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Linking Projects

Summary

The following document describes some possible methods to use with Microsoft Project when using a schedule that has inputs from an external schedule. This occurs when a Project Manager has a schedule that is affected by tasks done by other departments, internal or external, but those tasks and their completion are managed by a different Project Manager. The examples and techniques below show some ways to use the information provided by another schedule to update the main schedule.

Techniques

While there are numerous techniques available to the Project Manager to update a schedule with external information, the following ones are the most common and easiest to use. Descriptions, methods and pros/cons of using each of the following techniques are explained in more detail after this listing.

1. Inserting a subproject.
2. Inserting tasks
3. Inserting milestone tasks
4. Linking Schedules

Methods / Descriptions

Each of the techniques listed above are explained in more detail here.

1. Inserting a subproject

This method is useful for when another schedule must be completed in its entirety before the main schedule's tasks can be worked on again. For example, if you are the Project Manager for a house being constructed you would have one master schedule but perhaps the framer has their own schedule as well – which the framer manages. Other workers, like electricians, can't work until the framing is done. Since you don't control the framing tasks but need to know when those tasks are done you can insert the framing schedule. In this example, you would take the entire framing scheduling and insert it into the main schedule.

To insert a schedule into the main schedule, follow these steps:

1. Determine the appropriate location to insert the subproject



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2. In the main schedule, select the row AFTER where you want the subproject to be inserted
3. On the file menu, select Insert, then select Project
4. A pop up should appear titled “Insert a Project”
5. Select the project you want to insert
6. Click Insert
7. You can expand or leave minimized the subproject

This is an example where the subproject titled “Secondary Project” was inserted in the main schedule before the last task of the main schedule:

		Task Name	Duration	Start	Finish	Predecessors
0		<input type="checkbox"/> Main Schedule	36 days	Thu 7/31/08	Thu 9/18/08	
1		Main Schedule Task One	5 days	Thu 7/31/08	Wed 8/6/08	
2		Main Schedule Task Two	5 days	Thu 8/7/08	Wed 8/13/08	1
3		Main Schedule Task Three	5 days	Thu 8/14/08	Wed 8/20/08	2
4		Main Schedule Task Four	5 days	Thu 8/21/08	Wed 8/27/08	3
5		Main Schedule Task Five	5 days	Thu 8/28/08	Wed 9/3/08	4
6		<input type="checkbox"/> Secondary Schedule	6 days	Thu 9/4/08	Thu 9/11/08	5
1		Secondary Schedule Task One	2 days	Thu 9/4/08	Fri 9/5/08	
2		Secondary Schedule Task Two	2 days	Mon 9/8/08	Tue 9/9/08	1
3		Secondary Schedule Task Three	2 days	Wed 9/10/08	Thu 9/11/08	2
7		Main Schedule Task Six	5 days	Fri 9/12/08	Thu 9/18/08	6

The advantages of this method are:

- The tasks in the inserted project can be managed separately
- The original schedule only requires one modification for all the tasks of the subproject (adding the subproject)
- The inserted project can be managed entirely separately
 - Its work will be reflected in the original schedule
- The overall duration of the original schedule will reflect the inserted projects’ duration without modifying the original schedule
- The “% Complete” field will automatically reflect the updates to the inserted project
- The inserted project’s updates will only affect the schedule just as any one single task in the schedule would affect it
 - Therefore, if the subproject is 10 or 1000 tasks, its level of completion won’t drastically affect the original schedule’s “% Complete”



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- This is the least intrusive technique of all the alternative methods
- Modifying the inserted project's schedule information can be done in either the original schedule or the inserted project

The disadvantages of this method are:

- You may need to use a placeholder task if the subproject isn't defined at the beginning of the main schedule
- All of the subprojects tasks are visible in the main schedule



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2. Inserting tasks

This method incorporates all of the tasks from the subproject into the main schedule. Using the example of the house construction and the framer's schedules; this would mean putting all of the framer's tasks into the construction's main schedule.

To use this method, you would either build your schedule with the tasks of the subproject from the very start or you could copy and paste the tasks from the subproject into the main schedule.


To copy and paste, follow these steps:

1. Determine how many tasks from the subproject you are going to put into the main schedule
2. In the main schedule, select that many rows
 - a. Be sure to start your selection on the first row where you want the first task from the subproject to start
3. Select Insert from the file menu, then select New Task
4. Go to the subproject and copy the tasks that you want
5. In the main schedule, select the first empty row that you just created
6. Right click and select paste
7. Your tasks from the subproject should appear

In this example, I copied and pasted the tasks from the subproject (with the tasks having "secondary" in their names) into the main schedule.



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		Task Name	Duration	Start
0		<input type="checkbox"/> Main Schedule:	36 days	Thu 7/31/
1		Main Schedule Task One	5 days	Thu 7/31
2		Main Schedule Task Two	5 days	Thu 8/7
3		Main Schedule Task Three	5 days	Thu 8/14
4		Main Schedule Task Four	5 days	Thu 8/21
5		Main Schedule Task Five	5 days	Thu 8/28
6		Secondary Schedule Task One	2 days	Thu 9/4
7		Secondary Schedule Task Two	2 days	Mon 9/8
8		Secondary Schedule Task Three	2 days	Wed 9/10
9		Main Schedule Task Six	5 days	Fri 9/12

The advantages of this method are:

- There is only one schedule
 - This means not having to worry about any subprojects
- All the tasks are in one place
- All the resources are in one schedule
- All modifications to the schedule and to tasks are done in one place

The disadvantages of this method are:

- With only one schedule and two Project Managers you have to determine who can modify the schedule
- If both Project Manager's can modify tasks (even if it just the tasks they are responsible for) you can end up with conflict
- Each Project Manager's task changes will affect the overall schedule and that may not always be desirable
- Multiple sets of resources may have different requirements for updating their tasks and that can lead to conflict
- When setting this up, if you accidentally paste more tasks than you have made room for, you will overwrite existing tasks

3. Inserting Milestones

This method is when only a few select tasks from the subproject are incorporated into the main schedule. Using the house construction and framing example, this would be when the main construction schedule would have only a few tasks from the framing schedule. For example, as the Project Manager of the main schedule, you may only want to know



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about three tasks from the framer's schedule (when the lumber arrives, when they are half done framing and when they are done).

