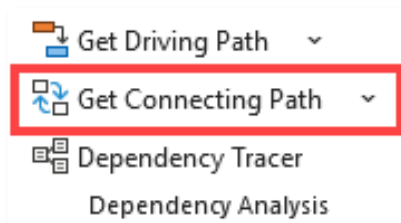


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SSi's Connecting Path Tool



SSi Connecting Path Analysis

Path Options | **Path Analysis**

Displaying: 6 - to - 10

UID	Name	Start	Finish
6	Preliminary Design Review (PDR)	5/13/2025	5/13/2025
65	Develop Detailed Design Drawings &...	5/14/2025	5/20/2025
66	Develop Software Detailed Design	5/14/2025	5/20/2025
68	Develop Deployment Plan	5/14/2025	5/20/2025
69	Generate Bill of Materials (BOM)	5/14/2025	5/20/2025
67	Perform Design Validation and Verifica...	5/21/2025	5/27/2025
71	Generate Presentation Materials for C...	5/28/2025	6/3/2025
72	Ensure CDR Exit Criteria Has Been Met	6/4/2025	6/4/2025
73	Conduct Critical Design Review (CDR)	6/5/2025	6/5/2025
7	Critical Design Review (CDR)	6/5/2025	6/5/2025
78	Procure & Receive COTS Materials	6/6/2025	6/19/2025
70	Develop Operation Maintenance & U...	6/20/2025	7/2/2025

Starting Task
 Unique ID: 6
 Name: Preliminary Design Review (PDR)

Ending Task
 Unique ID: 10
 Name: Production Readiness Review (PRR)

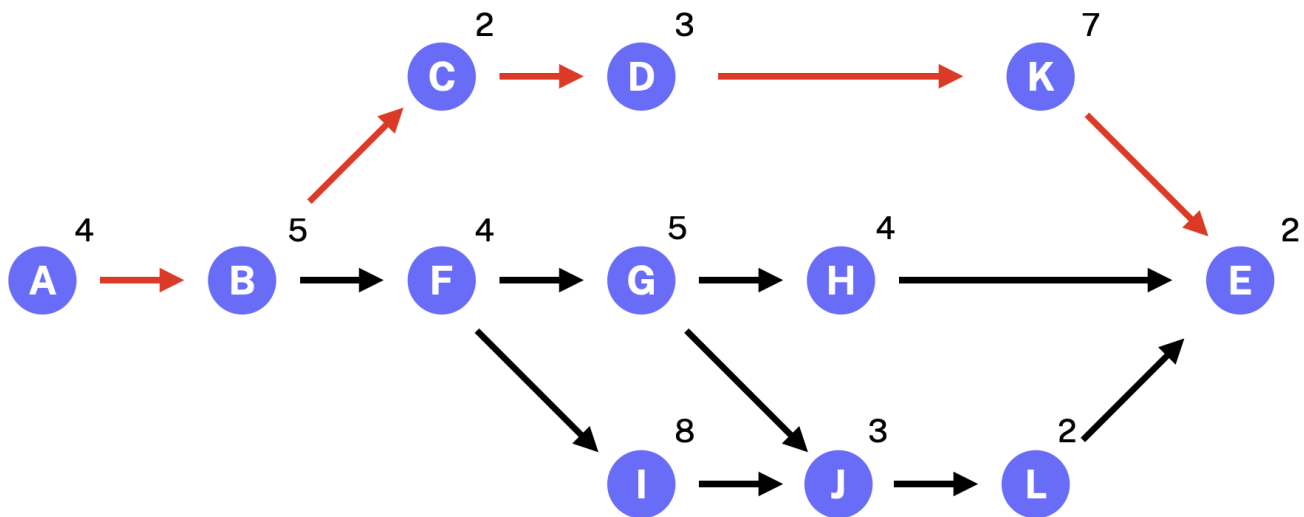
Overview

SSi's **Connecting Path Tool** enables Microsoft Project users to identify and analyze "Connecting Paths" between activities within a schedule. This tool is a valuable resource for verifying that activities which should be logically connected are properly linked, and for validating the entire chain of dependencies between them.

What is a “Connecting Path”?

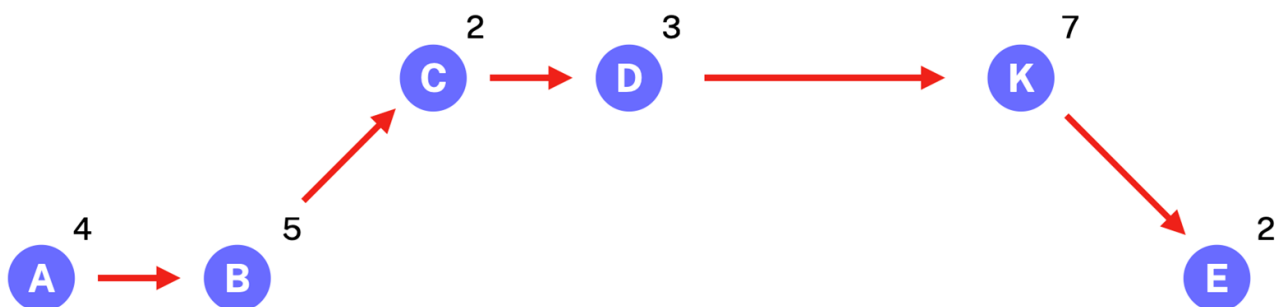
A **Connecting Path** is a set of logically connected activities that join a defined **starting** and **ending** point together. A Connecting Path contains **all** logically connected activities that connect the start to the end, not necessarily the **longest** or **shortest** chain of dependencies between them. A Connecting Path does not focus on what drives the end point or what is driven by the starting point. It is solely concerned with how activities are linked between the two.

Observe the following diagram:



Diagrams like the one above are commonly used to teach the **Critical Path Method (CPM)**, a scheduling technique used to identify the longest sequence of dependent tasks that drive a single focus point.

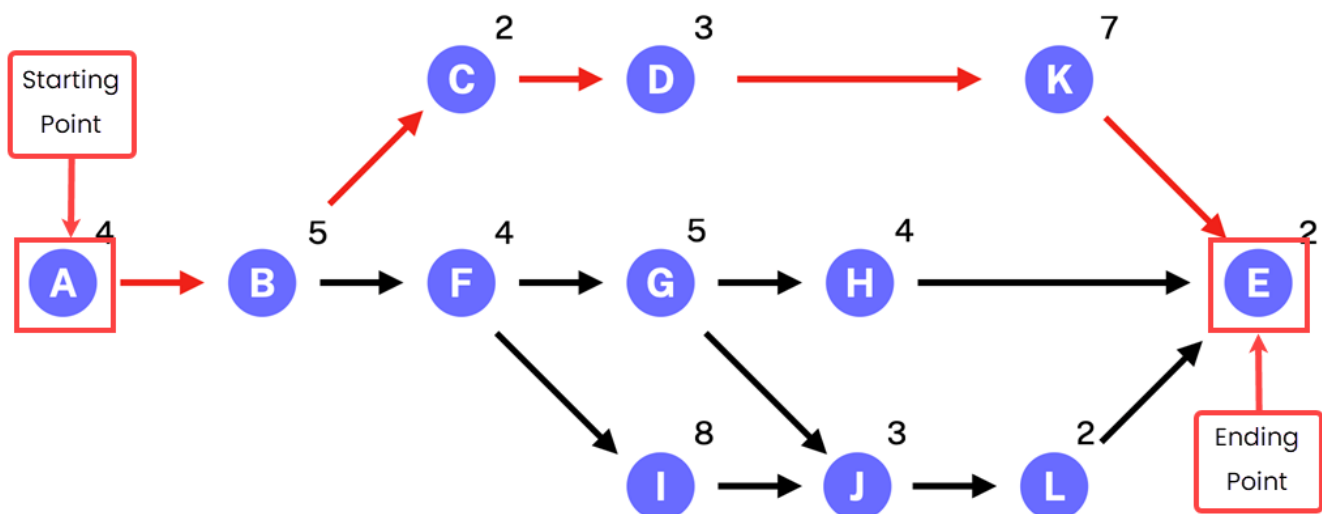
In this example, the goal is to reach **Task E**. The diagram illustrates various paths through the network of activities. By performing forward and backward passes, ultimately identify the **Critical or Driving path**—the sequence of tasks with zero float that directly drives the end point’s finish date, leads to a result like this:



Many software vendors, including SSI with its **Directional Path Tool**, have developed solutions that automatically calculate critical and driving paths. These tools focus on a **single point of interest**, identifying the logical chain of activities that either drive or are driven by that point.

However, there are situations where the goal isn't just to analyze what comes before or after a specific task. Instead, you may want to understand **how two distinct activities are connected** within the schedule—tracing the full path of dependencies that links them together.

In the context of the diagram, assume Task A is not the first task in the overall schedule, and Task E is not the final activity. They are simply two intermediate tasks within a larger network of activities. Now suppose you want to understand how Task A is connected to Task E. What we're really aiming to uncover is everything shown in the original diagram, a clear visualization of the **entire logical path** linking those two specific activities.



Understanding Driving Slack

Driving Slack is the amount of **schedule flexibility** (also known as **slack** or **float**) activities in a dependency chain have before they would begin to drive a designated **focus point**. In other words, it is the amount of time an activity's Start or Finish (depending on the dependency type) can be delayed before it begins to drive the focus point's **current** Start or Finish dates. A **focus point** refers to any task or milestone in the schedule that is selected as the starting point for analysis.

Unlike **Free Slack** or **Total Slack**, Driving Slack is *not* calculated or displayed by Microsoft Project. However, it is a meaningful and measurable concept that can be derived by analyzing the logical relationships between connected activities. Evaluating Driving Slack is the most accurate method for identifying true driving activities.

Understanding the differences between **Driving Slack**, **Free Slack**, and **Total Slack** is essential knowledge for any project scheduler to accurately interpret activity flexibility and schedule impacts.

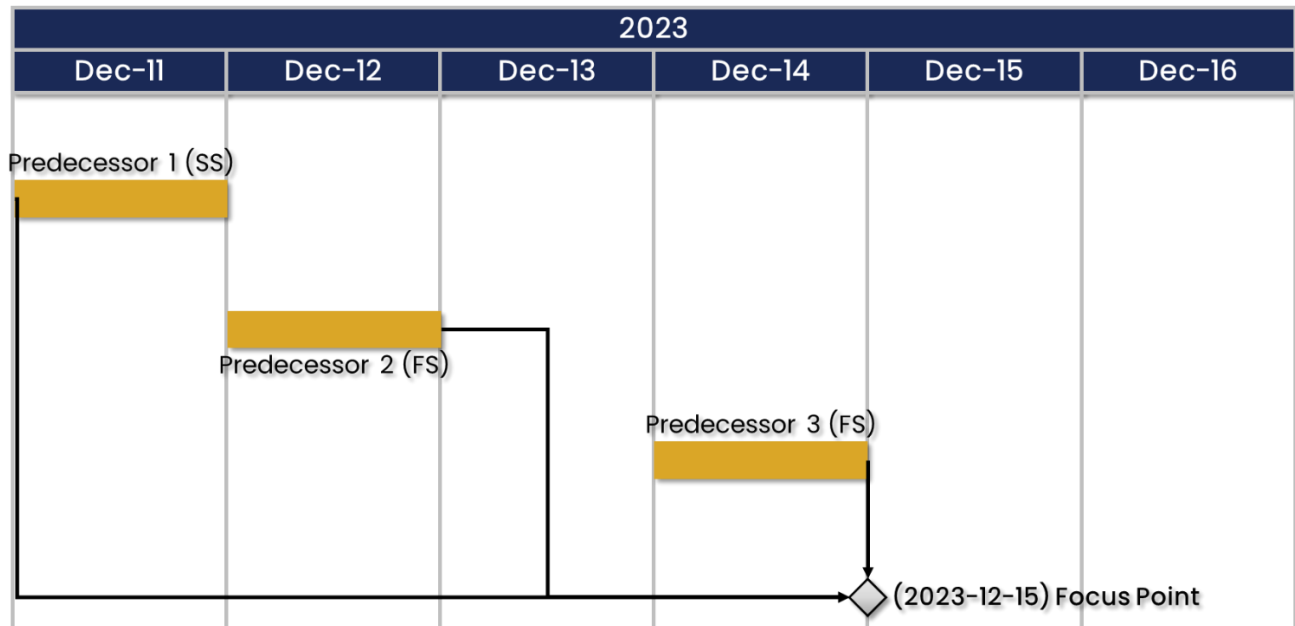
- **Driving Slack** – The amount of schedule flexibility activities logically connected to a **focus point** have before they would begin to drive it to its **current** dates. The “focus point” can be any task or milestone in the schedule and is determined at the time of the analysis. Activities *not* logically connected to the focus point will not have a driving slack value.
- **Free Slack** refers to the amount of schedule flexibility a task has relative to its nearest successor. Unlike Driving Slack, Free Slack does not account for whether the successor is part of a chain leading to the analysis focus point. As a result, a task's nearest successor may have no logical connection to the focus point.

Task Name	Free Slack
Perform Design Validation and Verification	0 d
Develop Deployment Plan	5 d

- **Total Slack** represents the amount of schedule flexibility a task has before it affects either a downstream task with a defined **deadline** or, if no deadlines exist in the workstream, the final task in the project. Total slack is useful for measuring how much time activities can be delayed without impacting critical deliveries or the end date of the project.

Task Name	Total Slack
Conduct User Acceptance Testing	0 d
Conduct Security Test and Evaluation	13 d

Understanding how Driving Slack is calculated is key to understanding how SSI's Dependency Analysis Tools work.



In the diagram above, a **milestone** is being used as the **focus point**. To calculate **Driving Slack**, the distance (in time) between the _____ of the **predecessor task** and the _____ of the **focus point** is measured. The blanks are filled with either **Start** or **Finish** based on the dependency type.

- **Predecessor 1** has a **Start-to-Start** relationship with the milestone, so Driving Slack is calculated by measuring the time between the start of **Predecessor 1** and the start of the **milestone**. This gives a Driving Slack value of **4 days**.
- **Predecessor 2** has a **Finish-to-Start** relationship with the milestone. Therefore, Driving Slack is the time between the finish of **Predecessor 2** and the start of the **milestone**, which is **2 days**.
- **Predecessor 3** also has a **Finish-to-Start** relationship with the milestone. Since Predecessor 3 finishes at the same time the milestone is scheduled to start, the Driving Slack is **0 days**.

When a task has **0 days of Driving Slack** to a focus point, it means the task is **directly driving** the start or finish of that activity—any delay in that task will immediately delay the focus point as well.

Driving Slack in Connecting Paths

Each activity in a connecting path can have two separate **Driving Slack** values calculated:

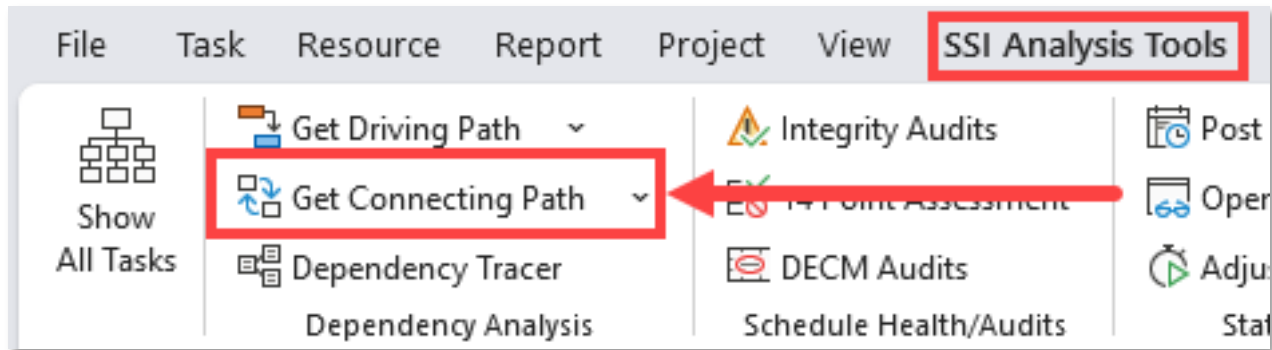
- **The amount of Driving Slack the connecting path activity has from the starting point:**
This value tells us how many days the **starting activity** of the connecting path could be delayed before it begins to drive the Connecting Path activity.
- **The amount of Driving Slack the connecting path activity has to the ending point:**
This value tells us how many days a Connecting Path activity could be delayed before it begins to drive the **ending activity** of the Connecting Path.

These two values are independent from each other and are calculated separately. The Directional Path tool has the ability to calculate these values and log them into custom **Number** or **Text** fields:

Task Name	Driving Slack from Start	Driving Slack to Finish	Half 2, 2025						
			M	J	J	A	S	O	
Preliminary Design Review (PDR)	0	4	5/13						
Develop Detailed Design Drawings & Documents	0	4							
Develop Software Detailed Design	0	4							
Develop Deployment Plan	0	9							
Genetate Bill of Materials (BOM)	0	9							
Perform Design Validation and Verification	0	4							
Generate Presentation Materials for CDR	0	4							
Ensure CDR Exit Criteria Has Been Met	0	4							
Conduct Critical Design Review (CDR)	0	4							
Critical Design Review (CDR)	0	4							
Procure & Receive COTS Materials	0	4							
Develop Operators, Maintenance & User Manuals	0	4							
Generate Presentation Materials for TRR	4	0							
Ensure TRR Exit Criteria Has Been Met	4	0							
Conduct Test Readiness Review (TRR)	4	0							
Test Readiness Review (TRR)	4	0							
Conduct Regression & System Testing	4	0							
Conduct Security Test and Evaluation	4	13							
Prepare Security Certification Documentation	4	13							
Verify and Validate User Documentation	4	0							
Conduct User Acceptance Testing	4	0							
Generate Presentation Materials for PRR	4	0							
Ensure PRR Exit Criteria Has Been Met	4	0							
Conduct Production Readiness Review (PRR)	4	0							
Production Readiness Review (PRR)	4	0							

Using the Connecting Path Tool

The Connecting Path Tool can be accessed through the **Dependency Analysis Group** of the **SSI Analysis Tools Ribbon**.

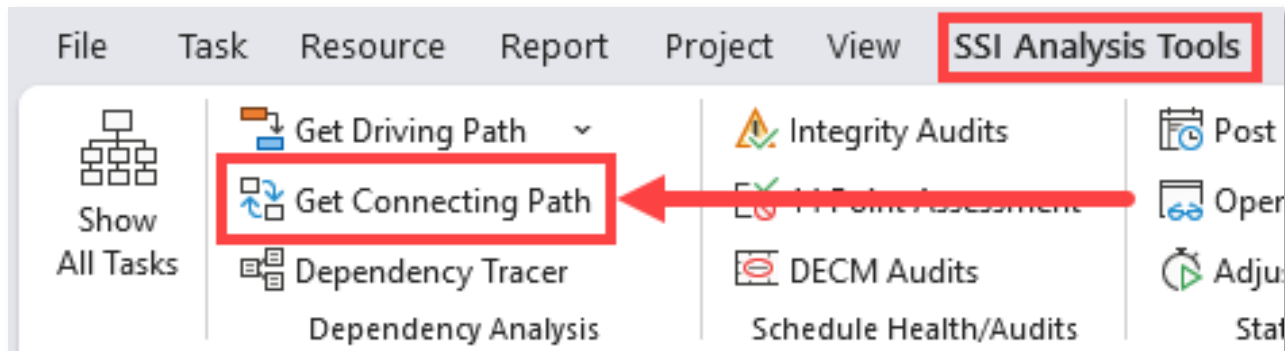


There are two ways to use the Connecting Path Tool to produce Connecting Paths:

1. Using the **Get Connecting Path Quick Access Button**
2. Using the **Connecting Path Tool form**

Using the “Get Connecting Path” Quick Access Button

You can instantly get a Connecting Path between two activities in the schedule by using the **Get Connecting Path button** in the SSI Analysis Tools Ribbon.



