

# Task Dependency Types in Microsoft Project

## Dependency Types in Microsoft Project

When creating schedules in Microsoft Project the first thing that a Project Manager would typically do is to input the tasks involved in a project. These tasks then need to be linked to show the relationship between them. These links create task dependencies.

There are 4 different types of task dependency:

- **Finish-to-Start (FS):** The finish date of one task drives the start date of another.
- **Start-to-Start (SS):** The start date of one task drives the start date of another.
- **Finish-to-Finish (FF):** The finish date of one task drives the finish date of another.
- **Start-to-Finish (SF):** The start date of one task drives the finish date of another.

Finish-to-Start (FS)

Start-to-Start (SS)

Finish-to-Finish (FF)

Start-to-Finish (SF)

## The Finish-to-Start Dependency

This is the most commonly used dependency type, and it is also **the default dependency type** when linking tasks in Microsoft Project. Once Task A is complete, Task B can commence.

The screenshot displays the Microsoft Project interface. On the left, a task list table shows two tasks:

Task ID	Task Name	Duration	Start
1	Task A	3 days	Tue 7/3/12
2	Task B	3 days	Fri 7/6/12

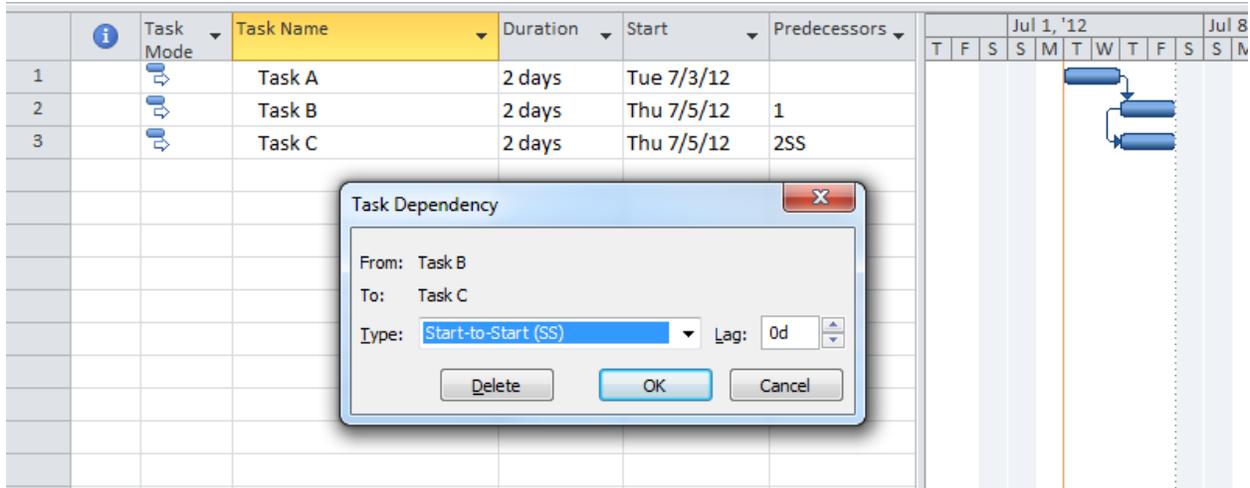
In the center, a 'Task Dependency' dialog box is open, showing the following configuration:

