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Tasks Dependencies

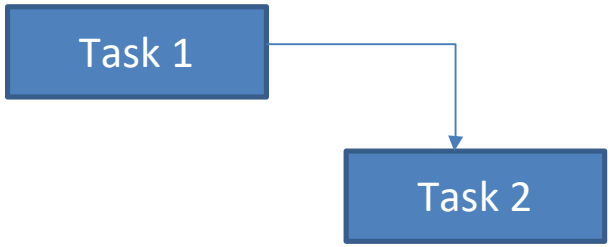
Project Tasks Identification

In the process of planning and creating the Work Breakdown Structure (WBS), we obtain:

- The relationship between deliverables (phases), tasks and subtasks (represented by the project outline)
- Project milestones
- Repetitive project tasks

Dependencies between Project Tasks

The next step is to analyze and document the dependency between the different tasks of the project. These dependencies include lead or lag times between tasks.

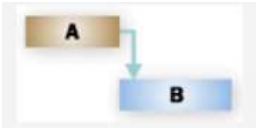


Types of Dependencies between Tasks

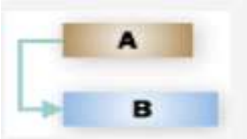
Tasks are linked by defining a dependency between their start and end dates.

There are 4 types:

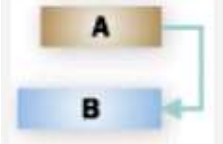
- Finish-to-start (FS) Default value



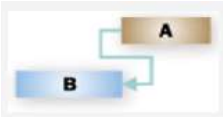
- Start-to-Start (SS)



- Finish-to-Finish (FF)



- Start-to-Finish (SF)

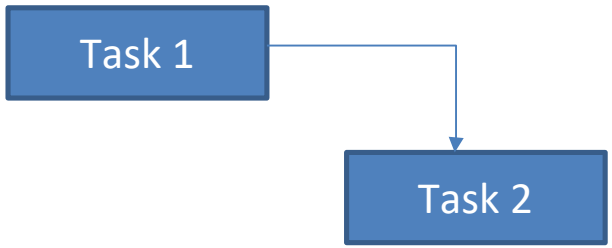


Finish-to-start (FS) Dependency *

Task 2 can begin once Task 1

Finish.

Example: The new product report should be done after the identification of the opportunity is completed.

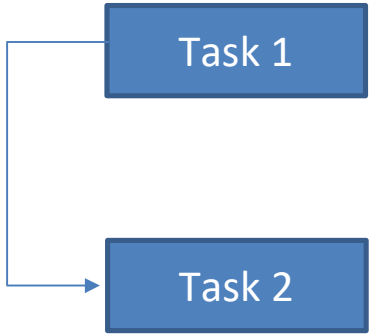


* Default value in Project

Start-to-Start (SS) Dependency

Task 2 can begin once Task 1 has started.

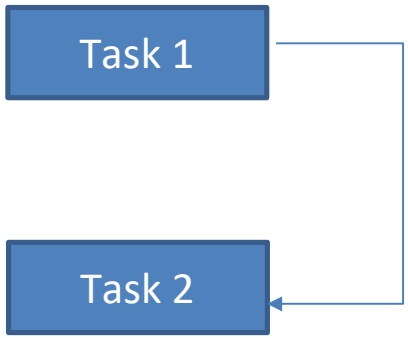
Example: The technical feasibility analysis can start at the same time as the economic feasibility analysis.



Finish-to-Finish (FF) Dependency

Task 2 may end until Task 1 has completed.

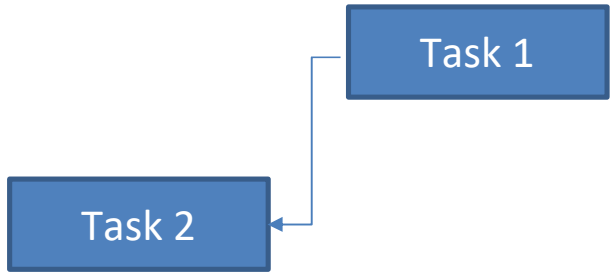
Example: The performance evaluation of the company's employees ends until the last evaluation has been carried out.