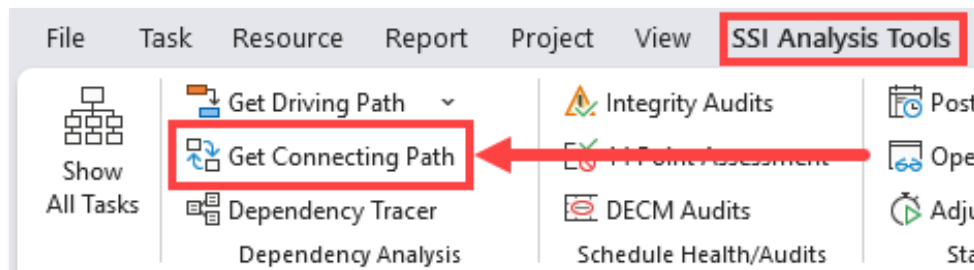
Before clicking the button, you must select **exactly two tasks** in the schedule you wish to see a Connecting Path between. You can click **any cell** within each task's row (you don't need to select the entire row), as long as each task is part of the selection. Hold down the **CTRL key** on your keyboard to select both tasks simultaneously.

The following steps outline the quickest method to use the Connecting Path tool to get a Connecting Path between two activities in the Schedule:

1. Select the two activities you wish to see the Connecting Path Between

Task Name	Start	Finish	May	Jun	Qtr 3, 2025
Design Milestones	2/26/25	6/5/25			
Solution Engineering Review (SER)	2/26/25	2/26/25			
System Definition Review (SDR)	4/11/25	4/11/25			
Preliminary Design Review (PDR)	5/13/25	5/13/25	5/13		
Critical Design Review (CDR)	6/5/25	6/5/25		6/5	
Test & Verification Milestones	7/18/25	11/11/25			
Test Readiness Review (TRR)	7/18/25	7/18/25			
Production Readiness Review (PRR)	9/11/25	9/11/25			7/18
Operational Readiness Review (ORR)	10/28/25	10/28/25			
Receive Authority to Operate (ATO)	11/11/25	11/11/25			

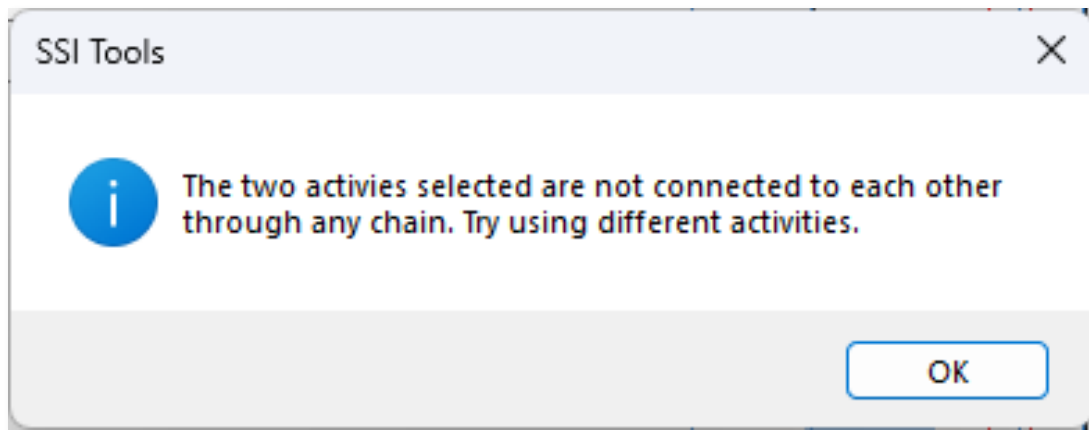
2. Click the **Get Connecting Path Button** in the SSI Analysis Tools Ribbon



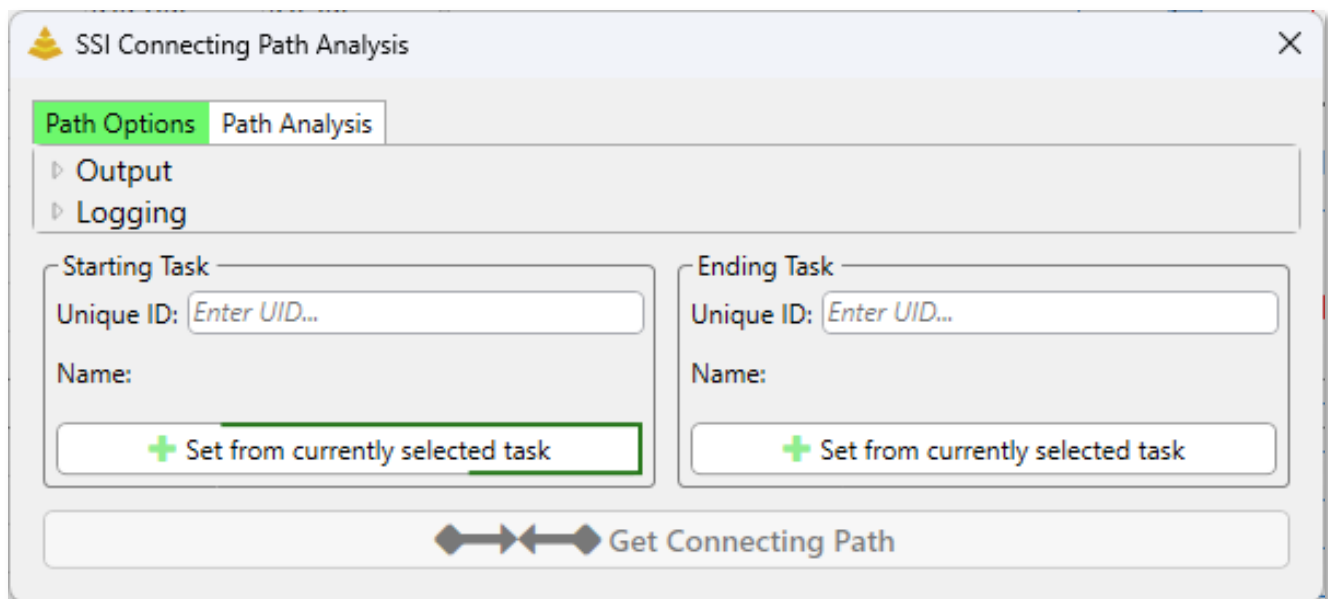
3. Output is shown in the **Gantt Chart**:

Task Name	Start	Finish	May	Jun	Qtr 3, 2025	Aug	Sep
Preliminary Design Review (PDR)	5/13/25	5/13/25	5/13				
Develop Detailed Design Drawings & Documents	5/14/25	5/20/25					
Develop Software Detailed Design	5/14/25	5/20/25					
Develop Deployment Plan	5/14/25	5/20/25					
Genetate Bill of Materials (BOM)	5/14/25	5/20/25					
Perform Design Validation and Verification	5/21/25	5/27/25					
Generate Presentation Materials for CDR	5/28/25	6/3/25					
Ensure CDR Exit Criteria Has Been Met	6/4/25	6/4/25					
Conduct Critical Design Review (CDR)	6/5/25	6/5/25		6/5			
Critical Design Review (CDR)	6/5/25	6/5/25		6/5			
Procure & Receive COTS Materials	6/6/25	6/19/25					
Develop Operators, Maintenance & User Manuals	6/20/25	7/3/25					
Generate Presentation Materials for TRR	7/10/25	7/16/25					
Ensure TRR Exit Criteria Has Been Met	7/17/25	7/17/25					
Conduct Test Readiness Review (TRR)	7/18/25	7/18/25				7/18	
Test Readiness Review (TRR)	7/18/25	7/18/25				7/18	
Conduct Regression & System Testing	7/21/25	8/1/25					
Conduct Security Test and Evaluation	8/4/25	8/8/25					
Prepare Security Certification Documentation	8/11/25	8/12/25					
Verify and Validate User Documentation	8/4/25	8/15/25					
Conduct User Acceptance Testing	8/18/25	8/29/25					
Generate Presentation Materials for PRR	9/1/25	9/5/25					
Ensure PRR Exit Criteria Has Been Met	9/8/25	9/9/25					
Conduct Production Readiness Review (PRR)	9/10/25	9/11/25					
Production Readiness Review (PRR)	9/11/25	9/11/25					9/11

If the two points selected are not connected to each other through any dependency chain, a message will be displayed informing you there is no connecting path between them:

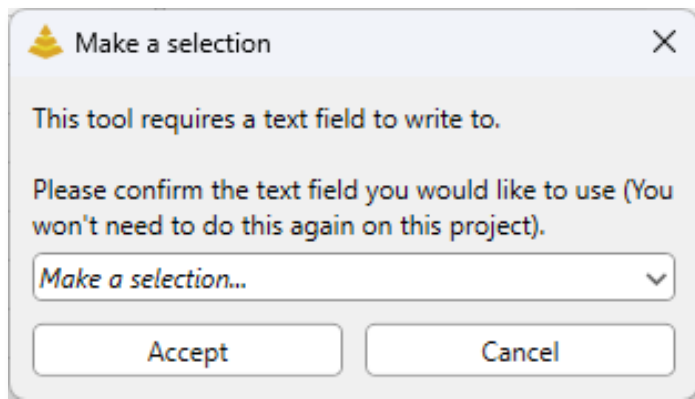


If **less than** or **more than** two activities are selected when the **Get Connecting Path** button is clicked, the Connecting Path Tool will not be able to identify which activity should serve as the starting point and ending point, and the Connecting Path Tool form will automatically open, allowing you to manually assign the starting and ending points, irrespective of the current selection in the Gantt Chart.

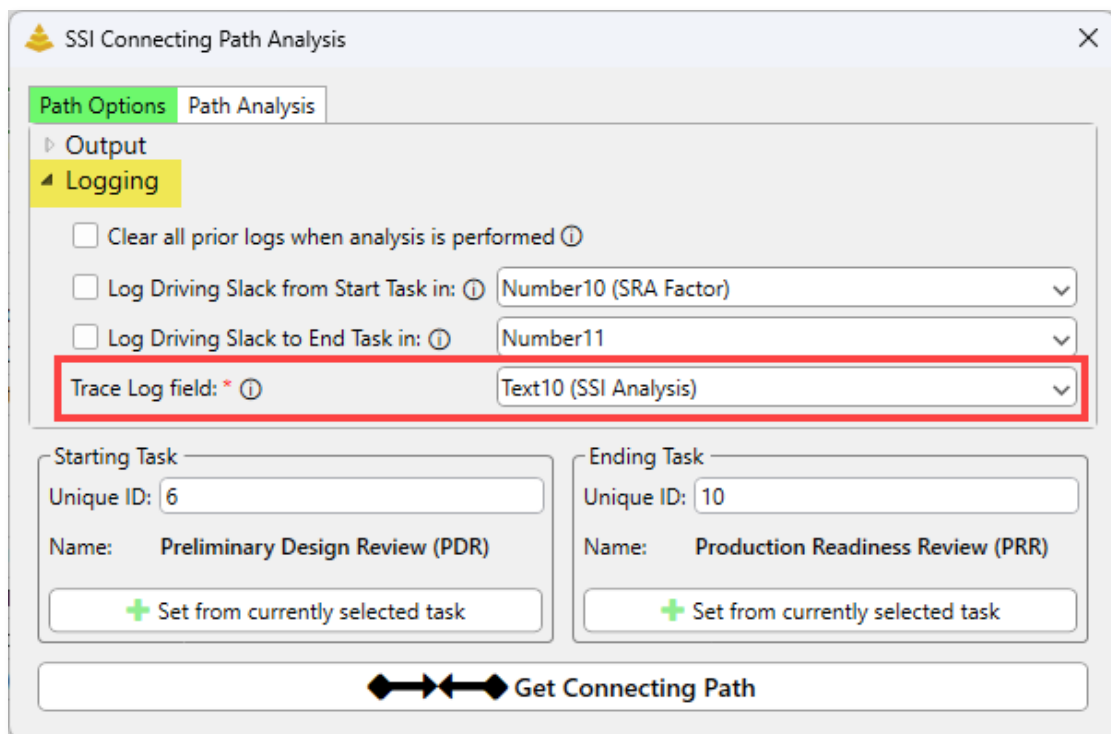


Setting the Trace Log on First Use

If you click the **Get Connecting Path** button or try to open the **Connecting Path Tool** form in a project where the Connecting Path Tool has not yet been used, a dialog will appear informing you that the tool requires a **Text field** to write results into. You'll be prompted to select which text field you'd like to use. No Connecting Path analysis can be run until a valid text field has been assigned for output.

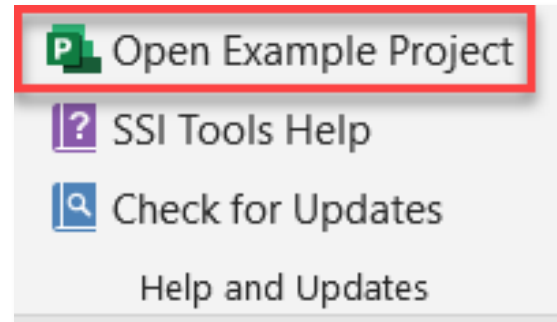


Once you click **Accept** after selecting a Text field, your selection is saved to the project. As long as the project file is saved, you will not be prompted with this dialog again when using the **Connecting Path Tool** in that project. You can change the Text field saved to the project by changing the **Trace Log Field** within the **Logging** section of the Connecting Path Tool form:



Class Exercise – Using the Get Connecting Path Button

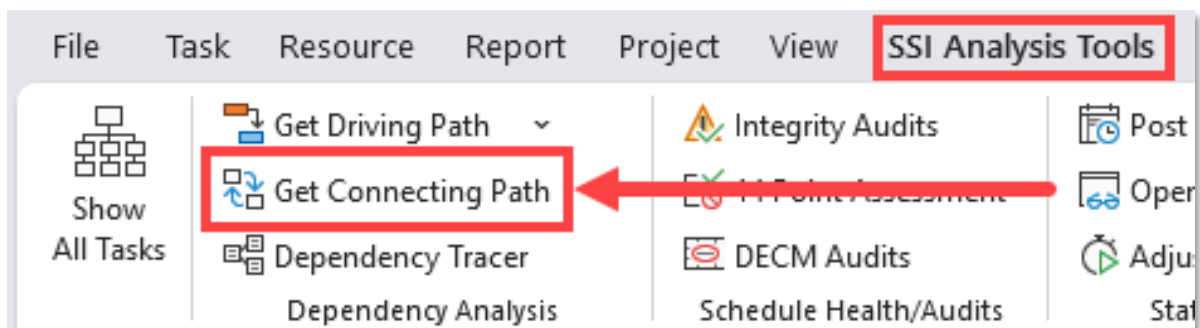
1. Open the SSI Example Project file in Microsoft Project by clicking the **Open Example Project** button on the far-right side of the **SSI Analysis Tools Ribbon**.



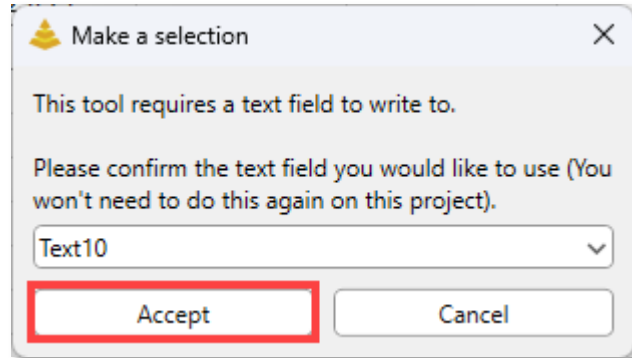
2. Select row 6, **Preliminary Design Review (PDR)**. Use the **CTRL** key to also select row 10, **Production Readiness Review (PRR)** in the Gantt Table:

Task Name	Start	Finish	May	Jun	Qtr 3, 2025 Jul
▲ Design Milestones	2/26/25	6/5/25			
Solution Engineering Review (SER)	2/26/25	2/26/25			
System Definition Review (SDR)	4/11/25	4/11/25			
Preliminary Design Review (PDR)	5/13/25	5/13/25	5/13		
Critical Design Review (CDR)	6/5/25	6/5/25		6/5	
▲ Test & Verification Milestones	7/18/25	11/11/25			
Test Readiness Review (TRR)	7/18/25	7/18/25			
Production Readiness Review (PRR)	9/11/25	9/11/25			7/18
Operational Readiness Review (ORR)	10/28/25	10/28/25			
Receive Authority to Operate (ATO)	11/11/25	11/11/25			

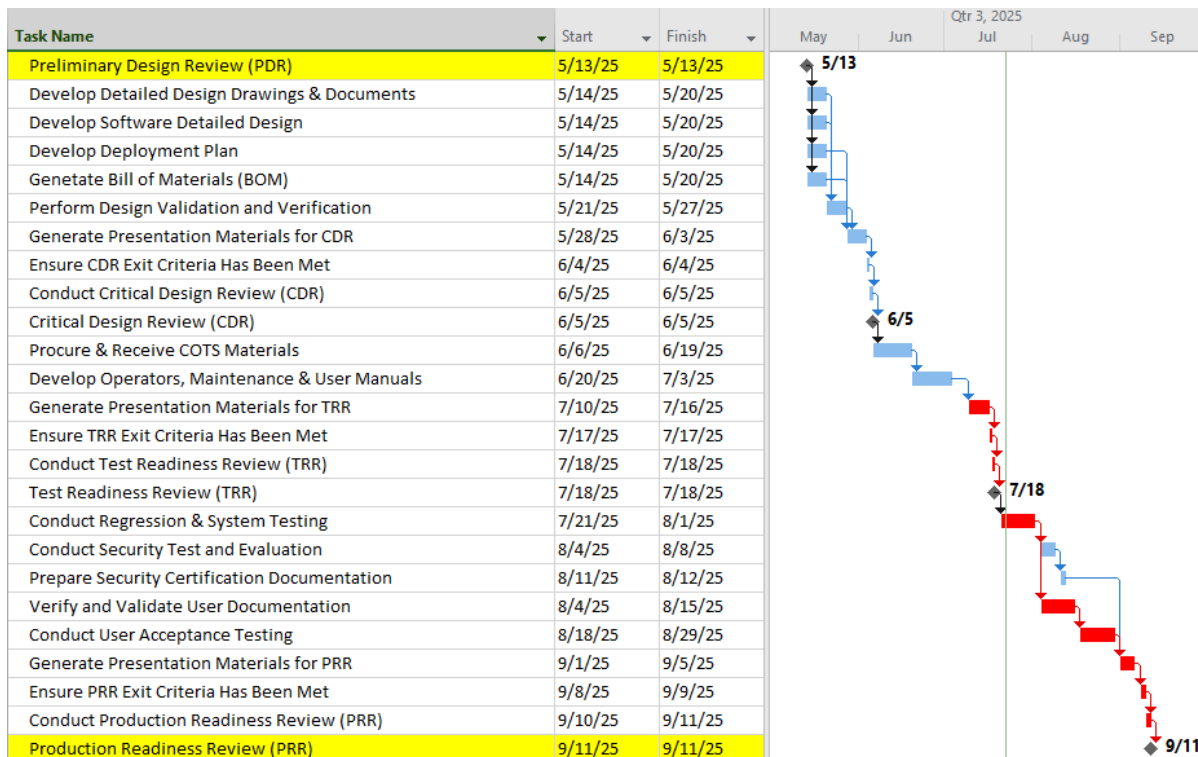
3. Click the **Get Connecting Path** button in the Dependency Analysis Group of the SSI Analysis Tools Ribbon.



