

Schedule Inspector™

USER GUIDE

Version 2.4



BARBECANA

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Introduction

Barbecana's Schedule Inspector is an add-in to Microsoft Project®. Once installed, it is accessed through the Microsoft Project Add-in menu.

Schedule Inspector helps improve the quality of schedules by checking for the use of scheduling features and techniques that many agree should be used sparingly or not at all. Schedule Inspector is customizable to handle the different criteria imposed by various industries and organizations. You need perform only those tests you think are appropriate for your situation, and most of these tests can be customized.

Schedule Inspector can also produce a report to satisfy the requirements of the Defense Contract Management Agency (DCMA) 14-Point Schedule Assessment although the primary purpose of the tool is to help ensure schedules are properly logic driven, to help achieve reliable results from Schedule Risk Analysis using tools like Barbecana's Full Monte schedule risk analysis software.

Chapter 1: Installation and Registration

1.1 Overview

Schedule Inspector for Microsoft Project is an add-in that integrates directly into Microsoft Project. The advantages of installing directly into Microsoft Project include:

- Avoiding the necessity of exporting project data to an external application with all the attendant issues surrounding export/import.
- Being immediately accessible as part of the normal Microsoft Project experience
- Faster access to all required data
- Avoiding data versioning and ownership issues

1.2 Prerequisites

Schedule Inspector for Microsoft Project is supported with the following environments:

Microsoft Project (Standard or Professional x86 or x64 editions)

Microsoft Project 2010

Microsoft Project 2013

Microsoft Project 2016

Microsoft project 2019

Microsoft Project 2021

Microsoft Project for Office 365

Operating Systems

Microsoft Windows 7 SP1 (x86 or x64)

Microsoft Windows 10 (x64)

Microsoft Windows 11 (x64)

Additional Requirements

Microsoft .Net Framework 4.0 Client (Windows 7 or earlier)

Microsoft Visual Studio Tools for Office (VSTO) 2010 Runtime

1.3 User Account Requirements

Schedule Inspector for Microsoft Project must be installed using an account with **Administrator rights** to the local computer for two reasons:

1. By default the application will be installed to C:\Program Files (x86)\Barbecana\Schedule Inspector so that it may be used by any account on the computer.
2. It may be necessary to install addition pre-requisite system components (for example Microsoft .Net 4.0) that can only be installed by Administrators.

*NOTE: It is usually not sufficient to use **Run as Administrator** to execute the installation program.*

Once installed, the application may be used by any user account that can run Microsoft Project.

1.4 Obtain the software

Download the software from the Barbecana website by using the link provided when you purchased the software or by requesting a free trial (which will send an automated email with a link to download the software).

NOTE: The 'trial' software downloaded from the Barbecana website is a fully functional version of the software that will switch to an 'academic' mode (restricted to 100 tasks with no external project links) when the trial expires unless a purchased license key is entered.

1.5 Install the software

Note: See section 1.6 for 'Push' installation instruction for corporate licenses.

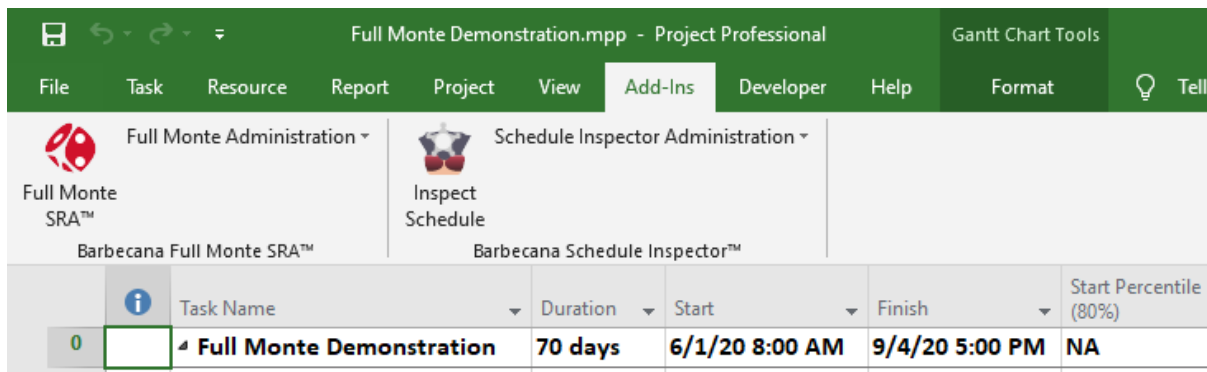
While not essential, we recommend closing Microsoft Project and other applications prior to installing Schedule Inspector. Doing so may avoid the need to restart Windows following the install.

Using an account with Administrator rights, install Schedule Inspector by running the setup program ScheduleInspector23.exe on the client machine where Microsoft Project is installed.

If prompted, please restart Windows.

NOTE: If the Schedule Inspector menu items do not appear as described below when Microsoft Project is first opened following installation, please reboot the computer and re-try Microsoft Project before proceeding to the trouble shooting steps outlined in Appendix B.

Schedule Inspector will be added to the Add-Ins menu in Microsoft project 2010 and later.



Note: The first time you launch Microsoft Project after installing the Schedule Inspector, Project may display an empty project, Project1. This is because Schedule Inspector temporarily creates several tasks to verify local languages settings. After first use, this information is saved, and Project will open normally.

Activation

Schedule Inspector is protected by a licensing system; however, you will receive a free 14-day trial after your first installation. The trial period will commence when Schedule Inspector is first used.

Registration

Registration gives you permanent access to Schedule Inspector by entering a purchased license key.

To register your license key, select the Add-Ins menu in Microsoft Project and click on the **Schedule Inspector Administration** drop down menu. Select **Register Schedule Inspector**. This displays the dialog shown in figure 1.1.

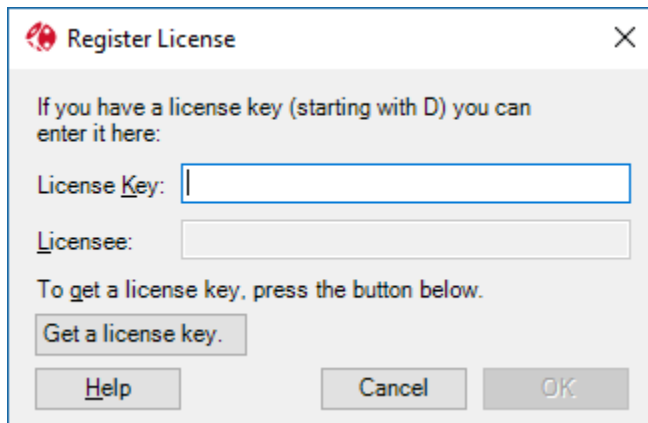


Figure 1.1

The registration dialog allows you to enter a license key if you have one or get one if you don't. To ensure uninterrupted use of the software it is recommended that you take action to buy the license some time before the trial expires.

After entering the license key exactly as provided by Barbecana (excluding any square brackets surrounding the key), you will be prompted to enter the Licensee name. Again, enter this exactly as provided by Barbecana (case sensitive and excluding any square brackets).

If you do not have your license key, you can purchase a new license or request Barbecana re-issue a lost/forgotten key by clicking **Get a License Key**. This will display the dialog shown in figure 1.2.

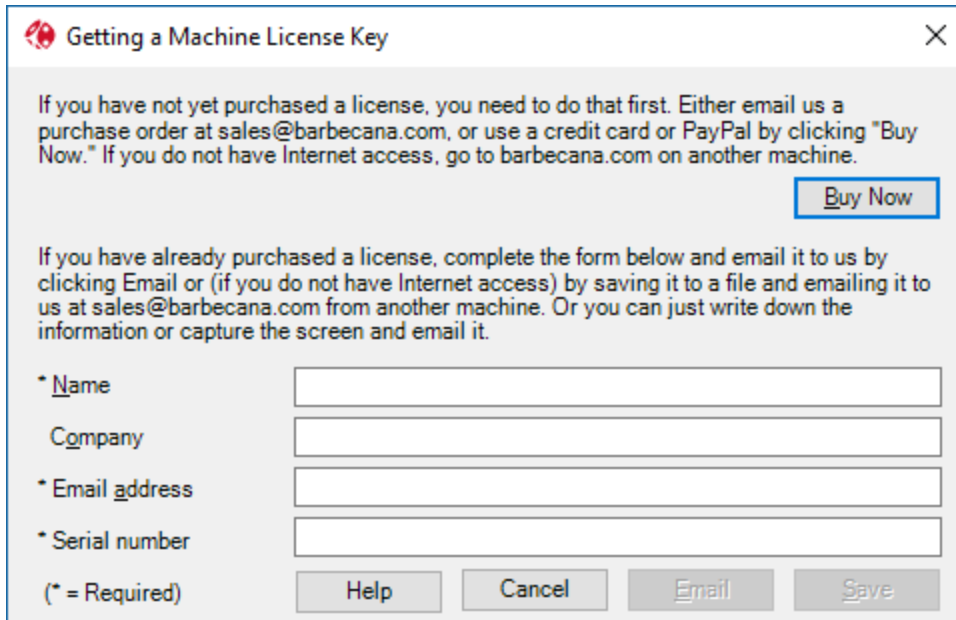


Figure 1.2

If you have not bought yet and want to do so using a credit card or a PayPal account, click on **Buy Now**. Otherwise, you can email Barbecana a purchase order at sales@barbecana.com.

If you have previously purchased a license, you can request the appropriate key from Barbecana by completing the form and clicking either **Email** or **Save**. If you have Internet access and Outlook installed, press **Email** and an email will be sent to Barbecana automatically.

Otherwise, you can **Save** to a file (with extension DAT) and either copy that onto digital media and transfer to a machine with access to email, or print it and scan it onto such a machine. Email it to sales@barbecana.com.

Note that responding to this email involves verifying your purchase, so it may take some time when outside working hours (central time).

1.6 Corporate Installations

If your company or organization has purchased a site or corporate license for Schedule Inspector, you can follow the installation instructions provided above for each individual computer, however the installer (technically a Bootstrapper) can also be used to perform a 'push' install including pre-setting the license key and licensee information.

Care must be taken that the 'push' install is performed using an account with sufficient rights to update the following Microsoft Project registry keys:

```
[HKEY_CURRENT_USER\SOFTWARE\Microsoft\Office\MS Project\Addins\ScheduleInspector]
"Description"=" ScheduleInspector"
"FriendlyName"=" ScheduleInspector"
"LoadBehavior"=dword:00000003
```

"Manifest"="C:\\Program Files
(x86)\\Barbecana\\ScheduleInspector\\ScheduleInspector.vsto|vstolocal"

These keys are responsible for loading the installed Schedule Inspector add-in when Project is opened.

The command line to invoke a silent install is:

```
Scheduleinspector23.exe /install /quiet /log siinstall.log
```

The command line to install a corporate or site license key is: (all on one line)

```
Scheduleinspector23.exe /install LicenseKey= DS01-1AAO-OAE5-VDDF-IZ1S-ZRIE-43CK  
Licensee="Barbecana Enterprise License" /log siinstall.log
```

Note: Substitute your own license key and licensee information.

The command line can also be used to Uninstall the software:

```
Scheduleinspector23.exe /uninstall /quiet
```

The /log switch is optional. If included an install log will be created in the specified location. If no path/file is specified, the default log location is %temp%.

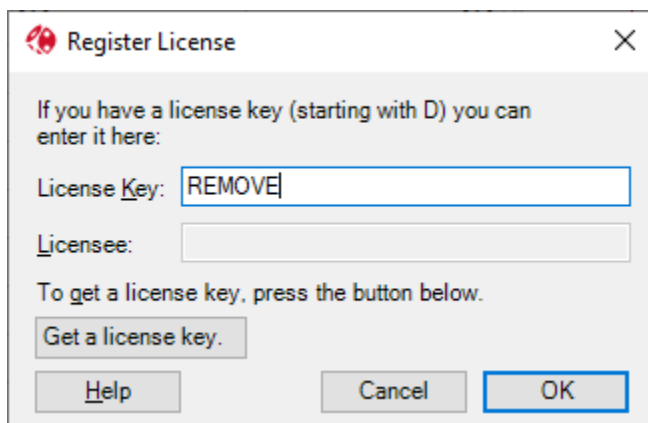
The corporate license key and licensee name are saved to values created in HKEY_Local_Machine.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\ WOW6432Node\Barbecana\Schedule Inspector\MSP]  
"LicenseKey"=" DS01-1AAO-OAE5-VDDF-IZ1S-ZRIE-43CK "  
"Licensee"="Barbecana Enterprise License"
```

Note: On a 32bit version of Windows the key changes to:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Barbecana\Schedule Inspector\MSP]
```

Any license key previously manually registered by a user through Schedule Inspector Administration (stored in HKCU) takes precedence over a license key in HKLM (from a push install). A special option to remove the manually registered license key is available from the Schedule Inspector Administration, Register Schedule Inspector dialog. Entering REMOVE in the License Key control will remove the user entered license information and Schedule Inspector will switch to using the HKLM license information (if available). If no HKLM license information is available, the product will become unlicensed and **no longer function**.



Note: A Temporary 'trial' license, previously created in HKCU, will be ignored if a full corporate license is found in HKLM.

Chapter 2: Getting Started

2.1 Using Schedule Inspector

First open a project in Project. Select the Add-ins ribbon which should look like the one in figure 2.1. Click on the **Inspect Schedule** icon.

