

CHAPTER 6

RESOURCING A PROJECT

INFocus

WPL_J405

Resources are the *people, equipment, facilities, costs* and *materials* required to complete the tasks of your project. Microsoft Project requires you to create a **resource sheet** which lists the resources required to perform the tasks of your project.

You can enter resources on an **individual name** basis (e.g. John Smith) or as a **consolidated group** (e.g. carpenters). The method you use depends entirely upon the nature of your business and the scope of your project.

These resources form what is referred to as a **resource pool**.

In this session you will:

- ✓ gain an understanding of resources in **Microsoft Project**
- ✓ learn how to enter **Work** resources into a project
- ✓ learn how to create material resources
- ✓ learn how to enter cost resources into a project
- ✓ learn how to assign calendars to resources
- ✓ gain an understanding of resource availability
- ✓ learn how to change resource availability
- ✓ learn how to change the display of resource units.

UNDERSTANDING RESOURCES

Resources are the second main part of a project. While tasks identify the individual components and steps of a project it is the resources that actually get the job done. In Microsoft Project

resources can be anything required to perform tasks – people, equipment, facilities, materials, and even costs. These are categorised into three main resource types: **work**, **materials** and **costs**.

Resource Types

To facilitate working with and tracking resources, Microsoft Project requires you to categorise your resources into one of three types.

- Work** **Work** resources are ones that are associated with time. People are work resources as they are tracked by the amount of time that they spend on a task. Similarly equipment used in a project are also considered work resources as they are tracked by time. Tracking by time allows availability to be ascertained and over allocation of resources to be identified. It also allows costing to be tracked.
- Material** **Material** resources are assigned by quantity as opposed to time. For example, you may need 100 tonnes of gravel for a driveway, 20 litres of paint for the walls, or 200 metres of carpet.
- Cost** **Cost** resources are ones that are purely based on costs without any time or quantity variables. Costs can be things such as travel costs to attend a meeting, costs associated with building permits, or end of project party bash costs.

Units

While **Material** types are measured by quantity (e.g. metre, litre, tonne, etc) and **Cost** types are measured by a numeric value, **Work** types are a little trickier.

It would be fair to assume that a numeric quantity value could be applied to a **Work** resource. For example, 1 mechanic, or 2 bulldozers, etc. However, problems emerge when the **Work** resource is not fully available to your particular task or even project. For example, what do you do with a *Supervisor* who might be spending half of the time on your project, and the other half on your colleague's project?

The answer lies in nominating the units of a **Work** resource as a percentage rather than an integer value. In Microsoft Project when you set up a resource pool the default unit of measure for a **Work** resource is 100%. This means that you have one of these work resources available full-time to your project. If you have three Carpenters they would be entered as 300%. Your half-time Supervisor would be entered as 50%.

Naming Resources

The most common type of resource used in projects is usually the **Work** type. These are the people and equipment used to complete the necessary tasks.

Your first task before resources can be assigned to the tasks in your project is to create a resource pool – a pool basically identifies the resources that will be available to undertake the tasks.

The first dilemma you'll face in using Microsoft Project is deciding just how deep into the naming of your resources that you want to go. For example, will you be naming people using their names or are you happy to keep it at job titles? Do you use a generic name for your equipment (e.g. *Dozer*) or do you specifically identify a piece of equipment, say by its registration or serial number?

The answer really depends on the size, purpose, and nature of your project. Larger projects as a rule are probably best set up with either job titles or occupations (e.g. *Mechanic*, *Welder*, etc).

In our case study project we will be using occupational titles.

ENTERING WORK RESOURCES

By far the most common type of resource you'll be entering into a project will be **Work** resources. The **Work** type is used for labour and equipment. When you enter a **Work** resource you can

provide information such as a **name**, the **maximum units** available to the project, and other optional information such as a **group** which can later be used for filtering resources.

Try This Yourself:

Open File

Before starting this exercise you **MUST** open the file J405 Resources_1.mpp...

1 Click on the **View** tab on the **Ribbon** and click on **Resource Sheet** in the **Resource Views** group

2 Click in the first **Resource Name** cell, type **Architect** and press **Tab** to jump to the **Type** column

Notice that a number of default items have been entered for you in the row...