4. If prompted, select a Text field that the Connecting Path tool can write to, then click **Accept**



5. Observe the result in the Gantt Chart:



6. Return the project to an unfiltered and unsorted view by clicking the **Show All Tasks** button in the SSI Analysis Tools Ribbon.

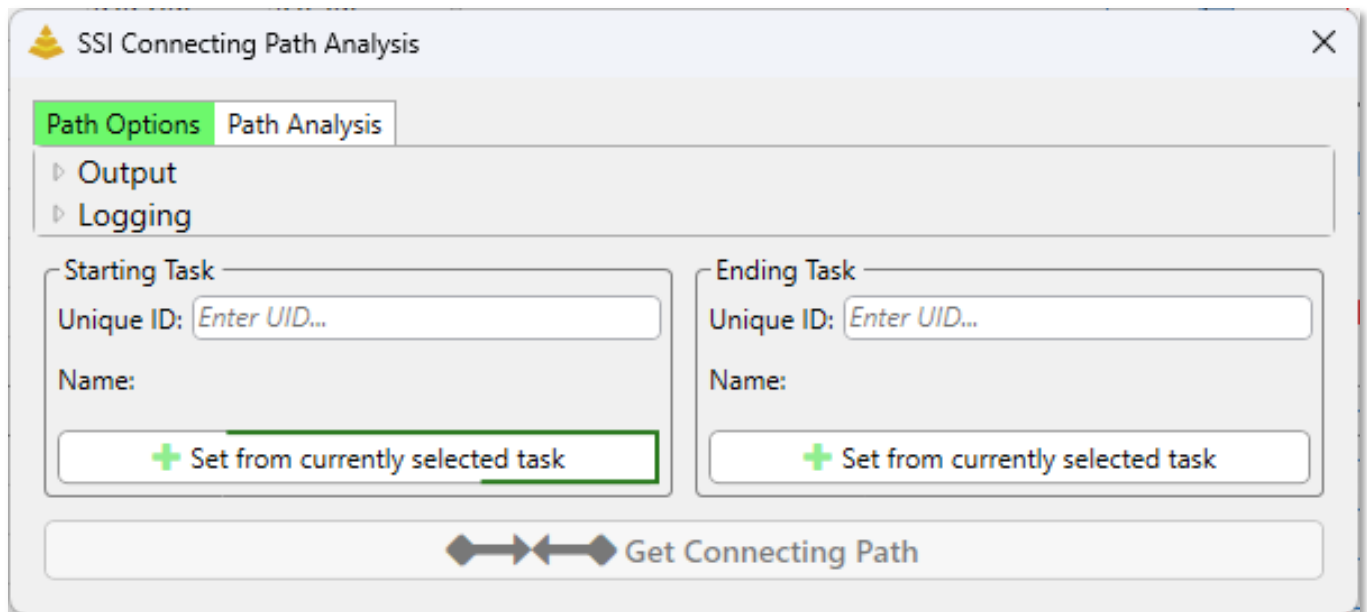
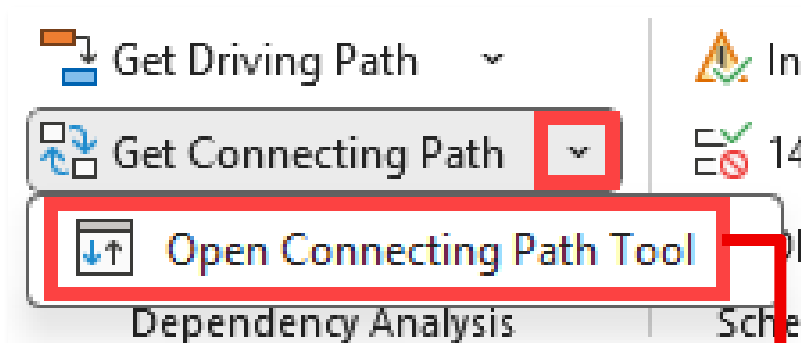


End of Practice Exercise

Using the Connecting Path Tool Form

The **Connecting Path Tool** form allows you to perform Connecting Path analyses on specific schedule activities and configure options that control how those paths are displayed and analyzed.

To open the Connecting Path Tool form, click the **down arrow** next to the **Get Connecting Path** button in the SSI Analysis Tools ribbon to reveal the Connecting Path Tools menu. Then click **Open Connecting Path Tool**.



SSI Connecting Path Analysis

Path Options | Path Analysis

▶ Output

▶ Logging

Starting Task

Unique ID:

Name:

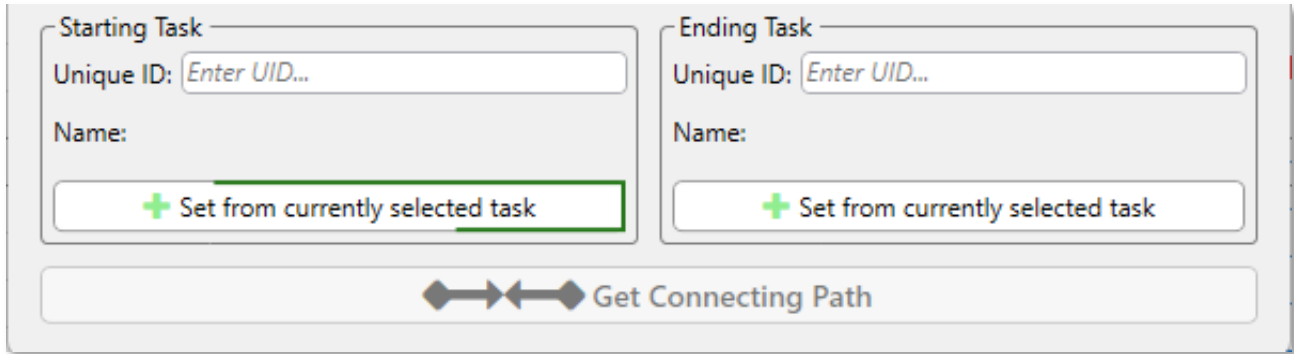
Ending Task

Unique ID:

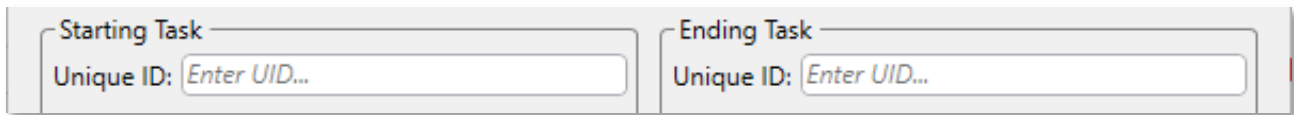
Name:

The bottom section of the Connecting Path Tool Form

The lower section of the Connecting Path Tool form allows you to identify what activities will serve as the starting and ending points of the analysis. These controls are always displayed, no matter which tab at the top of the form is currently selected.



The starting and ending activities can be set on the form by either manually typing in their **Unique ID** value into the Unique ID text boxes:

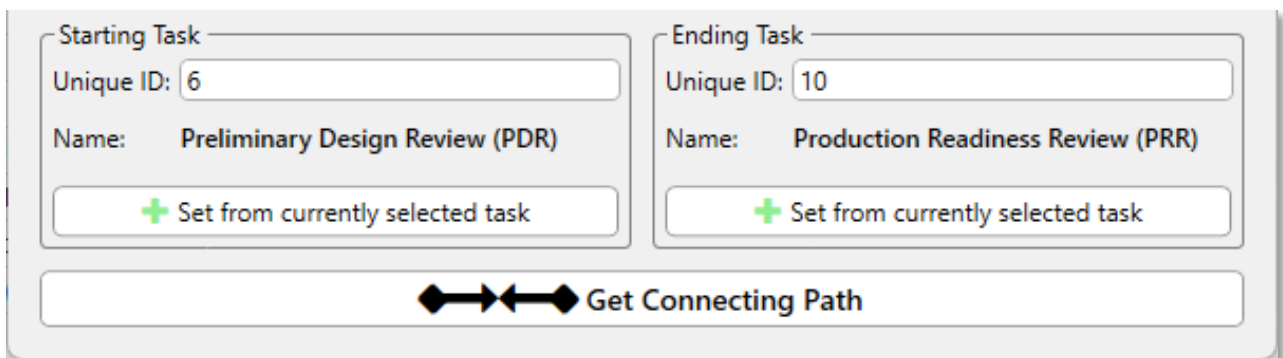


Or by clicking the **Set from currently selected task** buttons:



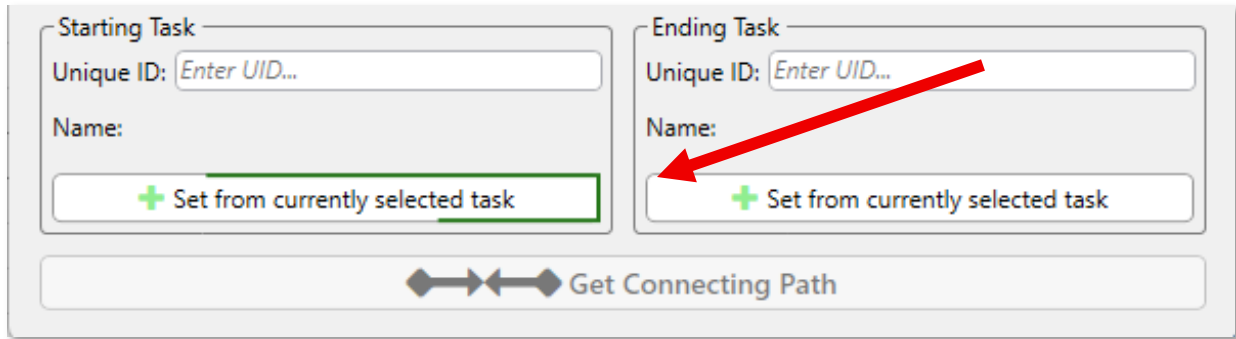
These buttons will automatically set the Unique ID textbox of either the Starting or Ending activity (depending on which button is pressed) to the Unique ID of the currently selected activity in the Gantt Chart. If multiple tasks are selected when the button is pressed, only the first activity in the selection will be used.

When a valid Unique ID has been populated in the Unique ID Textboxes, the name of the activity that corresponds to that Unique ID will automatically appear.



The Connecting Path Tool provides guidance by highlighting controls with moving green borders to the order of operations that should be taken to get a Connecting Path between activities. The order should go like this:

1. Identify the Starting Activity of the Analysis



Starting Task

Unique ID:

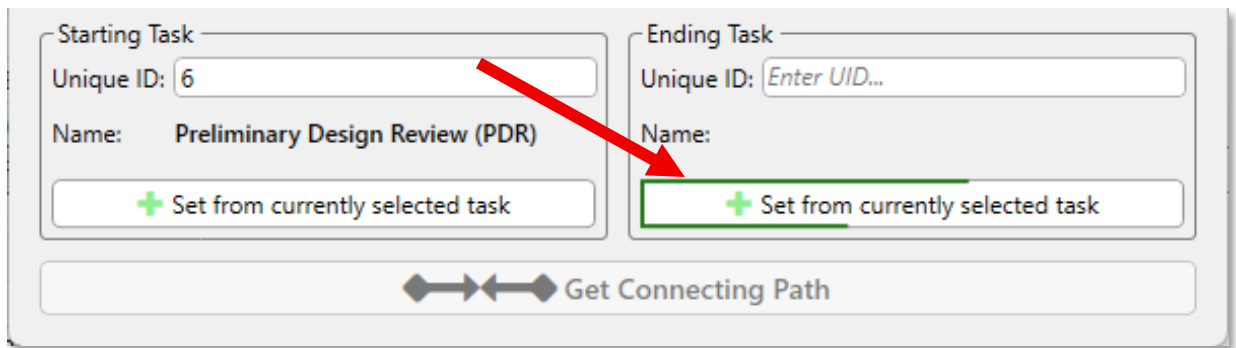
Name:

Ending Task

Unique ID:

Name:

2. Identify the Ending Activity of the Analysis



Starting Task

Unique ID:

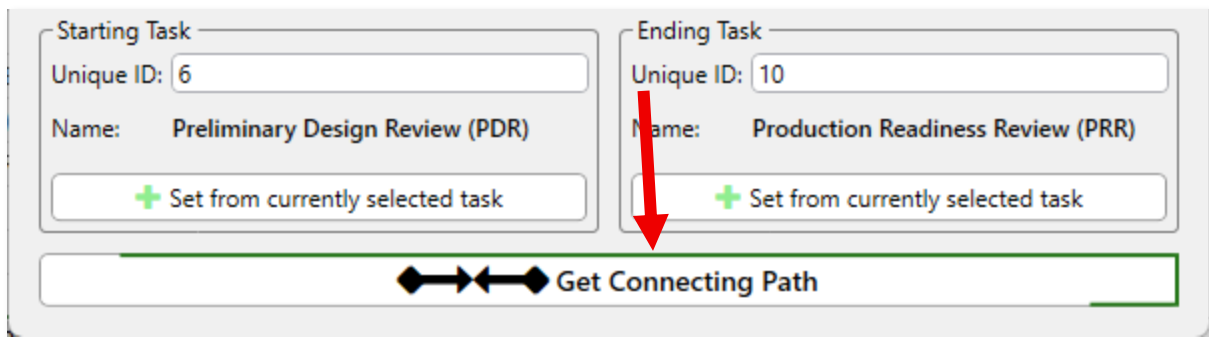
Name:

Ending Task

Unique ID:

Name:

3. Click the **Get Connecting Path** to show the Connecting Path between the start and end points in the Gantt Chart.



Starting Task

Unique ID:

Name:

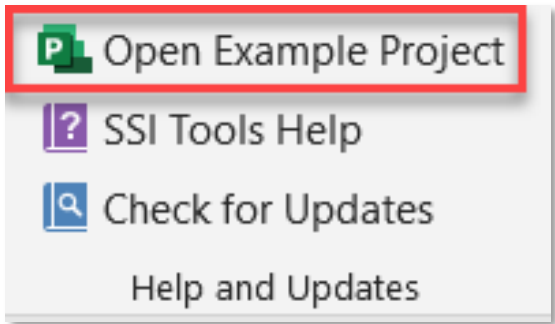
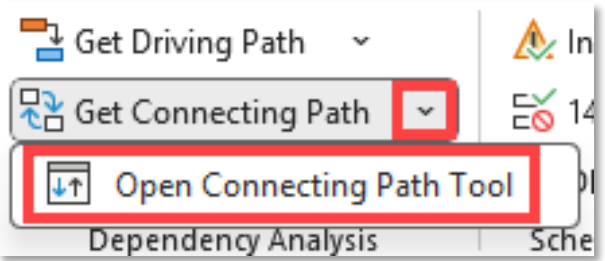
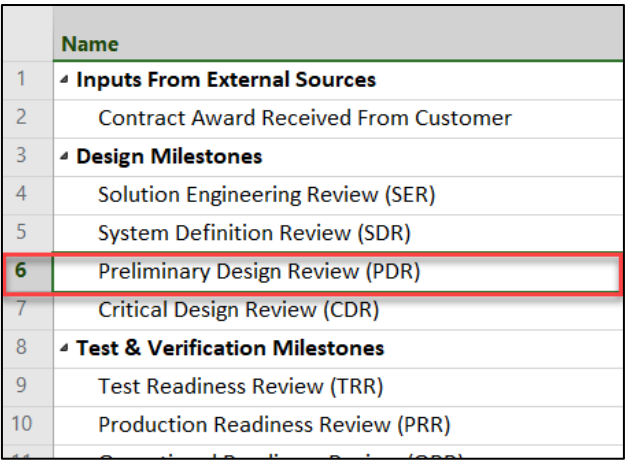
Ending Task

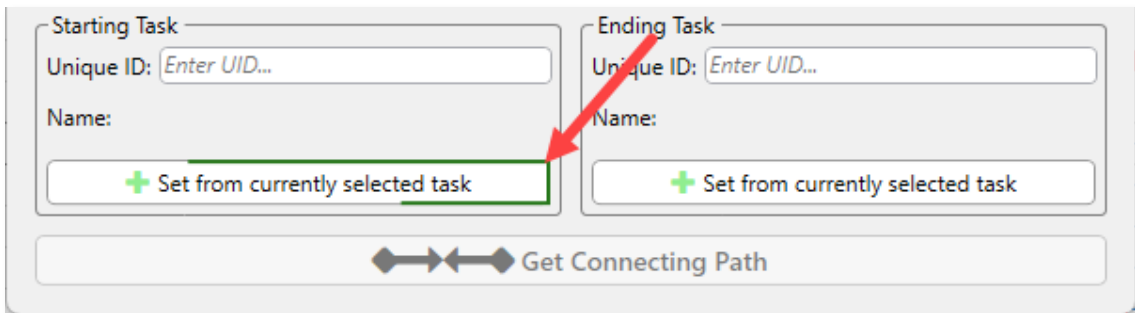
Unique ID:

Name:

Steps one and two can be performed in any order, but the **Get Connecting Path** button at the bottom of the form cannot be pressed until a valid starting and ending activity have been identified.

