

# Getting Started with MapleSim Insight

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# Getting Started with MapleSim Insight

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# Introduction

MapleSim Insight lets you see live simulation results and 3-D visualizations during the simulation of any MapleSim-generated FMU. MapleSim Insight works with any simulation tool that supports compiled FMUs (Functional Mock-Up Units). MapleSim Insight provides 3-D visualizations for quick visual feedback, and 2-D plots for detailed testing and debugging.

Basics of using MapleSim Insight:

- Model your system in MapleSim.
- Generate a compiled FMU in the **MapleSim FMI Connector** with the **Include MapleSim Insight data** option selected.
- Run the FMU. For Co-Simulation 2.0 FMUs, you can simulate directly in MapleSim Insight. Or, you can simulate in MapleSim or in any tool that can import and simulate an FMU. If not already open, MapleSim Insight launches automatically.
- MapleSim Insight shows continuously updated simulation data plots and an animated 3-D view while the FMU is running.
- Controls in MapleSim Insight allow you to alternate between streaming live data and reviewing previously captured data.
- Record and save streamed data to file to review at a later time.

## Requirements

Generating an FMU for use with MapleSim Insight requires MapleSim and the MapleSim FMI Connector, release 2020 or later.

Using MapleSim Insight requires the generated FMU, MapleSim Insight, and a tool capable of simulating compiled FMUs. (You do not need MapleSim to run MapleSim Insight.)

Simulating through MapleSim Insight works with Co-Simulation 2.0 FMUs. This feature only works with FMUs generated in release 2020.2 or later.

## Using Help

**Tip:** To search for help on a specific topic, in the Help window, press **Ctrl + F** and then enter a search term.

## Generating an FMU for Use with MapleSim Insight

MapleSim Insight works with FMUs that are exported using the MapleSim FMI Connector. This step requires MapleSim and the MapleSim FMI Connector.

1. Build the model in MapleSim.
2. Use the FMU Generation app to create the FMU file.
  - a. Select the subsystem to export and specify desired settings.
  - b. Ensure that you have selected the **Include MapleSim Insight data** option under Export Options. (This option is selected by default.)
  - c. Click **Generate FMU Archive**. The .fmu zip file is created and saved in the target directory.

## Launching MapleSim Insight

MapleSim Insight can be launched in several ways.

- Launch MapleSim Insight directly.
- Simulate an FMU in any tool that can simulate an FMU. When the FMU starts running, MapleSim Insight launches.

**Tip:** If you launch MapleSim Insight directly, and then select an FMU to open, you can set up the 3-D and plot windows as desired before you begin the simulation. When you then start the simulation and data is received, the windows populate immediately and it is easy to view the data.

**Note:** By default, MapleSim Insight starts in the language based on your system's locale setting. For example, if you are using an English system, MapleSim Insight starts in English. If you are using a Japanese system, MapleSim Insight starts in Japanese. To instead specify the locale for the application, launch MapleSim Insight using the following command-line argument:

```
>insight.exe -locale en //run in English
```

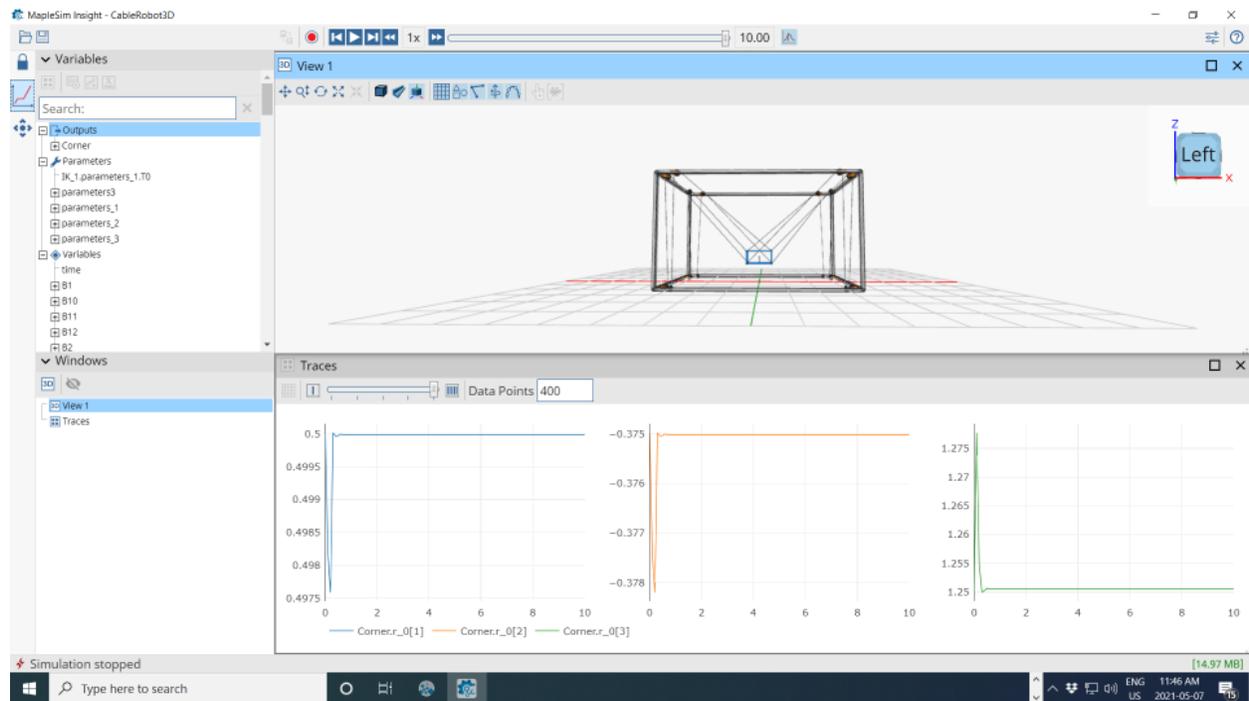
```
>insight.exe -locale ja //run in Japanese
```

