

Checking the Baseline Model

Before you run the initial simulation, make some basic checks on the Baseline model, such as checking task duration and milestone dates. Then make sure all the exception probabilities are set to zero, so that you can run the simulation as though it were a resource-constrained CPM (critical path method) simulation. Resource-constrained means that the simulation assumes all workers are available full time to work on all their tasks. For more information, see “About Resource-Constrained Simulations” on page 138.

Checking Task Durations and Responsible Positions

Task durations provide a basis for the critical path task duration estimates, assuming that all the FTEs assigned to each task are available when needed. Check each task for duration and work volume. Check the responsible position's FTEs and skills to make sure the position has the skill required by the task. For the baseline case, position and task skills should be set to Generic.

If a task feels like it should have two responsible positions, it is probably too large in scope. Break it up into two or more tasks and assign the tasks to a single position. Alternatively, consider assigning tasks as secondary tasks to positions. A position works on secondary tasks when no work on its primary tasks is currently scheduled.

To check a task's duration

- 1 On the appropriate project page of the Model pane, select the task.
The task properties appear in the Properties pane.
- 2 Check that the Skills value for the task is Generic.
- 3 Check the task's Work Volume or duration to see if it seems reasonable for the task.
- 4 If the task seems too short or too long, do one of the following:
 - Change the Work Volume value.
 - Change the responsible position's FTE value by selecting the position and changing the value of its FTE property in the Properties pane.

To check a task's responsible position

- 1 In the Model pane, right-click the task and click Positions.
The position responsible for the task is listed.
- 2 Click this position.
The position is highlighted in the model and its properties appear in the Properties pane.
- 3 Check that this is the right position for the task.

- The predicted time to complete a project.
- The total effort to do the project.
- Several measures of process quality.

Using the charts that result from the simulation, you can identify risks in the project, organization, and performance.

Setting the Number of Simulation Trials

By default, the simulator runs 100 simulation trials and displays an average of the results. You can set how many simulations you want the simulator to run by changing the value of the program's Trials property. For example, to get some quick simulation results from a highly complex case, you might want to run fewer trials.



***Note:** The simulation can take a long time to run when the model has some conditions that cause extremely high schedule growth and backlog conditions. A progress bar helps indicate that the simulation is occurring. If the simulation is taking too long for you, cancel it and lower the number of trials.*

To change the number of simulation trials

- 1 Make sure the program is selected.
- 2 In the Properties pane, change the value of the Trials property.

Running the Simulation

Before you run a simulation, make sure the Model pane is active by clicking in it. If the Tree or Properties panes are active, the simulation tool will not be available.

To run a simulation

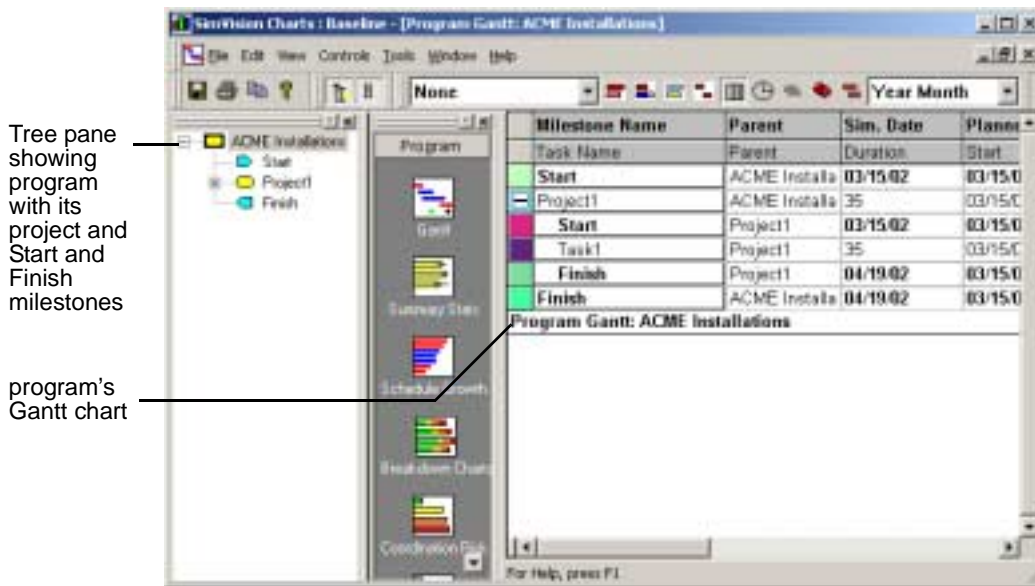


- 1 Below the Model pane, select the tab for the case to simulate.
- 2 On the Simulate menu, click Run Simulation.