Class Exercise – Using the Bottom of the Connecting Path Tool Form

1. Open the SSI Example Project file in Microsoft Project (if it is not already open) by clicking the Open Example Project button on the far-right side of the SSI Analysis Tools Ribbon.																							
2. Open the Connecting Path Tool form by clicking the down arrow next to the Get Connecting Path button to reveal the Connecting Path Tools menu. Then click Open Connecting Path Tool.																							
3. Select row 6, Preliminary Design Review (PDR) in the Gantt Table.	 <table border="1"> <thead> <tr> <th></th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Inputs From External Sources</td> </tr> <tr> <td>2</td> <td>Contract Award Received From Customer</td> </tr> <tr> <td>3</td> <td>Design Milestones</td> </tr> <tr> <td>4</td> <td>Solution Engineering Review (SER)</td> </tr> <tr> <td>5</td> <td>System Definition Review (SDR)</td> </tr> <tr> <td>6</td> <td>Preliminary Design Review (PDR)</td> </tr> <tr> <td>7</td> <td>Critical Design Review (CDR)</td> </tr> <tr> <td>8</td> <td>Test & Verification Milestones</td> </tr> <tr> <td>9</td> <td>Test Readiness Review (TRR)</td> </tr> <tr> <td>10</td> <td>Production Readiness Review (PRR)</td> </tr> </tbody> </table>		Name	1	Inputs From External Sources	2	Contract Award Received From Customer	3	Design Milestones	4	Solution Engineering Review (SER)	5	System Definition Review (SDR)	6	Preliminary Design Review (PDR)	7	Critical Design Review (CDR)	8	Test & Verification Milestones	9	Test Readiness Review (TRR)	10	Production Readiness Review (PRR)
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8	Test & Verification Milestones																						
9	Test Readiness Review (TRR)																						
10	Production Readiness Review (PRR)																						
4. In the Starting Task group at the bottom of the Connecting Path Tool, click the Set from currently selected task button:																							



Starting Task

Unique ID:

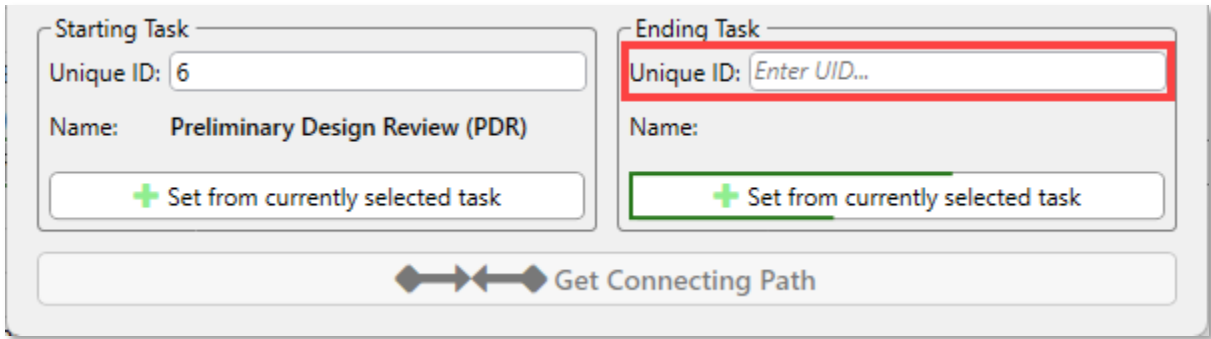
Name:

Ending Task

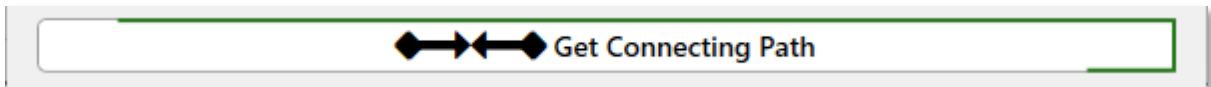
Unique ID:

Name:

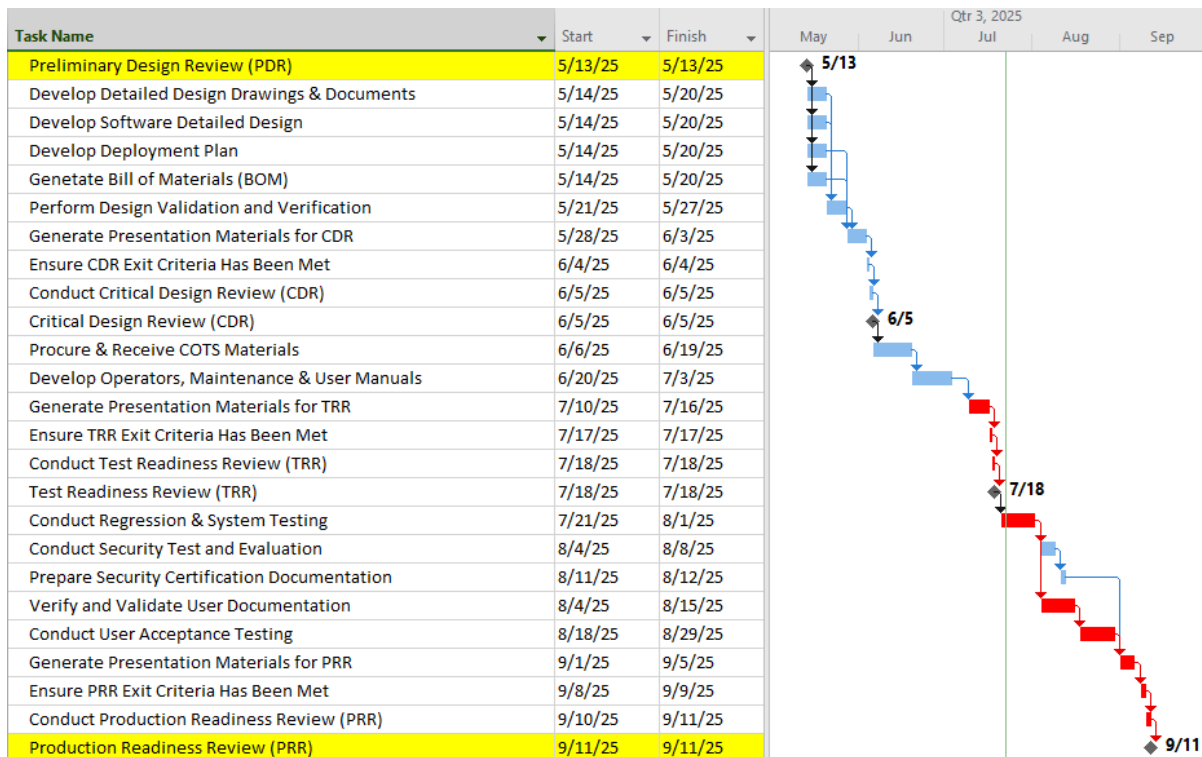
5. In the **Ending Task group** at the bottom of the Connecting Path Tool, enter the number 10 into the Unique ID Textbox:



6. Click the **Get Connecting Path** button:



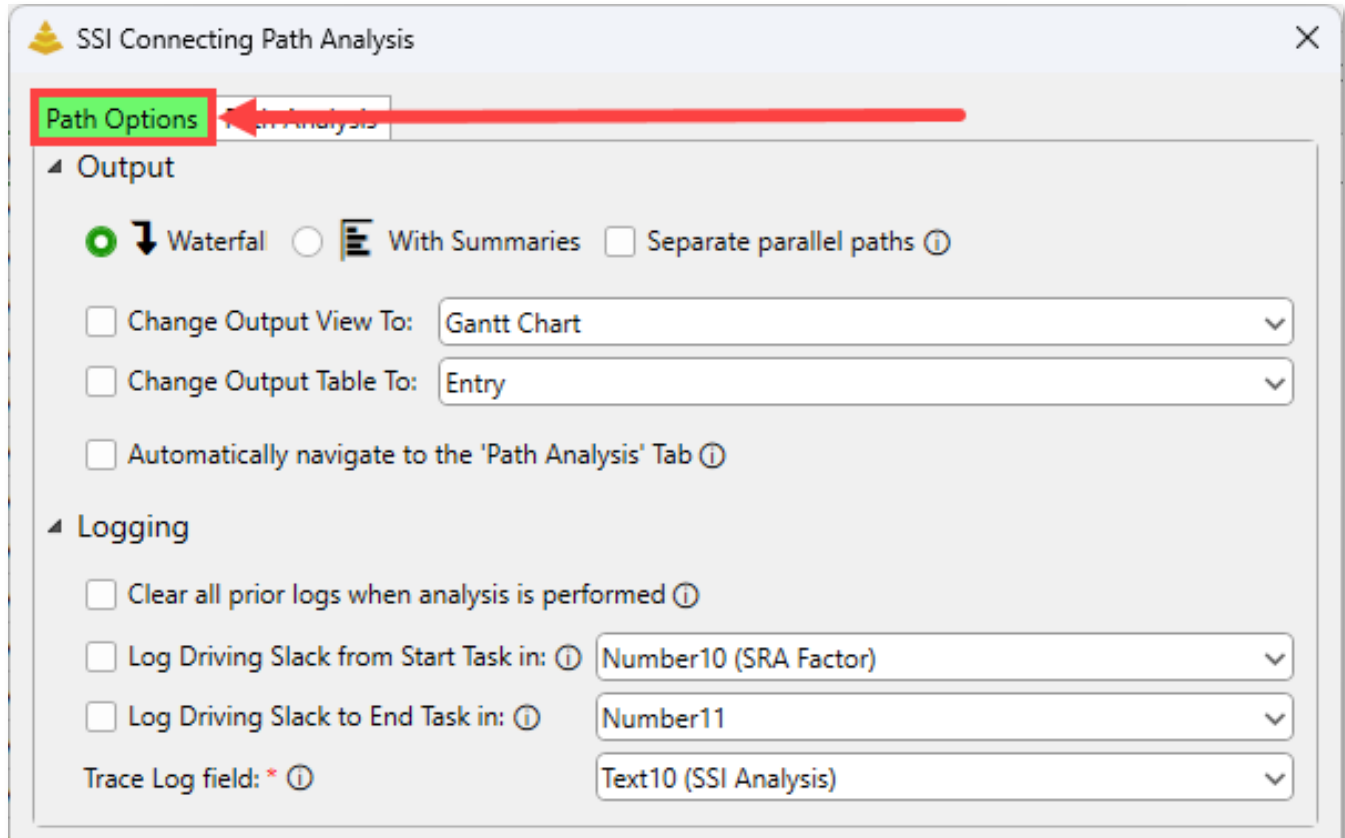
7. Observe the result in the Gantt Chart:



End of Practice Exercise

The Path Options Tab

The **Path Options** tab of the Connecting Path Tool allows give access to options that can be applied to Connecting Path analyses and output.



The options on this tab are broken down into two sections that can be expanded or collapsed to show or hide their controls:

- **Output** – These options control how Connecting Paths are displayed in the Gantt Chart
- **Logging** – These options control the Microsoft Project fields the tool will be able to write logs into.

The Output Group

Output

☒ Waterfall
 ☐ With Summaries
 ☐ Separate parallel paths ⓘ

☐ Change Output View To: Gantt Chart

☐ Change Output Table To: Entry

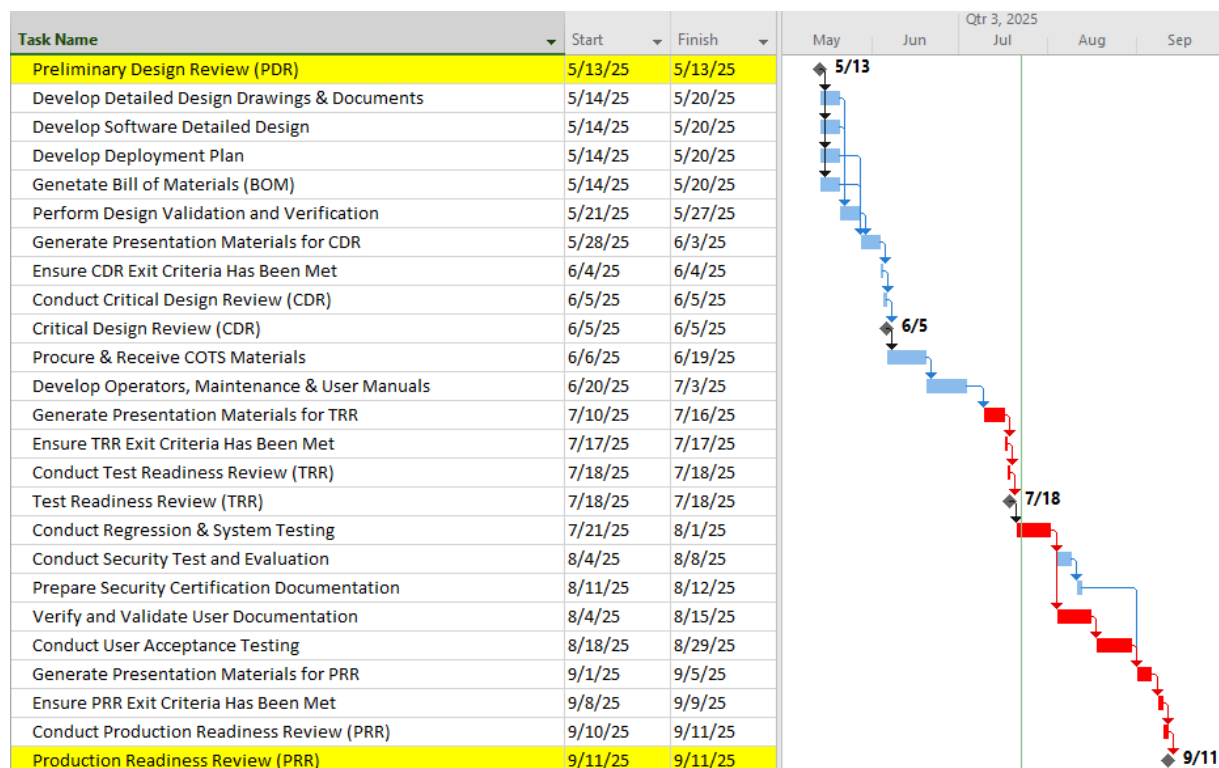
☒ Automatically navigate to the 'Path Analysis' Tab ⓘ

The **Output Group** on the Path Options tab primarily controls how Connecting Paths are displayed in the Gantt Chart in Microsoft Project

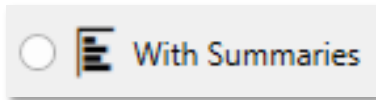
Waterfall



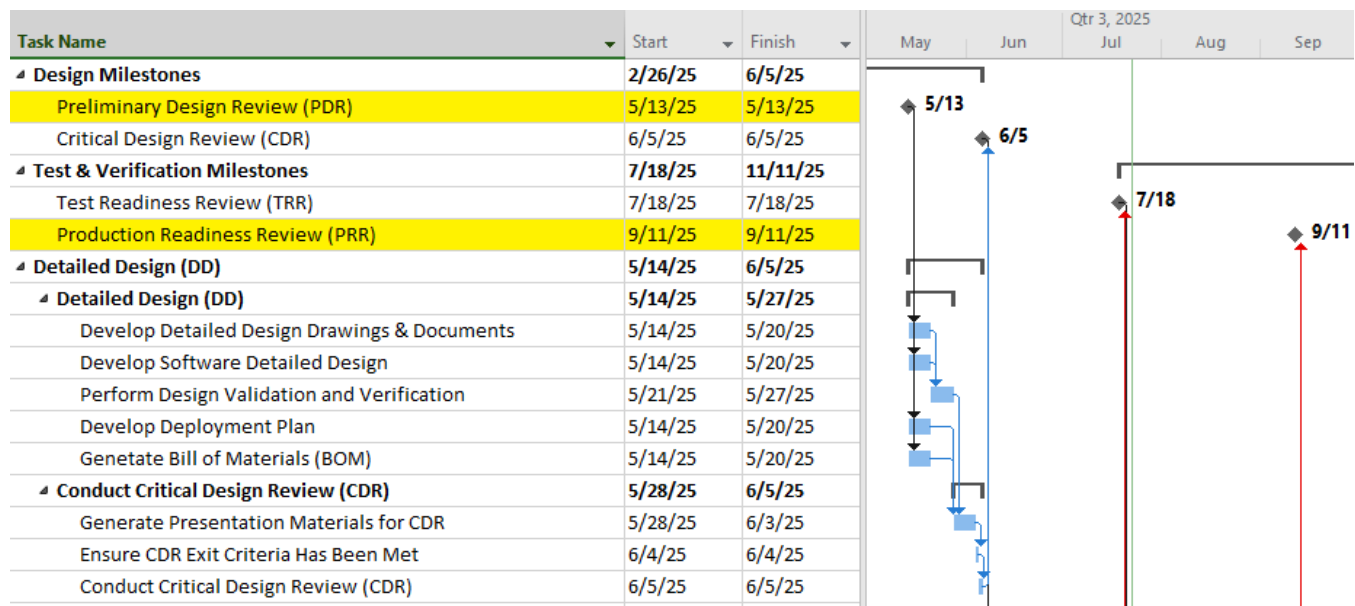
If this option is selected, activities in a Connecting Path will be displayed in a Waterfall style. Specifically, activities in the path will be sorted by their Finish dates, then Start dates, then ID or Row Numbers



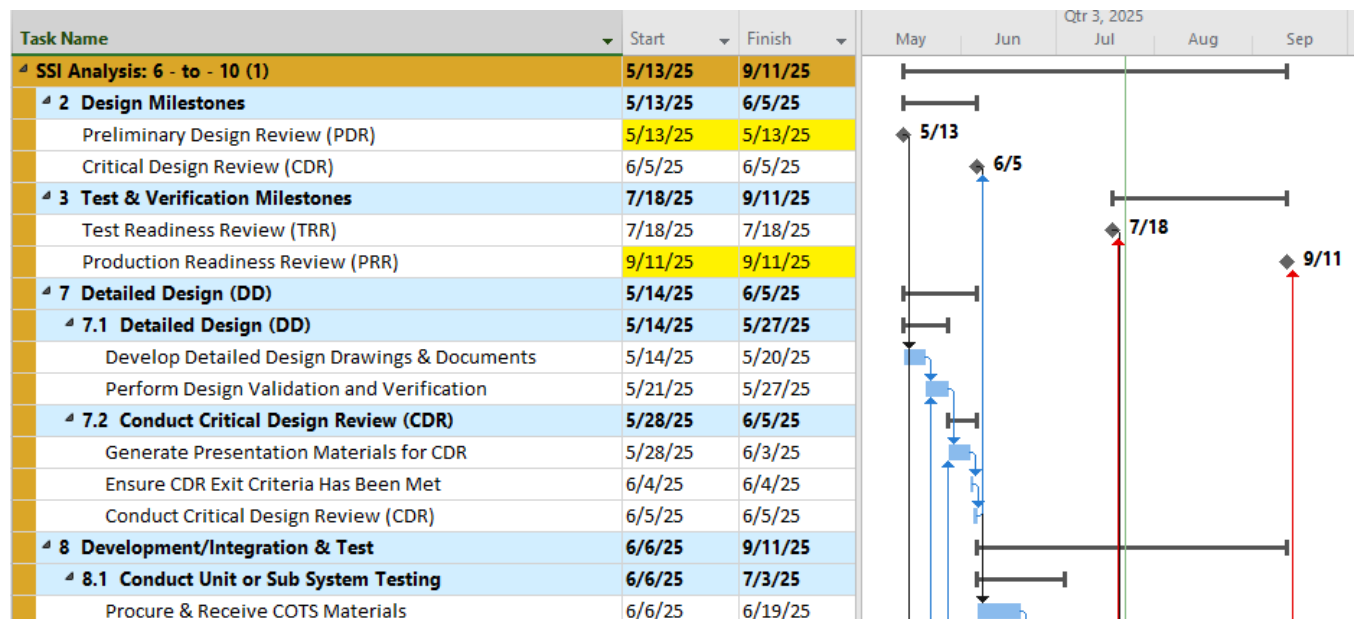
With Summaries



If this option is selected, activities in a Directional Path will be displayed within the existing outline structure of the schedule.