3 Click in the **Initials** cell, type **Arc** and press **Tab** to jump to **Group**

4 Type **Consultant** in **Group** and press **Tab** to jump to **Max**

5 Ensure that **Max** shows **100%** and press **Enter** then **Home**

6 Repeat the above steps and enter the other resources as shown

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	Architect	Work		A		100%	\$0.00/r

2

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	Architect	Work		Arc	Consultant	100%	\$0.00/r

5

6

Name	Initials	Groups	Max. Units
Architect	Arc	Consultant	100%
Draftsperson	Dft	Staff	200%
Building Clerk	BC	Staff	100%
Supervisor	Sup	Staff	100%
Rigger	Rig	Wages	600%
Boilermaker	BM	Wages	600%
Welder	Weld	Wages	500%
Carpenter	Car	Wages	800%
Painter	Ptr	Wages	500%
Labourer	Lab	Wages	1,000%
Driver	Drv	Wages	300%
No Barrier Fencing	NBF	Contractor	100%
Rock Solid Concrete	RSC	Contractor	100%
Listen Ear Audio	LEA	Contractor	100%
In Focus Video	IFV	Contractor	100%
Pure Grass Turf	PGT	Contractor	100%
Building Inspector	BI	Government	100%
High Jib Crane	HJC	Equipment	100%
Grader	Grd	Equipment	200%
Air Compressor	AC	Equipment	100%
Utility	Ute	Equipment	200%

For Your Reference...

To enter **Work resources** into a project:

1. Click on the **View** tab on the **Ribbon** and click on **Resource Sheet**
2. Click in the first free **Resource Name** cell
3. Type a **Name**, **Initials**, **Group** and **Max. Units** for the resource and press **Enter**

Handy to Know...

- Normally you would have also entered cost details here. However, this is not covered in this session, as we are concerned with creating the core of the resource pool only at this stage.

ENTERING MATERIAL RESOURCES

Material resources in Microsoft Project are resources that are consumed during the project. They could include: building supplies, paint, grass, aggregate used in road construction, cloth

and so on. When a material resource is added to the pool you will need to change the **Type** field to **Material**, as opposed to **Work**, which is the default.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file *J405 Resources_2.mpp...*

1 Ensure that the **Resource Sheet** appears, scroll down and click in the first empty **Resource Name** cell

2 Type **Astro Turf** and press **Tab** to jump to **Type**

3 Type **M** (for **Material**) and press **Tab** to jump to the **Material** column

The Material column (not to be confused with the Type column) is used to indicate a unit of measure...

4 Type **Square Metre** and press **Tab** to jump to **Initials**

5 Type **Grass** and press **Tab** to jump to **Group**

6 Type **Material** and press **Enter**

7 Repeat the above steps and add the material resources for paint as shown

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr
21	Utility	Work		U	Equipment	200%	\$0.00/i.
22	Astro Turf	Work		A		100%	\$0.00/h

2

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr
21	Utility	Work		U	Equipment	200%	\$0.00/i.
22	Astro Turf	Material		A			\$0.00

3

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr
21	Utility	Work		U	Equipment	200%	\$0.00/i.
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00

6

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
19	Grader	Work		Grd	Equipment	200%	\$0.00/hr
20	Air Compressor	Work		AC	Equipment	100%	\$0.00/hr
21	Utility	Work		U	Equipment	200%	\$0.00/i.
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00

7

For Your Reference...

To enter **material resources** into a project:

1. From a **Resource Sheet** view click in the first free **Resource Name** cell
2. Type a **Name** and set the type to **Material**
3. Type **Initials**, **Group** and **Material** for the resource and press **Enter**

Handy to Know...

- Two fields in the **Resource Sheet** are not applicable to a **Material resource**. The **Max** field is used to indicate variable availability, and so, does not apply to material resources. The other field is **Base Calendar** which is used only with work resources to indicate their availability.

ENTERING COST RESOURCES

The **Cost** resource type is used for ancillary costs in a project that are not linked to either time or to materials. In our case study project building permits are required to be obtained so that the

building phase can commence. In addition the project manager is going to put on a bit of a celebratory party for the workers at the end of the project. These are both **Cost** type resources.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file J405 Resources_3.mpp...