The simulator validates the case and then runs the number of simulations specified by the program's Trials property.

- 3 If there are errors or missing links, you must fix them before continuing with the simulation. See "Fixing Simulation Errors" on page 122 and "Simulation Errors" on page 318.
- 4 If there are warnings, you can either fix the problems, or make a note of the warnings and click Continue to continue the simulation. Critical warnings appear for conditions that should really be rectified before continuing. Noncritical warnings appear for unusual model situations. See "Simulation Warnings" on page 322.

When the simulation has successfully run, the Chart Window appears displaying the program's Gantt chart and a Tree pane containing a list of projects and their elements.



Fixing Simulation Errors

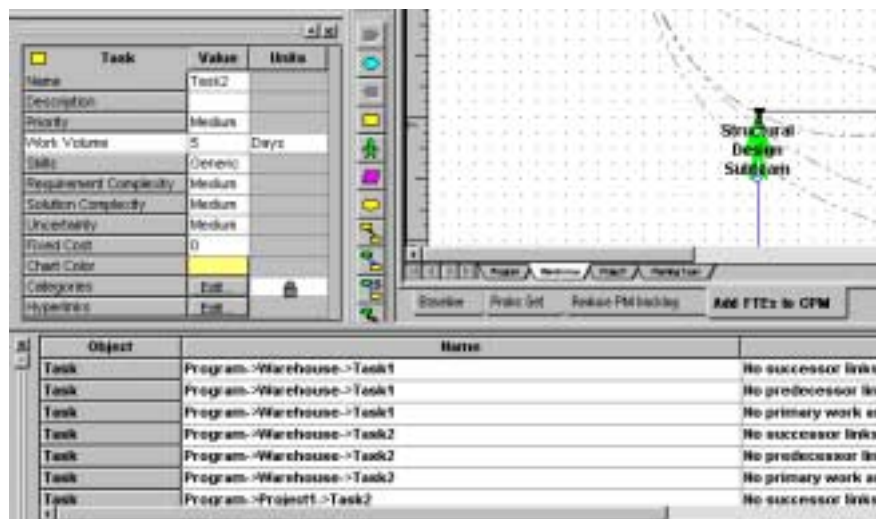
When the simulator encounters errors such as a missing link, the simulation halts and you must fix the errors before continuing. If there are critical warnings, such as a meeting that lacks participants, you can choose to fix the problem or continue with the simulation.

Errors and warnings are listed in a window. Errors are listed in bold font and warnings in normal font. You can print the error list from this window and choose to continue or cancel the simulation. There is also a tool called the Fix Simulator Errors pane that lists the errors and lets you navigate to the place in the program where the error occurs. In this pane, you can also choose to display noncritical errors, which arise for unusual model situations such as a position being assigned to multiple simultaneous meetings.

To locate simulation errors

- 1 After running a simulation, click Fix Simulation Warnings and Errors on the Simulate menu.

The Fix Simulator Errors pane lists the simulation errors and critical warnings. For easier visibility, you can drag the pane down and dock it below the Model pane.



- 2 To locate an error in the program, double-click the error's object name.

The Model pane displays the project or organization page where the error occurs, with the object that is causing the error highlighted.



3 To view noncritical warnings, click Show Non-Critical Warnings.

For a list of possible errors and suggested solutions, see “Simulation Errors” on page 318.

Correcting Baseline Problems

The following is a summary of the problems you might encounter in the Baseline model simulation, and a summary of possible solutions.

Problem: A task’s CPM duration is shorter than its simulated duration.

Solution: The responsible position might have more than its total number of FTEs assigned to two or more concurrent tasks. Reallocate task to another similarly skilled position, or add FTEs to the responsible position.

Problem: Task CPM duration is too long or short.

Solutions: Check that the task’s work volume is correct and that its required skill is Generic. Check that its responsible position’s FTE value is appropriate and that its skill is set to Generic with a value of Medium.

Problem: Planned completion date is off.