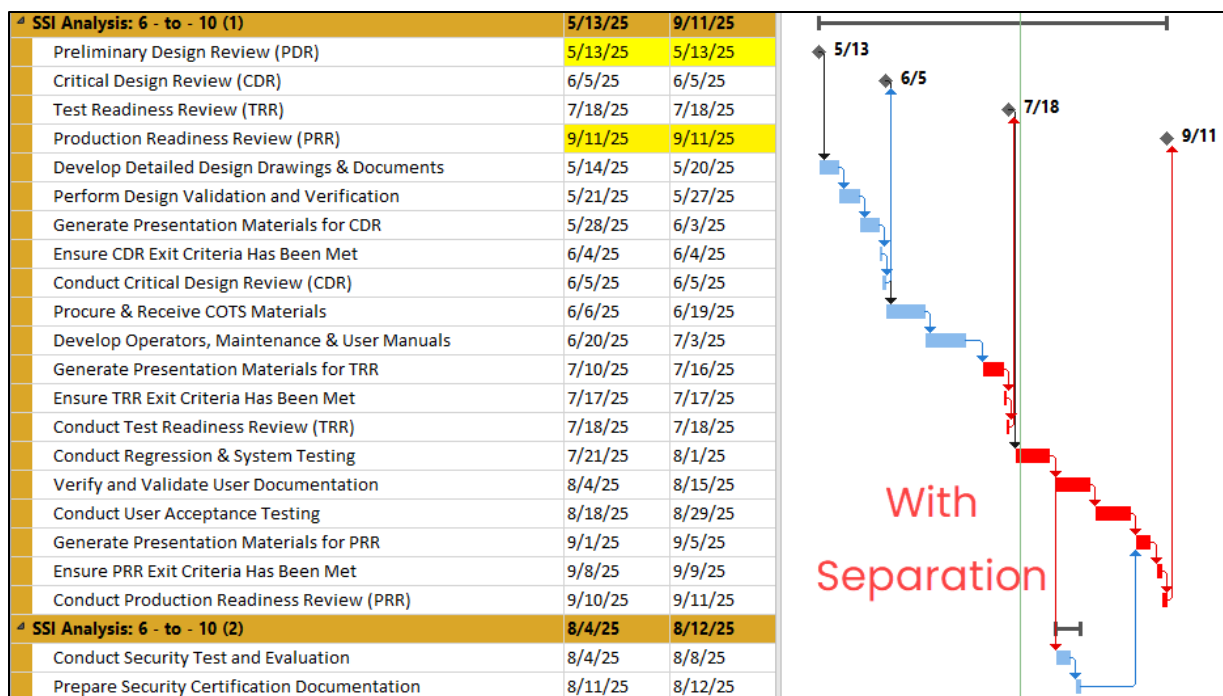
If the Directional Path tool groups the result of a Directional Path, such as in analyses that include Near Paths, The **With Summaries** option will instruct the tool to include summary tasks within the group structure.



Separate Parallel Paths

☐ Separate parallel paths ⓘ

This option will instruct the tool to visually separate any parallel paths in a Connecting Path in the Gantt Chart. When parallel paths are separated, the first grouping in the path will always be the longest continuous path that connects the starting and ending activities. Observe the following example without and then with this option enabled:



Change Output View

☐ Change Output View To: Gantt Chart

Checking this option will instruct the tool to change the current [Task View](#) applied to the Task View selected when the Connecting Path is displayed.

Change Output Table

☐ Change Output Table To: Entry

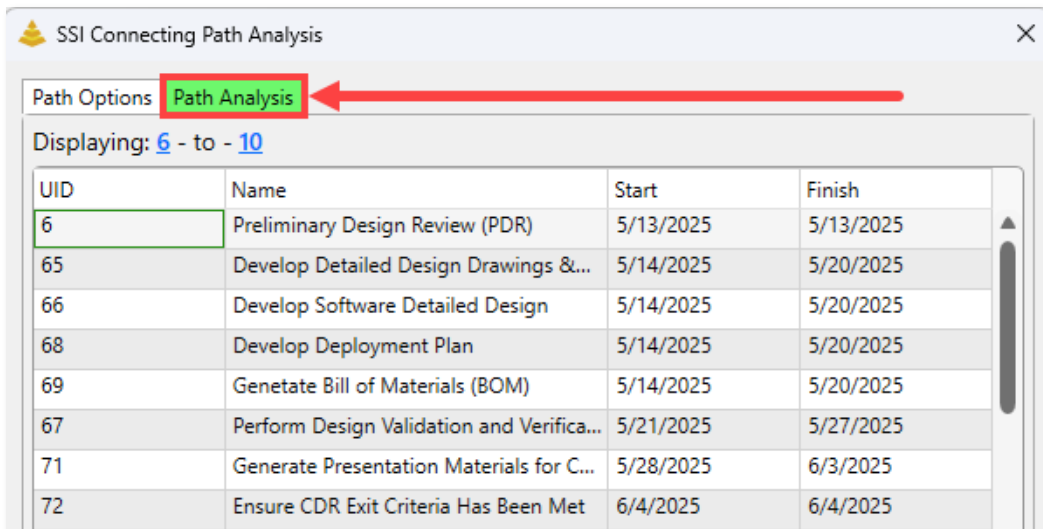
Checking this option will instruct the tool to change the current **Task Table** applied to the Task View selected when the Connecting Path is displayed.

A Task Table is a defined set of fields displayed in the sheet portion of a view as columns and rows.

Automatically Navigate to the 'Path Analysis Tab'

☒ Automatically navigate to the 'Path Analysis' Tab ⓘ

Checking this option will instruct the Connecting Path Tool to automatically switch to the 'Path Analysis' Tab anytime a Connecting Path analysis is run. The Path Analysis tab displays a table showing the analysis results and provides additional options for Connecting Paths after they have been calculated.



SSI Connecting Path Analysis

Path Options **Path Analysis**

Displaying: 6 - to - 10

UID	Name	Start	Finish
6	Preliminary Design Review (PDR)	5/13/2025	5/13/2025
65	Develop Detailed Design Drawings &...	5/14/2025	5/20/2025
66	Develop Software Detailed Design	5/14/2025	5/20/2025
68	Develop Deployment Plan	5/14/2025	5/20/2025
69	Genetate Bill of Materials (BOM)	5/14/2025	5/20/2025
67	Perform Design Validation and Verifica...	5/21/2025	5/27/2025
71	Generate Presentation Materials for C...	5/28/2025	6/3/2025
72	Ensure CDR Exit Criteria Has Been Met	6/4/2025	6/4/2025

This option does not change how Connecting Paths are calculated by the tool or how they appear in the Gantt Chart; it simply offers an additional way to view the results.

The Logging Group

Logging

☐ Clear all prior logs when analysis is performed ⓘ

☐ Log Driving Slack from Start Task in: ⓘ

Number3 (Driving Slack from Start) ▼

☐ Log Driving Slack to End Task in: ⓘ

Number4 (Driving Slack to Finish) ▼

Trace Log field: * ⓘ

Text10 (SSI Analysis) ▼

The **Logging Group** on the Path Analysis tab primarily controls where the Connecting Path tool will write data into.

Clear All Prior Logs when Analysis is Performed

☐ Clear all prior logs when analysis is performed ⓘ

If this option is checked, the tool will clear out existing values from the selected **Driving Slack** and **Trace Log** fields from *all* activities in the schedule before the result of the next Connecting Path analysis run is displayed.

Log Driving Slack from Start Task

☐ Log Driving Slack from Start Task in: ⓘ

Number3 (Driving Slack from Start) ▼

This option determines if **Driving Slack from the starting point** will be calculated on Connecting Path activities and, if so, what **Text** or **Number** field those values will be written into.

Log Driving Slack to End Task

☐ Log Driving Slack to End Task in: ⓘ

Number4 (Driving Slack to Finish) ▼

This option determines if **Driving Slack to the ending point** will be calculated on Connecting Path activities and, if so, what **Text** or **Number** field those values will be written into.

Trace Log Field

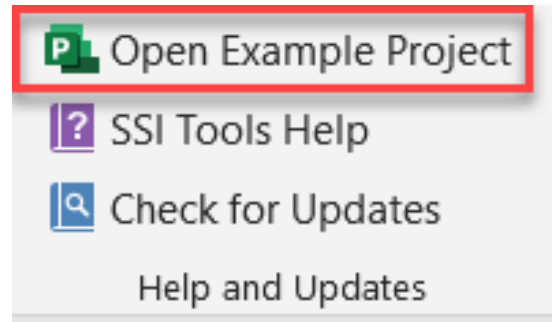
Trace Log field: * ⓘ

Text10 (SSI Analysis) ▼

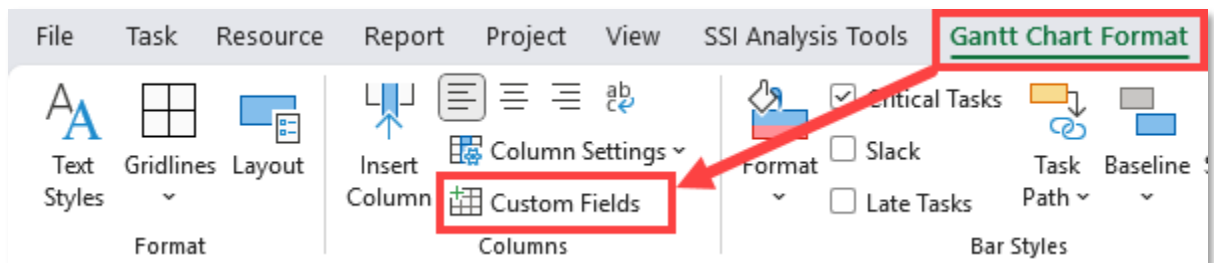
This option specifies the custom **Text** field where **Trace Log** values will be written. Trace Log values are descriptive notes generated by the Connecting Path Tool for activities on the Connecting Path.

Class Exercise – Using Connecting Path Options

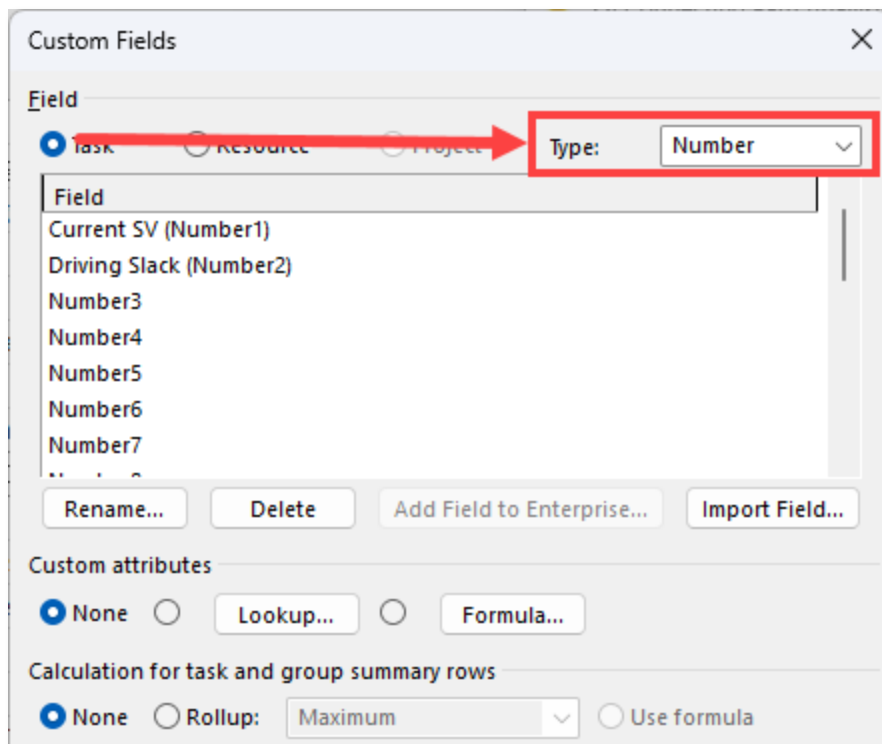
1. Open the **SSI Example Project** file in Microsoft Project (if it is not already open) by clicking the **Open Example Project** button on the far-right side of the **SSI Analysis Tools Ribbon**.



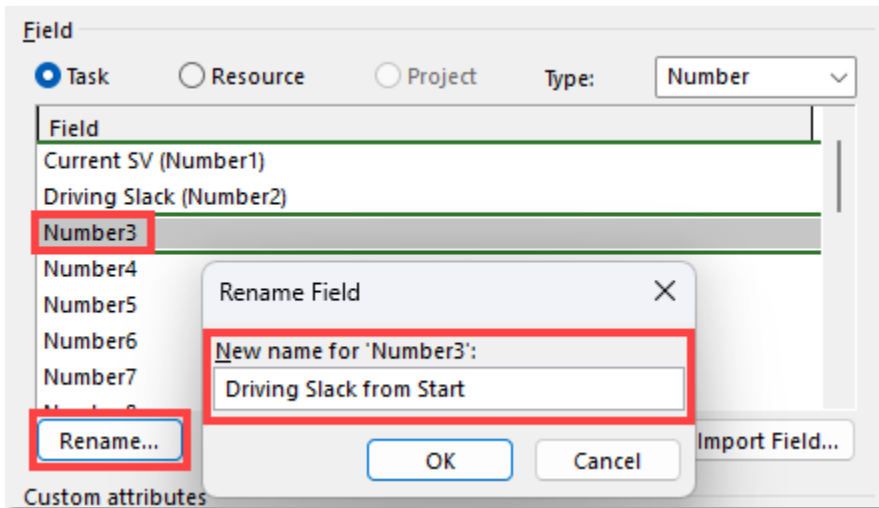
2. Click on the **Custom Fields** button in the **Columns** group of the **Gantt Chart Format** ribbon:



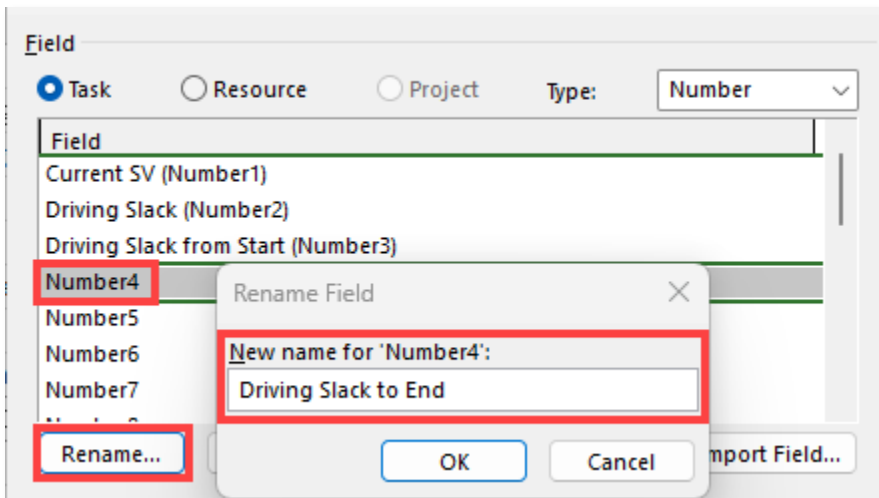
3. In the Custom Field dialog, Set the **field type** to **Number**:



4. Rename Number3 to "Driving Slack from Start":



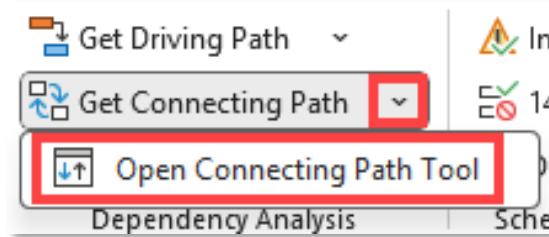
5. Rename Number4 to "Driving Slack to End":



6. Insert these two fields into the Gantt Chart table:

Task Name	Driving Slack from Start	Driving Slack to End	Start	Finish
Inputs From External Sources	0	0	1/2/25	1/2/25
Contract Award Received From Customer	0	0	1/2/25	1/2/25
Design Milestones	0	0	2/26/25	6/5/25
Solution Engineering Review (SER)	0	0	2/26/25	2/26/25
System Definition Review (SDR)	0	0	4/11/25	4/11/25
Preliminary Design Review (PDR)	0	0	5/13/25	5/13/25
Critical Design Review (CDR)	0	0	6/5/25	6/5/25

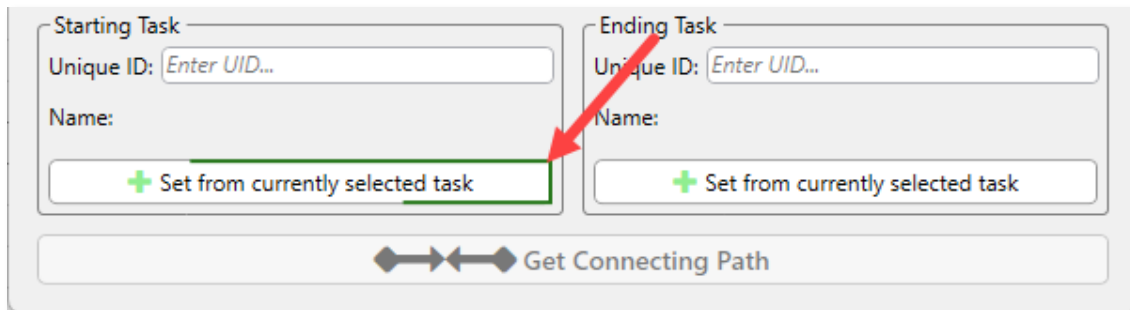
7. Open the **Connecting Path Tool** form by clicking the **down arrow** next to the **Get Connecting Path** button to reveal the Connecting Path Tools menu. Then click **Open Connecting Path Tool**.



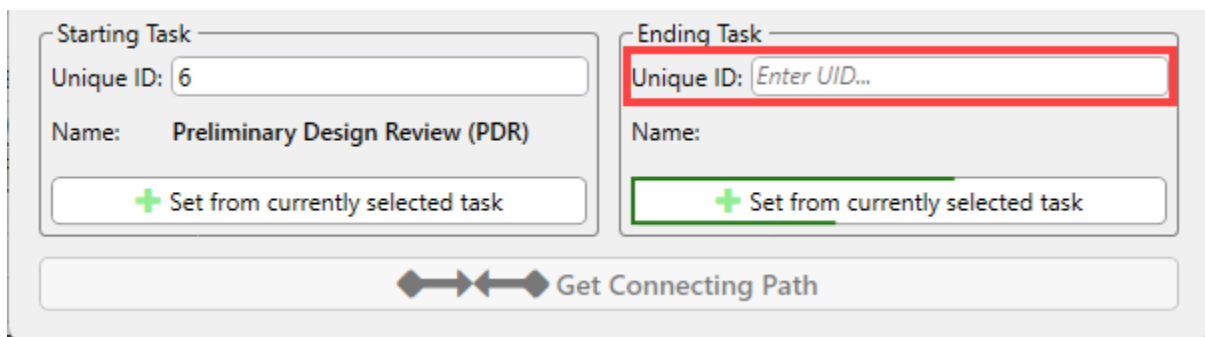
8. Select row 6, **Preliminary Design Review (PDR)** in the Gantt Table.