# Getting Started with MapleSim Insight

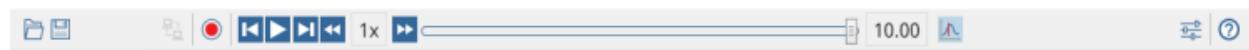
## The MapleSim Insight Window

The MapleSim Insight window contains the following panes and components:

- The main toolbar at the top
- The left pane containing tabs for working with the simulation results and for running simulations
- The visualization component in the main area, containing the 3-D visualization windows and 2-D plot windows
- The status bar at the bottom displaying system information



The following icons are found in the Main toolbar:



Icon	Description
	Open data source.
	Save.
	Pause/resume connection to streaming data. Playback buttons are not available while connected to streaming data.
	Record Video
	Go to start.
	Start/Stop playback.
	Go to end.

	Playback speed. Increase or decrease the speed at which the animation plays.
	Timeline. Indicates the current position in playback.
	Show/hide time indicator. Indicates the current time in the plots. See <i>Working with Plot Windows (page 8)</i> .
	Open Application Settings.
	Help.

When you save simulation data, it is saved as a .simData file. You can later open saved .simData files. The saved simulation data includes data from a window in time. You can control the time duration of this window by adjusting how much data is stored. See Max Buffer Size in *Application Settings (page 14)*.

The status bar at the bottom right corner of the MapleSim Insight window displays how much memory has been used to store the collected data. The value is shown in green if it is < 75% of the max buffer size. If it reaches 75% of the max buffer size, the text color is orange. If it reaches 90% of the max buffer size, the text color is red. This memory usage information is also available in Application Settings.

At any point while the simulation is running, you can pause the connection using the **Pause/Resume Connection** button () to analyze the data and then resume the connection to pick back up real-time view. Any data accumulated while the connection is paused will be discarded when you resume the connection.

For information on controlling the connection options, see *Application Settings (page 14)*.