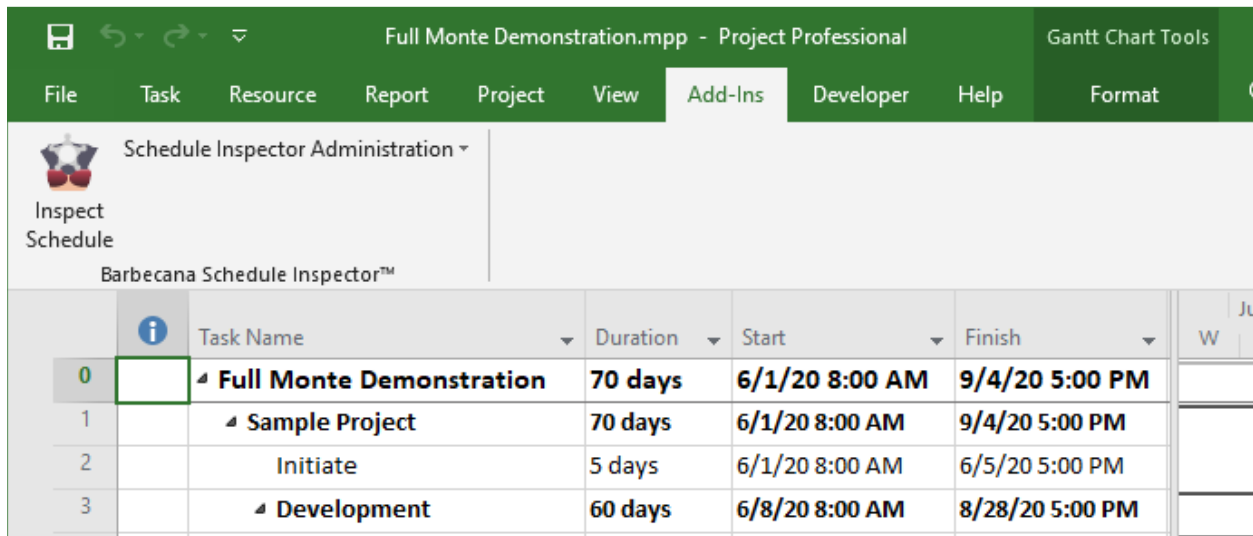


Figure 2.1. Schedule Inspector icon on the add-ins ribbon

You should then see the Schedule Inspector screen looking something like that shown in figure 2.2.

.	Condition	Select	Threshold	Exclude*	Goal	Result	Help
1	Actual/Planned later than Baseline	<input checked="" type="checkbox"/>	0		< 5%	NA	Help
2	Baseline duration exceeds threshold	<input checked="" type="checkbox"/>	44 days	LSP	< 5%	NA	Help
3	Baseline execution index	<input checked="" type="checkbox"/>		SM	> 0.95	NA	Help
4	Critical path length index	<input checked="" type="checkbox"/>		CS	> 0.95	NA	Help
5	Critical path test (Adding threshold does...	<input checked="" type="checkbox"/>	120 wks	CSN	= 0%	NA	Help
6	Duplicate task names	<input checked="" type="checkbox"/>			= 0%	NA	Help
7	Finish-Start relationships	<input checked="" type="checkbox"/>			> 90%	NA	Help
8	Hard constraints	<input checked="" type="checkbox"/>			< 5%	NA	Help
9	Inactive tasks	<input checked="" type="checkbox"/>			= 0%	NA	Help
10	Invalid actual date(s)	<input checked="" type="checkbox"/>		S	= 0%	NA	Help
11	Invalid forecast date(s)	<input checked="" type="checkbox"/>			= 0%	NA	Help
12	Lags bigger than threshold	<input checked="" type="checkbox"/>	0		< 5%	NA	Help
13	Leads bigger than threshold	<input checked="" type="checkbox"/>	0		= 0%	NA	Help
14	Manually scheduled tasks	<input checked="" type="checkbox"/>			= 0%	NA	Help
15	Milestones with resources	<input checked="" type="checkbox"/>			= 0%	NA	Help
16	More than threshold number of predece...	<input checked="" type="checkbox"/>	10		= 0%	NA	Help
17	More than threshold number of success...	<input checked="" type="checkbox"/>	10		= 0%	NA	Help
18	Negative slack exceeds threshold	<input checked="" type="checkbox"/>	0		= 0%	NA	Help

*Exclusion Codes: Complete, LoE, Milestone, No dependencies, Planning package, Summary, user eXclusion. (PP limit is 9/6/2022)

Figure 2.2. Schedule Inspector Grid, before running tests

Click the boxes next to the tests that you would like to run. Then click on **Run Tests** and select **Run Now**. (If the **Run Automatically** option is checked you will not need to do this; the tests will be re-run whenever you make a change.) Schedule Inspector will perform those tests and produce a result that is similar to the dialog box in figure 2.3.

Note:

1. Schedule Inspector remembers all your options, including the **Run Automatically** option. If this is switched on, when you reopen Schedule Inspector it will run the selected tests.
2. You can interrupt processing by pressing the **Escape** key or by selecting **Cancel** from the **Run Tests menu**. If you do this when the **Run Automatically** option is on, that option will be switched off.

Schedule Inspector(tm) C:\Users\jowen\Documents\Barbecana\Full Monte MSP\Full Monte Demonstration.mpp

File Options Run Tests DCMA View Trace Help Status Date: Monday, May 1, 2023

.	Condition	Select	Threshold	Exclude*	Goal	Result	
1	Actual/Planned later than Baseline	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 23 tasks)	Help
2	Baseline duration exceeds threshold	<input checked="" type="checkbox"/>	44 days	LSP	< 5%	0.00% (0 out of 17 tasks)	Help
3	Baseline execution index	<input checked="" type="checkbox"/>		SM	> 0.95	Zero out of zero.	Help
4	Critical path length index	<input checked="" type="checkbox"/>		CS	> 0.95	1.00	Detail
5	Critical path test (Adding threshold does...	<input checked="" type="checkbox"/>	120 wks	CSN	= 0%	0.00% (0 out of 17 tasks)	Help
6	Duplicate task names	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 23 tasks)	Help
7	Finish-Start relationships	<input checked="" type="checkbox"/>			> 90%	100.00% (19 out of 19 relationships)	Help
8	Hard constraints	<input checked="" type="checkbox"/>			< 5%	0.00% (0 out of 23 tasks)	Help
9	Inactive tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 23 tasks)	Help
10	Invalid actual date(s)	<input checked="" type="checkbox"/>		S	= 0%	Zero out of zero.	Help
11	Invalid forecast date(s)	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 46 dates)	Help
12	Lags bigger than threshold	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 19 relationships)	Help
13	Leads bigger than threshold	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 19 relationships)	Help
14	Manually scheduled tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 23 tasks)	Help
15	Milestones with resources	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 4 tasks)	Help
16	More than threshold number of predece...	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 23 tasks)	Help
17	More than threshold number of success...	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 23 tasks)	Help
18	Negative slack exceeds threshold	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 23 tasks)	Help

*Exclusion Codes: Complete, LoE, Milestone, No dependencies, Planning package, Summary, user eXclusion. (PP limit is 9/6/2022)

Figure 2.3. Schedule Inspector Grid, after running tests

The results are color-coded:

- **Red** – the project failed a test.
- **Yellow** – the project passed the test, but some tasks were not compliant. The number of noncompliant tasks did not exceed the allowable percentage, or “Goal.” Setting values for Goal is discussed in Chapter 3, The Schedule Inspector Grid and the Test Detail Dialog.
- **Green** – there were no tasks out of compliance with the test.
- **White** – the test was not requested or there were no tasks subject to the test.

NOTE: in a few cases, the color-coding of results is reversed because the goal is for a minimum percentage of tasks to comply, rather than a maximum. In these cases, green indicates that 100% complied and yellow indicates that compliance was less than 100% but greater than the goal.

It is possible to sort on some of the columns by clicking on the column heading. In the case of the results column, sorting is done by color in order of severity: white, green, yellow, red. To sort the most serious problems to the top, click on the column heading twice.

2.2 Saving Settings

When you close the Schedule Inspector window, if configuration and/or test settings have been changed, you will be prompted to Save Settings. If you choose No, any configuration/setting changes made are discarded.

If you choose Yes, to save settings, the current configuration and settings for the current project is saved to c:\users\\Documents\Barbecana\Schedule Inspector\scheduleinspectordata.txt.

If the current Project Summary Task Notes field is empty (or previously contained Schedule Inspector data), the current settings will also be saved to the Notes field. This will allow another user to open the project and have the previous settings restored.

The data in the Project Summary Tasks Notes field (identified as 'BarbecanaSI:') can safely be deleted if the user wishes to save their own information in the notes field.

Chapter 3: The Schedule Inspector Grid and the Test Detail Dialog

There are seven columns in the grid presented by Schedule Inspector:

Condition lists the tests that Schedule Inspector performs. Clicking on a cell in this column toggles the checkbox in the next column.

Select contains checkboxes indicating whether you want to perform each particular test. If you consecutively check or uncheck two boxes in this column, Schedule Inspector will ask if you want to check or uncheck them all, allowing you to perform this function quickly.

Note: There is an option under the Options menu to hide unselected rows and this option is cancelled when you choose to deselect all rows in this way. (You must of course uncheck this option before you can select a test which is currently deselected.)

Threshold (where appropriate) enables you to enter values used by the test. For example, one test counts the number of tasks with more than the threshold number of predecessors.

Note: The thresholds for some tests are durations. You cannot enter elapsed durations here, but the threshold will be interpreted as elapsed for any task whose duration is specified in elapsed units.

Exclusions allow you to exclude certain types of tasks from the test. Each of these types is represented by a single character, as follows:

- **C** – Completed tasks
- **L** – Level-of-effort tasks (as defined in the configuration dialog)
- **M** – Milestone tasks (as defined in the configuration dialog)
- **N** – tasks with No dependencies
- **P** – Planning package tasks (as defined in the configuration dialog)
- **S** – Summary tasks
- **X** – user eXclusion (as defined in the configuration dialog)

Note: A few tests do not allow certain exclusions (see Appendix A) , in which case you will be unable to enter them. Other tests have required exclusion; if you delete such an exclusion it will be reinstated.

Goal indicates the minimum or maximum value allowed for tasks or relationships failing the test. A “Z” will indicate that the goal is zero. Otherwise the goal should comprise a < or > sign followed by a numeric value and an optional % sign. (The = sign can be used in place of < or > but only if the numeric value is 0, 1, or 100%) The goal is interpreted as a percentage for all tests except the baseline execution index and the critical path length test.

Note: To edit this field, it is generally necessary to delete its current content before typing in the new value.

Result lists the results of the test, color-coded as described in the previous chapter. Clicking on this column has the same effect as clicking on the button in the final column.

The final, unlabeled, column contains buttons giving access to more information. In most cases, if a test has been run and the result is yellow or red, the button will be marked **Detail** and will invoke a dialog containing a list of the specific tasks which failed the test. (In other cases, for example if the test has not been run, the button will be marked **Help** and will access general help about the test.)

Figure 3.1 shows an example of the **Test Detail** dialog. There are options to highlight the listed tasks in the current Project view, or to filter the view to just those tasks. (These will be disabled if you have not designated one of the custom flag fields for the purpose. This can be done using the dropdown list on the dialog. This can also be used to reserve different flags for different tests.)

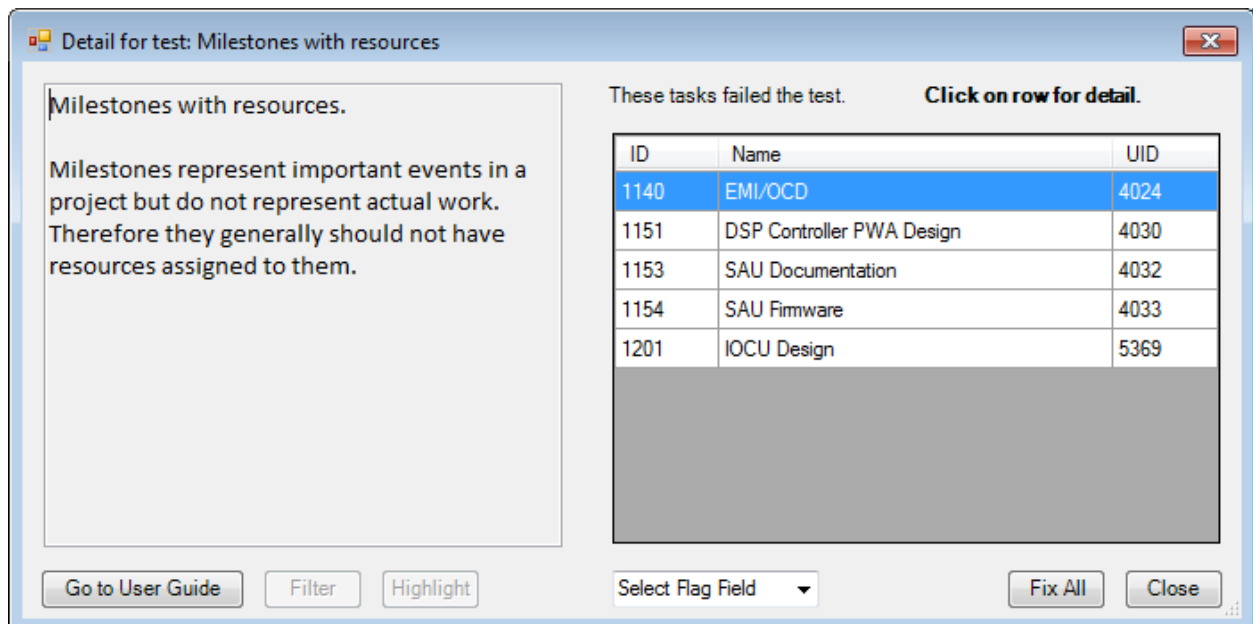


Figure 3.1 The Test Detail Dialog for the test “Milestones with Resources.”

Depending upon the test, there may also be options to fix all the problems globally, or to click on individual tasks for more information or to fix the problem.

Note: The Fix All button will never make any changes before describing specifically what it plans to change, and giving you the chance to abort the process. An example is shown in figure 3.2.