Solutions: Check that other milestone dates are correct, and that the successor link from the previous task or milestone is correct. Also check for long time lags between tasks. Lag is defined as the time after which a predecessor tasks begins or ends after which a successor task starts. Lag applies when the predecessor and successor tasks are joined by a successor link. The lag is a property of the link.

Working with the Simulation Charts

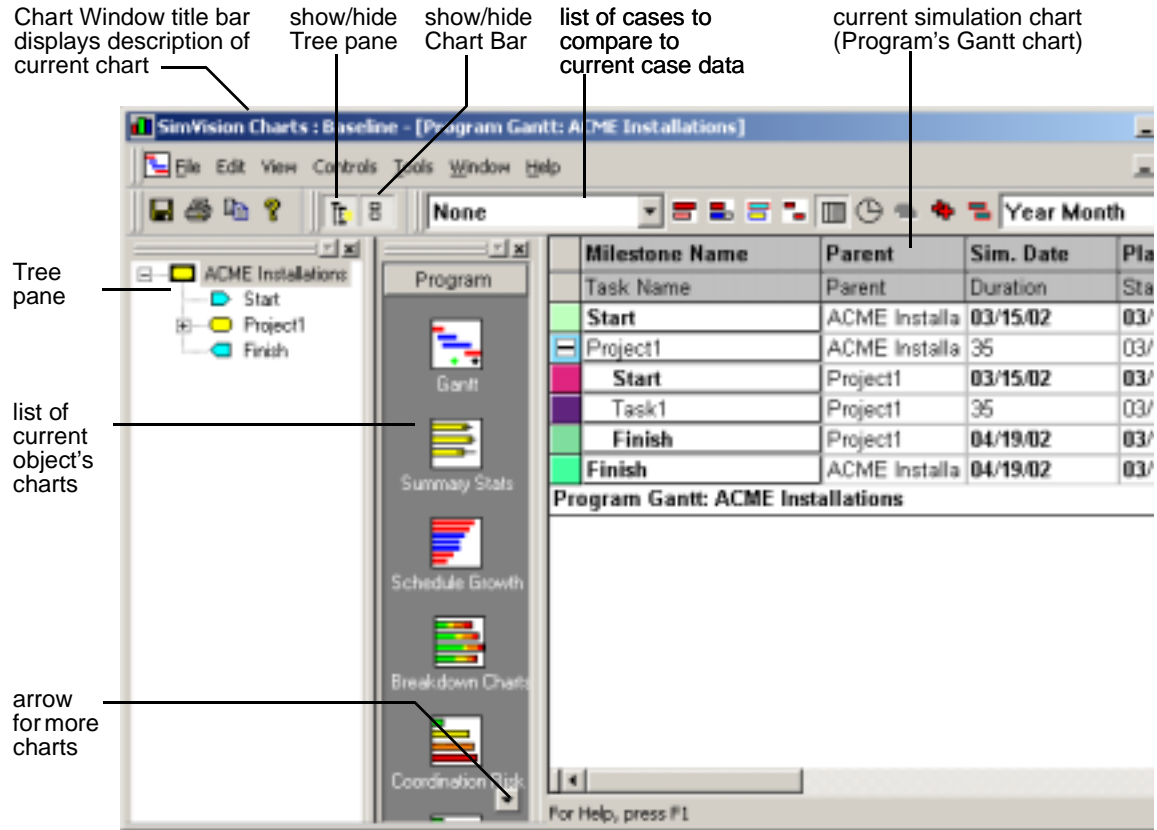
There are numerous ways you can view the information in the simulation charts. For example, you can show or hide CPM and standard deviation data. You can filter the results, or just view critical path data. Each chart has its own set of tools for customizing the particular data shown on the chart. For example, in the Breakdown chart, you can switch between viewing work breakdown and cost breakdown. These tools are covered in the section on each chart. See “The Project Charts” on page 140 and “The Program Charts” on page 230.

This section covers the general controls that allow you to customize how you view simulation data.

Using the Chart Window

The Chart Window displays the simulation charts and contains a variety of controls that allow you to customize your view of the charts and the data displayed in them. For example, you can increase the display size of the simulation charts by hiding the Tree pane and the Chart Bar. In charts that show graphical data, you can choose the number of objects to show data for, such as how many positions to show backlog for in the Backlog charts.

The following illustration shows the features of the Chart Window that display when you run a simulation and the Program Gantt chart is showing.