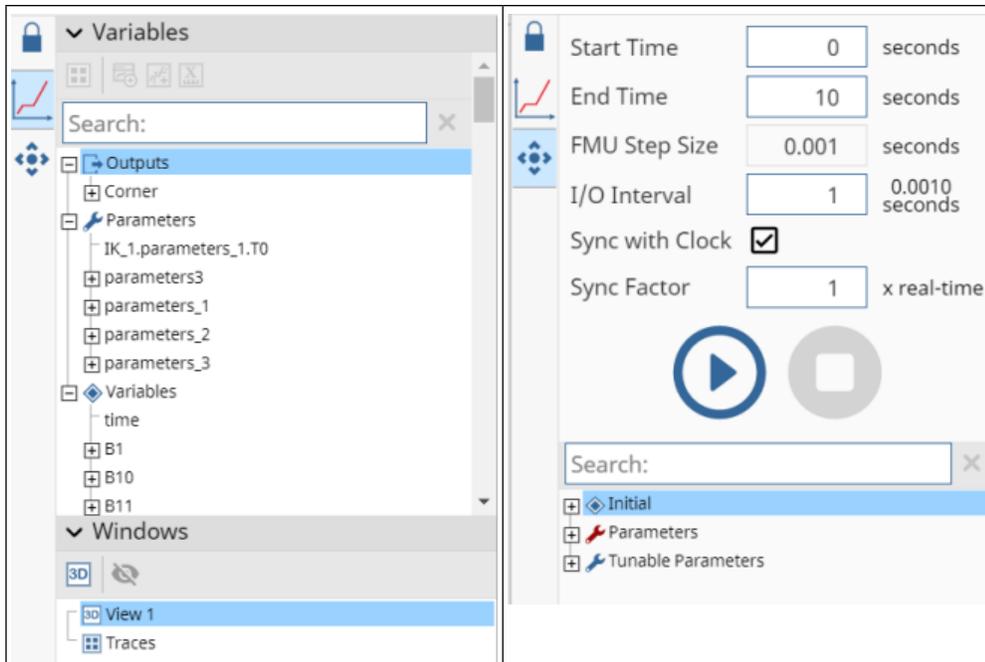
## Working with the Left Pane

The left pane of the MapleSim Insight window contains tabs for working with the simulation results and for running simulations.

- **Simulation Results** (): Access tools for managing your 3-D visualization and plot windows.
- **Simulate Co-Simulation FMU** (): For Co-Simulation FMUs, access simulation controls for simulating the FMU directly from MapleSim Insight.

Click on the desired button to view that tab.

<b>Simulation Results</b>	<b>Simulate CoSim FMU</b>
---------------------------	---------------------------



You can collapse the left pane to allocate more room for the visualization component in the main pane.

#### To collapse the pane:

- Click **Show/Hide** (  ) for the pane.

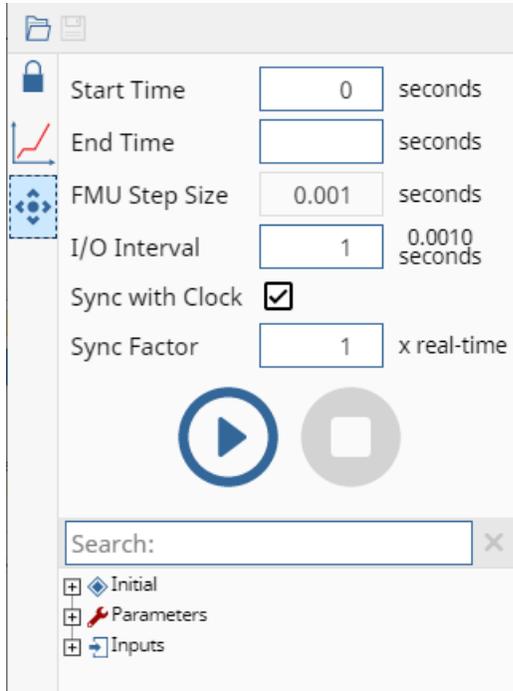
To access the contents of the collapsed pane, select one of its tabs. The pane stays expanded until you click somewhere outside of that tab.

#### To expand the collapsed pane:

- Click **Show/Hide** (  ) for the pane. The pane now stays open.

## Simulating a Co-Simulation FMU in MapleSim Insight

In the Simulate Co-Simulation FMU tab (  ) of the left pane, you can run a simulation directly from within MapleSim Insight. This feature is only available for Co-Simulation FMUs version 2.0 created using MapleSim FMI Connector 2020.2 or later.



**Start Time.** Default value is 0.

**End Time.** The default is no value set, meaning it never stops.

**FMU Step Size.** This is determined when the FMU is generated and is not editable.

**I/O Interval.** How often input/output is communicated.

**Sync with Clock.** When selected and the sync factor is 1, attempts to run simulation in real time. Note: The ability to sync to clock can be limited by processing power.

**Sync factor.** This option is only available when sync with clock is selected. Determines the sync factor of the simulation: setting to 10 means 10 times faster than real time, and setting to 0.5 means half time. Default is 1.

Before running a simulation, you can modify parameters. Use the tree view to browse for the parameters you want. Parameters are categorized into initial, inputs, parameters (nontunable) and tunable parameters. The red wrench () indicates nontunable parameters and the blue wrench () indicates the tunable parameters. Alternatively, use the search box to find parameters.

**To modify a value before running a simulation:**

- Select a variable.
- Double-click and enter new value. The modified value is shown in green to indicate it was changed.

To reset to the default value, delete the new value and press enter. It returns to the original value.

Tunable parameters and inputs can be modified on the fly while a simulation is running. Click pause () , change values as needed, and continue simulation () .

**Note:** Any tuning changes you make here are only temporary. Your changes are only used for the current session of MapleSim Insight or until you load another FMU.

