

Detailed assignment editing

Document author:	Andy Jessop
Produced by:	Project Learning International Limited
	www.projectlearning.net

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Related Document(s)

Detailed leveling parameters www.projectlearning.net/pdf/G2.2.pdf

Detailed assignment editing

Introduction

Many Microsoft Project users are rightfully wary of resource optimisation; levelling is often seen as a 'dark art' and clumsy editing of assignments can adversely affect the project's schedule. Once assignment editing is understood, however, it is a useful technique to model in greater detail how people will work against tasks and can often result in more realistic project schedules.

These tips and tricks illustrate the techniques available; from simple task splitting to timephased editing and the creation of assignment contours.

Background

By default, Microsoft Project schedules assignments automatically, based upon the scheduling formula. This creates a simple 'flat' assignment, with assigned units being at a constant rate throughout the duration of the assignment. As work in reality is usually performed at a variable rate (a change in assigned units over time), the default 'flat' contours can be overridden by manually editing assignment information

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Splitting a task


Often, when parallel assignments exist, one task has an inherently higher priority than another:

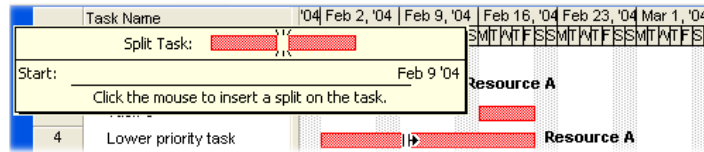


Resource A		Work	8h	8h	8h	8h	8h	16h	16h	16h	16h	16h
Task B	Work											
Lower priority task	Work											

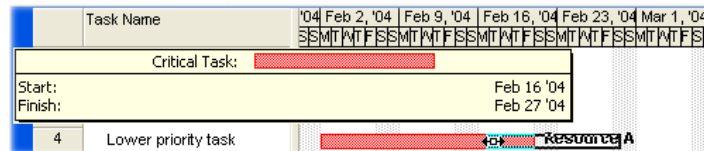
- There is a resource conflict for Resource A in week 2 (parallel assignments on Task B and the Lower priority task).

Although resource leveling using the leveling parameter 'Leveling can create splits in remaining work' could resolve the situation, it is sometimes better to apply a split manually to provide greater user control:

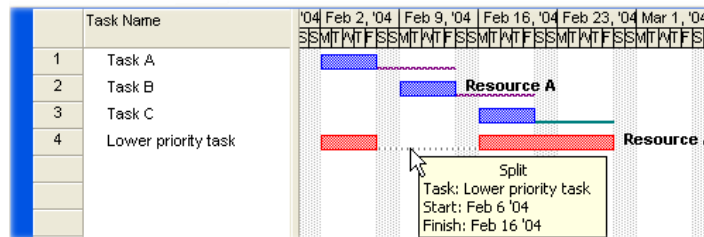
- Click on Split Task .
- Position the cursor at the point within the task's bar when the split will commence:



- Drag the split until the resume date, then release.



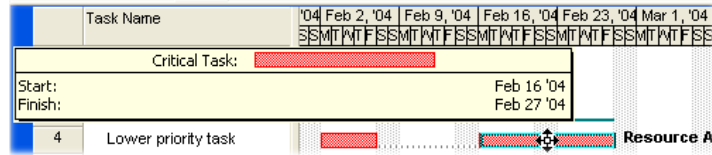
- Changing the task's schedule to:



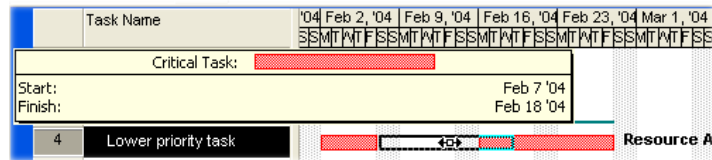
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Manually-created splits can also be removed:

- a. Position the cursor to the later part of the split:



- b. Drag the split to the left to join up with the pre-split part of the task, then release.



- c. Removing the split:



Hints

- Task splitting creates contoured assignments.
- Tasks can have several splits applied to them:



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Manual assignment delays


When one resource is assigned to a task, the assigned work will commence at the task's scheduled start date. If several resources are assigned, the task's scheduled start will be the date the earliest assignment can start and the task's scheduled finish will be when the last assigned work is finished. Normally, all resources will start at the same time and finish at the same time (if the resource's assigned work and shift patterns are the same). Assignments can be edited to change when they start, relative to the task's scheduled start.