Start-to-Finish (SF) Dependency

Task 2 may end until Task 1 has initiated.

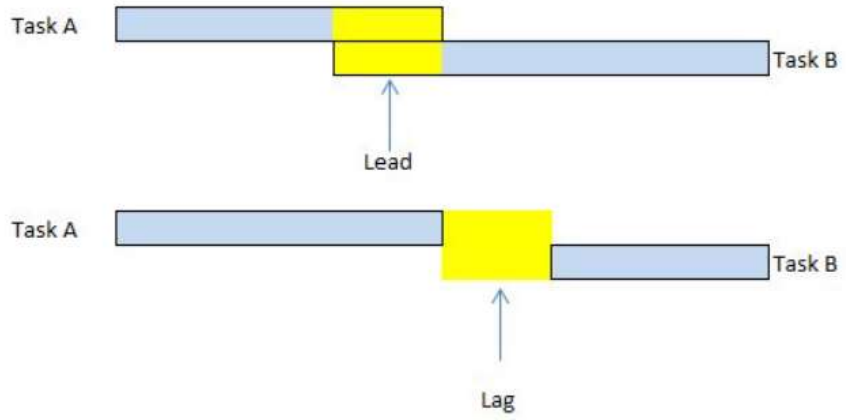
Example: Spacecraft take-off control activities may end when the mission or flight control team has initiated.



Lead and Lag Time

Sometime the execution of the tasks according to their dependence are not carried out "immediately".

Leads and Lags can be planned between dependent tasks.



Lead

Lead is the acceleration of a successor activity. In other words, the second activity can begin (and be conducted in parallel) as the first activity.

Lead is only found activities with finish-to-start relationships: A must finish before B can start.

Lead Example:
Shipment of wall materials must begin 2 days prior to completion of foundation.

Lag

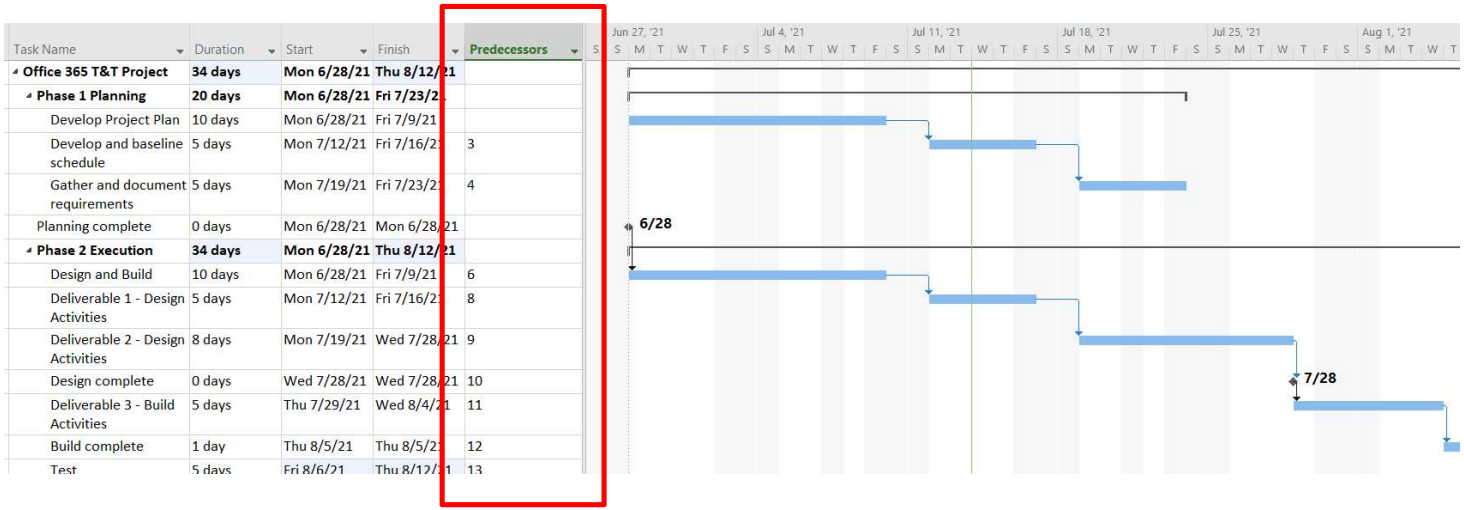
Lag is the delay of a successor activity and represents time that must pass before the second activity can begin. There are no resources associated with a lag.