## Simulating through Another Tool

You can simulate using another simulation tool that supports compiled FMUs (Model Exchange or Co-Simulation FMUs) and view live simulation results in MapleSim Insight.

- Run the FMU in MapleSim or in any tool that can import and simulate an FMU. If not already open, MapleSim Insight launches automatically.
- MapleSim Insight shows continuously updated simulation data plots and an animated 3-D view while the FMU is running.
- Controls in MapleSim Insight allow you to alternate between streaming live data and reviewing previously captured data. During simulation, you can pause the connection using the **Pause/Resume Connection** button () to analyze the data and then resume the connection to pick back up real-time view.

**Best Practices:** You should only control the FMU from one source. Do not try to simulate it from within Insight and from another tool at the same time.

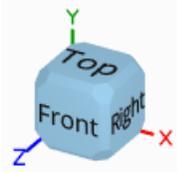
## Working with 3-D Visualizations

In the 3-D window, the following icons are found in the **Toolbar**:



Icon	Description
	Pan the view.
	Zoom in or out.
	Rotate.
	View the entire model, or if objects are selected, fill the view with the selected objects.
	Focus view on the selected object.
	Rendering Mode: Shaded plus wireframe
	Rendering Mode: Wireframe
	Rendering Mode: Shaded
	Toggle Camera Type: Perspective view
	Toggle Camera Type: Orthographic view
	Show/hide orientation.
	Show/hide gridlines.
	Show/hide shapes.
	Show/hide implicit geometry.
	Show/hide arrows.
	Show/hide trace lines.
	Select tracking target.
	Toggle camera tracking.

The orientation box displays the orientation of the visualization.



You can change the Up Direction of a 3-D Window by right-clicking on the orientation box and selecting which axis should be up.

By default, the positive Y axis is up, and the grid (when gridlines are visible) lies on the XZ plane. When the up direction is changed, the grid is changed as well so it lies perpendicular to the up direction. To change the plane that the grid spans, see the 3-D Settings described in the next section. You can also set the up direction and show/hide gridlines in this dialog.

### Customize 3-D Settings for a 3-D Window

To access the 3-D Settings for a 3-D window, right-click on the window and select **3-D Settings**. Here you can customize settings for the grid and 3-D view.

Other settings for 3-D windows are found in the Application Settings dialog. These settings are shared among all 3-D windows. See *Application Settings (page 14)*.

#### Grid

- Set the **Up Direction**. (By default, it is the positive Y axis.)  
You can also change the Up Direction of a 3-D Window by right-clicking on the orientation box and selecting which axis should be up.
- **Visible**. Use this to show/hide gridlines. You can also set the plane on which the grid is displayed. (By default, it is the XZ Plane.)
- Set the grid **Spacing**. Note: This setting is shared among all 3-D windows, and can also be accessed in the Application Settings dialog.

**Tip:** If the model animates over a large enough area to move outside the bounds of the current grid extents, you can fix this by toggling the grid visibility off and back on. When gridlines are shown again, new grid extents are computed, better reflecting the current state of the model.

#### 3-D View

- **Clipping Planes**. For expansive models, the near/far planes settings are used to determine which objects are rendered and which are ignored. By default, this is set to Auto. If you clear the Auto check box, you can manually set values for Near and Far.

## Working with Traces and Plots

As of Maple Insight version 2021.1, you can visualize your FMU simulation results using traces.

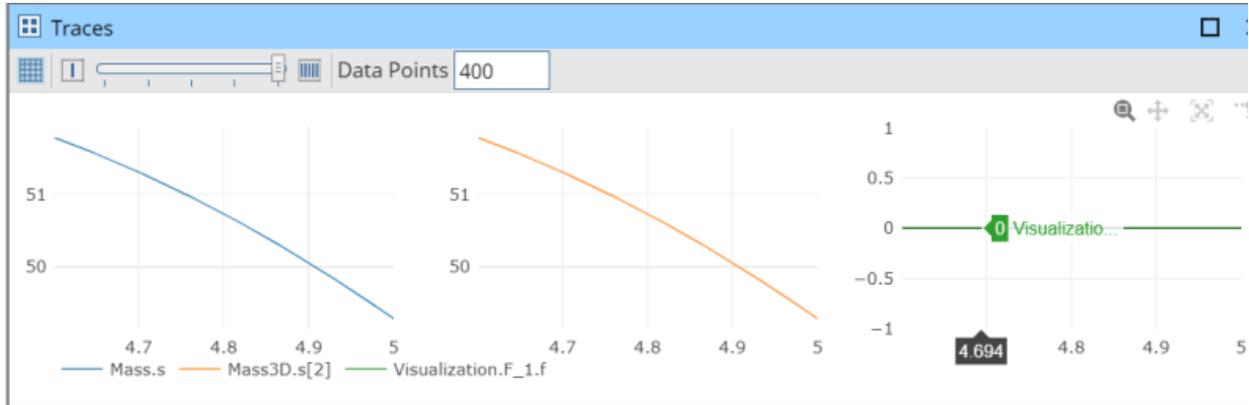
Traces are similar to plots in that they are a tool you can use to visualize your simulation results. They differ in the data they display.