Take the example below:

Task with 2 assignments	120 hrs	Work	16h	16h	16h	16h	16h	8h	8h	8h	8h	8h
Resource 1	80 hrs	Work	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h
Resource 2	40 hrs	Work	8h	8h	8h	8h	8h					

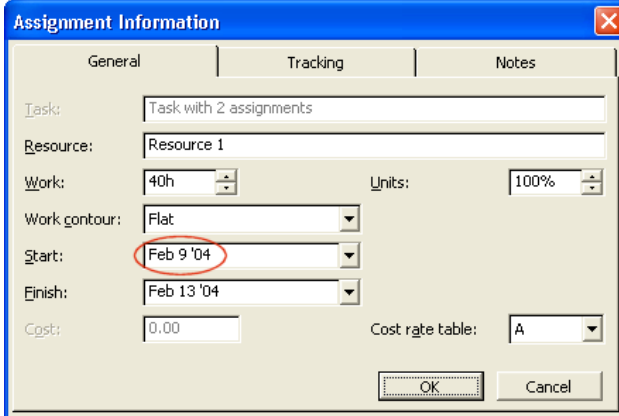
- Resource 1 has 80 hours of assigned work that will take 10 days to complete.
- Resource 2 has 40 hours of work that will be completed within 5 days.

To edit the assignment for Resource 2 to delay the start of the assignment until the beginning of the second week:

- To choose a suitable view, select Task Usage from the View menu.
- Select the assignment to change, then  (for the Assignment Information dialog):

2	Task with 2 assignments
	Resource 1
	Resource 2

- Edit the assignment start date and confirm with OK.



The Assignment Information dialog box is shown with the General tab selected. The fields are: Task: Task with 2 assignments; Resource: Resource 1; Work: 40h; Units: 100%; Work contour: Flat; Start: Feb 9 '04 (circled in red); Finish: Feb 13 '04; Cost: 0.00; Cost rate table: A. The OK and Cancel buttons are at the bottom right.

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d. Changing the schedule of the assigned work:

<input type="checkbox"/> Task with 2 assignments	120 hrs	Work	8h	8h	8h	8h	8h	16h	16h	16h	16h	16h
Resource 1	80 hrs	Work	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h
Resource 2	40 hrs	Work	0h	0h	0h	0h	0h	8h	8h	8h	8h	8h

Hints

- Any manually entered assignment delays can not be cleared by the Clear Leveling command (within the Resource Leveling dialog).
- Assignment delays can be viewed and edited within a task form view (from Window..Split).

Name: Task with 2 assignments
Duration: 10d
 Effort driven
Previous
Next

Start: Feb 2 '04
Finish: Feb 13 '04
Task type: Fixed Units
% Complete: 0%

ID	Resource Name	Work	R/D	Leveling Delay	Delay	Start	Finish
1	Resource 1	80h			0d	Feb 2 '04	Feb 13 '04
2	Resource 2	40h			0d	Feb 9 '04	Feb 13 '04

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Contoured assignments defined

By default, all assignments within a project have a 'Flat' contour. A flat contour takes the assigned work and distributes it evenly over the duration of a task:

Five day task	5 days	8h	8h	8h	8h	8h
Flat (no contour)		8h	8h	8h	8h	8h

A number of other pre-defined contour types are available:

Contour Type

Distribution of 40 hours of work

Back loaded

Five day task	8.33 days	0.87h	1.47h	3h	4h	5.67h				6.33h	8h	8h	2.67h
Back loaded		0.87h	1.47h	3h	4h	5.67h				6.33h	8h	8h	2.67h

Front loaded

Five day task	8.33 days	8h	8h	7h	6h	4.33h				3.67h	1.73h	1h	0.27h
Front loaded		8h	8h	7h	6h	4.33h				3.67h	1.73h	1h	0.27h

Double peak

Five day task	10 days	2h	4h	8h	4h	2h				2h	4h	8h	4h	2h
Double peak		2h	4h	8h	4h	2h				2h	4h	8h	4h	2h

Early peak

Five day task	10 days	2h	4h	8h	8h	6h				4h	4h	2h	1.2h	0.8h
Early peak		2h	4h	8h	8h	6h				4h	4h	2h	1.2h	0.8h