- From: Task A
- To: Task B
- Type: Finish-to-Start (FS)
- Lag: 0d

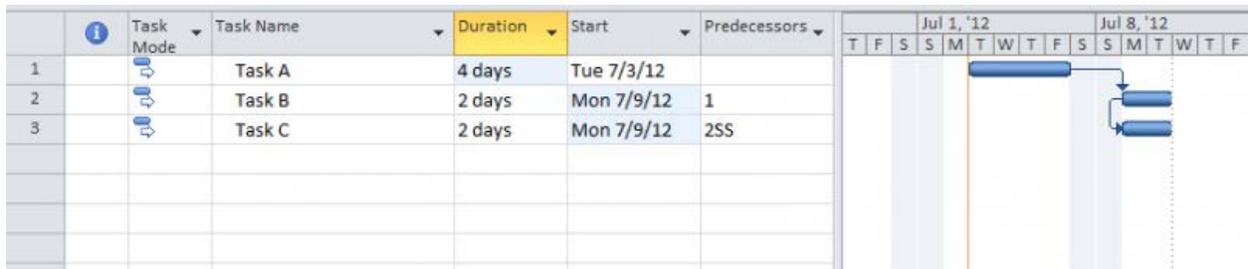
Buttons for 'Delete', 'OK', and 'Cancel' are visible at the bottom of the dialog. On the right, a Gantt chart shows a blue bar for Task A starting on Tuesday, July 3, 2012, and ending on Thursday, July 5, 2012. A second blue bar for Task B starts on Friday, July 6, 2012, and ends on Sunday, July 8, 2012. A blue arrow points from the end of Task A to the start of Task B, illustrating the Finish-to-Start dependency.

## The Start-to-Start Relationship.

This dependency type can be used to represent two tasks that should commence at the same time.

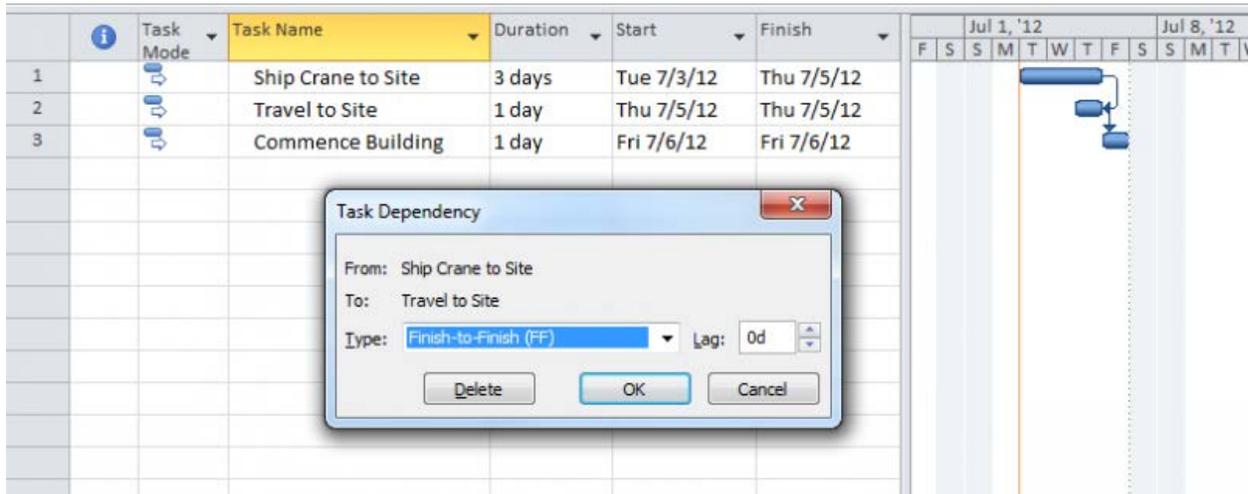


You can see in the example below that when Task A is extended, Task B and Task C move out. If you look at the predecessor column you can see that Task B is only dependent on Task A, however when Task A's duration is extended both tasks move out due to the Start-to-Start dependency. You may feel that a similar result could be achieved by making Task B and Task C dependent on Task A with a Finish-to-Start relationship, however using the Start-to-Start method, both tasks **MUST** start at the same time regardless of any other task dependency.