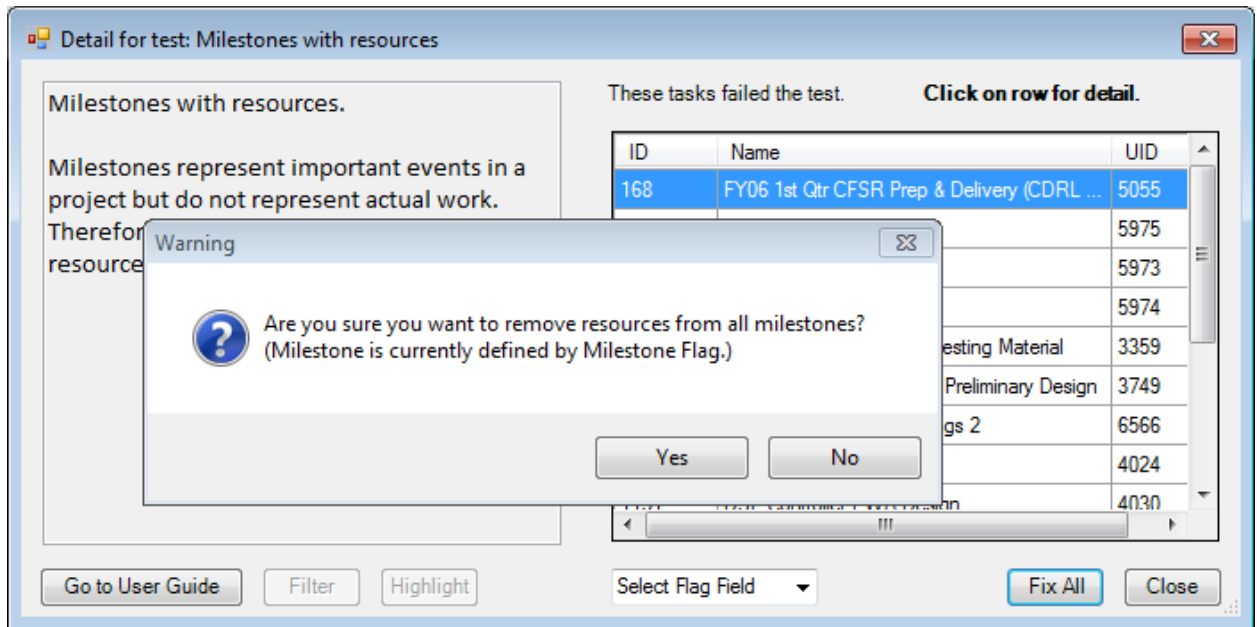


Figure 3.2. Prompt before making global change

If instead you want to fix the problem on individual tasks, click on the row displaying that task on the Task Detail Dialog illustrated in figure 3.1. This invokes a tabbed dialog as discussed in the next chapter. In this case you can fix the problem either by removing the milestone flag or by removing the resource assignments.

Chapter 4: The Task Detail Dialog

The Task Detail dialog allows you to fix problems on an individual task. It has 5 tabs and will normally open in the tab relevant to the test from which you accessed it. However, controls will be enabled or otherwise depending upon all the tests the task failed.

Note: a control not enabled could just mean that the test was not requested.

None of the changes on any tab take effect until you press OK and can be abandoned by pressing Cancel.

The rest of this chapter will discuss the five tabs.

The **General** tab shown in figure 4.1 allows you to fix duplicate task names, lack of a baseline, conflicting task designations, and tasks marked inactive or for manual scheduling. Controls for doing this are enabled only if the task failed the corresponding test.

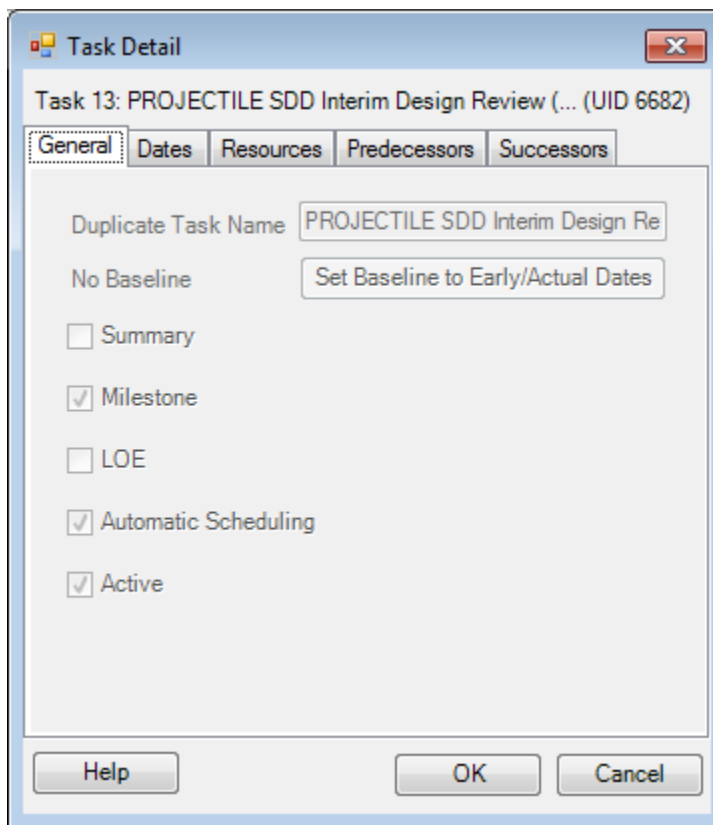


Figure 4.1. The General Tab of the Task Detail Dialog

The **Dates** tab shown in figure 4.2 allows you to fix problems with constraint dates, deadlines, and actual dates. Controls for doing this are enabled only if the task failed the corresponding test.

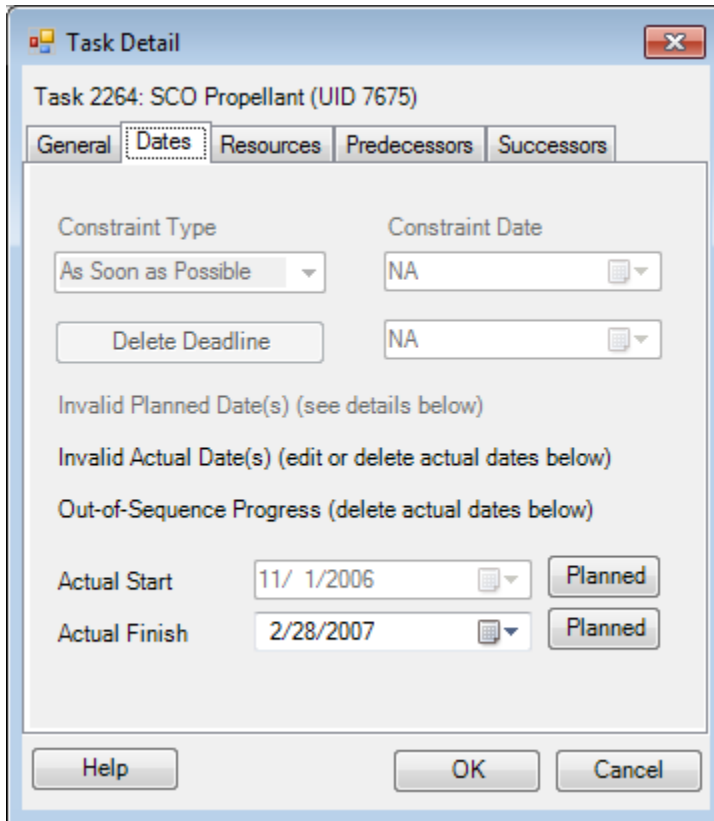


Figure 4.2. The Dates Tab of the Task Detail Dialog

Constraint dates can be edited or deleted by changing the constraint type to "As Soon as Possible."

Deadline dates can be deleted using the Delete Deadline button.

Actual dates can be edited, or removed (i.e. reverted to planned) using the Planned button. (In the case of out of sequence progress, editing the date is not allowed because it would not fix the problem.) If you remove an actual start, the actual finish will be removed too.

Note: After removing one or both actual dates, they will be displayed as planned. These planned dates however may change when the project is re-analyzed, which cannot happen until you commit the change using the OK button.

The **Resources** tab shown in figure 4.3 allows you to add, delete, or edit resource assignments.

Resource assignments are listed even if there are no problems with resource assignments. Tests which this task failed are highlighted.

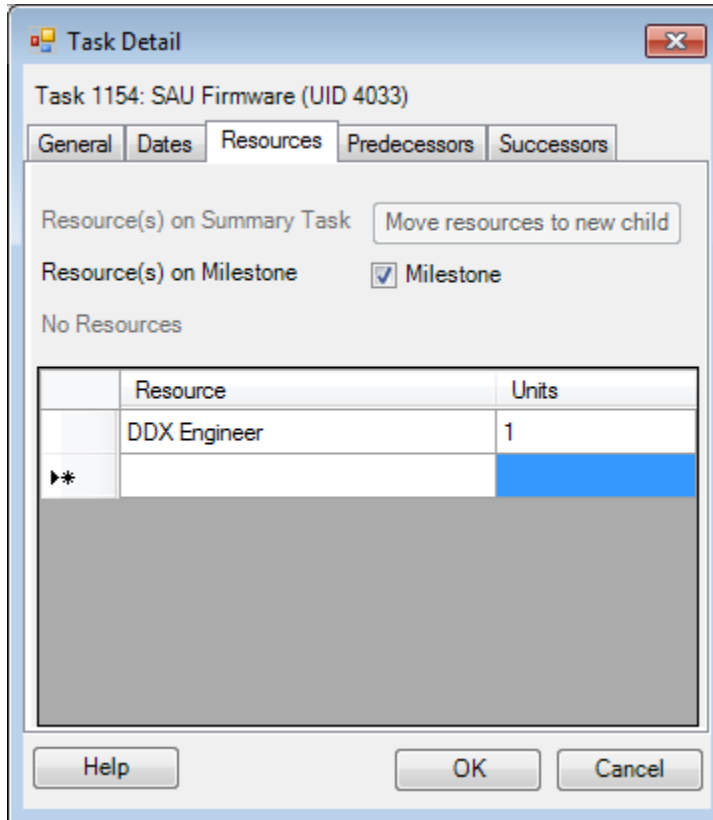


Figure 4.3. The Resources Tab of the Task Detail Dialog

If the task is a summary task, you can move all assignments to a newly created child task by pressing that button.

Note: the definition of milestone is not necessarily the Project milestone flag, but as defined on the Configuration Dialog.

If the task is a milestone, designated by the milestone field in project, you can remove that designation by pressing the un-checking the box.

To delete an assignment, click on the left of that row and press the delete key. To modify an assignment, click on the cell and edit it.

The **Predecessor** tab shown in figure 4.4 lists all predecessors even if there are no problems related to predecessors. Any such problems will be highlighted.

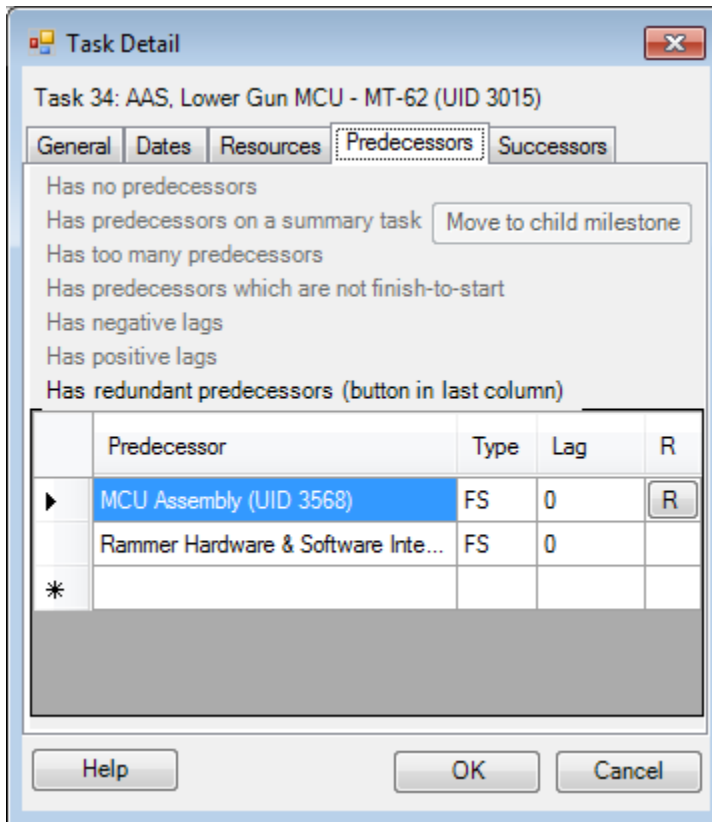


Figure 4.4. The Predecessors Tab of the Task Detail Dialog

If there are redundant predecessors, the button in the "R" column will give you more information and allow you to delete the redundant relationship, as shown in figure 4.5.

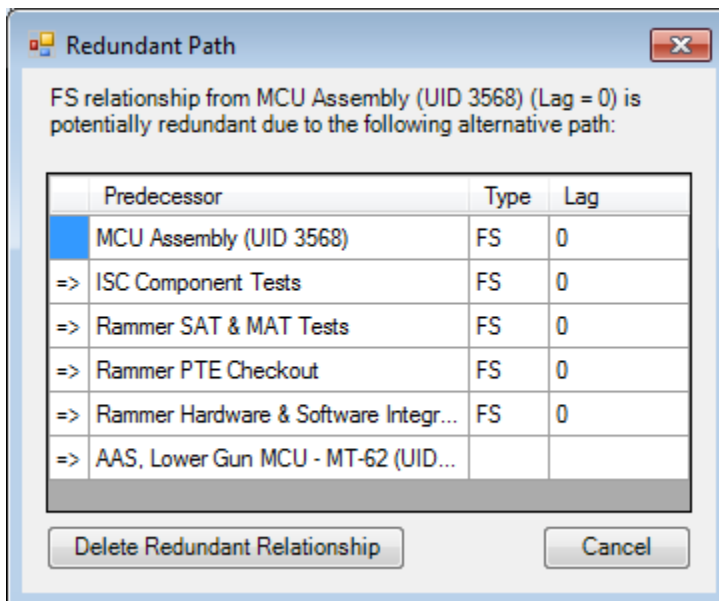


Figure 4.5. The Redundant Path Dialog

You can also delete any predecessor by clicking on the left of the row and pressing the delete key. To edit a predecessor, click in the relevant cell. To add a predecessor, enter data in the last row.