Lag may be found in activities with all relationship types: finish-to-start, start-to-start, finish-to-finish, and start-to-finish

Lag Example: The placement of the ceramic must begin 8 hours after the end of the blasting the floor.

Dependencies between Project Tasks

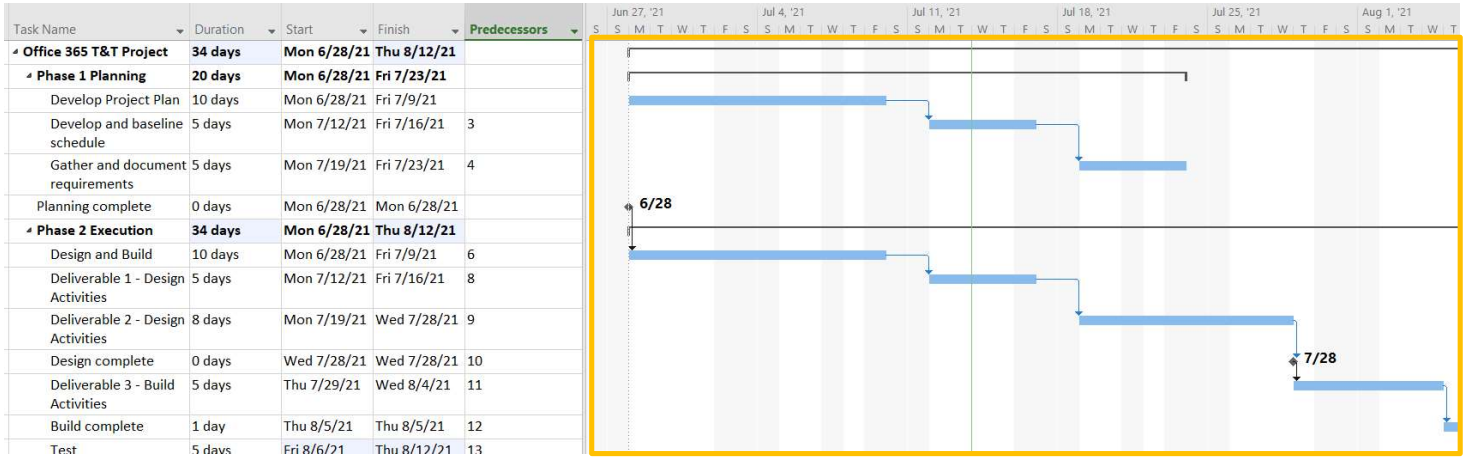
Dependencies listed in Project can be viewed in the Gantt Chart view and in the "Predecessors" column.