Where plots display the complete data set for the entire duration of the simulation, traces display a snapshot of data generated during a specific interval. This interval and the generated data, are continually updated.

This makes it possible to load more complex models, run simulations faster, and run simulations without lag.

### Working with the Trace Window

The Trace window includes a plot for each input and output variable.



In the Traces window, the following icons are found in the **Toolbar**:



Icon	Description
	Show/hide gridlines for all the trace plots.
	<b>1 Column of Plots.</b> Change the <b>Traces</b> window to display the trace plot(s) in a single column.
	<b>Number of plot columns.</b> Select the number of plot columns (1-5) in the trace plot window layout by using the slider.
	<b>5 Columns of Plots.</b> Change the <b>Traces</b> window to display the trace plots in five columns.
	<b>Data Points.</b> The value in this field indicates the number of points displayed and stored in each trace plot. The default value is 400.

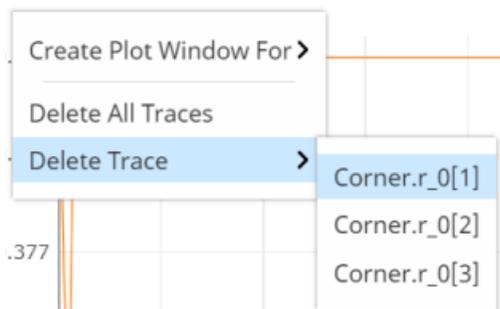
### Hiding and Removing Trace Plots

To hide a trace plot, click on the legend name. The trace plot will disappear and the trace plot legend will be grayed out.

To make the trace plot reappear, click on the grayed out legend name.

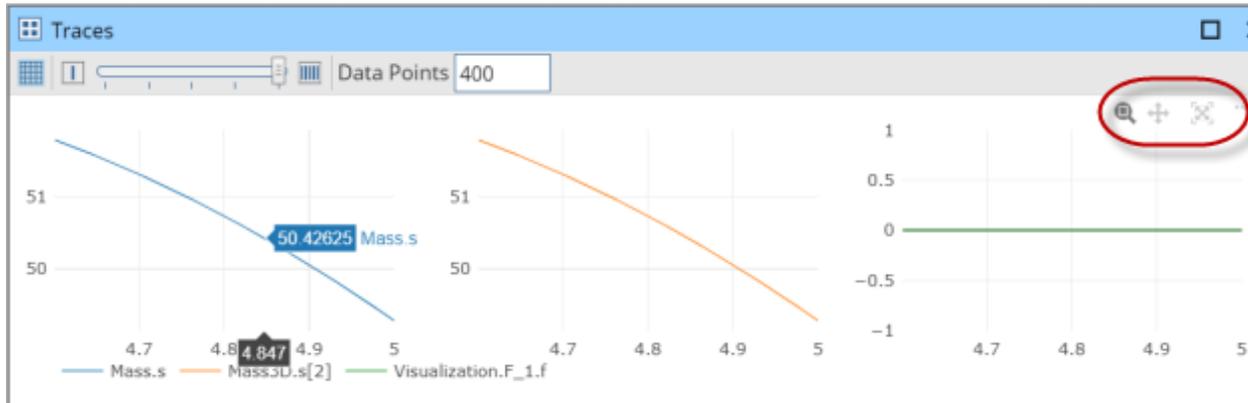
To permanently delete a trace plot or to delete all trace plots:

1. Right click anywhere in the **Traces** window to display the context menu.
2. From the context menu, select either **Delete All Traces** or **Delete Trace**.
3. If you selected **Delete Trace** in the previous step, select the variable you want to remove from the submenu.
4. The trace plot is removed.



## Working with an Individual Trace

When you hover over an individual plot inside a trace window, a pop-up toolbar is available.



The following tools are displayed in the plot toolbar.

Control	Description
	Zoom.
	Pan.
	Autoscale. Resets view.
	Toggle spike lines.

Use the pop-up toolbar to zoom, pan, zoom in and out, and autoscale.