You can maximize or minimize the current chart within the Chart Window, and resize the Chart Window. You can also customize the window's toolbars. For more information, see "Customizing Toolbars" on page 284.

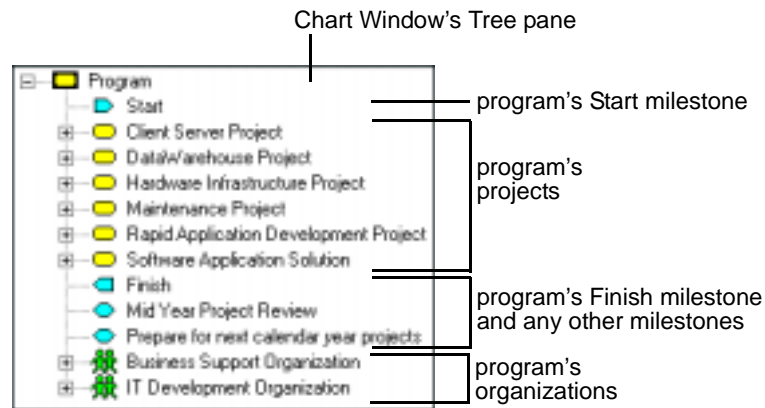
To resize the charts and viewing area

- 1 To maximize a chart within the Chart Window, click its Maximize button.
- 2 To maximize the Chart Window, click its Maximize button.
- 3 To hide the Tree pane, click the Hide Tree Pane icon.
- 4 To hide the chart list, click the Hide Chart List icon.

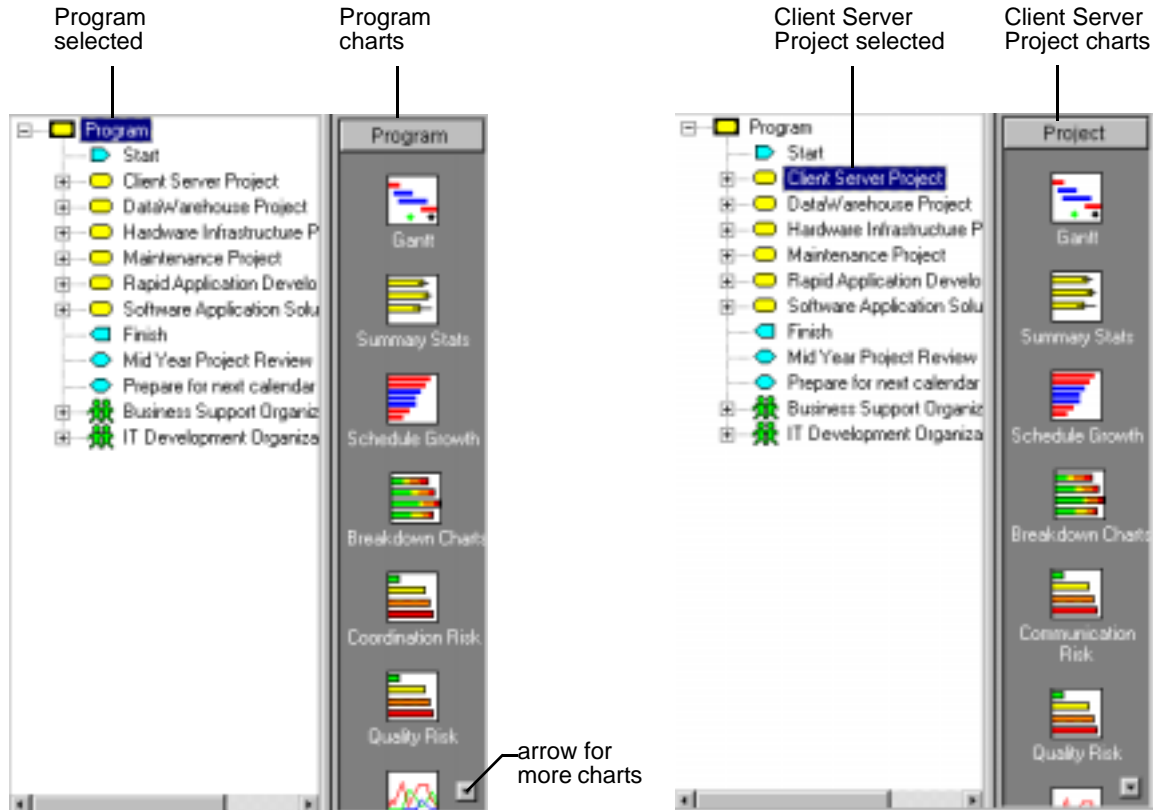


Viewing Simulation Charts

The Chart Window has a Tree pane that is very similar to the main SimVision Tree pane. If a program has multiple projects, these are listed by name directly under the program's Start milestone in the Chart Window's Tree pane. Below the projects are listed the program's Finish milestone and any other milestones. Lastly, the program's organizations are listed.