Late peak

Five day task	10 days	0.8h	1.2h	2h	4h	4h				6h	8h	8h	4h	2h
Late peak		0.8h	1.2h	2h	4h	4h				6h	8h	8h	4h	2h

Bell

Five day task	10 days	0.8h	1.6h	3.2h	6.4h	8h				8h	6.4h	3.2h	1.6h	0.8h
Bell		0.8h	1.6h	3.2h	6.4h	8h				8h	6.4h	3.2h	1.6h	0.8h

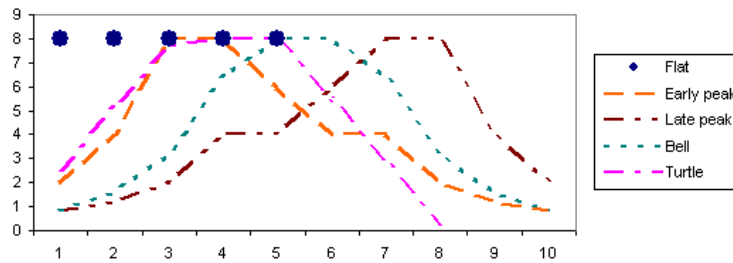
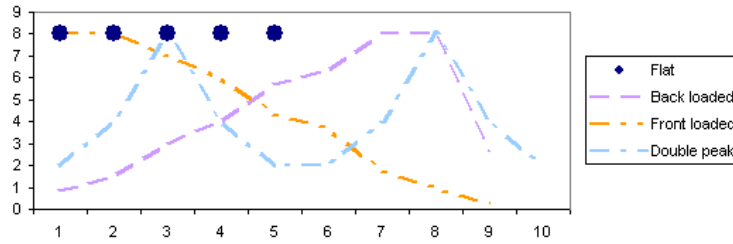
Turtle

Five day task	7.14 days	2.57h	5.15h	7.72h	8h	8h				5.43h	2.85h	0.28h
Turtle		2.57h	5.15h	7.72h	8h	8h				5.43h	2.85h	0.28h

- With most contours, a fixed units or fixed work task will increase its duration almost twofold as compared to a flat contour.

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This distribution can also be displayed in a graph:



Hints


- To review which assignments have contours, add a column to a table including the 'Work contour' field.
- To filter on contoured assignments, create a global filter with the filter criteria: "Work Contour <> Flat".
- With a fixed duration task, the duration will stay constant, and the assigned work will reduce:

Five day fixed duration	20 hrs		1.2h	4.8h	8h	4.8h	1.2h
Bell	20 hrs		1.2h	4.8h	8h	4.8h	1.2h

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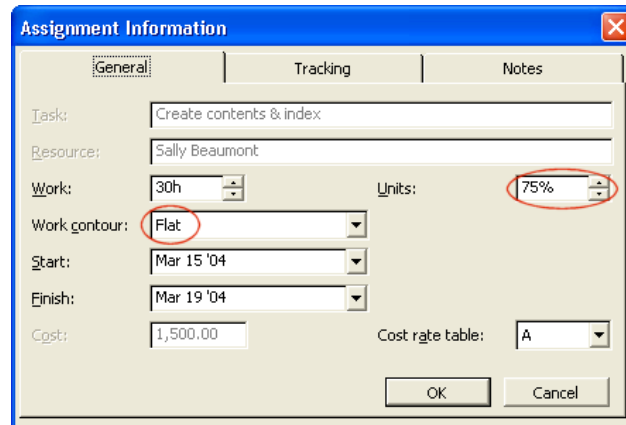
Editing contoured assignments

Assignments can quickly be changed from a flat profile to a predefined contour. If Sally Beaumont will be spending most of her efforts at the end of a task within the 'Manual' project, it can be changed from Flat to Back loaded:

- To choose a suitable view, select Task Usage from the View menu.
- Select the assignment to change, then  (for the Assignment Information dialog):