- 1 Ensure that the **Resource Sheet** appears, scroll down and click in the first empty **Resource Name** cell
- 2 Type **Building Permit** and press **Tab** to jump to **Type**
- 3 Type **C** (for **Cost**) and press **Tab** twice to jump to the **Initials** column
- 4 Type **BPerm** and press tab to jump to **Group**
- 5 Type **Cost** and press **Enter**
- 6 Repeat the above steps and add another cost resource for **End of Project Party** as shown

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
21	Utility	Work		U	Equipment	200%	\$0.00/h
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00
24	Building Permit	Work		B		100%	\$0.00/h

2

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
21	Utility	Work		U	Equipment	200%	\$0.00/h
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00
24	Building Permit	Cost		B			

3

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
21	Utility	Work		U	Equipment	200%	\$0.00/h
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00
24	Building Permit	Cost		BPerm			

4

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
21	Utility	Work		U	Equipment	200%	\$0.00/h
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00
24	Building Permit	Cost		BPerm	Cost		

5

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
21	Utility	Work		U	Equipment	200%	\$0.00/h
22	Astro Turf	Material	Square Metre	Grass	Material		\$0.00
23	Paint	Material	Litre	Paint	Material		\$0.00
24	Building Permit	Cost		BPerm	Cost		
25	End of Project Party	Cost		Party	Cost		

6

For Your Reference...

To enter **cost resources** into a project:

1. From a **Resource Sheet** view click in the first free **Resource Name** cell
2. Type a **Name** and set the type to **Cost**
3. Type **Initials** and the **Group** for the resource and press **Enter**

Handy to Know...

- Even though this is a **Cost** resource no costs are ever entered into a **Resource Sheet** for the resource. The costs are entered when the resource is assigned to a task.

ASSIGNING CALENDARS TO RESOURCES

Microsoft Project needs to know how much time your resources can work on a project. The daily commitment of your resources is controlled through the **resource calendar**. Ideally, your

resources work the same hours as those defined in the **standard calendar**. However, part timers and casuals make our world less than perfect because they tend not to work standard hours.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file J405 Resources_4.mpp...

1 Ensure that the **Resource Sheet** still appears and use **Ctrl** + **Home** to jump to the top of the list

We need to assign the special GBWU calendar to our contractors, since they work only a four day week...

2 Click on **Standard** in the **Base Calendar** for **No Barrier Fencing** and click on the drop arrow that has appeared to see the available calendars

3 Click on **GBWU Award** and press **Enter** to record the change

4 Press **Ctrl** + **Home** to return to the first resource

	Resource Name	Type	Material	Cost/Use	Accrue At	Base Calendar	Code
1	Architect	Work		.00/hr	\$0.00	Prorated	Standard
2	Draftsperson	Work		.00/hr	\$0.00	Prorated	Standard
3	Building Clerk	Work		.00/hr	\$0.00	Prorated	Standard
4	Supervisor	Work		.00/hr	\$0.00	Prorated	Standard
5	Rigger	Work		.00/hr	\$0.00	Prorated	Standard
6	Boilermaker	Work		.00/hr	\$0.00	Prorated	Standard
7	Welder	Work		.00/hr	\$0.00	Prorated	Standard
8	Carpenter	Work		.00/hr	\$0.00	Prorated	Standard
9	Painter	Work		.00/hr	\$0.00	Prorated	Standard
10	Labourer	Work		.00/hr	\$0.00	Prorated	Standard
11	Driver	Work		.00/hr	\$0.00	Prorated	Standard
12	No Barrier Fencing	Work		.00/hr	\$0.00	Prorated	Standard
13	Rock Solid Concrete	Work		.00/hr	\$0.00	Prorated	Standard
14	Listen Ear Audio	Work		1.00/hr	\$0.00	Prorated	Standard
15	In Focus Video	Work		.00/hr	\$0.00	Prorated	Standard
16	Pure Grass Turf	Work		.00/hr	\$0.00	Prorated	Standard
17	Building Inspector	Work		.00/hr	\$0.00	Prorated	Standard
18	High Tech Crane	Work		.00/hr	\$0.00	Prorated	Standard