	Name
1	Inputs From External Sources
2	Contract Award Received From Customer
3	Design Milestones
4	Solution Engineering Review (SER)
5	System Definition Review (SDR)
6	Preliminary Design Review (PDR)
7	Critical Design Review (CDR)
8	Test & Verification Milestones
9	Test Readiness Review (TRR)
10	Production Readiness Review (PRR)

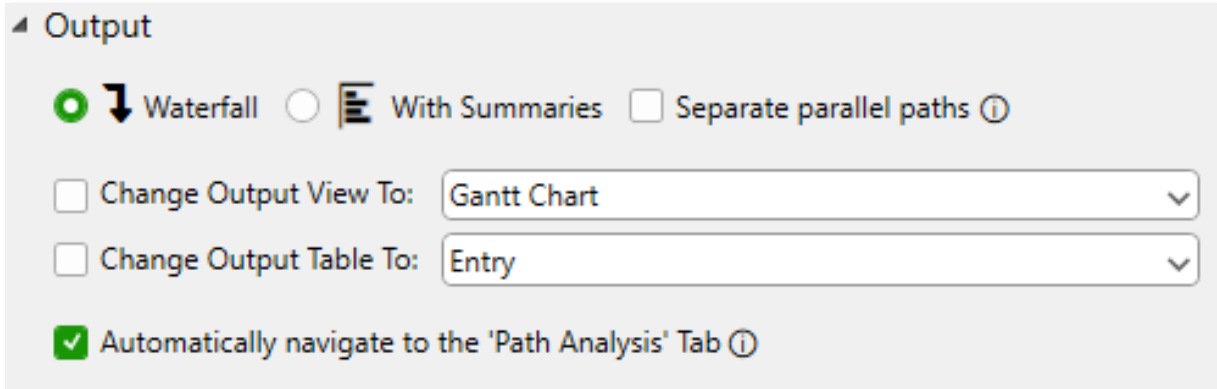
9. In the **Starting Task group** at the bottom of the Connecting Path Tool, click the **Set from currently selected task** button:



10. In the **Ending Task group** at the bottom of the Connecting Path Tool, enter the number 10 into the Unique ID Textbox:



11. Expand the **Output** group on the Path Options tab:



Output

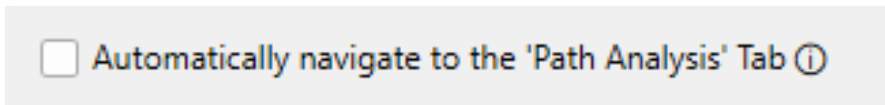
☒ Waterfall ☐ With Summaries ☐ Separate parallel paths ⓘ

☐ Change Output View To: Gantt Chart ▼

☐ Change Output Table To: Entry ▼

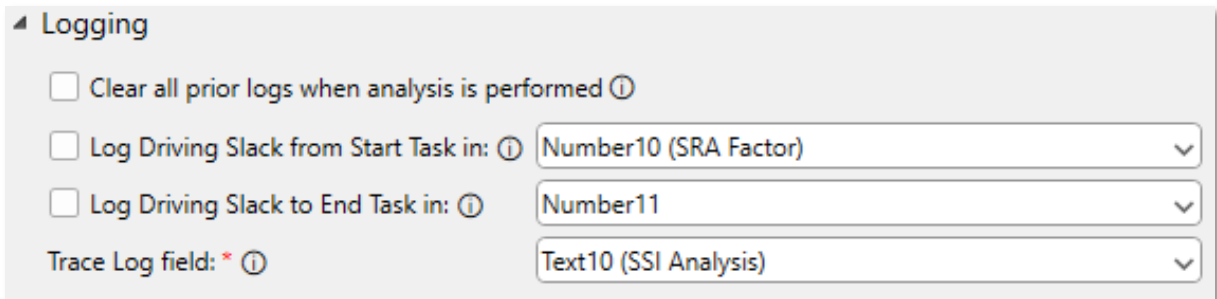
☒ Automatically navigate to the 'Path Analysis' Tab ⓘ

12. Uncheck the **Automatically Navigate to the 'Path Analysis' Tab** option:



☐ Automatically navigate to the 'Path Analysis' Tab ⓘ

13. Expand the **Logging** group on the Path Options tab:



Logging

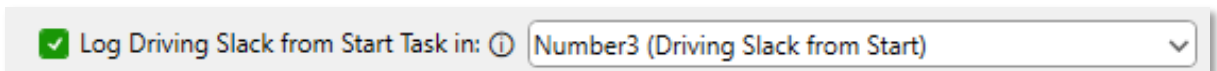
☐ Clear all prior logs when analysis is performed ⓘ

☐ Log Driving Slack from Start Task in: ⓘ Number10 (SRA Factor) ▼

☐ Log Driving Slack to End Task in: ⓘ Number11 ▼

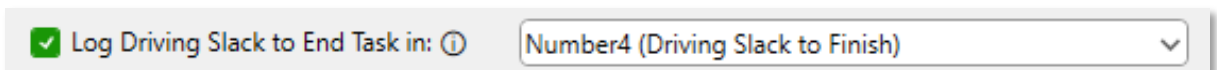
Trace Log field: * ⓘ Text10 (SSI Analysis) ▼

14. Check the option to **Log Driving Slack from Start Task** and set the field to **Number3**:



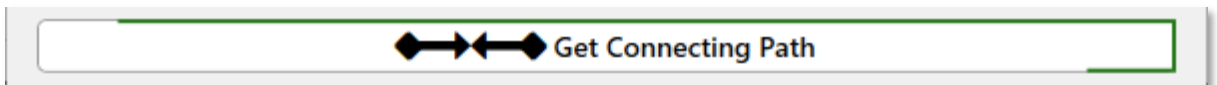
☒ Log Driving Slack from Start Task in: ⓘ Number3 (Driving Slack from Start) ▼

15. Check the option to **Log Driving Slack to End Task** and set the field to **Number4**:



☒ Log Driving Slack to End Task in: ⓘ Number4 (Driving Slack to Finish) ▼

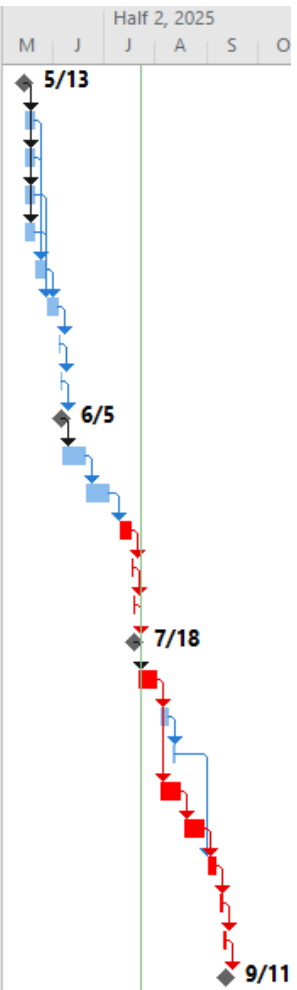
16. Click the **Get Connecting Path** button:



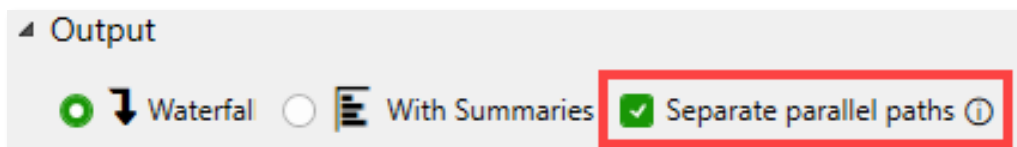
Get Connecting Path

17. Observe the result in the Gantt Chart. Notice the Driving Slack values in **Number3** and **Number4**:

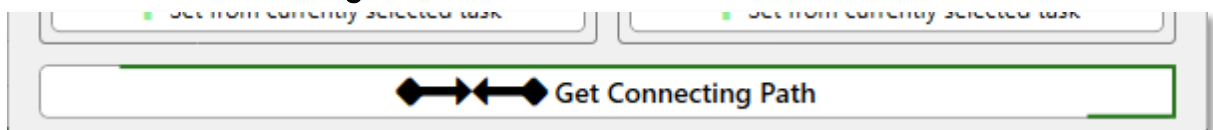
Task Name	Driving Slack from Start	Driving Slack to Finish	M	J	J	A	S	O
Preliminary Design Review (PDR)	0	4						
Develop Detailed Design Drawings & Documents	0	4						
Develop Software Detailed Design	0	4						
Develop Deployment Plan	0	9						
Genetate Bill of Materials (BOM)	0	9						
Perform Design Validation and Verification	0	4						
Generate Presentation Materials for CDR	0	4						
Ensure CDR Exit Criteria Has Been Met	0	4						
Conduct Critical Design Review (CDR)	0	4						
Critical Design Review (CDR)	0	4						
Procure & Receive COTS Materials	0	4						
Develop Operators, Maintenance & User Manuals	0	4						
Generate Presentation Materials for TRR	4	0						
Ensure TRR Exit Criteria Has Been Met	4	0						
Conduct Test Readiness Review (TRR)	4	0						
Test Readiness Review (TRR)	4	0						
Conduct Regression & System Testing	4	0						
Conduct Security Test and Evaluation	4	13						
Prepare Security Certification Documentation	4	13						
Verify and Validate User Documentation	4	0						
Conduct User Acceptance Testing	4	0						
Generate Presentation Materials for PRR	4	0						
Ensure PRR Exit Criteria Has Been Met	4	0						
Conduct Production Readiness Review (PRR)	4	0						
Production Readiness Review (PRR)	4	0						



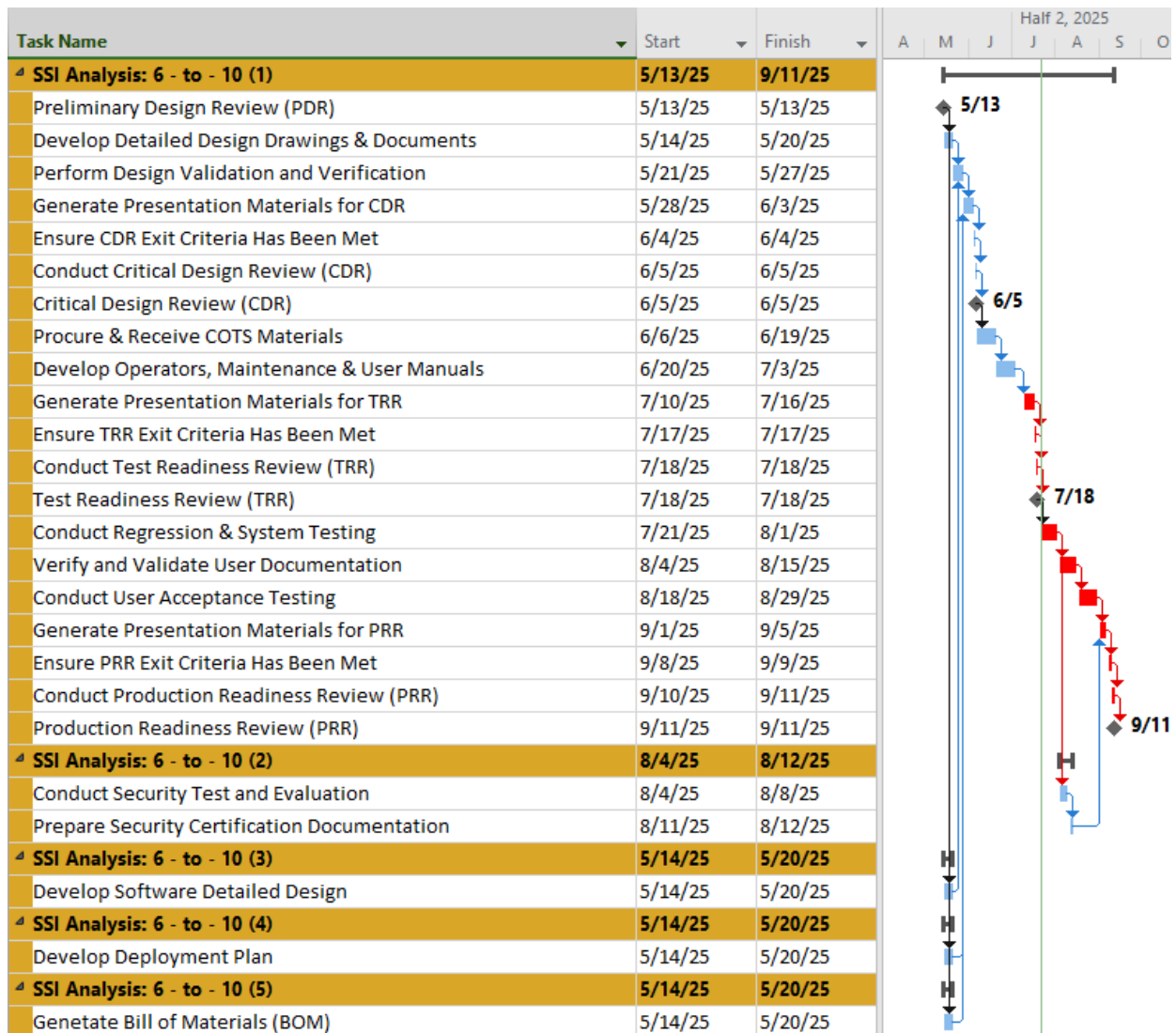
18. Back in the **Output** group, check the option to **Separate Parallel Paths**:



19. Click the **Get Connecting Path** button:



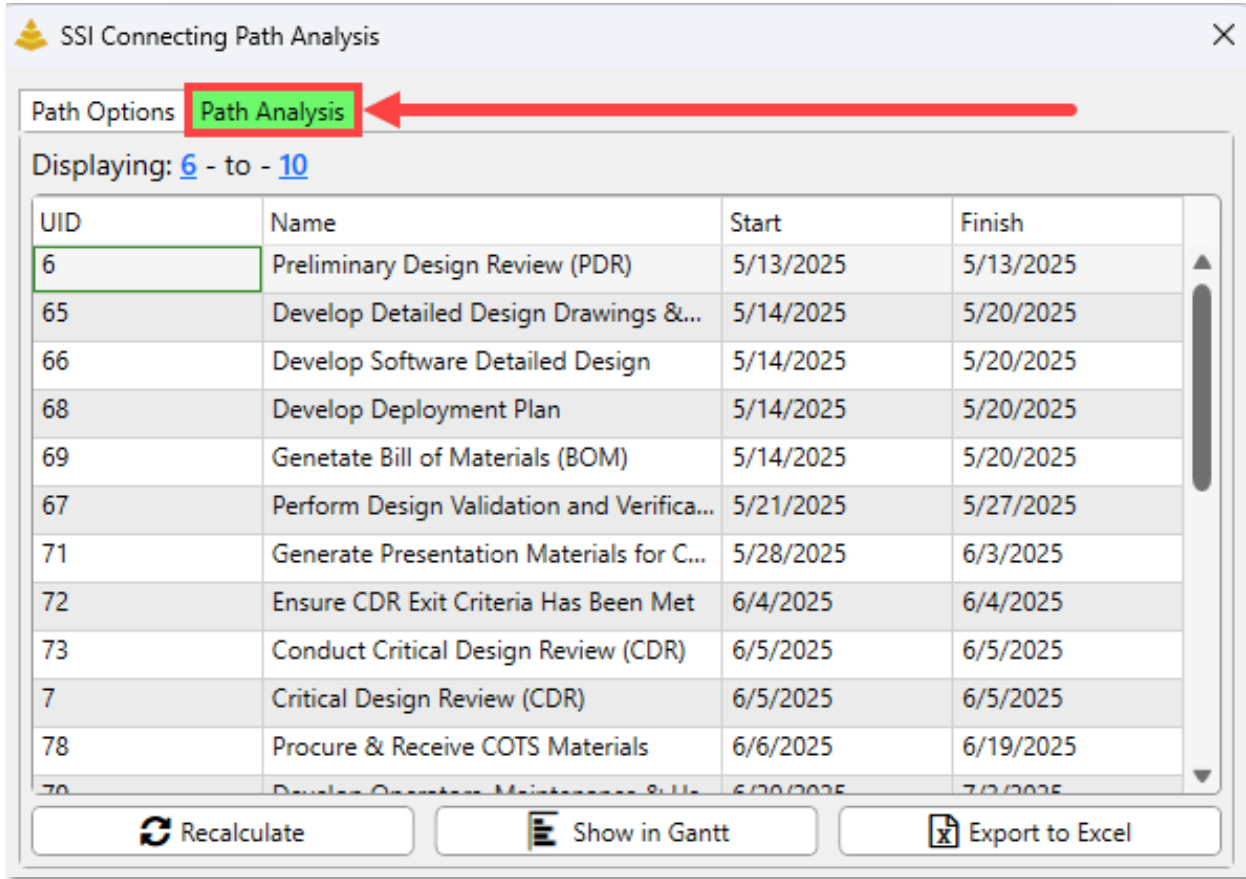
20. Observe the result in the Gantt Chart. Notice the first grouped section is the longest continuous chain that connects the starting and ending points of the Connecting Path:



End of Practice Exercise

The Path Analysis Tab

The Path Analysis tab of the Connecting Path Tool form is designed to provide you with additional options after a Connecting Path analysis has been run.



SSI Connecting Path Analysis

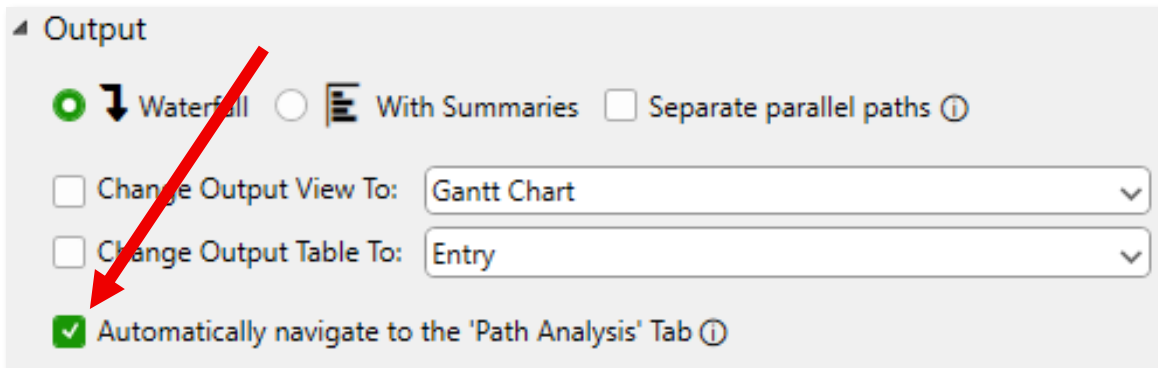
Path Options **Path Analysis**

Displaying: 6 - to - 10

UID	Name	Start	Finish
6	Preliminary Design Review (PDR)	5/13/2025	5/13/2025
65	Develop Detailed Design Drawings &...	5/14/2025	5/20/2025
66	Develop Software Detailed Design	5/14/2025	5/20/2025
68	Develop Deployment Plan	5/14/2025	5/20/2025
69	Genetate Bill of Materials (BOM)	5/14/2025	5/20/2025
67	Perform Design Validation and Verifica...	5/21/2025	5/27/2025
71	Generate Presentation Materials for C...	5/28/2025	6/3/2025
72	Ensure CDR Exit Criteria Has Been Met	6/4/2025	6/4/2025
73	Conduct Critical Design Review (CDR)	6/5/2025	6/5/2025
7	Critical Design Review (CDR)	6/5/2025	6/5/2025
78	Procure & Receive COTS Materials	6/6/2025	6/19/2025
70	Develop Operations Maintenance & U...	6/20/2025	7/2/2025

Recalculate Show in Gantt Export to Excel

If the **Automatically Navigate to the 'Path Analysis' tab** option is checked in the **Output group** of the **Path Options tab** is checked, The Connecting Path tool will automatically display the Path Analysis Tab after each Connecting Path analysis is performed.