To use this method, you would either build your schedule with the milestone tasks from the very start or you could insert them later.

To insert milestone tasks into the main schedule, follow these steps:

1. Determine the appropriate location to insert the milestone tasks
2. In the main schedule, select the row AFTER where you want the milestone task(s) to be inserted
3. On the file menu, select Insert, then select New Task
4. Enter the task name for your milestone

In this example, two milestone tasks have been added to the main schedule and are designated with the word "milestone" in them:

		Task Name	Duration
0		<input type="checkbox"/> Main Schedule	34 days
1		Main Schedule Task One	5 days
2		Main Schedule Task Two	5 days
3		Main Schedule Task Three	5 days
4		Main Schedule Task Four	5 days
5		Main Schedule Task Five	5 days
6		Milestone Task One	2 days
7		Milestone Task Two	2 days
8		Main Schedule Task Six	5 days

The advantages of this method are:

- There is only one schedule
 - This means not having to worry about any subprojects
- All the tasks that you are concerned about are in one place
- You don't have to use the exact same name(s) as the subprojects schedule's tasks names
- You can aggregate tasks from the subproject to make your milestones
- All the resources are in one schedule
- All modifications to the schedule and to tasks are done in one place
- Because these are milestone tasks, you don't have to use resources on these tasks



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The disadvantages of this method are:

- You have to obtain updates from the Project Manager of the subproject and then translate those to your milestone tasks
- The updates of the main schedule are dependent on the Project Manager of the main schedule but come from the Project Manager of the subproject
- Because these are milestone tasks, you don't have to use resources on these tasks and so you may not know who is to be doing what work
- The milestone tasks need to represent the amount of time that they represent from the subproject
- If the subproject's task lengths begin to change, the milestone tasks in the main schedule need to be adjusted as well

5. Linking Schedules

This method is most useful if the main schedule and the subproject have tasks that are dependent on each other but do not necessarily require that the main schedule's tasks are not worked on while the subproject is being worked on. In the example of the house construction main schedule, this method would be most appropriate for the electrical and plumbing subprojects. Many tasks may be worked on in the main schedule while these subprojects are also being worked on. The house's main schedule will not be complete until each of these are done, but this work being done or not doesn't necessarily stop other tasks from occurring in the main schedule – like landscaping, or paving the driveway.

To link tasks from separate schedules, follow these steps:


1. Determine the exact and full path to the subproject
 - a. It will be something like this:
 - b. C:\Documents and Settings\userid\My Documents\schedule name.mpp
2. Determine the task(s) that you want to link from the main schedule and the subproject
3. Determine what the task id is in the subproject
4. In the main project, double left click on a task that has a predecessor task in the subproject
5. A pop up box title "Task Information" should open
6. Select the predecessors tab
7. Click in the next blank row in the id column
8. Select the blank address bar immediately beneath the word "Predecessors"



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- a. The red x and green checkmark should appear
9. Type the entire path to the task, for example:
 - a. C:\Documents and Settings\userid\My Documents\Subproject.mpp\2
 - b. This is for task 2
10. The words “external task” should appear
11. Select ok
12. Depending on your settings in tools and options, you may or may not see the link in the main task list
13. You should see the link in the predecessors column though

In this example, the subproject task 2, titled “Secondary Schedule Task Two” was linked as a predecessor to the main schedule’s task five. The linked task shows up in light gray in the main schedule in this example.

		Task Name	Duration	Start	Finish	Predecessors
0		<input type="checkbox"/> Main Schedule	39 days?	Thu 7/31/08	Tue 9/23/08	
1		Main Schedule Task One	5 days	Thu 7/31/08	Wed 8/6/08	
2		Main Schedule Task Two	5 days	Thu 8/7/08	Wed 8/13/08	1
3		Main Schedule Task Three	5 days	Thu 8/14/08	Wed 8/20/08	2
4		Main Schedule Task Four	5 days	Thu 8/21/08	Wed 8/27/08	3
5		Secondary Schedule Task Two	2 days	Mon 9/8/08	Tue 9/9/08	
6		Main Schedule Task Five	5 days	Wed 9/10/08	Tue 9/16/08	C:\Documents and Settings\userid\My Documents\Subproject.mpp\2
7		Main Schedule Task Six	5 days	Wed 9/17/08	Tue 9/23/08	6

The advantages of this method are:

- The subprojects’ work is reflected in the main schedule, but the main schedule’s Project Manager doesn’t have to update those subprojects
- Multiple paths for the schedule exist
- Tasks from many schedules can be worked on, maintained and updated simultaneously by multiple Project Managers
- You only see the subproject task(s) that you link to
 - If you have lots of tasks in the subproject you don’t have to see them all

The disadvantages of this method are:

- Visibility of the tasks of the subproject is lost
- It can become complex to maintain links between projects
- Modifications to the subproject timeline affect the main schedule
- Modifications to the main schedule affect the timeline of the subproject
- The update mechanism and timing of the subproject and main schedule may be different and result in unexpected time shifts



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- Understanding task dependencies between the main schedule and subprojects is critical for this to be an effective method