When in **Zoom** mode () , drag the pointer across the plot region to select a specific region to zoom in on. The selected region fills the plotting area. To return a trace to the original view, click **Autoscale** () . Alternatively, double click in a trace to return to the original view.

When in **Zoom** mode () , you can pan by holding **Shift** and dragging the pointer across the trace. If you drag along the x- or y-axis, you can pan only right/left or up/down.

From the pop-up toolbar you can probe a point by hovering your pointer over the plot. There are options to toggle spike lines and to view the x- and y-values when you hover your pointer over the plot.

## Creating a Plot from a Trace

You can create plots for variable data using the trace context menus.

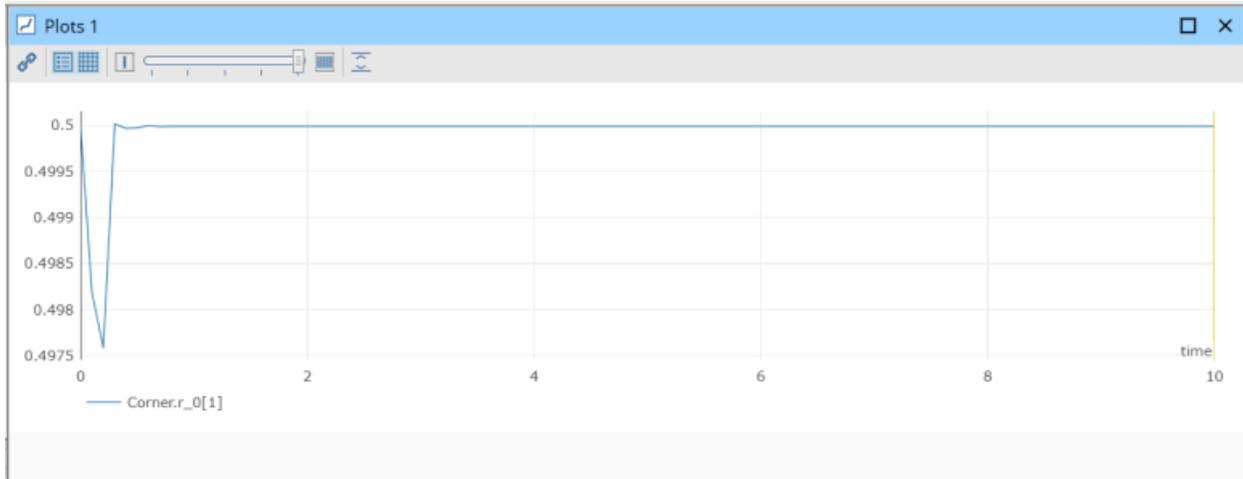
To create a plot:

1. Right-click anywhere in the **Traces** window.
2. From the context menu select **Create Plot Window For**.
3. From the submenu, select the variable that you want to plot.

A plot window is created for the variable you want to plot.

## Working with Plot Windows

The Plots window includes a plot for each input and output variable.



In the plot window, the following icons are found in the **Toolbar**:



