in the *Insert* group to create a milestone in the project at the end of the *Planning* phase
- Type Planning
 Completed and press
- Repeat the above steps and add milestones at the end of each of the project's remaining phases as shown
- Press Ctrl + Home, then save the project









For Your Reference...

To create a *milestone* in a project:

- 1. Click in the location for the milestone
- 2. Click on the *Task* tab on the *Ribbon* and click on *Milestone* in the *Insert* group
- 3. Type a name for the milestone and press

Handy to Know...

 Milestones have zero duration because they are designed to highlight a particular point in the project. You can convert any existing duration into a milestone by changing its duration to zero.