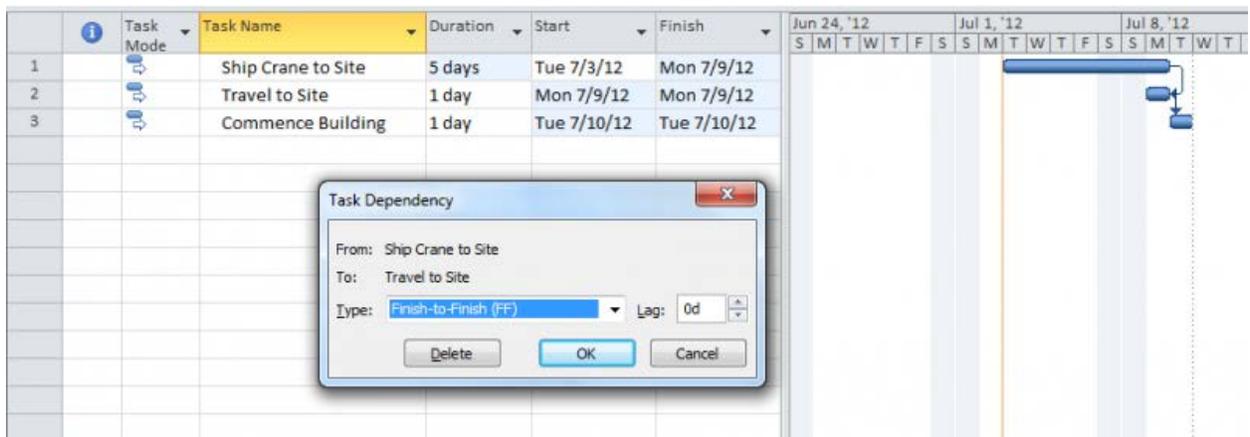


## The Finish-to-Finish Relationship.

In this example, 'Ship Crane to Site' and 'Travel to Site' are scheduled to finish at the same time, therefore 'Commence Building' should not commence until Both 'Ship Crane to Site' and 'Travel to Site' are complete. You can see in this example 'Ship Crane to Site' is scheduled to finish on 7/3 with a duration of 3 days. 'Travel to Site' is scheduled to finish on the same date 7/5 with a duration of one day. 'Commence Building' is dependent on the finish date of 'Travel to Site'.



When the duration of 'Ship Crane to Site' is extended to 5 days (as below), 'Commence Building' takes its start date from 'Ship Crane to Site' as that has a later finish date than 'Travel to Site'



## The Start-to-Finish Relationship

Finally the Start-to-Finish relationship. This relationship should be used when a task can only be started once another one has finished, BUT the date of the later task cannot be moved. Effectively you're planning backwards.

To help explain this fully, I will use the example that Tony Zink gave: You can see here that the task 'Conduct Interview with Sir Paul McCartney' is scheduled for 7/3/12. As Sir Paul is 'kind of a big deal' we will assume that the date of the interview cannot move. The scheduler plans two days for preparation; this works well as they can see that they need to start preparation on 6/29/12.

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Predecessors
1	Prepare for interview	2 days	Fri 6/29/12	Tue 7/3/12	2SF	2SF
2	Conduct Interview with Sir Paul McCartney	0.5 days	Tue 7/3/12	Tue 7/3/12		

**Task Dependency**

From: Conduct Interview with Sir Paul McCartney

To: Prepare for interview

Type: Start-to-Finish (SF) Lag: 0 days

Buttons: Delete, OK, Cancel

You may be thinking "Why not just make 'Prepare for interview' the predecessor task, 'Conduct Interview with Sir Paul McCartney' the successor task, and just have a normal Finish-to-Start relationship as below:

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Predecessors
1	Prepare for interview	2 days	Tue 7/3/12	Wed 7/4/12		
2	Conduct Interview with Sir Paul McCartney	0.5 days	Thu 7/5/12	Thu 7/5/12	1	1