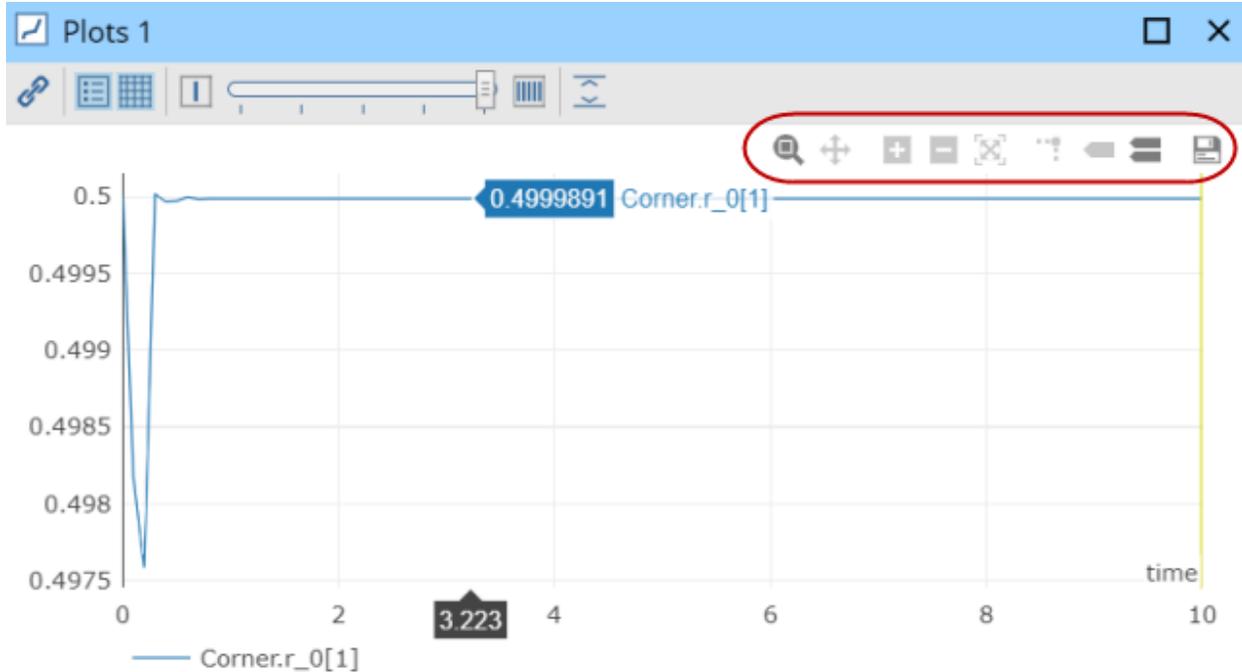
Icon	Description
	Link plots. Link the plots in a plot window actions performed on one plot are replicated on all plots.
	Show/hide legend.
	Show/hide gridlines.
	<b>1 Column of Plots.</b> Change the <b>Plots</b> window to display the plot(s) in a single column.
	Number of plot columns. Select the number of plot columns (1-5) in the plot window layout by using the slider.
	<b>5 Columns of Plots.</b> Change the <b>Plots</b> window to display the plots in five columns.
	Fit plots to plot window. Adjust the height of all graphs so that they fit in the current height of the plot window.

When link plots () is selected, most actions performed on one plot are replicated on the other plots. This includes changing the x-axis range, zoom all, show/hide legend, and toggle gridlines.

You can reorder plots in a plot window. To move a plot, hold **Ctrl** and drag one plot on top of another plot. The selected plot is moved to the new location.

## Working with an Individual Plot

When you hover over an individual plot inside a plot window, a pop-up toolbar is available.



The following tools are displayed in the plot toolbar.

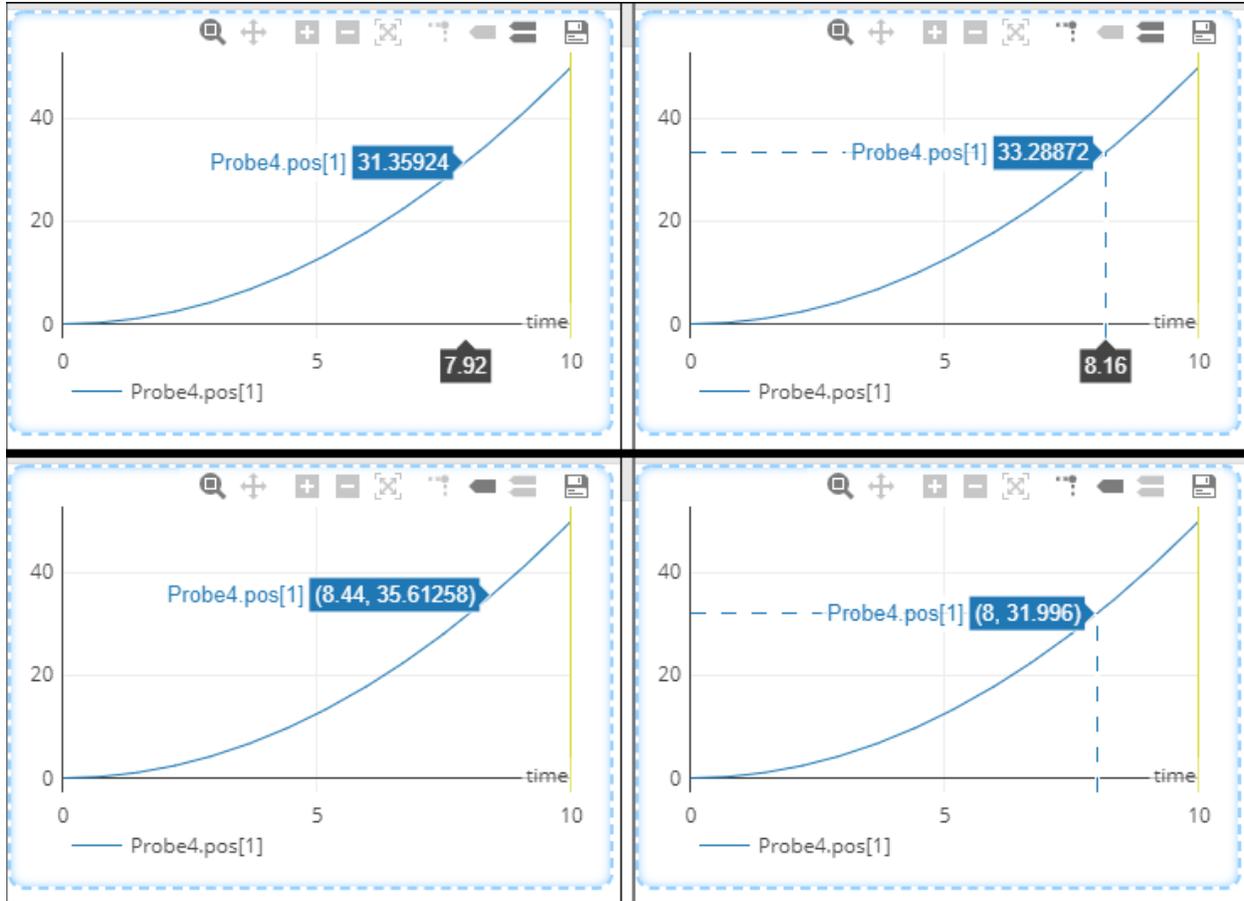
Control	Description
	Zoom.
	Pan.
	Zoom in and out.
	Autoscale. Resets view.
	Toggle spike lines.
	Show closest data on hover.
	Compare data on hover.
	Save plot data. Saves data to a comma-separated values file (.csv).