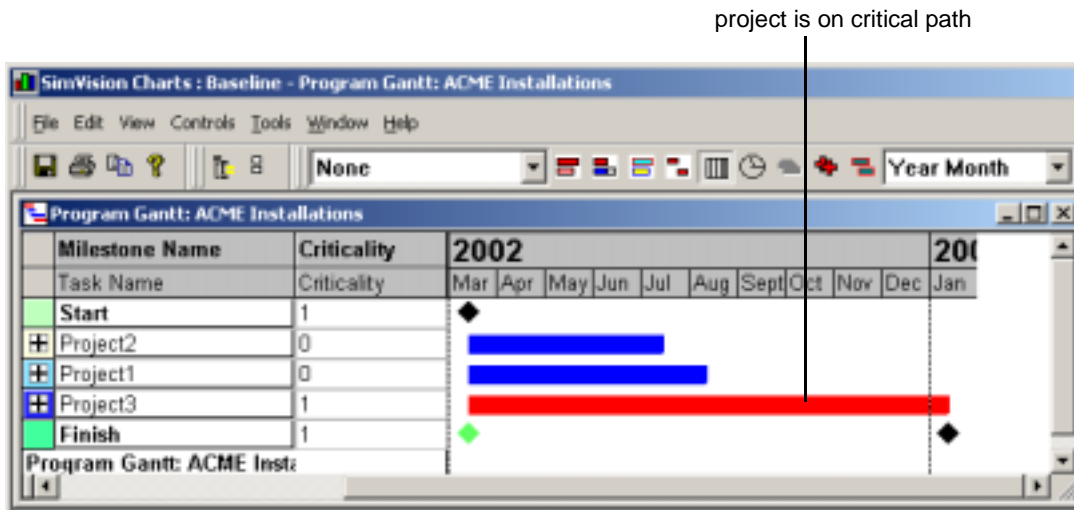


Initially, the *program's* charts are displayed. To view the charts for a specific *project*, select that project in the Chart Window's Tree pane.

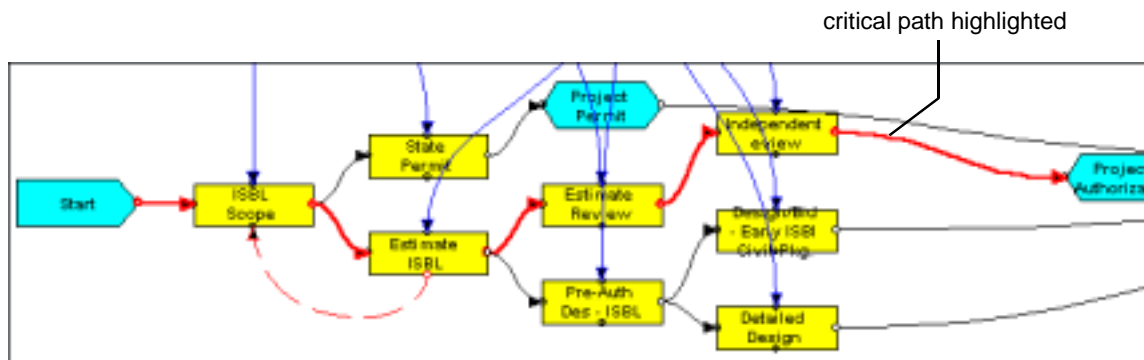


You can view a project's elements by clicking the plus sign beside the project. The project elements display and you can select an element to see its simulation charts.

and noncritical path projects and tasks in blue. For example, the following illustration shows a program with three projects, one of which is on the critical path.



Once you have run a simulation in a model, you can view the critical path in each project or in the program as highlighted successor links between the critical-path tasks or projects, as shown in the following illustration.



If the successor links have custom colors and widths, these are restored when you reverse the critical path highlighting. For information on customizing links, see “Changing Object Appearance” on page 307.