**Task Dependency**

From: Prepare for interview

To: Conduct Interview with Sir Paul McCartney

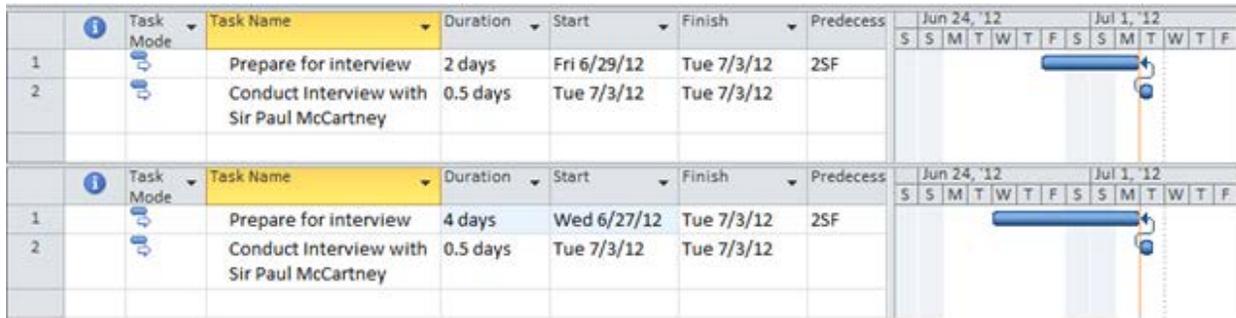
Type: Finish-to-Start (FS) Lag: 0 days

Buttons: Delete, OK, Cancel

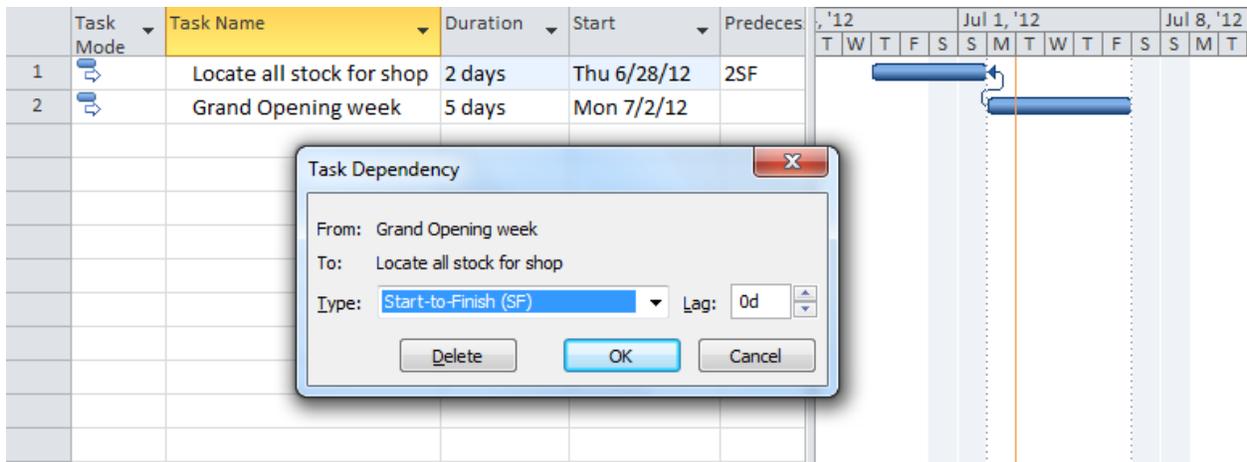
Well, should the interviewer decide that they want to prepare for 4 days as opposed to 2, that person would update the schedule to get the new date that they should start revising. However, in doing this, as the interview is dependent on the finish date of the preparation, the date of the interview is moved out by two days which as we know can't happen.

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Predecessors
1	Prepare for interview	4 days	Tue 7/3/12	Fri 7/6/12		
2	Conduct Interview with Sir Paul McCartney	0.5 days	Mon 7/9/12	Mon 7/9/12	1	1

However, when we use the 'Start-to-Finish' relationship when 'Prepare for Interview.' is extended by two days, you can see that the plan extends **backwards** in time as bellow:



Another example of use; Locate all stock for a shop:



All stock needs to be located and purchased before the grand opening week, if its decided that it will take more time to locate the stock we can plan backwards for this using the Start-to-Finish dependency type. This efficient scheduling should help us to ensure that the Grand Opening week will be go ahead as we have a date scheduled for the Grand Opening week we can get the fliers printed.

## Conclusion

Making use of these four types of dependencies will improve the schedules you produce in Microsoft Project. The Start-to-Finish relationship is one that is not used very often, however in certain circumstances you may find it necessary to “plan backwards”.