Note: Some changes you make here or on the Successor tab can alter the redundant predecessor status of this or other tasks, and this is not always reflected in the list which appears when you press the "R" button. This is because the redundant relationship test is best done for the project as a whole, and so it is not done until you dismiss the Test Detail dialog and return to the Schedule Inspector grid.

The **Successor** tab shown in figure 4.6 lists all successors even if there are no problems related to successors. Any such problems will be highlighted.

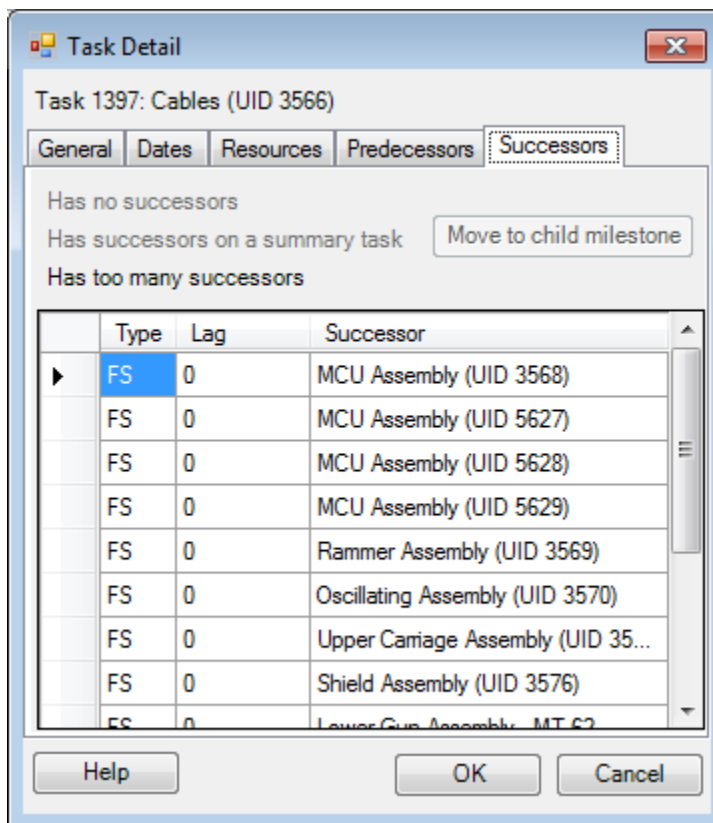


Figure 4.6. The Successors Tab of the Task Detail Dialog

To delete a successor, click on the left of that row and press the delete key. To edit a successor, click in the relevant cell. To add a successor, enter data in the last row.

Note: Some changes you make here or on the Predecessor tab can alter the redundant predecessor status of this or other tasks, and this is not always reflected in the list which appears when you press the "R" button. This is because the redundant relationship test is best done for the project as a whole, and so it is not done until you dismiss the Test Detail dialog and return to the Schedule Inspector grid.

Chapter 5: The Options Menu and Configuration Dialog

The Options menu presents the following options:

- **Configure** - invokes the configuration dialog, which will be discussed in detail below.
- **Reset...** - The Reset option allow the user to reset the tests based on several preset selections. These are:
 - All Tests
 - For AACE 57R-09 (Association for the Advancement of Cost Engineering)
 - For COIB PP21 (Chartered Institute of Building Planning Protocol 2021)
 - For DCMA 14-point (Defense Contract Management Agency)
 - For Basic Best Practice (for Monte Carlo simulation)
 - To User Default
 - To System Default
- **Save Current Settings as User Default** – Save the configuration and settings currently active as a User Default. The User Default settings will be applied to any new projects opened in Schedule Inspector for the first time. The User Default can also be applied to the current project under Reset..., To user Default.
- **Save Current Settings as System Default** – Save the configuration and settings currently active to a file called ScheduleInspectorSystemDefaultSettings.txt in the Schedule Inspector home directory. Settings from this file (if it exists) will be applied to any new projects opened in Schedule Inspector for the first time if no User Default has been defined. Note: This option will not be available if the file ScheduleInspectorSystemDefaultSettings.txt has been marked as read Only to prevent changes to the system default.
- **Hide Unselected Rows** can be checked and unchecked and controls whether unselected tests are shown.
- **Include DCMA Metric #** or **Include CIOB Metric #** can be checked and unchecked and controls whether the relevant metric number is displayed as part of the description of the test.
- **Cancel Sort** reverts the sort order to the default (which itself depends upon whether the last reset was for DCMA or not).
- **Cancel Project Highlight/Filter** will only be enabled if tasks have been highlighted or filtered from the test detail dialog. Use this option to clear the applied filter or highlighting.

5.1 The Configuration Dialog

The configuration dialog is illustrated in figure 5.1 and allows the user to specify general test rules and define where specific data used by certain exclusions is defined in the schedule.

It is important to note that this dialog just configures where the appropriate data to define certain types of excluded task is stored in the schedule. **It does not in itself exclude any task from analysis.** The user

must then configure the specific exclusions in the **Exclude** column of the main interface by adding the appropriate character code to enable a specific exclusion.

Schedule Inspector Configuration

Baselines

Require Baseline for applicable DCMA tests. Use this baseline: Baseline

Planning Packages (Rolling Wave)

Planning Package defined by: (None) having value: TRUE

Earliest Planning Package date defined by:

Days after Status Date: 60 PP Date aligned with fiscal calendar?

Days after Current Date: 60 Fiscal Calendar Type: Calendar Month

Specific Date: 5/ 1/2013 Fiscal Calendar Start Date: 7/ 6/2022

LOE defined by: (None) having value: TRUE

User Exclusion defined by: (None) having value: TRUE

Milestone defined by: Milestone Flag Flag Field (None)

End of Discrete Work (for DCMA test #12): 0 (Full Monte Demonstration)

Help OK Cancel

Figure 5.1. The configuration Dialog

This dialog allows you to specify:

- Whether to exclude tasks without baseline data from most of the tests. (It does not apply to the Baseline Execution Index; see Chapter 5.) This is a DCMA requirement.
- Which of the available baselines to use for the above and for all other purposes.
- How Planning package tasks are defined. This is either by one of the custom flag fields or by a particular string (the default is “PP”) in one of the custom text fields.
- How the earliest date for a planning package is determined (see below).
- How Level of Effort tasks are defined. This is either by one of the custom flag fields or by a particular string (the default is “LOE”) in one of the custom text fields. (In the latter case, it can be the same field as used for the planning package code.)
- How User Exclusions are defined. User Exclusions allow specific tasks to be excluded from individual tests. This is useful where certain tasks are non-compliant, but an explanation has been agreed with the schedule auditor for them to be excluded. Exclusions may be based on custom flag field being set or a custom text field containing a specific code.

- How Milestones are defined, which can use the Milestone flag or can be based on duration or on baseline duration. (The number of days specified will be interpreted as elapsed days for any task with a duration specified in elapsed days.)
- The Flag field to use for highlighting and filtering. (As noted earlier, this can be modified for individual tests.)
- The task which indicates the end of discrete work. (By default this is the logical end of the project, but for the purposes of DCMA metric #12 it can be defined as an earlier milestone.)

Note: On the Configuration Dialog, Schedule Inspector uses 'True' to represent 'Yes' where the source custom field is a Flag field.

Note: if Text fields are selected as the source for Planning Package, Level of Effort, or User Exclusions, the values are forced to uppercase for comparison. Multiple values may be included in a source Project custom text field, separated by commas (,).

In a rolling-wave scenario, work in the more distant future may be planned at a summary level, using tasks designated as planning packages. These should not be scheduled earlier than a minimum date which will move through time as the project progresses. The dialog allows the user to specify this as one of:

- A specified period after the status date.
- A specified period after the current system date.
- A specific date, which the user would have to change manually as time progresses.

In the first two cases above, this date can be further modified to align with a fiscal calendar, in which case the definition of the fiscal calendar can be specified as one of the following:

- Calendar months.
- 4-week periods.
- A 4/4/5-week pattern.

In the case of the last two options, the start-date of the fiscal calendar sequence can also be specified.

5.2 User Exclusion Example

The following example shows how to configure Schedule Inspector to exclude tasks with a permitted exception. In Microsoft Project, the custom field Flag6 has been set to Yes for approved user exclusions as shown in Figure 5.2.

Task Name	Duration	Start	Finish	LOE Flag	User Exclusion
Start Milestone	0 days	12/2/20 8:00	12/2/20 8:00	No	No
Long Duration	300 days	12/2/20 8:00	1/25/22 5:00	No	No
No resources	5 days	1/26/22 8:00	2/1/22 5:00 F	No	Yes
Finish Milestone	0 days	2/1/22 5:00 F	2/1/22 5:00 F	No	No
Isolated Task	20 days	12/2/20 8:00	12/29/20 5:0	No	No
Level of Effort	305 days	12/2/20 8:00	2/1/22 5:00 F	Yes	No

Figure 5.2

The LOE Flag column is Flag5 and the User Exclusion column is Flag6.

In Schedule Inspector we configure this as shown in Figure 5.3.

Figure 5.3

An initial analysis in Schedule Inspector provides the results shown in Figure 5.4.

Condition	Select	Threshold	Exclude*	Goal	Result	
Baseline duration exceeds threshold	<input checked="" type="checkbox"/>	22 days	LSP	< 5%	20.00% (1 out of 5 tasks)	Detail ...
Duplicate task names	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Finish-Start relationships	<input checked="" type="checkbox"/>			> 90%	100.00% (3 out of 3 relationships)	Help
Hard constraints	<input checked="" type="checkbox"/>			< 5%	0.00% (0 out of 6 tasks)	Help
Inactive tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Lags bigger than threshold	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 3 relationships)	Help
Leads bigger than threshold	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 3 relationships)	Help
Manually scheduled tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Milestones with resources	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 2 tasks)	Help
Missed tasks (lateness exceeds threshold)	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 1 tasks)	Help
More than threshold number of predecessors	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 6 tasks)	Help
More than threshold number of successors	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 6 tasks)	Help
Negative slack exceeds threshold	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 6 tasks)	Help
No baseline start or finish date	<input checked="" type="checkbox"/>			= 0%	33.33% (2 out of 6 tasks)	Detail ...
No predecessors	<input checked="" type="checkbox"/>		S	< 5%	50.00% (3 out of 6 tasks)	Detail ...
No successors	<input checked="" type="checkbox"/>		S	< 5%	50.00% (3 out of 6 tasks)	Detail ...
No resources	<input checked="" type="checkbox"/>		SM	= 0%	25.00% (1 out of 4 tasks)	Detail ...
Out of sequence progress	<input checked="" type="checkbox"/>		S	= 0%	0.00% (0 out of 6 tasks)	Help
Summary tasks with relationships	<input checked="" type="checkbox"/>			= 0%	Zero out of zero.	Help
Summary tasks with resources	<input checked="" type="checkbox"/>			= 0%	Zero out of zero.	Help
Tasks with redundant predecessors (i.e., implied by other ...	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help

***Exclusion Codes: Complete, LoE, User eXclusion, Milestone, No dependencies, Planning package, Summary. (PP limit is Monday, February**

Figure 5.4

The 'No resources' test is showing one non-compliant task.

If we have agreed an exception that the task 'No Resources' is not required to have assigned resources, we can set Flag6 (User Exclusion) to Yes in Microsoft Project as shown in Figure 5.2. We now need to configure the 'No resources' test (DCMA metric #10) to exclude tasks flagged with the User Exclusion. We do this by adding an X to the Exclude column for that test as shown in Figure 5.5.

Condition	Select	Threshold	Exclude*	Goal	Result	
Baseline duration exceeds threshold (DCMA metric # 8)	<input checked="" type="checkbox"/>	22 days	LSP	< 5%	20.00% (1 out of 5 tasks)	Detail ...
Duplicate task names	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Finish-Start relationships (DCMA metric # 4)	<input checked="" type="checkbox"/>			> 90%	100.00% (3 out of 3 relationships)	Help
Hard constraints (DCMA metric # 5)	<input checked="" type="checkbox"/>			< 5%	0.00% (0 out of 6 tasks)	Help
Inactive tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Lags bigger than threshold (DCMA metric # 3)	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 3 relationships)	Help
Leads bigger than threshold (DCMA metric # 2)	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 3 relationships)	Help
Manually scheduled tasks	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help
Milestones with resources	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 2 tasks)	Help
Missed tasks (lateness exceeds threshold) (DCMA metric ...)	<input checked="" type="checkbox"/>	0		< 5%	0.00% (0 out of 1 tasks)	Help
More than threshold number of predecessors (Preamble t...	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 6 tasks)	Help
More than threshold number of successors (Preamble to ...)	<input checked="" type="checkbox"/>	10		= 0%	0.00% (0 out of 6 tasks)	Help
Negative slack exceeds threshold (DCMA metric # 7)	<input checked="" type="checkbox"/>	0		= 0%	0.00% (0 out of 6 tasks)	Help
No baseline start or finish date (Excluded by most DCMA t...	<input checked="" type="checkbox"/>			= 0%	33.33% (2 out of 6 tasks)	Detail ...
No predecessors (DCMA metric # 1 Part 1)	<input checked="" type="checkbox"/>		S	< 5%	50.00% (3 out of 6 tasks)	Detail ...
No successors (DCMA metric # 1 Part 2)	<input checked="" type="checkbox"/>		S	< 5%	50.00% (3 out of 6 tasks)	Detail ...
No resources (DCMA metric # 10)	<input checked="" type="checkbox"/>		SMX	= 0%	0.00% (0 out of 3 tasks)	Help
Out of sequence progress (Preamble to DCMA Guide)	<input checked="" type="checkbox"/>		S	= 0%	0.00% (0 out of 6 tasks)	Help
Summary tasks with relationships (Preamble to DCMA Gui...	<input checked="" type="checkbox"/>			= 0%	Zero out of zero.	Help
Summary tasks with resources	<input checked="" type="checkbox"/>			= 0%	Zero out of zero.	Help
Tasks with redundant predecessors (i.e., implied by other ...)	<input checked="" type="checkbox"/>			= 0%	0.00% (0 out of 6 tasks)	Help

*Exclusion Codes: Complete, LoE, User eXclusion, Milestone, No dependencies, Planning package, Summary. (PP limit is Monday, February

Figure 5.5

Note that the 'No resources' test now shows no non-compliant tasks in the schedule for that specific test.