Task Name	Duration	Start	Finish	Predecessors
Office 365 T&T Project	**34 days**	**Mon 6/28/21**	**Thu 8/12/21**	
Phase 1 Planning	**20 days**	**Mon 6/28/21**	**Fri 7/23/21**	
Develop Project Plan	10 days	Mon 6/28/21	Fri 7/9/21	
Develop and baseline schedule	5 days	Mon 7/12/21	Fri 7/16/21	3
Gather and document requirements	5 days	Mon 7/19/21	Fri 7/23/21	4
Planning complete	0 days	Mon 6/28/21	Mon 6/28/21	
Phase 2 Execution	**34 days**	**Mon 6/28/21**	**Thu 8/12/21**	
Design and Build	10 days	Mon 6/28/21	Fri 7/9/21	6
Deliverable 1 - Design Activities	5 days	Mon 7/12/21	Fri 7/16/21	8
Deliverable 2 - Design Activities	8 days	Mon 7/19/21	Wed 7/28/21	9
Design complete	0 days	Wed 7/28/21	Wed 7/28/21	10
Deliverable 3 - Build Activities	5 days	Thu 7/29/21	Wed 8/4/21	11
Build complete	1 day	Thu 8/5/21	Thu 8/5/21	12
Test	5 days	Fri 8/6/21	Thu 8/12/21	13

Dependencies between Project Tasks

On the Gantt Chart, each task is represented by a bar. Dependencies are shown as an arrow. The task from which the arrow starts is the predecessor task and the task it arrives at is the successor.



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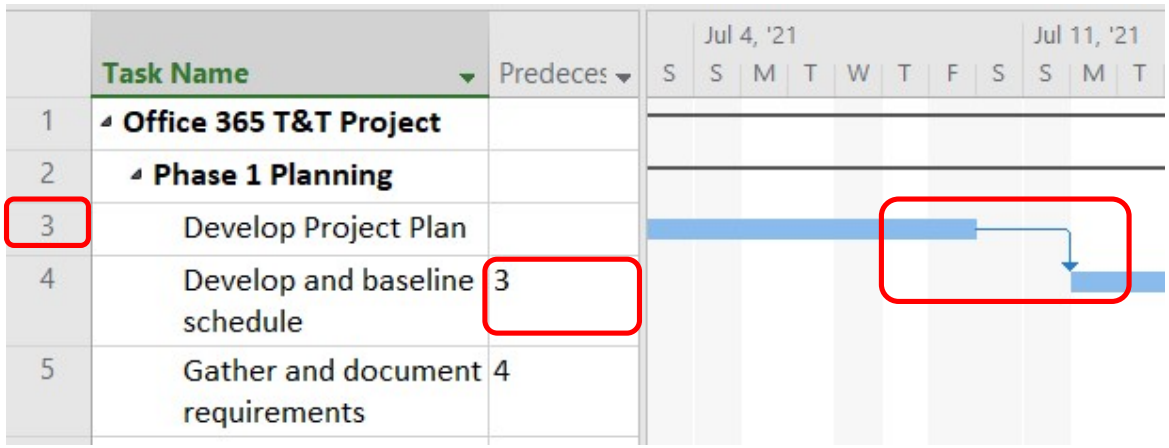
Dependencies between Project Tasks

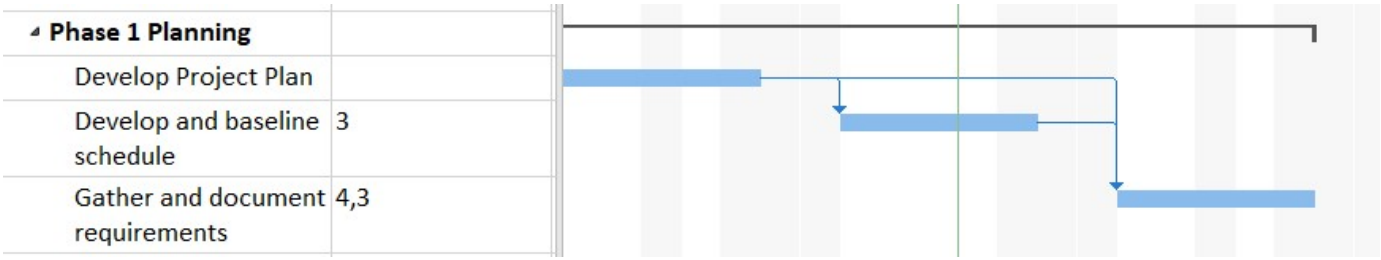
In the "Predecessors" column, the dependency information is indicated in text with the identification of the predecessor task (s). The task number indicated corresponds to the value in the “ID” column, the value of the column to the left of the task in the Gantt Chart.