2

	Resource Name	Type	Material	Cost/Use	Accrue At	Base Calendar	Code
1	Architect	Work		.00/hr	\$0.00	Prorated	Standard
2	Draftsperson	Work		.00/hr	\$0.00	Prorated	Standard
3	Building Clerk	Work		.00/hr	\$0.00	Prorated	Standard
4	Supervisor	Work		.00/hr	\$0.00	Prorated	Standard
5	Rigger	Work		.00/hr	\$0.00	Prorated	Standard
6	Boilermaker	Work		.00/hr	\$0.00	Prorated	Standard
7	Welder	Work		.00/hr	\$0.00	Prorated	Standard
8	Carpenter	Work		.00/hr	\$0.00	Prorated	Standard
9	Painter	Work		.00/hr	\$0.00	Prorated	Standard
10	Labourer	Work		.00/hr	\$0.00	Prorated	Standard
11	Driver	Work		.00/hr	\$0.00	Prorated	Standard
12	No Barrier Fencing	Work		.00/hr	\$0.00	Prorated	GBWU Award
13	Rock Solid Concrete	Work		.00/hr	\$0.00	Prorated	Standard
14	Listen Ear Audio	Work		1.00/hr	\$0.00	Prorated	Standard
15	In Focus Video	Work		.00/hr	\$0.00	Prorated	Standard
16	Pure Grass Turf	Work		.00/hr	\$0.00	Prorated	Standard
17	Building Inspector	Work		.00/hr	\$0.00	Prorated	Standard
18	High Tech Crane	Work		.00/hr	\$0.00	Prorated	Standard

3

For Your Reference...

To **assign a calendar** to a resource:

1. In a **Resource Sheet** view click on the calendar in **Base Calendar** to see a list of calendars
2. Click on the desired calendar from the drop list

Handy to Know...

- Unless you specifically assign a calendar to your resources, Microsoft Project will use the **standard calendar** of the current project.

UNDERSTANDING RESOURCE AVAILABILITY

As well as manipulating a resource's calendar, Project allows you to enter **availability dates** for a resource. This is useful to block out dates when the resource will not be available or where

availability may change during the project, eg. you may have a resource that is available full time for the first week, but then available for only half of the time in the following week.

Adjusting Resource Information

The resource availability information can be entered on the **General** tab in the **Resource Information** dialog box.

In this example, the architect is available on a full-time basis (100%) until June 26 (inclusive). The architect will then be unavailable until July 11. However, on July 12 the architect is available on a full time basis again.

The screenshot shows the 'Resource Information' dialog box with the 'General' tab selected. The 'Resource name' is 'Architect', 'Initials' is 'Arc', and 'Group' is 'Consultant'. The 'Booking type' is 'Committed' and 'Type' is 'Work'. The 'Resource Availability' table is as follows:

Available From	Available To	Units
NA	26/06/2015	100%
12/07/2015	NA	100%

In this example, a third line has been added. The architect is still available on a full-time basis (100%) until June 26 (inclusive). The architect will then still be unavailable until July 11. On July 12, until July 19, the architect will still be available on a full time basis again. From July 20, however, the architect will be available on a half-time basis (50%) only.

The screenshot shows the 'Resource Information' dialog box with the 'General' tab selected. The 'Resource name' is 'Architect', 'Initials' is 'Arc', and 'Group' is 'Consultant'. The 'Booking type' is 'Committed' and 'Type' is 'Work'. The 'Resource Availability' table is as follows:

Available From	Available To	Units
NA	26/06/2015	100%
12/07/2015	NA	100%
20/07/2015		50%

The **NA** is a little confusing because in normal language we might interpret this as **not available**. Here it actually means **not applicable**. You should leave **NA** in the field to indicate that the architect is available from the **Start Date** or until the **Finish Date** of the project.

ADJUSTING RESOURCE AVAILABILITY

Each resource in your resource pool has a **calendar** assigned to it. If you don't do anything then the **Standard** calendar in your project will be automatically applied to a resource. However,

once a calendar has been applied it can be modified either for all resources that use it, or for just one particular resource. We need to change some availability times for our **Architect**.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file J405 Resources_5.mpp...

- 1 Double click on the **Architect** to display the **Resource Information** dialog box
- 2 Click on the **General** tab if it is not the current tab
- 3 Click on **NA** in **Available To**, type **26/6/15** and click in **Available From** on the next line
- 4 Type **12/7/15** and press **Enter**
This indicates that the architect will not be available between 27/6/2015 and 11/7/2015...
- 5 Click on the **Notes** tab, click in the large white box and type:
The architect will be attending World Architects Day festivities in Sao Paulo between June 27 and July 11.
- 6 Click on **[OK]** and click on another resource to remove the heavy highlighting
Notice that a notes icon now appears beside the architect

The screenshots show the 'Resource Information' dialog box for the 'Architect' resource. The first screenshot shows the 'General' tab with the 'Resource Availability' table. The second screenshot shows the 'Notes' tab with a note entered. The third screenshot shows the resource list with a note icon next to the 'Architect' resource.