Other exclusions can be added as necessary by adding the appropriate exclusion code to the relevant tests.

Chapter 6: The Schedule Inspector Tests

The various available tests are described in the Condition column and are presented here in alphabetical order.

Most of the tests are applied only to those tasks which are not excluded as described in Chapter 3.

Some tests take longer than others. In particular, any of the three marked with asterisks (*) typically takes longer than all the other tests combined. Doing all three at once takes hardly any longer than doing any one of them, so if you need them, it is worth doing them all at the same time. This is of little concern for smaller networks.

Note: You can interrupt processing by pressing the Escape key or selecting Cancel from the Run menu. If you do so when the Run Automatically option is on, that option will be switched off.

Baseline duration exceeds threshold (DCMA metric #8): It is good practice to break work down into small pieces, especially if earned value cost control is employed. This test counts the number of tasks whose duration exceeds a user-specified limit.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Required exclusions: Summary tasks.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks, milestones and planning packages.

Baseline execution index (DCMA metric #14): This compares the number of tasks that have been completed with the number that should have been completed according to the baseline. It expresses the results as the ratio:

Number of completed tasks / Number of tasks with baseline finish dates on or before status date

The ratio does not consider the identities of the tasks completed compared to those that should have been completed, but the detail dialog lists all those that should have been completed but are not. It is therefore possible to have some tasks listed even if the ratio is 1.0 or even more than 1.0.

Note: In calculating the denominator, any task without a baseline finish date is treated as if this date were before the status date. Since there should not be any such tasks, this test enforces the rule by creating an incentive to create a valid baseline for every task.

Since failing this test indicates a failure in project execution rather than bad practice in designing the schedule, there is no automatic fix.

Allowed exclusions: LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies. Standard DCMA exclusions: LOE tasks, summary tasks and milestones.

Critical path length index (DCMA metric #13): This is a measure of any negative total float on the true critical path and is defined as:

$$\frac{(\text{Critical path length} + \text{Total float})}{\text{Critical path length}}$$

where Total Float is the minimum total float among the tasks on the critical path. A value of 1 or more would indicate no negative total float.

Note: For the purpose of this test, the true critical path is determined without the effect of constraints and deadlines, but the total float value is the float as calculated with constraints and deadlines.

The detail button lists this critical path tasks with their total slack values.

Since failing this test indicates a failure in project execution rather than bad practice in designing the schedule, there is no automatic fix.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks and planning packages.

Standard DCMA exclusions: Complete tasks and summary tasks.

Critical path test (DCMA metric #12; adding threshold does not delay designated finish task):

This test is designed to test whether all tasks are properly connected to the effective project completion. Adding a large delay to any task should cause this date to slip. The effective finish task is identified on the configuration dialog, and is not necessarily the logical end of the project.

Tasks will fail this test if they are not logical predecessors to the designated finish task or if they have slack exceeding the threshold. (If the designated task is not the logical end of the project, by definition some tasks will fail this test.)

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Required exclusions: Summary tasks.

Standard DCMA exclusions: Complete tasks, summary tasks and tasks without dependencies.

Duplicate Task Names: Task names should be descriptive of the work they represent and many project managers like them to be unique. This also prevents confusion when selecting predecessors on the task dialog in Project.

If tasks are listed as not having unique names, you can click on **Fix All** for various ways to make the names unique or click on a particular row to change the name of that task.

Clicking on **Fix All** invokes the dialog shown in figure 6.1. There are a number of options for globally fixing duplicate names, but none of them are foolproof.

Using the parent name can produce more meaningful names, but is the most likely not to resolve all the duplicates because the parent names themselves may not be unique. In particular, for top-level tasks, the parent will always be the project, so using the parent name is not useful and is not allowed for top-level tasks.

1. First select a method to deal with any top-level tasks.

Note: Any of these methods will fix the duplicates previously found, but may create new ones. For example, if there are two tasks named "X" identified as duplicates, one of them will get renamed to "X (1)". If it happens that there is already a task called "X (1)" which was not previously a duplicate then a new pair of duplicates will be created. This will not show up on the dialog, but will show up when the test is rerun.

2. Then select a method for renaming the remaining tasks. You can choose to use the parent name, or to use the same method as selected for the top level tasks.

Renaming is done from the top down, so if you choose to append the parent name and the parent itself is a duplicate, the new parent name will be appended to the child name.

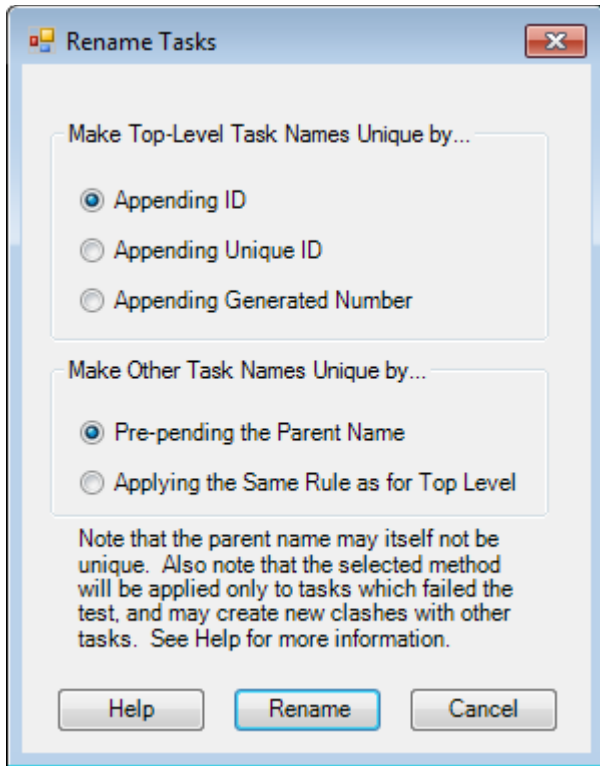


Figure 6.1 Rename Tasks Dialog

***Finish-to-start relationships (DCMA metric #4):** Relationships other than finish-to-start should be used only in special circumstances, so it is desirable that the vast majority of relationships are finish-to-start. Unlike most of the tests, this one requires that the percentage of relationships that are of this type is **at least** equal to the goal, 90% by default.

Also note that the DCMA prohibits the use of start-to-finish relationships altogether. (The four types of relationship are listed separately in the DCMA view.)

Clicking on a task in the Test Detail Dialog gives you the opportunity to edit or delete predecessors.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Note: Any task exclusions apply to the successor task only.

Hard Constraints (DCMA metric #5): A good schedule should be driven by logic and not by constraint dates, which should be used sparingly. This test checks for "must start on", "must finish on", "start no later than", and "finish no later than" constraints, as well as deadlines.

Use of such constraints creates negative float and can disguise the true critical path. Ideally one would not use them at all, so that all dates would be determined by network logic, but the DCMA permits up to 5% of tasks to have them.

Schedule Inspector allows you to fix the problem globally by removing all such constraints, or (by clicking on each row in this dialog) to treat each task individually.

Note: Even the global fix will not necessarily remove all hard constraints because it operates only on those tasks which failed the test, and so does not operate on tasks excluded from the test.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Inactive tasks: Project 2010 introduced a facility whereby you may mark a task inactive. While there may be valid reasons for using this facility, for example when using branching in Full Monte, it is useful to know whether a task is active or not.

Clicking **Fix All** will mark all tasks in the list active, but note that this may not include all inactive tasks because of the specified exclusions.

Clicking on a task in the Test Detail Dialog will allow you to fix that task individually.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Invalid actual date(s) (DCMA metric # 9 part 2): This test counts tasks with dates for events that are meant to have already occurred —they are “actual” dates — but are after the status date. This should not occur if the project has been properly progressed and scheduled.

Note: This test has a mandatory exclusion for summary tasks, because the actual dates for such tasks are deduced from their children.

Schedule Inspector checks both start and finish dates, so the reported statistics include a count of one for each in-progress task and a count of two for each completed task.

The listed tasks have actual dates later than the status date, which means they have been progressed in advance. If the task is complete and the actual start date is after the status date, then the actual finish date must be too, so only the finish date is listed.

A listed start date indicates that the task actual start is after the status date. This means either that the task is still in progress or that the actual finish is after the status date too. A listed finish indicates that the task is complete but that the actual start is valid, i.e. before the status date.

Clicking **Fix All** will remove all offending actual dates from the tasks in the list, but note that this may not include all invalid actual dates because of the specified exclusions.

Clicking on an individual row allows you to do this on an individual basis.

Allowed exclusions: LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Required exclusions: Summary tasks.

Invalid forecast date(s) (DCMA metric # 9 part 1): This test counts tasks with dates for events that have not occurred — “planned dates” — but are prior to the status date. This should not occur if the project has been properly progressed and scheduled.

Schedule Inspector checks both start and finish dates, so the reported statistics can include a count of two for each task.

A listed finish date indicates that the early finish is before the status date. This means either that the task is in progress or that the early start will be before the status date too. A listed start indicates that the task is planned but that the early finish is after the status date.

Allowed exclusions: LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

***Lags bigger than threshold (DCMA metric #3):** This counts the number of relationship lags that exceed a user-specified duration.

Lags on relationships should be used sparingly. This test counts relationships which have lags larger than a user-defined threshold, while the task detail dialog lists those tasks with one or more predecessors which failed the test.

Clicking on a row will allow you to modify the relationships.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones and planning packages.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Note: Any task exclusions apply to the successor task only.

***Leads bigger than threshold (DCMA metric #2):** A lead is a negative relationship lag. This test counts relationships which have leads numerically larger than a user-defined threshold, while the detail dialog lists those tasks with one or more predecessors which failed this test.

Leads should be used sparingly, and the DCMA prohibits them altogether.

Clicking on a task in the Test Detail Dialog will allow you to modify the relationships for that task.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones and planning packages

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Note: Any task exclusions apply to the successor task only.

LOE tasks on critical path: This relates to Level of Effort (LOE) tasks, which represent supervisory activities whose duration should be determined by the dates of other tasks. These tasks should not be on the critical path.

Note: This test is disabled if the field used to indicate LOE tasks is not defined on the configuration dialog.

Clicking on a task in the Test Detail Dialog allows you to change the LOE designation or to alter its relationships to correct this.

Allowed exclusions: Complete tasks.

LOE, Summary, and Milestone not mutually exclusive: The DCMA guide implicitly assumes these designations are mutually exclusive, but this is not enforced automatically because they are designated using different fields. This test is to confirm that they are in fact mutually exclusive.

Note: the definition of milestone is not necessarily the Project milestone flag, but as defined on the Configuration Dialog.

Clicking on a task in the Test Detail Dialog may allow you to change these designations. (You cannot change the Summary designation because this depends upon the task having children, and you cannot change the milestone designation unless it is based on the milestone flag.)

Allowed exclusions: Complete tasks.

Manually scheduled tasks: Project 2010 allows tasks to be flagged as manually scheduled, which defeats the purpose of CPM scheduling. This is not a best practice.

Schedule Inspector allows you to fix this globally or individually.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Note: The test does not appear in Project 2007.

Milestones with resources: Milestones do not represent actual work and should not be resource-loaded. This test counts any milestones which have resource assignments.

Note: the definition of milestone is not necessarily the Project milestone flag, but as defined on the Configuration Dialog.

Pressing **Fix All** will remove the resources from all milestones.

Clicking on a row will allow you to do this on an individual basis, or to remove the milestone flag if that is the way milestone is defined on the configuration dialog.

Allowed exclusions: Complete tasks.

Missed tasks (lateness exceeds threshold) (DCMA metric # 11): This test compares the task's actual or planned dates with the task baseline dates for all tasks whose baseline finish is before the status date.

Since this indicates a failure in project execution, rather than bad practice in designing the schedule, there is no automatic fix.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Pressing **Fix All** will remove the resources from all milestones.

Clicking on a row will allow you to do this on an individual basis, or to remove the milestone flag if that is the way milestone is defined on the configuration dialog.

Note: This test is disabled if there is no baseline or no status date.

Allowed exclusions: Complete tasks.

Standard DCMA exclusions: LOE tasks, summary tasks and milestones.

More than threshold number of predecessors: This test counts the number of tasks that have more than a specified number of predecessors. This number can be set by the user, the default being 10.

While a large number of predecessors is not necessarily wrong, it can indicate an unnecessarily complex network. It also indicates a point which may be especially vulnerable to delay due to lateness of just one of these many predecessors. Also, some of these predecessors may be redundant.