To view the critical path in a program

- 1 Make sure you have run a simulation of at least one case of the program.
- 2 With the program page displayed, click Highlight Critical Path on the Model menu.

The successor links between the projects on the critical path are highlighted in red.

To view the critical path in a project

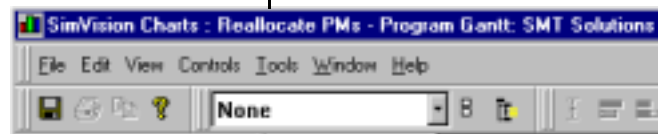
- 1 Make sure you have run a simulation of the current case.
- 2 With the project displayed, click Highlight Critical Path on the Model menu.

The successor links between the tasks on the critical path are highlighted in red.

Keeping Track of Charts

When numerous charts from different cases are displayed, you can keep track of which chart you are looking at by reading the Chart Window's title bar, and by seeing what is selected in the Chart Window's Tree pane.

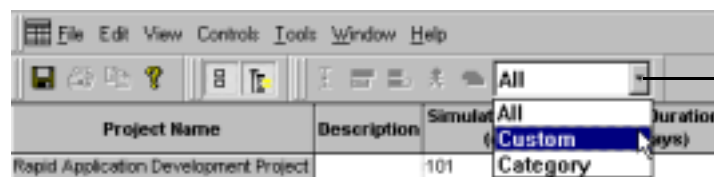
current chart is the Program Gantt chart for the Reallocate PMs case of the SMT Solutions program



Filtering Data in Simulation Charts

Many of the risk metric charts show data for the top 5 objects by default. For example, the Position Backlog chart shows the five most backlogged positions in the project. You can filter the data shown by selecting a different number of objects to show data for, or by choosing specific objects or categories to view data for. For example, in the Position Backlog chart, you can choose to view the top 1, 2, 3, 4, 5, or 10 backlogged positions. You can view backlog for all positions, or you can choose specific positions to view backlog for. You can also filter the positions by category. For more information, see “Filtering Simulation Results by Category” on page 226.

The collective statistics charts show data for all appropriate objects—for example, the program's Projects Statistics chart shows data for all projects in the program. You can filter this data by object or category. For example, you can select specific projects to view statistics for, or select a category and see only data for projects that are assigned this category.

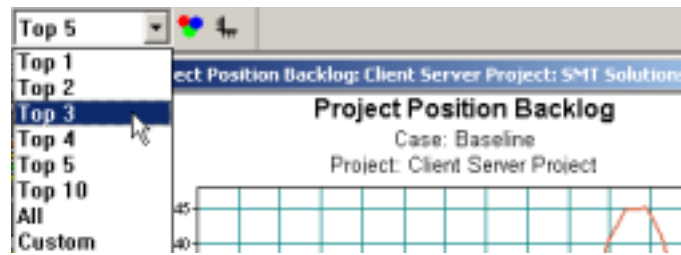


use the filter list to narrow down the data displayed in statistics charts

To filter data in simulation charts

- 1 In the Chart Window, select the chart to filter data in.

- 2 Select a value from the filter list at the top of the chart.

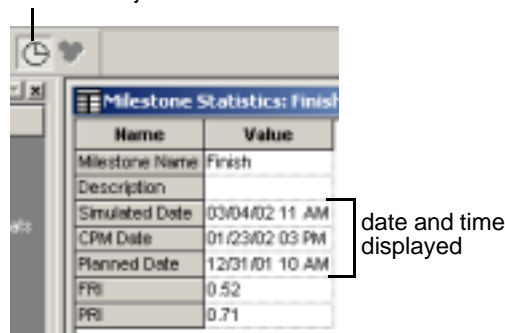


The chart displays data for only the objects you select.

Viewing the Time and Date in Charts

If a simulation chart shows the date, you can display the time with the date by clicking Date and Time on the Chart Window's toolbar.

click here to show date and time instead of just date



date and time displayed

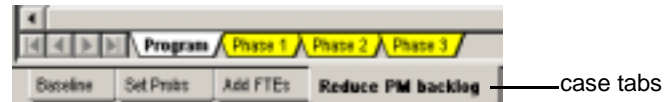
Using Cases

A case is an instance of a model. The purpose of creating multiple cases of a model is to track the effect of making changes in the model, however minor. Each case is a replica of the case it is derived from (the previous case by default) so when you create a new case, you can make a subtle change and then simulate both cases and compare the simulation data.