Output

☒ Waterfall ☐ With Summaries ☐ Separate parallel paths ⓘ

☐ Change Output View To: Gantt Chart

☐ Change Output Table To: Entry

☒ Automatically navigate to the 'Path Analysis' Tab ⓘ

If this option is unchecked, you can still access the full features of the Path Analysis tab at any time by manually navigating to it after a Connecting Path analysis has been run.

The Connecting Path Table

The table in the Path Analysis tab displays the results of the Connecting Path Analysis. This table provides an alternate way of viewing the output outside of just the Gantt Chart view.

Displaying: [6](#) - to - [10](#)

UID	Name	Start	Finish
6	Preliminary Design Review (PDR)	5/13/2025	5/13/2025
65	Develop Detailed Design Drawings &...	5/14/2025	5/20/2025
66	Develop Software Detailed Design	5/14/2025	5/20/2025
68	Develop Deployment Plan	5/14/2025	5/20/2025
69	Generate Bill of Materials (BOM)	5/14/2025	5/20/2025
67	Perform Design Validation and Verifica...	5/21/2025	5/27/2025
71	Generate Presentation Materials for C...	5/28/2025	6/3/2025
72	Ensure CDR Exit Criteria Has Been Met	6/4/2025	6/4/2025
73	Conduct Critical Design Review (CDR)	6/5/2025	6/5/2025
7	Critical Design Review (CDR)	6/5/2025	6/5/2025
78	Procure & Receive COTS Materials	6/6/2025	6/19/2025
79	Develop Operations Maintenance & U...	6/20/2025	7/3/2025

Within the table, the Unique ID, Name, Start, and Finish dates of each Connecting Path Activity will always be displayed. If the options to **Log Driving Slack from the start task** or **To the End task** were turned on, those values will also be displayed in the table:

Displaying: [6](#) - to - [10](#)

UID	Name	Start	Finish	DS from Start	DS to End
6	Preliminary Design Review...	5/13/2025	5/13/2025	0 d	4 d
65	Develop Detailed Design...	5/14/2025	5/20/2025	0 d	4 d
66	Develop Software Detailed...	5/14/2025	5/20/2025	0 d	4 d
68	Develop Deployment Plan	5/14/2025	5/20/2025	0 d	9 d

Displayed above the table are the Unique IDs of the Starting and Ending activities of the Connecting Path.

Displaying: [6](#) - to - [10](#)

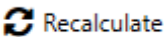
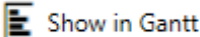
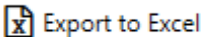
Clicking on either of these will select that activity in the Gantt Chart.

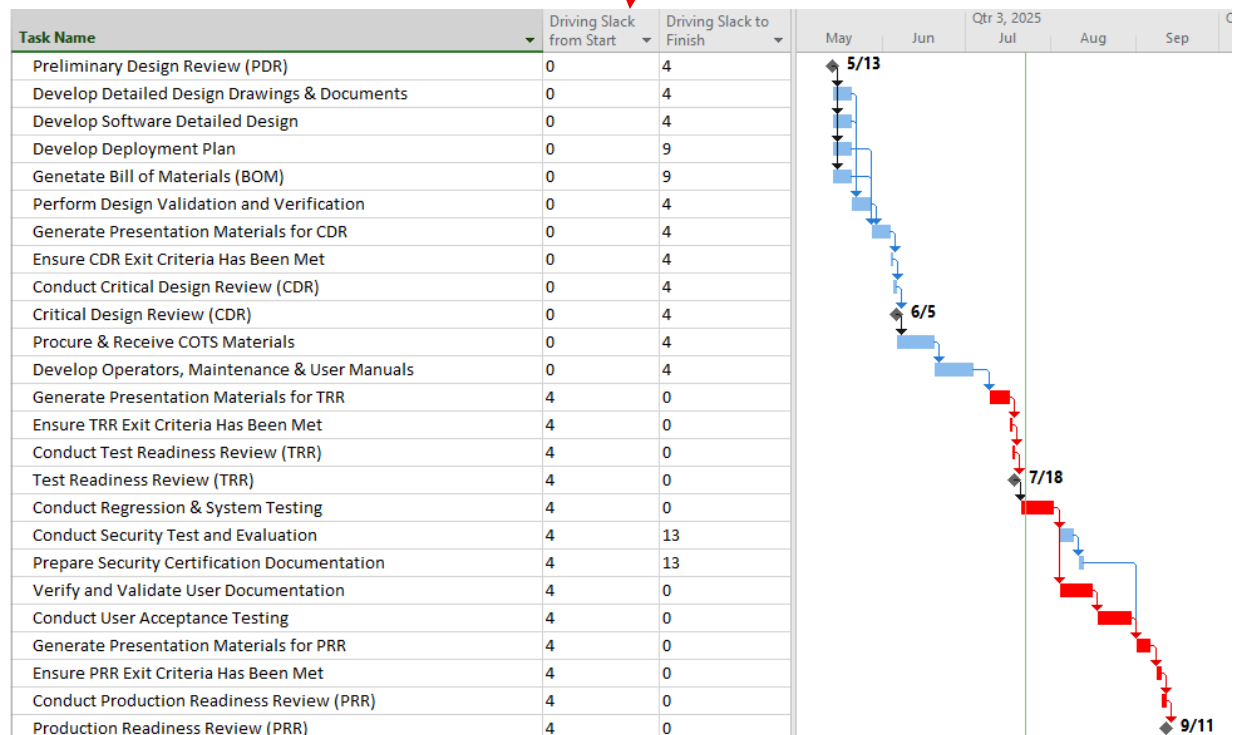
Double clicking on any of the rows in the table will select its corresponding activity in the Gantt Chart.

Redisplaying the Calculated Connecting Path in the Gantt Chart

The **Show in Gantt** button below the Connecting Path table can re-filter the Microsoft Project Gantt Chart for the Connecting Path displayed in the table using the same settings currently applied in the Output group on the Path Options tab.

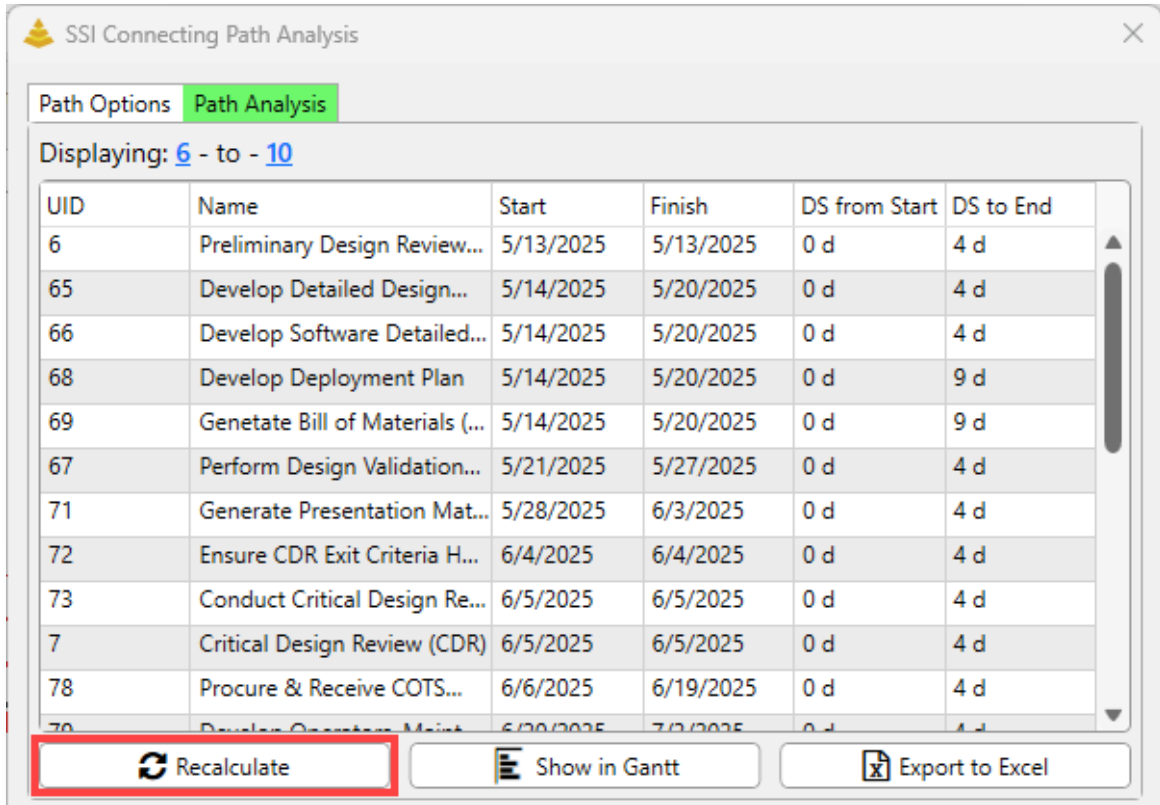
UID	Name	Start	Finish	DS from Start	DS to End
6	Preliminary Design Review...	5/13/2025	5/13/2025	0 d	4 d
65	Develop Detailed Design...	5/14/2025	5/20/2025	0 d	4 d
66	Develop Software Detailed...	5/14/2025	5/20/2025	0 d	4 d
68	Develop Deployment Plan	5/14/2025	5/20/2025	0 d	9 d
69	Genetate Bill of Materials (...)	5/14/2025	5/20/2025	0 d	9 d
67	Perform Design Validation...	5/21/2025	5/27/2025	0 d	4 d
71	Generate Presentation Mat...	5/28/2025	6/3/2025	0 d	4 d
72	Ensure CDR Exit Criteria H...	6/4/2025	6/4/2025	0 d	4 d
73	Conduct Critical Design Re...	6/5/2025	6/5/2025	0 d	4 d
7	Critical Design Review (CDR)	6/5/2025	6/5/2025	0 d	4 d
78	Procure & Receive COTS...	6/6/2025	6/19/2025	0 d	4 d
70	Develop Operator Maint...	6/20/2025	7/3/2025	0 d	4 d



Recalculating a Connecting Path

The data displayed in the Connecting Path table does not automatically update when changes are made to activities within the path in Microsoft Project. To refresh the analysis, click the **Recalculate** button below the table.



SSI Connecting Path Analysis

Path Options Path Analysis

Displaying: 6 - to - 10

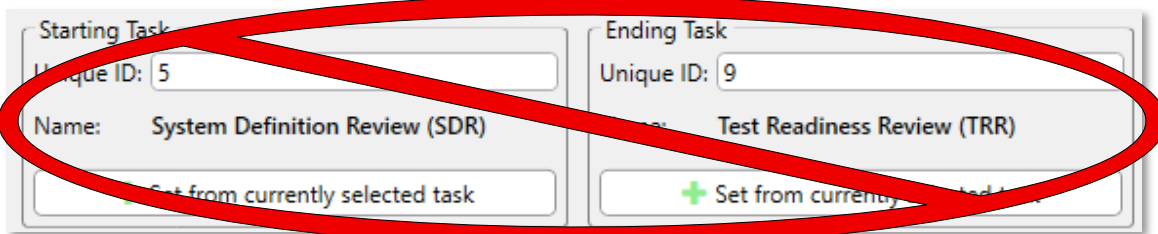
UID	Name	Start	Finish	DS from Start	DS to End
6	Preliminary Design Review...	5/13/2025	5/13/2025	0 d	4 d
65	Develop Detailed Design...	5/14/2025	5/20/2025	0 d	4 d
66	Develop Software Detailed...	5/14/2025	5/20/2025	0 d	4 d
68	Develop Deployment Plan	5/14/2025	5/20/2025	0 d	9 d
69	Genetate Bill of Materials (...)	5/14/2025	5/20/2025	0 d	9 d
67	Perform Design Validation...	5/21/2025	5/27/2025	0 d	4 d
71	Generate Presentation Mat...	5/28/2025	6/3/2025	0 d	4 d
72	Ensure CDR Exit Criteria H...	6/4/2025	6/4/2025	0 d	4 d
73	Conduct Critical Design Re...	6/5/2025	6/5/2025	0 d	4 d
7	Critical Design Review (CDR)	6/5/2025	6/5/2025	0 d	4 d
78	Procure & Receive COTS...	6/6/2025	6/19/2025	0 d	4 d
70	Develop Operation Maint...	6/20/2025	7/3/2025	0 d	4 d

Recalculate Show in Gantt Export to Excel

This option will prompt the tool to recalculate the Connecting Path between the starting and ending points **identified above the table**:

Displaying: 6 - to - 10

It does **not** calculate the Connecting Path of the tasks currently shown in the **Starting and Ending Task groups** at the bottom of the form:



Starting Task

Unique ID: 5

Name: System Definition Review (SDR)

Ending Task

Unique ID: 9

Name: Test Readiness Review (TRR)

Set from currently selected task

Set from currently selected task

The newly calculated path will automatically be displayed in the Gantt Chart after this action is performed.

Exporting Results to Excel

The data in the Connecting Path table on the Path Analysis tab can be exported to an Excel worksheet. To export, click the **Export to Excel** button below the table.

UID	Name	Start	Finish	DS from Start	DS to End
6	Preliminary Design Review...	5/13/2025	5/13/2025	0 d	4 d
65	Develop Detailed Design...	5/14/2025	5/20/2025	0 d	4 d
66	Develop Software Detailed...	5/14/2025	5/20/2025	0 d	4 d
68	Develop Deployment Plan	5/14/2025	5/20/2025	0 d	9 d
69	Genetate Bill of Materials (...)	5/14/2025	5/20/2025	0 d	9 d
67	Perform Design Validation...	5/21/2025	5/27/2025	0 d	4 d
71	Generate Presentation Mat...	5/28/2025	6/3/2025	0 d	4 d
72	Ensure CDR Exit Criteria H...	6/4/2025	6/4/2025	0 d	4 d
73	Conduct Critical Design Re...	6/5/2025	6/5/2025	0 d	4 d
7	Critical Design Review (CDR)	6/5/2025	6/5/2025	0 d	4 d
78	Procure & Receive COTS...	6/6/2025	6/19/2025	0 d	4 d
79	Develop Operators Maint...	6/20/2025	7/3/2025	0 d	4 d

 Recalculate
  Show in Gantt
  **Export to Excel**

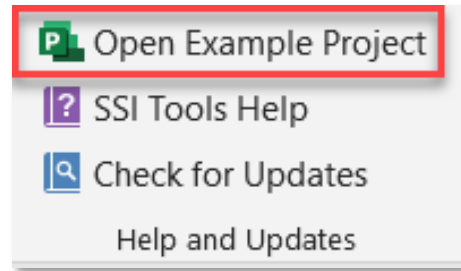
In addition to the data in the columns displayed in the table, the title of the Project each activity on the Connecting Path belongs to is displayed in the spreadsheet.

	A	B	C	D	E	F	G	H
	Task Name	Unique ID	Start	Finish	Driving Slack from Start	Driving Slack to End	Trace Log Value	Project
2	Preliminary Design Review (PDR)	6	2025-05-13	2025-05-13	0 d	4 d	6 - to - 10	ExampleProject
3	Develop Detailed Design Drawings & Documents	65	2025-05-14	2025-05-20	0 d	4 d	6 - to - 10	ExampleProject
4	Develop Software Detailed Design	66	2025-05-14	2025-05-20	0 d	4 d	6 - to - 10	ExampleProject
5	Develop Deployment Plan	68	2025-05-14	2025-05-20	0 d	9 d	6 - to - 10	ExampleProject
6	Genetate Bill of Materials (BOM)	69	2025-05-14	2025-05-20	0 d	9 d	6 - to - 10	ExampleProject
7	Perform Design Validation and Verification	67	2025-05-21	2025-05-27	0 d	4 d	6 - to - 10	ExampleProject
8	Generate Presentation Materials for CDR	71	2025-05-28	2025-06-03	0 d	4 d	6 - to - 10	ExampleProject
9	Ensure CDR Exit Criteria Has Been Met	72	2025-06-04	2025-06-04	0 d	4 d	6 - to - 10	ExampleProject
10	Conduct Critical Design Review (CDR)	73	2025-06-05	2025-06-05	0 d	4 d	6 - to - 10	ExampleProject
11	Critical Design Review (CDR)	7	2025-06-05	2025-06-05	0 d	4 d	6 - to - 10	ExampleProject
12	Procure & Receive COTS Materials	78	2025-06-06	2025-06-19	0 d	4 d	6 - to - 10	ExampleProject
13	Develop Operators, Maintenance & User Manuals	79	2025-06-20	2025-07-03	0 d	4 d	6 - to - 10	ExampleProject
14	Generate Presentation Materials for TRR	83	2025-07-10	2025-07-16	4 d	0 d	6 - to - 10	ExampleProject
15	Ensure TRR Exit Criteria Has Been Met	84	2025-07-17	2025-07-17	4 d	0 d	6 - to - 10	ExampleProject
16	Conduct Test Readiness Review (TRR)	85	2025-07-18	2025-07-18	4 d	0 d	6 - to - 10	ExampleProject
17	Test Readiness Review (TRR)	9	2025-07-18	2025-07-18	4 d	0 d	6 - to - 10	ExampleProject
18	Conduct Regression & System Testing	87	2025-07-21	2025-08-01	4 d	0 d	6 - to - 10	ExampleProject

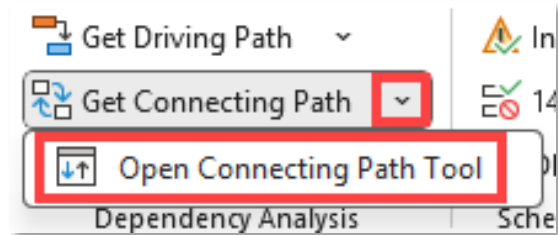
By default, these Excel exports are saved in [SSi_Tools Installation Location]\Exports\Connecting Paths. The file name will include the UIDs of the starting and ending points of the connecting path and the date and time the export occurred.