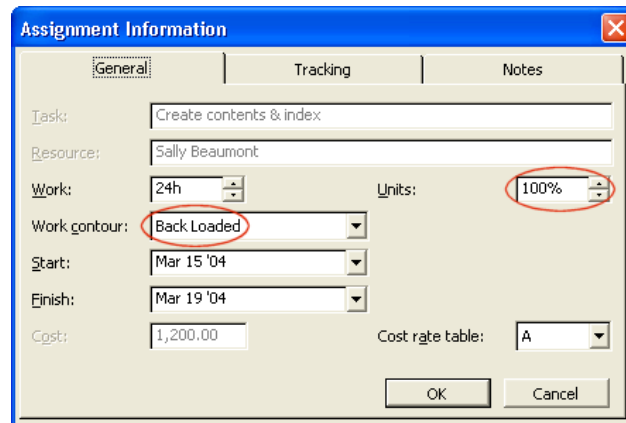
17	Create contents & index
	Sally Beaumont
	Tim Brown

- Change the work contour and assigned units from:



The 'Assignment Information' dialog box is shown with the 'General' tab selected. The 'Task' field contains 'Create contents & index' and the 'Resource' field contains 'Sally Beaumont'. The 'Work' field is set to '30h' and the 'Units' field is set to '75%'. The 'Work contour' field is set to 'Flat'. The 'Start' date is 'Mar 15 '04' and the 'Finish' date is 'Mar 19 '04'. The 'Cost' field is '1,500.00' and the 'Cost rate table' is 'A'. The 'OK' and 'Cancel' buttons are at the bottom.

- To:



The 'Assignment Information' dialog box is shown with the 'General' tab selected. The 'Task' field contains 'Create contents & index' and the 'Resource' field contains 'Sally Beaumont'. The 'Work' field is set to '24h' and the 'Units' field is set to '100%'. The 'Work contour' field is set to 'Back Loaded'. The 'Start' date is 'Mar 15 '04' and the 'Finish' date is 'Mar 19 '04'. The 'Cost' field is '1,200.00' and the 'Cost rate table' is 'A'. The 'OK' and 'Cancel' buttons are at the bottom.

- Confirm with OK.

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f. Changing the schedule of the assigned work:

Task Name	Work	Details	Mar 15, '04					
			14	15	16	17	18	19
Create contents & index	54 hrs	Work		7h	9h	11h	13h	14h
<i>Sally Beaumont</i>	24 hrs	Work		1h	3h	5h	7h	8h
<i>Tim Brown</i>	30 hrs	Work		6h	6h	6h	6h	6h

- Sally's assigned work progressively increases each day until the final day of the assignment is at the assigned units value.
- As the Create contents and index task is a fixed duration type, its duration has remained at 5 days. As such, Sally's assigned work has reduced to 24 hours.

Hints




- To remove a contour, edit the assignment and change the work contour to Flat.
- Contour types can be reviewed on a resource-by-resource basis using the Resource Usage view.

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Editing timephased work

In addition to predefined contours, timephased work can be directly edited. Exact work values can be manually entered against assignments; hour-by-hour, day-by-day or week-by-week. For example, to make Tim Brown work 4 hours per day on the task 'Create contents & index' within the 'Manual' project:




- To choose a suitable view, select Task Usage from the View menu.
- Enter the assigned hours value for the first day of the assignment:

Task Name	Work	Details	Mar 15, '04							
			14	15	16	17	18	19	20	
<input type="checkbox"/> Create contents & index	54 hrs	Work		7h	9h	11h	13h	14h		
 Sally Beaumont	24 hrs	Work		1h	3h	5h	7h	8h		
 Tim Brown	30 hrs	Work		4h	6h	6h	6h	6h		
 Manual completed	0 hrs	Work								




- Using the fill handle, drag the hours from the first timephased cell onto successive cells, then release.

Task Name	Work	Details	Mar 15, '04							
			14	15	16	17	18	19	20	
<input type="checkbox"/> Create contents & index	52 hrs	Work		5h	9h	11h	13h	14h		
 Sally Beaumont	24 hrs	Work		1h	3h	5h	7h	8h		
 Tim Brown	28 hrs	Work		4h	6h	6h	6h	6h		
 Manual completed	0 hrs	Work								

- Changing the assignment:

Task Name	Work	Details	Mar 15, '04							
			14	15	16	17	18	19	20	
<input type="checkbox"/> Create contents & index	44 hrs	Work		5h	7h	9h	11h	12h		
 Sally Beaumont	24 hrs	Work		1h	3h	5h	7h	8h		
 Tim Brown	20 hrs	Work		4h	4h	4h	4h	4h		
 Manual completed	0 hrs	Work								

Hints

- Manually edited contours have the indicator: 
- To remove a manual contour, edit the assignment and change the work contour to Flat. Note the work and units values as these will be calculated by Microsoft Project.
- When editing timephased work, check on the minor scale (bottom tier) units of the displayed timescale ( / ), as this relates to each cell entry. A daily scale will provide the most accuracy.
- 'Hours' are the default unit for work values, set from the Schedule tab of the Options dialog box (Tools..Options)..