Creating Cases

You derive new cases from existing cases, so the second case is initially a copy of the baseline case. Then you make changes to distinguish the cases and run simulations so you can compare cases. Comparing your second case simulation results against your baseline case allows you to analyze the difference your refinements have made to projections such as cost and project duration.

When you create a new case, it appears as a tab in the Model pane and as a case under the program in the Tree pane. You can reorder case tabs under the Model pane by dragging them.



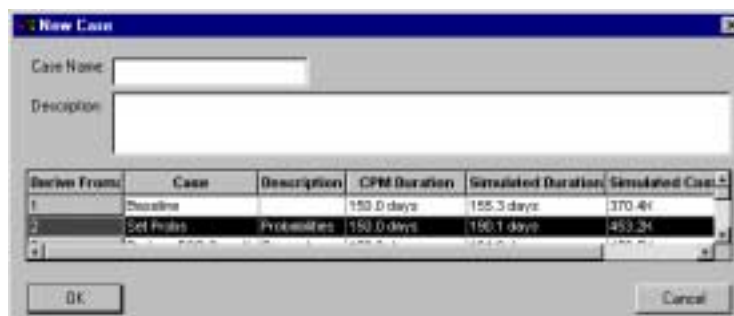
By default, each case is derived from the previous case, but you can choose a case to derive a new case from. You can also rename or delete cases.

To create a new case

- 1 In the Model pane, select the case from which to derive the new case.
- 2 Click in the Model or Tree pane.
- 3 On the Model menu, click New Case.



The New Case dialog box appears, listing the existing cases with their simulation data if they have been simulated.



Notice in the Derive From column, the derived case is the case you selected. In the illustration, the new case will be derived from the Set Probs case.

- 4 Enter a case name. You might want to just number cases, but it can be useful to name them according to the intervention involved, for example, “Reduce PM Backlog.” If you don’t name a case, it is named No Name.
- 5 Type a description for the case. This description displays in this dialog box and in the Case Filter dialog box for the Executive Dashboard. Use the description to summarize what distinguishes this case from others.
- 6 Click OK.

The new case appears as a case tab in the Model pane and as a case under the program in the Tree pane. The case page contains the same components as the case from which it is derived.

To rename a case or change its description

- 1 In the Model pane, select the case tab.
- 2 On the Model menu, click Rename Case.



- 3 In the Rename Case dialog box, type the new name and a changed description if required.
- 4 Click OK.

To delete a case



- 1 In the Model pane, select the case tab.
- 2 On the Model menu, click Delete Case.
- 3 Confirm the deletion by clicking OK.

To switch between cases

- In the Model pane, select the case tab, or on the Navigate menu, click Cases and select a case from the list.

Comparing Case Simulation Data

Once you have created more than one case in a model, you can run simulations of multiple cases and then compare the simulation results of two cases in the Chart Window.

Comparing cases allows you to dynamically view the results of changes in the model, however minor. For example, you could create a new case and change only the FTE value of a single position by 1 FTE. By simulating the first case, you could compare two cases that differ only in this slight way, thereby determining the effect of adding 1 FTE on the project cost and duration.



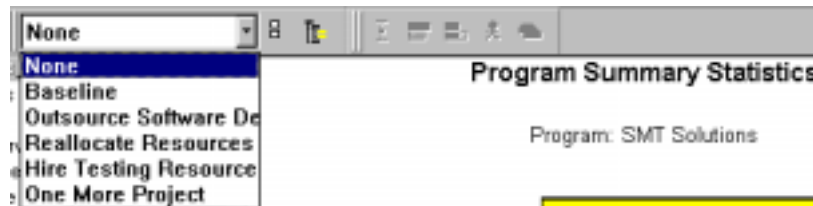
Note: When you make topological changes between cases—for example, adding or removing shapes or links—the cases are less effectively comparable than cases without such differences.

You can view key data for all cases simultaneously in the Executive Dashboard. For more information, see “Making a Detailed Case Comparison” on page 250.

To compare two cases



- 1 With any case selected, click Run Simulation on the Simulate menu.
- 2 In the Chart Window, click the down-arrow beside None. The cases are listed.



- 3 Select the case to compare against the current case.

If it has not already been simulated, the simulator runs the selected case. The data for the compared case is displayed as crosshatched bars.