Available From	Available To	Units
NA	26/06/2015	100%
12/07/2015	NA	100%

Notes:
The architect will be attending World Architects Day festivities in Sao Paulo between June 27 and July 11.

	Resource Name	Type	Material	Initials
1	Architect	Work		Arc
2	Draftsperson	Work		Dft
3	Building Clerk	Work		BC
4	Sponsor	Work		Su

For Your Reference...

To **change availability** for a resource:

1. Double click on the resource
2. Change the **Resource Availability** dates in the **General** tab
3. Click on **[OK]**

Handy to Know...

- Double clicking on the **note** icon will display the note. You can also hover the mouse over the note icon to see the note in a tooltip.

CHANGING THE UNIT DISPLAY

Early versions of Microsoft Project displayed the **Max** units as integers rather than percentages. While percentages make more sense from a resource allocation and availability perspective,

you can change the display so that **Max** units appears as numbers if that suits the project you are working on.

Try This Yourself:


Same File

Continue using the previous file with this exercise, or open the file J405 Resources_6.mpp...

1

Click on the **File** tab, click on **[Options]** to display the **Options** dialog box and click on its **Schedule** tab

2

Click on the drop arrow  for **Show assignment units as a** and click on **Decimal**

3


Click on **[OK]** to see the **Max** column now appear with numbers rather than percentages

We'll change them back again for the case study...

4

Click on the **File** tab, click on **[Options]** and click on its **Schedule** tab

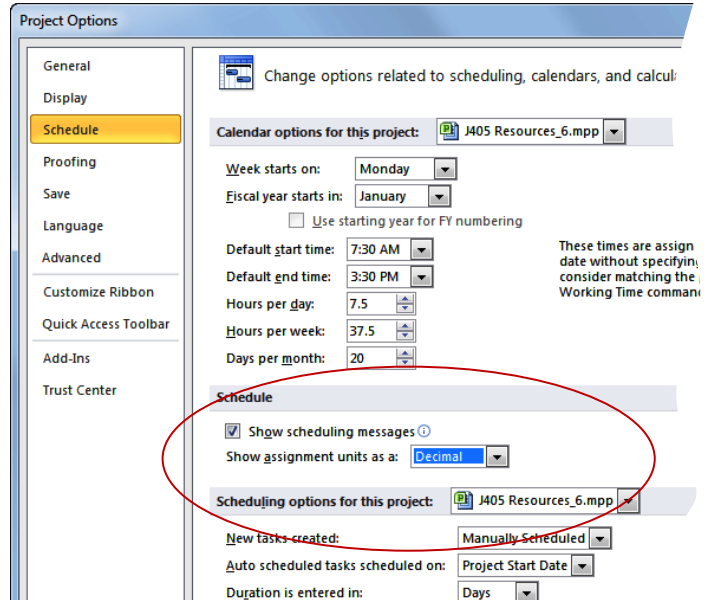
5

Click on the drop arrow  for **Show assignment units as a** and click on **Percentage**

6

Click on **[OK]**

2



	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.
1	Architect	Work		Arc	Consultant	1	\$0.00/hr	
2	Draftsperson	Work		Dft	Staff	2	\$0.00/hr	
3	Building Clerk	Work		BC	Staff	1	\$0.00/hr	
4	Supervisor	Work		Sup	Staff	1	\$0.00/hr	
5	Rigger	Work		Rig	Wages	6	\$0.00/hr	
6	Boilermaker	Work		BM	Wages	6	\$0.00/hr	
7	Welder	Work		Weld	Wages	5	\$0.00/hr	
8	Carpenter	Work		Car	Wages	8	\$0.00/hr	
9	Painter	Work		Ptr	Wages	5	\$0.00/hr	
10	Labourer	Work		Lab	Wages	10	\$0.00/hr	
11	Driver	Work		Drv	Wages	3	\$0.00/hr	
12	No Barrier Fencing	Work		NBF	Contractor	1	\$0.00/hr	

3

For Your Reference...

To **change the display** of resource units:

1. Click on the **File** tab, click on **[Options]** to display the **Options** dialog box and click on its **Schedule** tab
2. Click on **Show assignment units as a** and click on **Decimal**

Handy to Know...

- The **units** are used to calculate the work effort required for a task. While it may not seem like it now, it is much easier to see the logic of the work calculation when units are expressed as percentages. We recommend leaving the units as percentages.