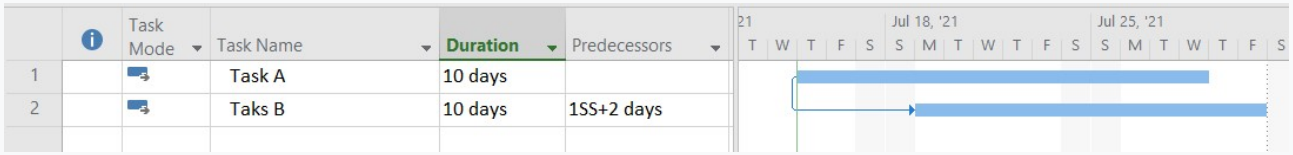
Dependencies between Project Tasks

Examples of values in the "Predecessors" column:
'3' Task 2 is the predecessor with a Finish-to-Start link.

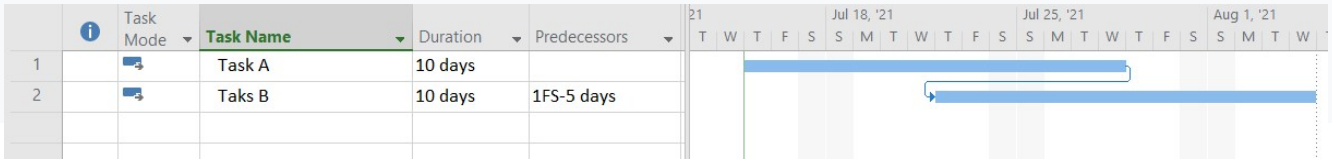
‘4,3’
Tasks 2 and 3 are predecessors with a link, both Finish-to-Start.



Examples of values in the "Predecessors" column:
‘1SS + 2 days’ task A is the predecessor with
a Start -to- Start link and a delay or lag value of 2 days.



‘5FS - 5 days’ task A is the predecessor with
a Finish to Start dependency and a 5-day advanced value.



Dependencies between Project Tasks

Tip

When entering the time unit of the leads\ lags you can use the abbreviations of the time units used for durations of tasks\ phases

Dependencies between Project Tasks

Option 1 -Using the Ctrl key

How?

1- Position yourself in the Gantt Chart view.

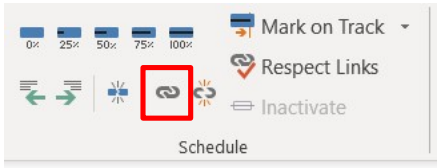
2- Select the first predecessor task.

3. Press the Ctrl key.

4. Select the following tasks, according to the order of precedence.

5. Release the Ctrl key.

6. On Task | Schedule, click the icon (Link the selected tasks)



Option 2 - Using the predecessor column

How?

1-Positions in the Gantt Chart view.

2- Enter the ID of the predecessor task (s) in the "Predecessors" column.

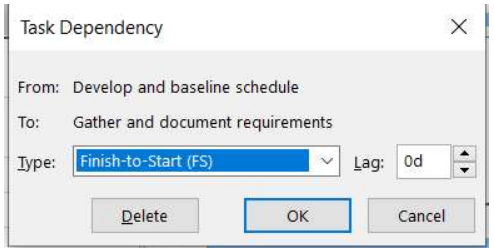
How to modify the Task Dependency

Option 1 -Using the graphic link

How?

1- Double-click the link between the tasks

2- Select the new link type in the dependency window between tasks.