Detailed assignment editing

Leveling edited assignments

When assignments have been edited, their schedule will invariably be altered as well. It is therefore prudent to apply resource leveling to the project. By default, leveling will firstly clear any leveling delays thus taking tasks back to their earliest start dates. Leveling will then be able to create an optimum schedule for resource assignments from their earliest dates forwards. This can be illustrated on a project that has been leveled, but now has resource conflicts:

- a. From the Tools menu, select Level Resources.
- b. Retain the default dialog box settings as ringed below.

The screenshot shows the 'Resource Leveling' dialog box with the following settings:

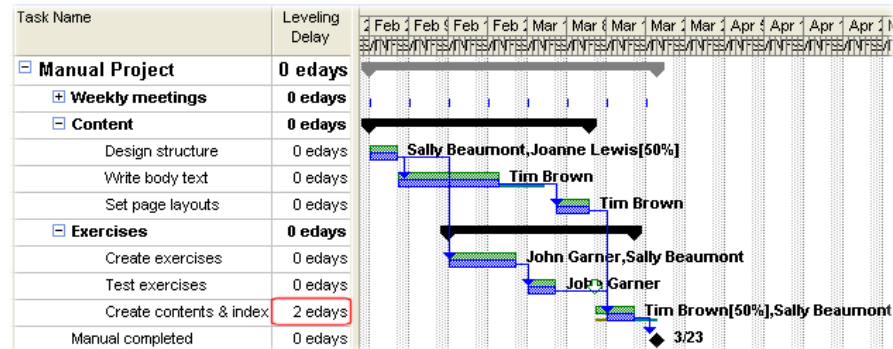
- Leveling calculations:** Automatic, Manual
- Look for overallocations on a **Day by Day** basis
- Clear leveling values before leveling (circled in red)
- Leveling range for 'Manual Project':**
 - Level entire project
 - Level From: Feb 2 '04 To: Mar 23 '04
- Resolving overallocations:**
 - Leveling order: Standard
 - Level only within available slack
 - Leveling can adjust individual assignments on a task
 - Leveling can create splits in remaining work

Buttons at the bottom: Help, Clear Leveling..., Level Now, OK, Cancel.

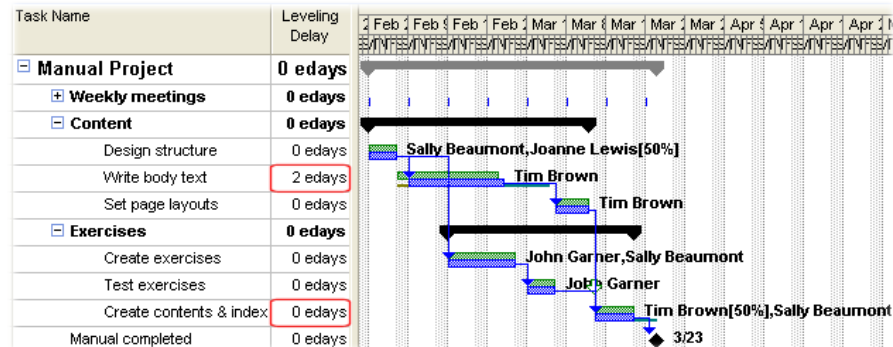
- c. Click **Level Now**.

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d. Changing the Leveling Gantt view from:



e. To:



- The leveling delay applied to Create contents & index has been removed as Tim could now commence work as soon as he has available working time (in this case his resource calendar provides working time Monday through Saturday).
- Write body text now has a leveling delay of 2 elapsed days. In this case, this is because Tim has an availability profile that states he is unavailable until February 9, 2004 (the beginning of the second week of the project).

Hints

- Every time a project's schedule is changed, check for resource conflicts, as they could have been inadvertently introduced.
- The Leveling Gantt view displays preleveled bars (in green), to compare to the current schedule (in blue).