Clicking on a task in the Test Detail Dialog gives you the opportunity to remove predecessors.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

More than threshold number of successors: This test counts the number of tasks that have more than a specified number of successors. This number can be set by the user, the default being 10.

While a large number of successors is not necessarily wrong, it can indicate an unnecessarily complex network.

Clicking on a task in the Test Detail Dialog gives you the opportunity to remove successors.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Negative slack exceeds threshold (DCMA metric #7): This test counts the number of tasks with more than a user-specified amount of negative total slack. Negative slack implies that the project completion date (or some intermediate milestone date) cannot be achieved. Ideally there should be no tasks with negative slack. More specifically it means that there are hard constraints in the schedule which are unachievable. Ideally there should be no tasks with negative slack, and this is required by DCMA.

There is no automatic fix for this problem.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

No baseline start or finish date: The default setting for the DCMA tests requires every task to have a valid baseline start and finish date, and excludes those without baseline dates from the calculation of most metrics. This test counts those which do not have one or both of the baseline dates.

If the project has already been progressed there is no entirely satisfactory way to fix this. Clicking on **Fix All** will allow you to use the current dates (including any actual dates) to create the baseline. Clicking on a row will allow you to do this on an individual basis.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

No predecessors (DCMA metric #1): This counts the number of tasks that have no predecessors. This is allowed —there must of course always be one such start task — but an excessive number of such tasks would suggest that the schedule is driven by constraint dates rather than logic.

Notes:

- 1. DCMA metric #1 combines the tests on predecessors and successors, reporting the number of tasks which are missing one or the other without double counting those where both are missing. This statistic is shown on the DCMA view.*

2. *While there must be at least one start task and at least one finish task, and while multiple starts or finishes may also be acceptable, any task which has neither is almost certainly in error.*

Listed here are tasks without explicit predecessors. This list may or may not include summary tasks, depending upon the exclusion settings. A task whose parent has one or more predecessors and therefore has implicit predecessors will nonetheless be included in this list.

Note: Attaching predecessors to summary tasks is deprecated by many, including the DCMA.

Every project network must have at least one task without predecessors, and some like to limit it to exactly one, which is then unambiguously the start task.

Note: This start task might be excluded from this test, for example because it is a milestone.

Multiple start tasks are not necessarily wrong, but a large number of these indicates a badly constructed network.

Click on a row to add predecessors to a particular task.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones and planning packages.

No resources (DCMA metric #10): All regular tasks represent work and should therefore have resource assignments. This test counts tasks that do not have resource assignments.

Note: This test would normally exclude Summary, Milestone, and Level of Effort tasks.

Click on a row to add resources to that task.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

No successors (DCMA metric #1): This counts the number of tasks that have no successors. This is allowed — there must of course be one finish task — but an excessive number of such tasks would suggest that the schedule is driven by constraint dates rather than logic.

Notes:

1. *DCMA metric #1 combines the tests on predecessors and successors, reporting the number of tasks which are missing one or the other without double counting those where both are missing. This statistic is shown on the DCMA view.*

2. *While there must be at least one start task and at least one finish task, and while multiple starts or finishes may also be acceptable, any task which has neither is almost certainly in error.*
3. *This test checks explicit relationships only and not those implied by parent-child relationships.*

A task whose parent has one or more successor and therefore has implicit successors will nonetheless be included in this list.

Note: Attaching successors to summary tasks is deprecated by many, including the DCMA.

Every project network must have at least one task without successors, and some like to limit it to exactly one, which is then unambiguously the finish task.

Note: This might be a milestone, and milestones may be excluded from this test.

Multiple finish tasks are not necessarily wrong, but a large number of these indicates a badly constructed network.

Click on a row to add successors to a particular task.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones and planning packages.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Out of sequence progress: This test checks for situations where a task is marked as having started before one or more of its start predecessor events is complete, or when it is marked as complete before one or more of its finish predecessor events is complete or could be complete.

Note: By “predecessor event” is meant either start or finish depending upon the relationship type.

The test operates recursively, so if a successor task S is marked as started and its predecessor P is marked complete, but P itself is completed out of sequence, both S and P will be listed as out of sequence.

Clicking on a row allows you to delete the actual date(s).

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Required exclusions: Summary tasks.

Standard DCMA exclusions: LOE tasks, summary tasks and milestones.

Planned Duration Exceeds Threshold: This test verifies that task durations are within an upper threshold defined for the test. It is good practice for task duration to be no more than two reporting periods for environments utilizing Earned Value and also a good practice for schedule risk analysis where long tasks can have a larger effect on sensitivity and standard deviation.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages, tasks without dependencies and user exclusion.

Required exclusions: Summary tasks.

Planning packages before cutoff date: This test relates to rolling wave scheduling, where work beyond a certain point in the future is not planned in detail but represented by “*planning packages*.” The test checks for any planning packages which are not sufficiently far in the future, based upon a calculated or user-specified cut-off date. (The method of calculating this date is defined on the configuration dialog.)

Note: This test will be disabled if the field used to indicate planning packages is not defined on the configuration dialog.

There is no automated fix to this problem.

Allowed exclusions: Complete tasks.

Slack exceeds threshold (DCMA metric #6): This test counts the number of tasks with more than a user-specified amount of total slack.

Some tasks may legitimately have slack (aka float) larger than the user-specified threshold, but the DCMA contends that an excessive number of such tasks indicates that the network is not being driven by the logic and the project end date may therefore not be reliable.

More generally, many see no reason that tasks should not have any amount of slack, and this test is therefore not included in the system default.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Standard DCMA exclusions: Complete tasks, LOE tasks, summary tasks and milestones.

Summary tasks with relationships: This test counts the number of summary tasks with relationships. While there is nothing intrinsically wrong with summary tasks having relationships, this capability should be used sparingly because it can cause confusion. The DCMA guide does not allow relationships on summary tasks.

Clicking on a task in the Test Detail Dialog will enable you to remove the relationship or move it down to a newly created child milestone.

Allowed exclusions: Complete tasks.

Summary tasks with resources: This test counts the number of summary tasks with resource assignments. As summary tasks do not directly represent work, they should not have resources assigned to them. (Full Monte ignores any such resource assignments and the DCMA guide does not allow them.)

Clicking on a task in the Test Detail Dialog will enable you to remove the resources or move them down to a new child task.

Note: The duration of this new task will not in future vary with the duration of the summary task.

Allowed exclusions: Complete tasks.

Tasks with redundant predecessors: This test relates to relationships that have no effect because they are implied by other logic. For example, if C depends on B and B depends on A, then it is generally not necessary to say that C depends on A. Schedule Inspector counts the number of tasks that have redundant predecessors. There are more complicated examples involving summary tasks. A relationship is considered redundant if it cannot affect the results of the analysis even if task durations change due to direct user input, progressing, or between trials in a Monte Carlo simulation in Full Monte.

Note: Any relationship can be rendered non-redundant if it is given a small enough (maybe negative) lag, so if you use lags take care before removing relationships identified as potentially redundant.

Clicking on a task in the Test Detail Dialog will display the potentially redundant relationship(s) and clicking again on the “R” button for a particular redundant relationship will display the alternative path and give you the opportunity to delete the redundant relationship.

Redundant relationships do no actual harm, other than making the network more complex than it needs to be, so if in doubt it is best to leave them alone.

Allowed exclusions: Complete tasks, LOE tasks, summary tasks, milestones, planning packages and tasks without dependencies.

Chapter 7: The DCMA View

The DCMA view is a view which presents the metrics in the DCMA 14-point schedule assessment guide in a familiar format, shown in figure 7.1.

The view is accessed by clicking on the “DCMA View” menu item at the top of the screen. This item will be enabled only if certain conditions obtain:

1. All of the DCMA tests must be selected.
2. The exclusions must match the DCMA defaults.
3. The results must be current.

Note: it is not required that the thresholds or goals match the DCMA defaults since both of these values are displayed on the report.

The easiest way to achieve this is as follows:

1. On the configuration dialog (**Options/Configure**), make sure that:
 - There is a baseline defined.
 - The “baseline required” checkbox is checked.
 - Fields are specified for the identification of planning package and level of effort tasks.
2. Click on **Options/Reset for DCMA**
3. Click on **Run Tests/Run Now** (not necessary if **Run Automatically** is checked).

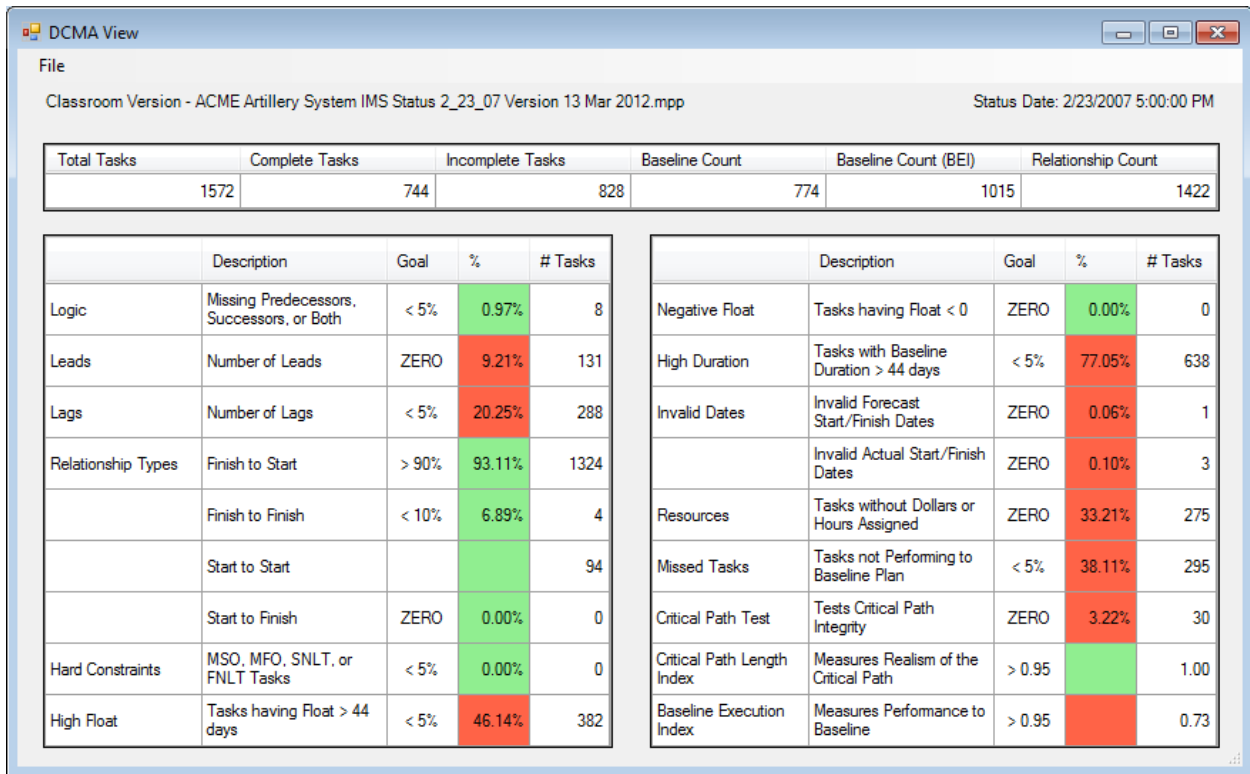


Figure 7.1. The DCMA View

The **File** menu at the top left of the DCMA view offers options to print the view or to copy it to the clipboard for insertion in other documents.

Chapter 8: Printing, Clipboard, and Export to CSV

On the main screen, the **File** menu offers options to:

- Print the table (in a choice of two formats).
- Save Results to CSV – Save the data displayed in the main Schedule Inspector window to a Comma Separated Values (CSV) file that can be read by Excel and similar tools.
- Save Details to CSV – Save the details of tasks failing the currently selected tests to a Comma Separated Values (CSV) file that can be read by Excel and similar tools.
- Copy the table to the clipboard so that it can be pasted in Word or other documents.
- Close – Close the Schedule Inspector.

NOTE: These options are disabled unless there is at least one test selected and the results of all selected tests are up-to-date.

Clicking on **Print** gives you two options:

- **Report** produces a special black-and-white format designed for printing.
- **Screen Display** produces a color report similar to the screen display, but not limited in size (so all unhidden rows will appear, and there will not be scroll bars.)

In either case it invokes the print preview function, shown in figure 7.1 for the **Report** case. In the print preview screen, you may change some of the settings before printing. While the printed report differs in format from the screen display, it respects the sort order and the **Hide Unselected Rows** setting.