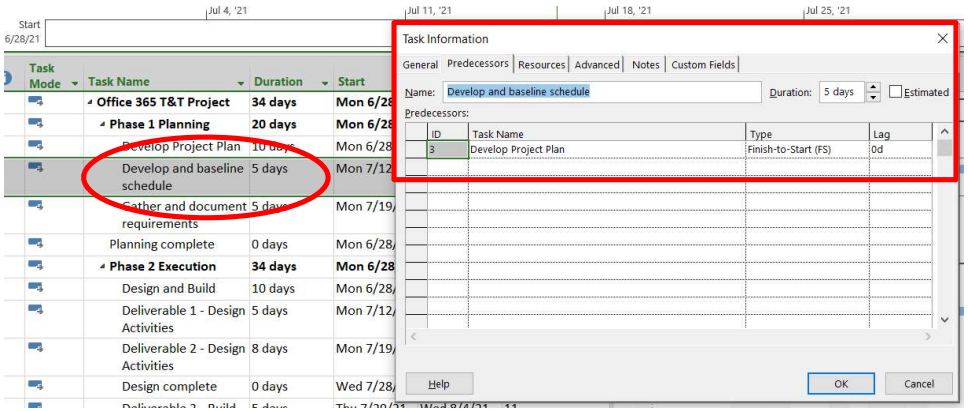


Option 2 - Using the successor task

How?

1- Double click the successor task

2-In the "Task Information" window, select the "Predecessors" tab and select the new type of link.



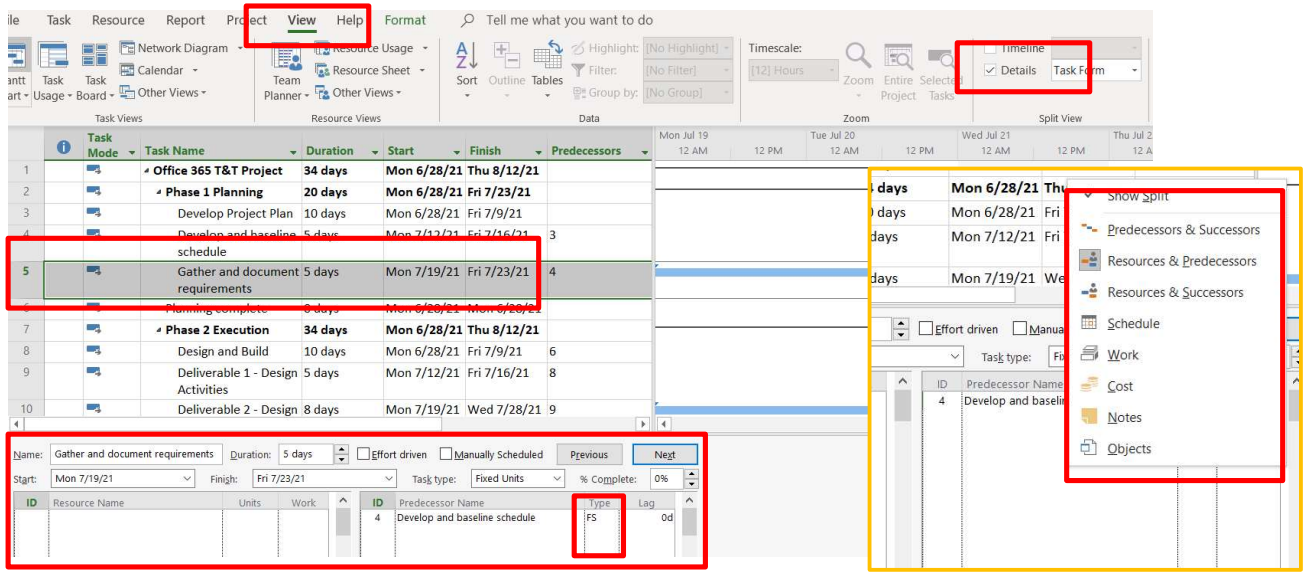
Option 3 - By Window Division

How?