Class Exercise – Using the Path Analysis Tab

1. Open the **SSI Example Project** file in Microsoft Project if you do not currently have it open by clicking the **Open Example Project** button on the far-right side of the **SSI Analysis Tools Ribbon**.



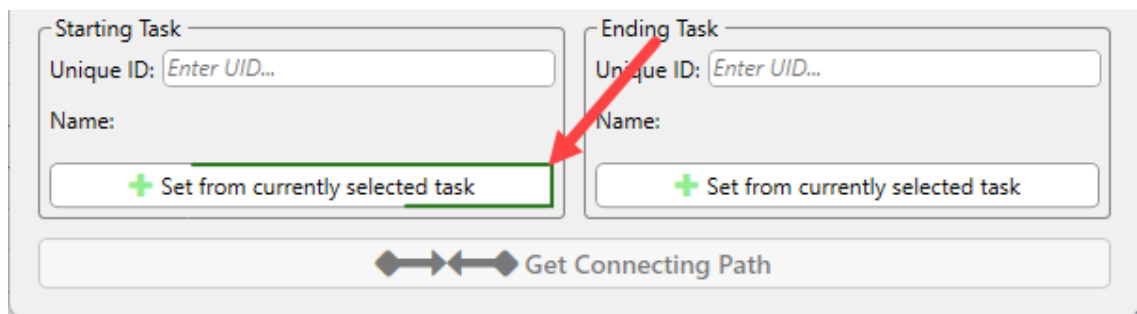
2. Open the **Connecting Path Tool** form by clicking the **down arrow** next to the **Get Connecting Path** button to reveal the Connecting Path Tools menu. Then click **Open Connecting Path Tool**.



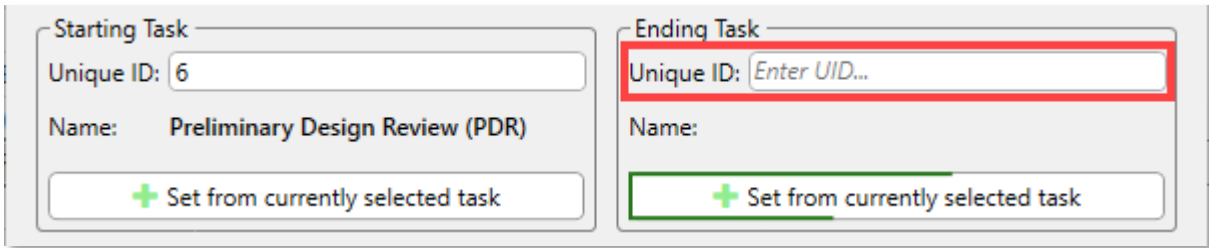
3. Select row 6, **Preliminary Design Review (PDR)** in the Gantt Table.

	Name
1	Inputs From External Sources
2	Contract Award Received From Customer
3	Design Milestones
4	Solution Engineering Review (SER)
5	System Definition Review (SDR)
6	Preliminary Design Review (PDR)
7	Critical Design Review (CDR)
8	Test & Verification Milestones
9	Test Readiness Review (TRR)
10	Production Readiness Review (PRR)

4. In the **Starting Task** group at the bottom of the Connecting Path Tool, click the **Set from currently selected task** button:



5. In the **Ending Task** group at the bottom of the Connecting Path Tool, enter the number 10 into the Unique ID Textbox:



Starting Task

Unique ID: 6

Name: Preliminary Design Review (PDR)

+ Set from currently selected task

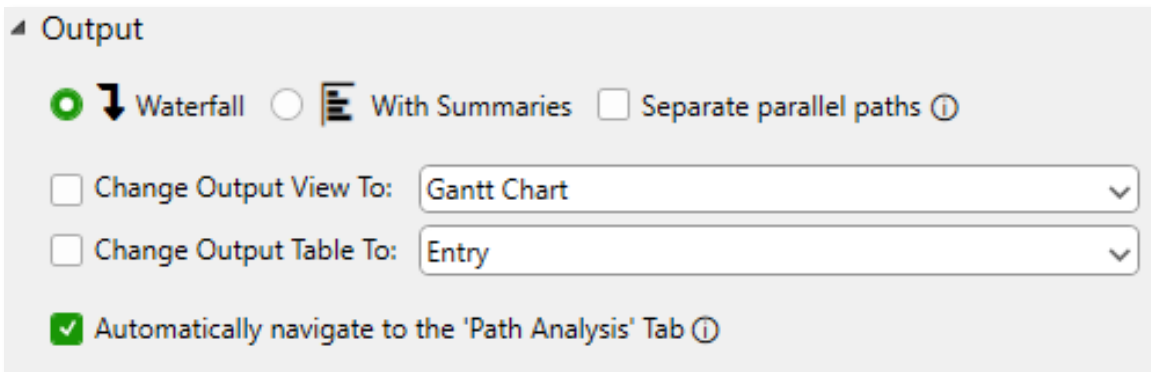
Ending Task

Unique ID: Enter UID...

Name:

+ Set from currently selected task

6. Expand the **Output** group and apply the same settings shown in the image below:



Output

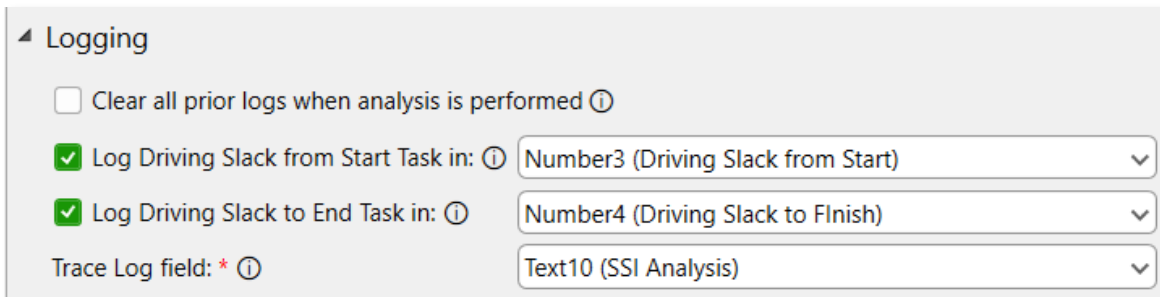
☒ Waterfall ☐ With Summaries ☐ Separate parallel paths ⓘ

☐ Change Output View To: Gantt Chart

☐ Change Output Table To: Entry

☒ Automatically navigate to the 'Path Analysis' Tab ⓘ

7. Expand the **Logging** group and apply the same settings shown in the image below:



Logging

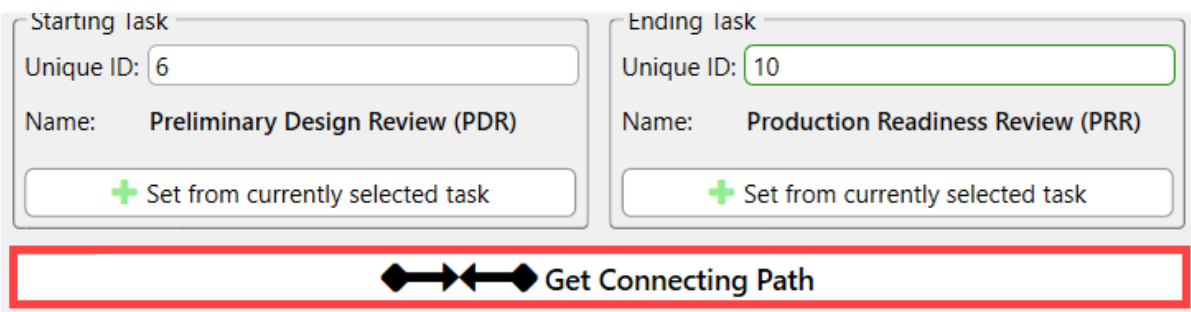
☐ Clear all prior logs when analysis is performed ⓘ

☒ Log Driving Slack from Start Task in: ⓘ Number3 (Driving Slack from Start)

☒ Log Driving Slack to End Task in: ⓘ Number4 (Driving Slack to Finish)

Trace Log field: * ⓘ Text10 (SSI Analysis)

8. Click the **Get Connecting Path** button:



Starting Task

Unique ID: 6

Name: Preliminary Design Review (PDR)

+ Set from currently selected task

Ending Task

Unique ID: 10

Name: Production Readiness Review (PRR)

+ Set from currently selected task

Get Connecting Path

9. Observe the output of the Connecting Path is displayed in the Path Analysis tab:

SSI Connecting Path Analysis

Path Options **Path Analysis**

Displaying: 6 - to - 10

UID	Name	Start	Finish
6	Preliminary Design Review (PDR)	5/13/2025	5/13/2025
65	Develop Detailed Design Drawings &...	5/14/2025	5/20/2025
66	Develop Software Detailed Design	5/14/2025	5/20/2025
68	Develop Deployment Plan	5/14/2025	5/20/2025
69	Genetate Bill of Materials (BOM)	5/14/2025	5/20/2025
67	Perform Design Validation and Verifica...	5/21/2025	5/27/2025
71	Generate Presentation Materials for C...	5/28/2025	6/3/2025
72	Ensure CDR Exit Criteria Has Been Met	6/4/2025	6/4/2025
73	Conduct Critical Design Review (CDR)	6/5/2025	6/5/2025
7	Critical Design Review (CDR)	6/5/2025	6/5/2025
78	Procure & Receive COTS Materials	6/6/2025	6/19/2025
70	Develop Quarter Masterplan & U...	6/20/2025	7/3/2025

Recalculate Show in Gantt Export to Excel

10. Click on the 6 and 10 numbers. Notice the activities being selected in the Gantt chart.

Displaying: 6 - to - 10

11. Remove ID 66, 68, and 69 as successors from Preliminary Design Review (PDR):

Name: Preliminary Design Review (PDR) Duration: 0 d ☐ Effort driven ☐ Manually Scheduled Previous Next

Start: 5/13/25 Finish: 5/13/25 Task type: Fixed Units % Complete: 0%

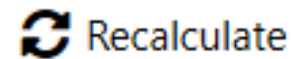
ID	Predecessor Name	Type	Lag	ID	Successor Name	Type	Lag
62	Conduct Preliminary Design Review (PDR)	FS	0d	65	Develop Detailed Design Drawings & Doc	FS	0d
				66	Develop Software Detailed Design	FS	0d
				68	Develop Deployment Plan	FS	0d
				69	Genetate Bill of Materials (BOM)	FS	0d

Name: Preliminary Design Review (PDR) Duration: 0 d ☐ Effort driven ☐ Manually Scheduled Previous Next

Start: 5/13/25 Finish: 5/13/25 Task type: Fixed Units % Complete: 0%

ID	Predecessor Name	Type	Lag	ID	Successor Name	Type	Lag
62	Conduct Preliminary Design Review (PDR)	FS	0d	65	Develop Detailed Design Drawings & Doc	FS	0d

12. Click the **Recalculate** button below the Connecting Path Table in the form.



13. Notice the activities that were removed as successors no longer show up in the Connecting Path table:

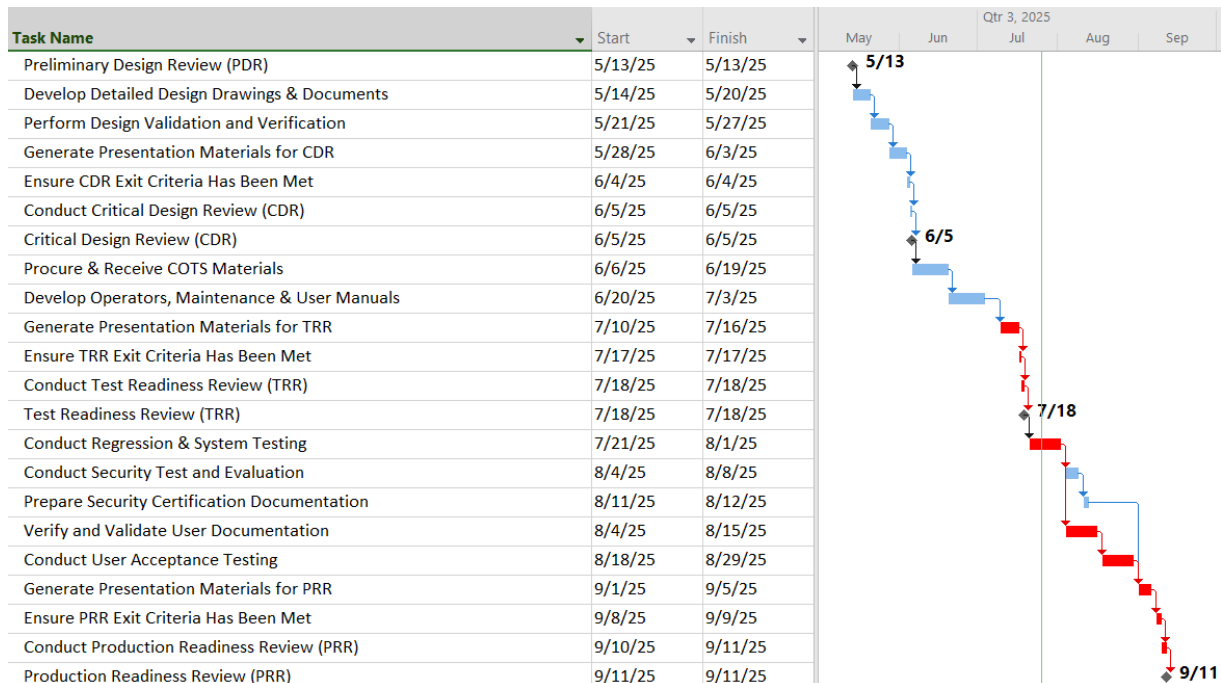
Path Options

Path Analysis

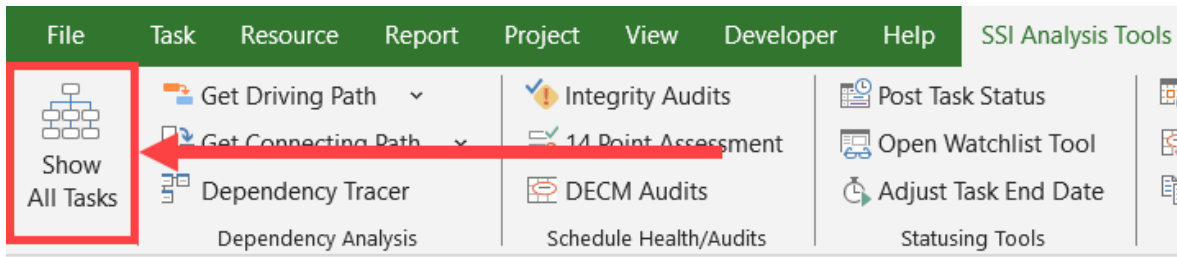
Displaying: 6 - to - 10

UID	Name	Start	Finish	DS from Start	DS to End
6	Preliminary Design Review...	5/13/2025	5/13/2025	0 d	4 d
65	Develop Detailed Design...	5/14/2025	5/20/2025	0 d	4 d
67	Perform Design Validation...	5/21/2025	5/27/2025	0 d	4 d
71	Generate Presentation Mat...	5/28/2025	6/3/2025	0 d	4 d
72	Ensure CDR Exit Criteria H...	6/4/2025	6/4/2025	0 d	4 d
73	Conduct Critical Design Re...	6/5/2025	6/5/2025	0 d	4 d
7	Critical Design Review (CDR)	6/5/2025	6/5/2025	0 d	4 d
78	Procure & Receive COTS...	6/6/2025	6/19/2025	0 d	4 d
79	Develop Operators, Maint...	6/20/2025	7/3/2025	0 d	4 d
83	Generate Presentation Mat...	7/10/2025	7/16/2025	4 d	0 d
84	Ensure TRR Exit Criteria Ha...	7/17/2025	7/17/2025	4 d	0 d
85	Conduct Test Readiness Re...	7/18/2025	7/18/2025	4 d	0 d

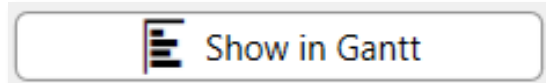
or in the Gantt Chart:



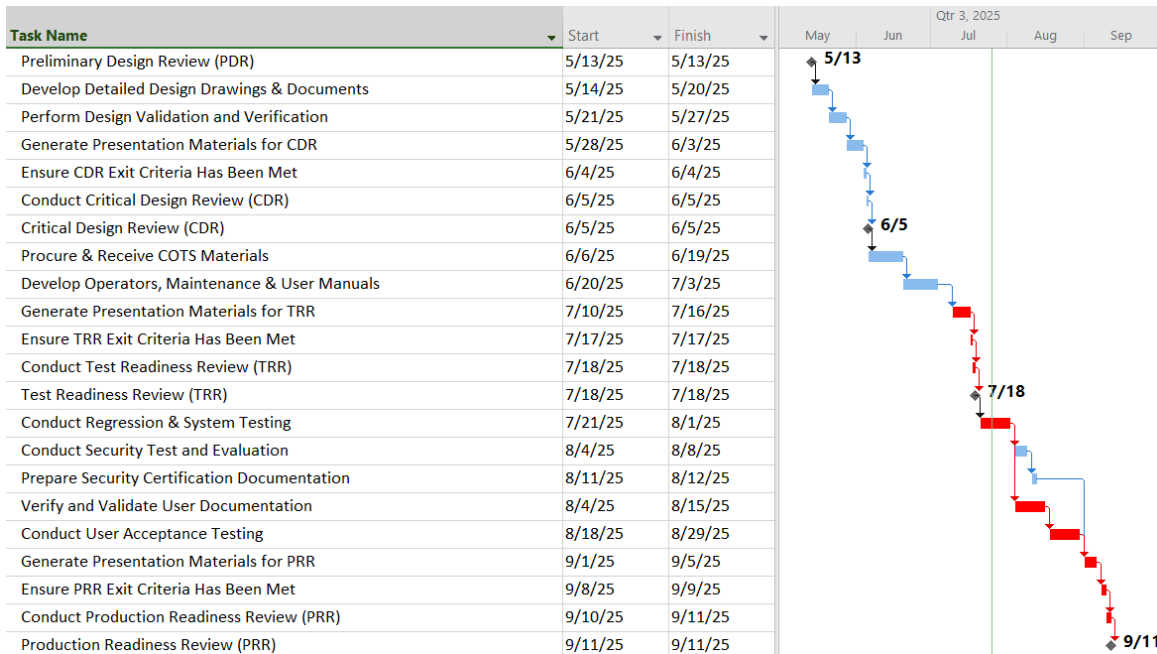
14. Click the **Show all tasks** button in the SSI Analysis Tools Ribbon:



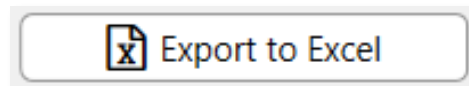
15. Click the **Show in Gantt** button.



16. Observe the Gantt Chart has been re-filtered for the Connecting Path displayed in the Connecting Path Table:



17. Click the **Export to Excel** button.



18. Observe the Excel workbook created.

End of Practice Exercise