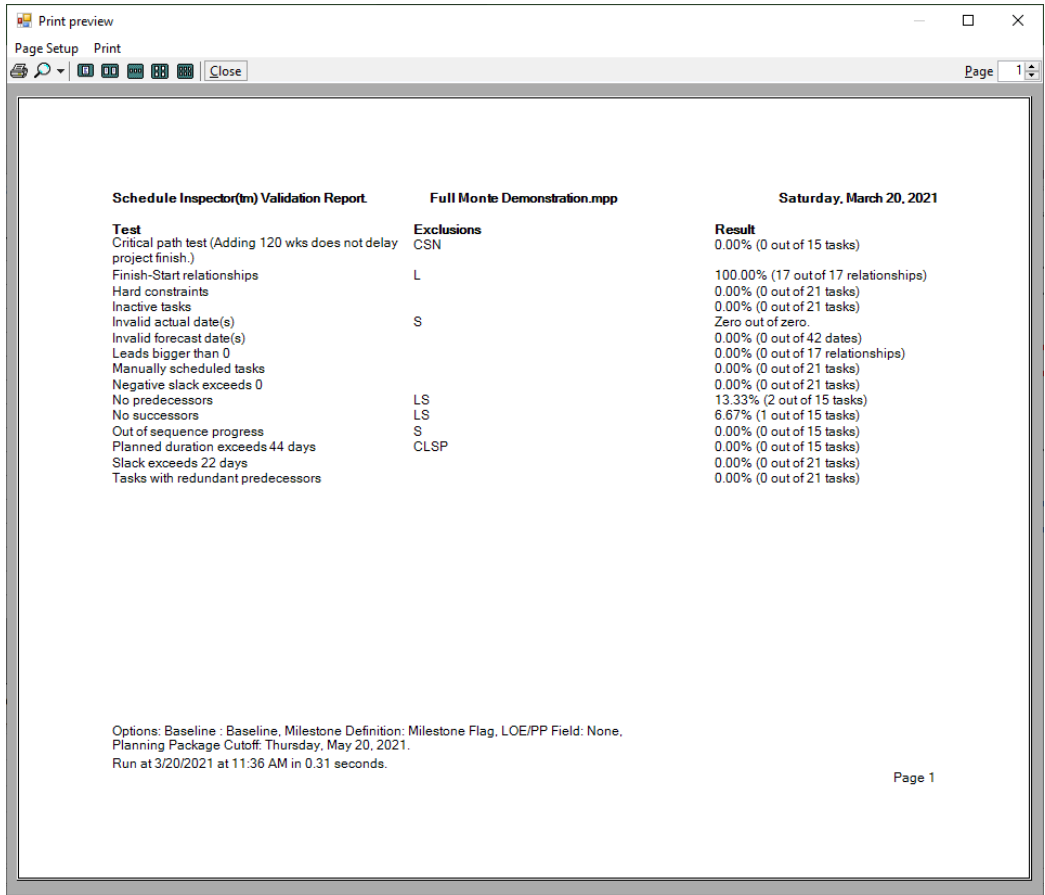


Figure 8.1. Print Preview

Save Results to CSV produces a Comma Separated Values (CSV) file. An example is shown in Figure 8.2.

Condition	Select	Threshold	Exclude*	Goal	Result
Critical path test (Adding threshold doe	TRUE	120 wks	CSN	0	0.00% (0 out of 15 tasks)
Finish-Start relationships	TRUE		L	> 90%	100.00% (17 out of 17 relationships)
Hard constraints	TRUE			0	0.00% (0 out of 21 tasks)
Inactive tasks	TRUE			0	0.00% (0 out of 21 tasks)
Invalid actual date(s)	TRUE		S	0	Zero out of zero.
Invalid forecast date(s)	TRUE			ZERO	0.00% (0 out of 42 dates)
Leads bigger than threshold	TRUE	0		ZERO	0.00% (0 out of 17 relationships)
Manually scheduled tasks	TRUE			ZERO	0.00% (0 out of 21 tasks)
Negative slack exceeds threshold	TRUE	0		ZERO	0.00% (0 out of 21 tasks)
No predecessors	TRUE		LS	1	13.33% (2 out of 15 tasks)
No successors	TRUE		LS	1	6.67% (1 out of 15 tasks)
Out of sequence progress	TRUE		S	0	0.00% (0 out of 15 tasks)
Planned duration exceeds threshold	TRUE	44 days	CLSP	ZERO	0.00% (0 out of 15 tasks)
Slack exceeds threshold	TRUE	22 days		0	0.00% (0 out of 21 tasks)
Tasks with redundant predecessors (i.e	TRUE			0	0.00% (0 out of 21 tasks)

Figure 8.2

Save Details to CSV produces a Comma Separated Values (CSV) file. An example is shown in Figure 8.3.

Task ID	Task UID	Taskname	Test Name	(Test Parameters)	Value
16	32	Integration	Duplicate task names	(Threshold: / Exclusions: / Goal:= 0%)	
17	33	Integration	Duplicate task names	(Threshold: / Exclusions: / Goal:= 0%)	
2	18	Initiate	No predecessors	(Threshold: / Exclusions:LS / Goal:= 1)	
19	35	Brochure Development	No predecessors	(Threshold: / Exclusions:LS / Goal:= 1)	
21	37	Delivery	No successors	(Threshold: / Exclusions:LS / Goal:= 1)	

Figure 8.3

Chapter 9: Defaults

When a project is first opened by Schedule Inspector the initial tests are initially set to the User Default, if the User Default has been defined, or all tests are selected. Some tests may not be available if appropriate data is not available.

Pre-defined sets of tests can be applied to the open project under Options, Reset...

- All Tests – This attempts to enable all tests although specific tests may be disabled if appropriate data is not available or defined.
- For AACE 57R-09 – Selects tests that support AACE schedule best practice guidelines.
- For DCMA 14-Point – Selects tests required as part of a DCMA schedule submission.
- For CIOB PP21 – Selects tests for the Chartered Institute of Builders Planning Protocol 2021.
- For Basic Best Practice – Selects tests considered best practice, especially for the purposes of ensuring a reliable Schedule Risk Analysis.
- To User Default – Applies the tests previously saved as the User Default.

Some tests require a baseline, while others require that fields be specified to identify Level of Effort (LOE) or Planning Package (PP) tasks. If the data is not available for certain tests they will not be enabled, and a warning message appears:

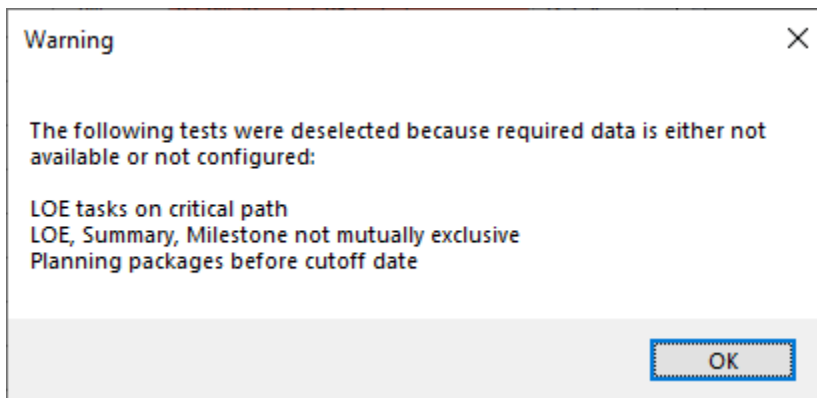


Figure 9.1. Warning Message

Note: The DCMA default includes the setting to require baselines, i.e. to consider only tasks with baseline dates. However, if no baseline is selected this option will not be set.

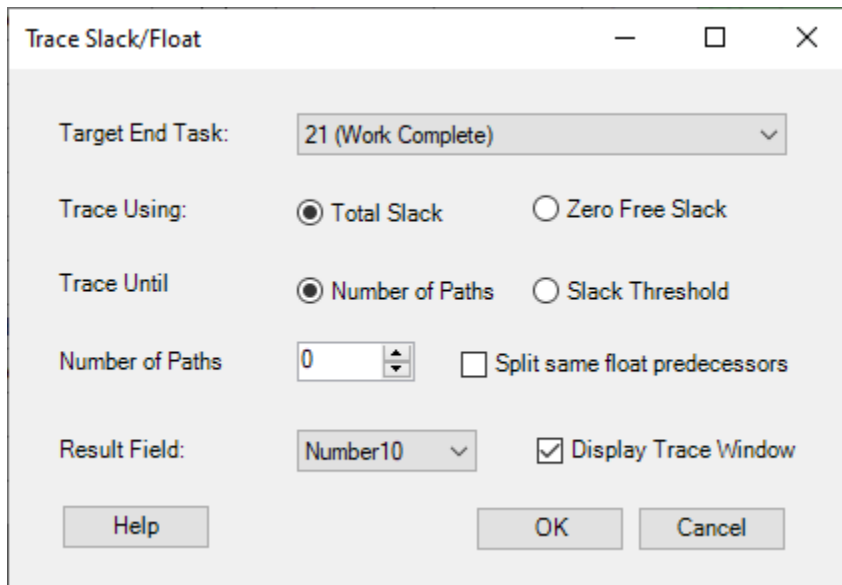
Chapter 10: Trace Functions

The Schedule Inspector Trace menu offers two options: Float and Logic. These options are independent of any selected tests.

10.1 Trace Float (Slack)

The Trace Float option is used to trace one or more logic paths leading to a selected task and grouping the tasks into paths based on their Slack/Float.

After selecting the Trace, Float menu option the following dialog is displayed:



Target End Task – This is the task from which the preceding slack/float paths will be traced.

Trace Using Total Slack – The trace will be performed based on the Total Slack (Float) of the preceding tasks.

Trace Using Zero Free Slack – The trace will be limited to predecessors with zero Free Slack. These will be the main ‘driving’ tasks for the selected Target End Task. If this option is selected, then the Trace Until and Number of Paths options will be disabled.

Trace Until Number of Paths – The trace will continue until the maximum number of paths specified in Number of Paths has been reached.

Trace Until Slack Threshold – The trace will continue until a path is found with a float/slack value that exceeds the value in Threshold (Days).

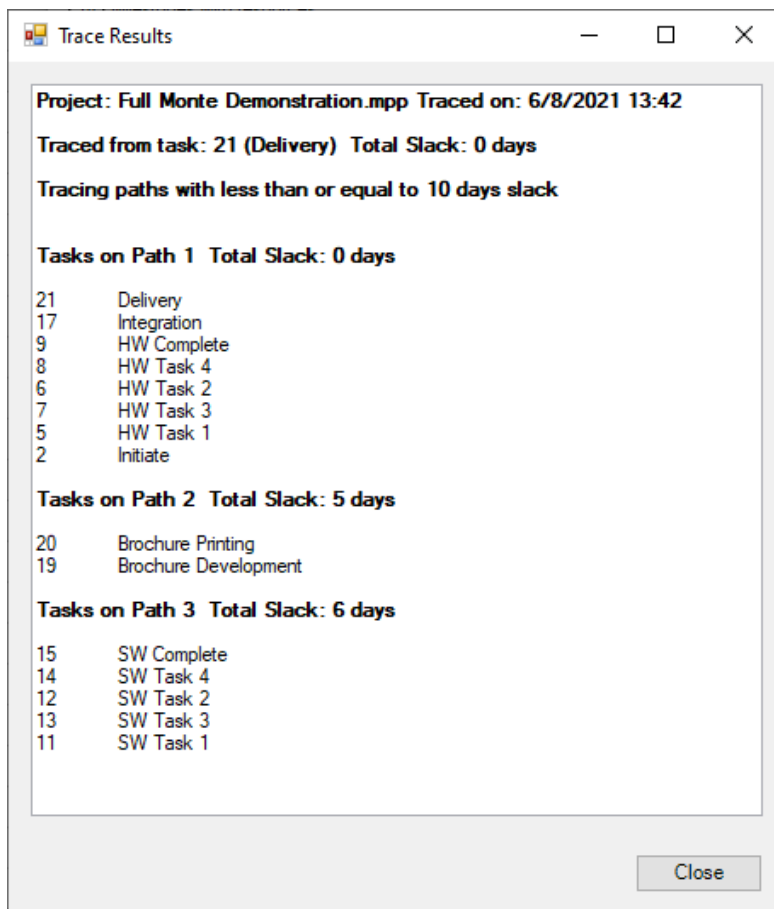
Number of Paths / Threshold (Days) – The number of paths or float threshold to be used to stop further tracing.

Split same float predecessors – By default, parallel logic paths with the same float value are grouped into the same float path. Check this option to split parallel paths with the same float into discrete paths.

Result Field – Choose a Microsoft Project custom Number field to store the calculated path numbers. (None) is a valid option if the option to Display Trace Window is selected. In this case the trace results will be displayed but not saved back to the project.

Display Trace Window – If selected, the results of the trace will be displayed in a pop-up trace window that supports copy/paste for sharing the results. Note that this option is forced to selected if the Result Field is set to (None).

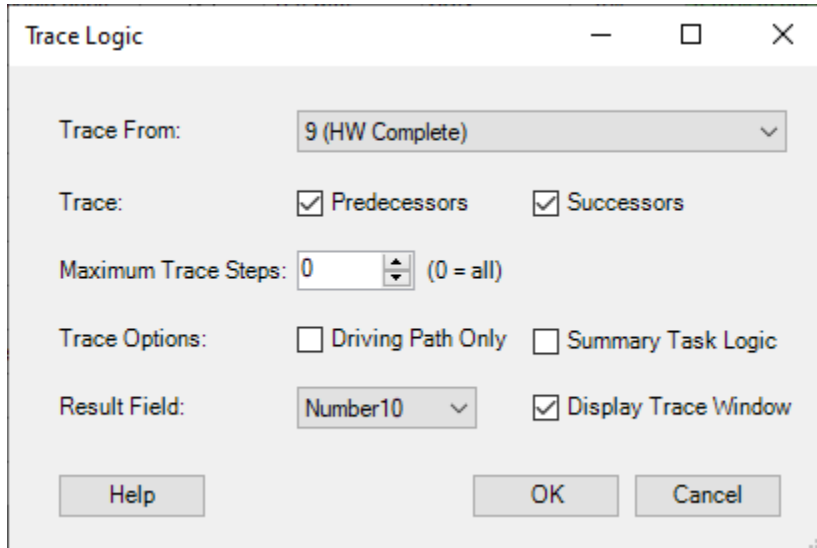
Here is an example of the trace window:



10.2 Trace Logic

The Trace Logic option is used to trace logical predecessors and/or successors of a selected task.

After selecting the Trace Logic menu option, the following dialog is displayed:



Trace From – This is the task from which predecessors and/or successors will be traced.

Trace Predecessors – If the selected trace task has predecessors and this option is selected then predecessor logic will be traced. Note the option is disabled if there are no predecessors.

Trace Successors – If the selected trace task has successors and this option is selected then successor logic will be traced. Note the option is disabled if there are no successors.