1- Select the successor task. In View

2- Two-pane view, check the “Details” box

3. Optionally, change the form: In the "Details" area, right click and select the formula "Predecessors and successors. Modify the type of link in the column "Type".



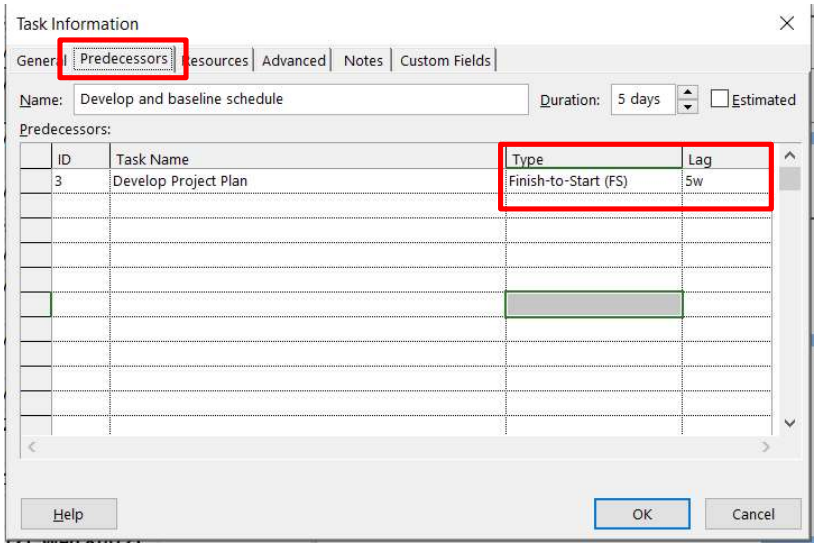
How to include lag time

Option 1

- In the "Task information" Window, tab “Predecessors”, type the Lag value in the column as a positive value.

Option 2

- In the "Predecessors" column, after the type link, include the delay value in positive. Example: 2FS + 0.5 w



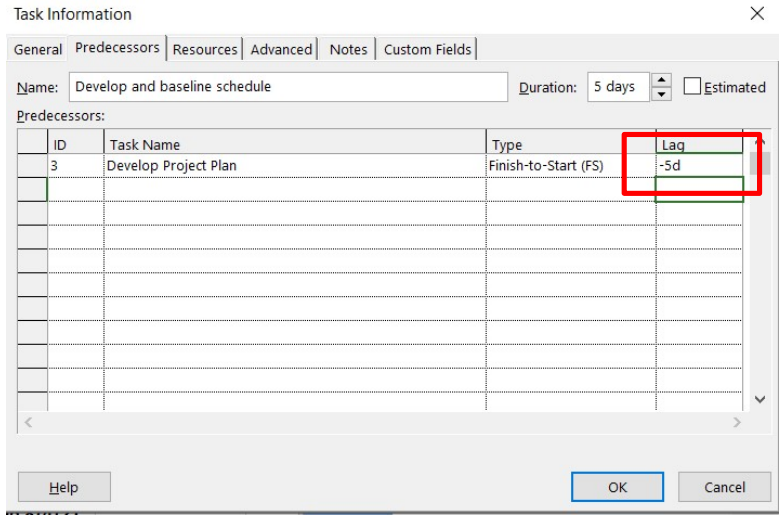
How to include lead time

Option 1

- In the "Task information" Window, tab “Predecessors”, type the Lag value in the column as a negative value.

Option 2

- In the "Predecessors" column, after the type link, include the delay value in positive. Example: 2FS - 0.5 w



Deliverable 3 - Build Activities	5 days	Thu 7/29/21	Wed 8/4/21	11
Build complete	1 day	Wed 7/21/21	Thu 7/22/21	2FS-0.5 wks
Test	5 days	Thu 7/22/21	Thu 7/29/21	13

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