Maximum Trace Steps – The maximum number of chained predecessors/successors to trace. The default, 0, means no limit.

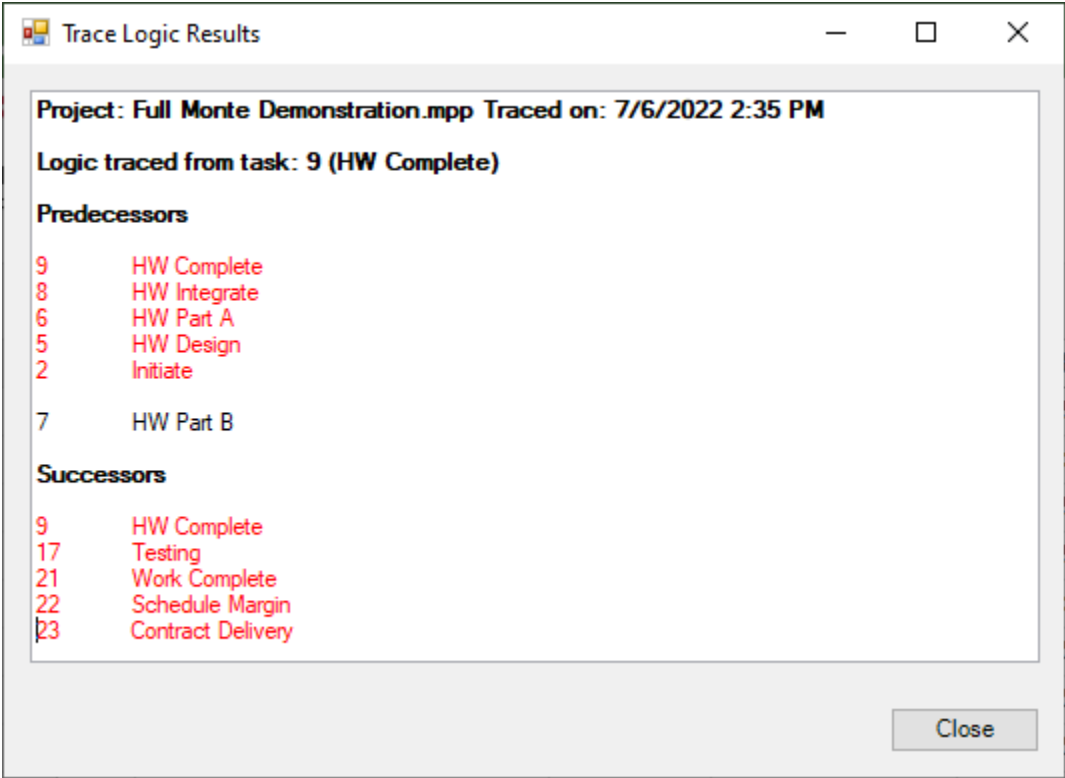
Driving Path Only – Only tasks with zero Free Slack (Float) leading into and/or out of the target task will be traced.

Summary Task Logic – Include predecessors/successors linked to parent Summary Tasks in the trace.

Result Field - Choose a Microsoft Project custom Number field to store results. Tasks marked with a 1 are Predecessors of the selected Trace task, the Task marked with a 2 is the selected Trace task and, Tasks marked with a 3 are successors to the selected Trace task. Tasks that are neither predecessors or successors of the selected trace task will be set to 0.

Display Trace Window – If selected, the results of the trace will be displayed in a pop-up trace window that supports copy/paste for sharing the results. Note that this option is forced to selected if the Result Field is set to (None).

Here is an example of the trace window:



Critical Tasks are highlighted in Red. The blank line in the Predecessor list between task ID 2 and 7 indicated that task ID 7 is on a secondary path (not critical in this case) to the selected trace task.

Appendix A: List of Tests

Test	Allowed Exclusions	Individual Fix	Global Fix
Baseline duration exceeds threshold	CLMNPS*	No	No
Baseline execution index	LMNPS	No	No
Critical path length index	CSLP	No	No
Critical path test	CLMNPS*	No	No
Duplicate task names		Rename	Various options
Finish-Start relationships	CLMNPS	Edit/delete	No
Hard constraints	CLMNPS	Edit/delete	Remove constraints
Inactive tasks	CLMNPS	Set to active	Set to active
Invalid actual date(s)	LMNPS*	Set dates to planned	Set dates to planned
Invalid forecast date(s)	LMNPS	No	No
Lags bigger than threshold	CLMPS	Edit/delete	No
Leads bigger than threshold	CLMPS	Edit/delete	No
LOE tasks on critical path	C	Change flag	No
LOE/Summary/Milestone not mutually exclusive	C	Change flag	No
Manually scheduled tasks	CLMNPS	Set to automatic	Set to automatic
Milestones with resources	C	Remove milestone flag**	Remove milestone flag**
Missed tasks (lateness exceeds threshold)	CLMNPS	No	No
More than threshold number of predecessors	CLMNPS	Delete	No
More than threshold number of successors	CLMNPS	Delete	No
Negative slack exceeds threshold	CLMNPS	No	No
No baseline start or finish date	CLMNPS	Set baseline to current dates	Set baseline to current dates
No predecessors	CLMPS	Add	No
No resources	CLMNPS	Add	No
No successors	CLMPS	Add	No
Out of sequence progress	CLMNPS*	No	No
Planned Duration Exceeds Threshold	CLMNPS	No	No
Planning packages before cutoff date	C	No	No
Slack exceeds threshold	CLMNPS	No	No
Summary tasks with relationships	C	Move to milestones	No
Summary tasks with resources	C	Move to child task	No
Tasks with redundant predecessors	CLMNPS*	Delete	No

* Summary MUST be excluded for these tests.

** Only if milestone designation uses the flag.

Appendix B: Installation Trouble-Shooting

If Schedule Inspector does not appear on the Microsoft Project menu after installation, please review the following trouble shooting suggestions.

B.1 Microsoft Project Options

Open the **Project Options** dialog.

From the **File** menu, choose **Options** and select the **Add-Ins** tab as shown in figure B.1.

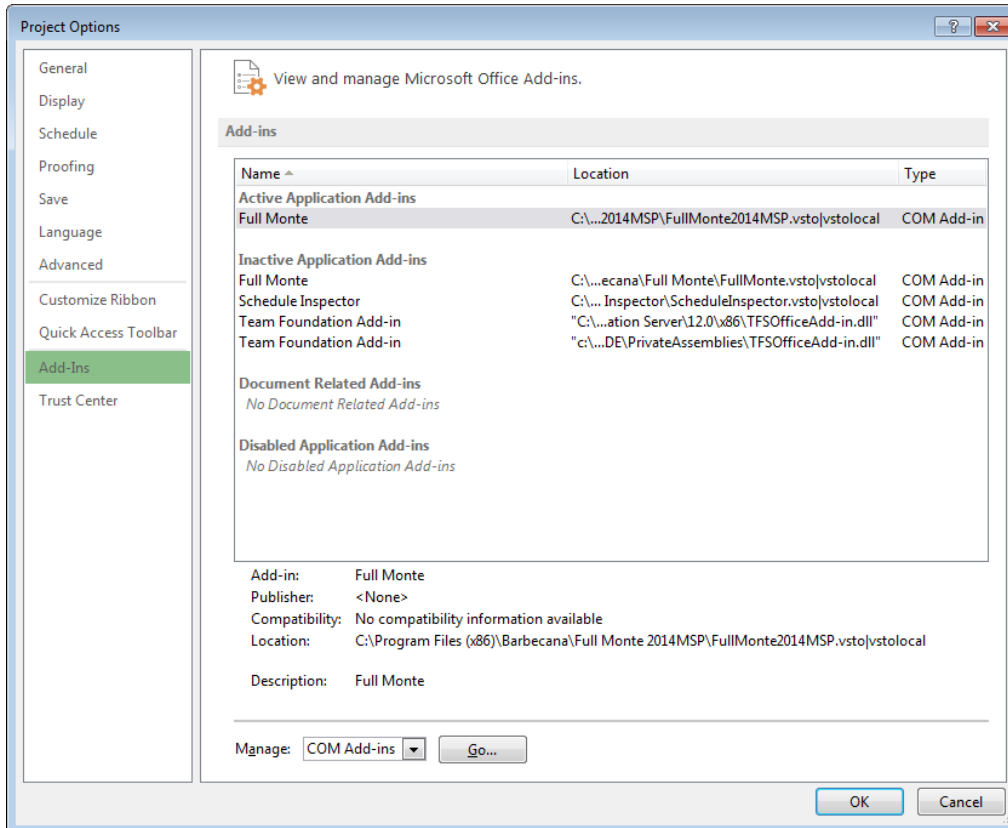


Figure B.1

Choose **Manage 'COM Add-Ins'** and click **Go...** A dialog like the example in figure B.2 should be displayed.

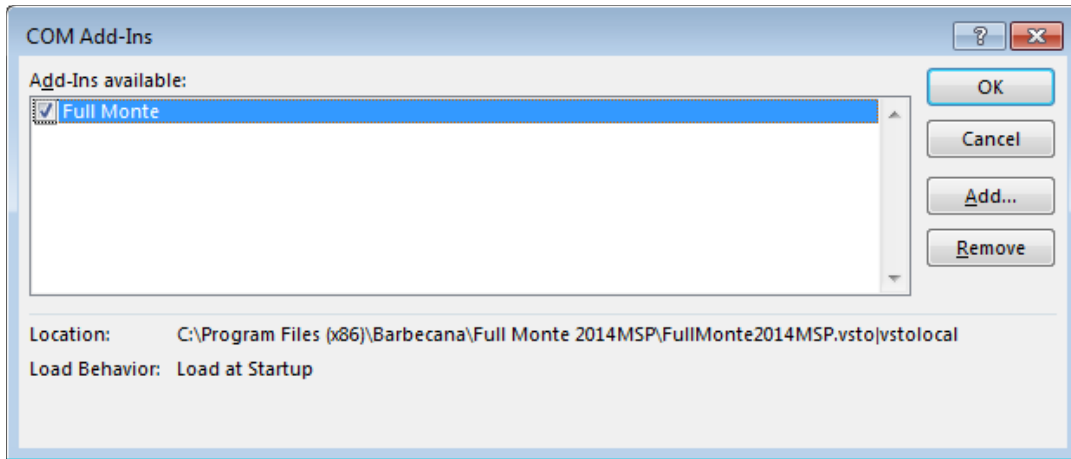


Figure B.2

In this example Schedule Inspector is listed and shown as enabled. If Schedule Inspector is not listed then please retry the installation (verifying you are using an account with Administrator rights).

If Schedule Inspector is listed but not enabled, please select the box to enable Schedule Inspector. Click OK to close the COM Add-Ins dialog. If the Schedule Inspector menu items do not appear or are unresponsive when clicked, please again open the COMM Add-ins dialog. Select the Schedule Inspector row as shown in figure B.3.

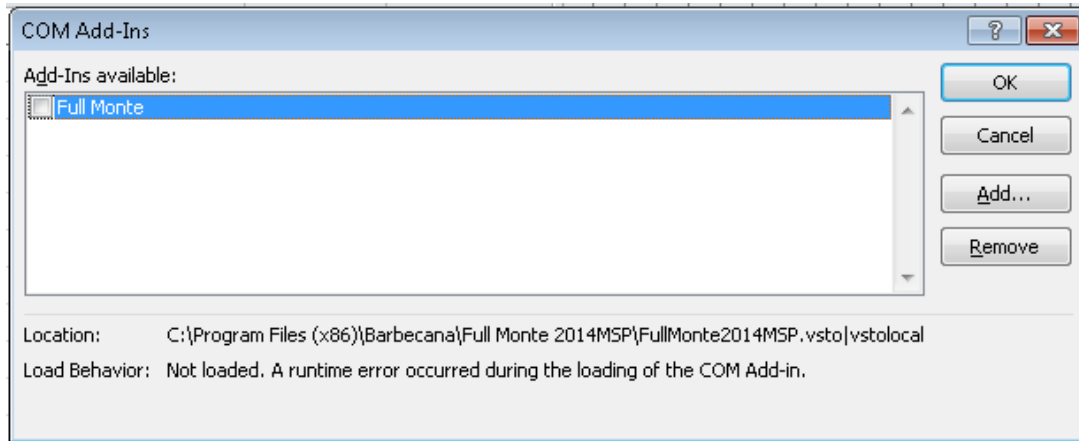


Figure B.3

After selecting the Schedule Inspector row, observe any message against 'Load Behavior' at the bottom of the dialog. If the message 'Not loaded. A runtime error occurred during the loading of the COM Add-In.' is displayed, then the most likely cause is a missing pre-requisite. Please review the **Missing Pre-requisite** section B.2.

After installing any missing pre-requisites, you will again need to re-enable Schedule Inspector in the COM Add-Ins dialog.

B.2 Missing Pre-Requisites

The exact pre-requisites required by Schedule Inspector depends on multiple factors that include:

- Version of Windows
- Version of Microsoft Project
- Other programs previously installed/removed.

NOTE: When programs are uninstalled from Windows, they often leave behind components that might be shared with other applications. These 'orphaned' shared components will remain available to other applications but may not appear in the list of installed programs.

While the Schedule Inspector installation program will attempt to install any missing pre-requisites, it may fail for several reasons including:

- No access to the internet
- Conflicts with other installations
- Mistakenly believing a pre-requisite is already installed

The following list describes the components required. The files can be downloaded from the Microsoft download center if they are not successfully installed by the Schedule Inspector installer.

Microsoft .Net Framework 4.0 Client Profile (4.0.30319)

Microsoft Visual Studio Tools for Office (VSTO) 2010 Runtime (10.0.50903)

Microsoft Visual C++ 2010 Redistributable (10.0.40219)

NOTE: The version numbers in parenthesis are for guidance only and may be superseded by later versions from Microsoft