Use the pop-up toolbar to zoom, pan, zoom in and out, and autoscale.

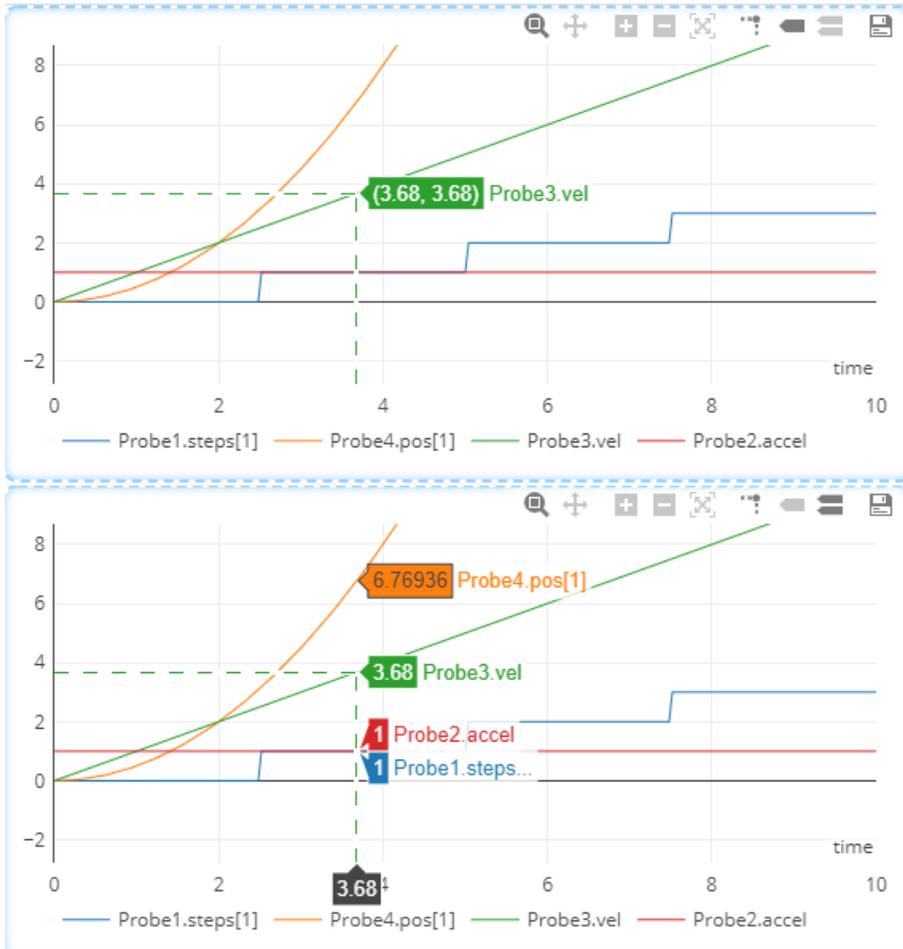
When in **Zoom** mode () , drag the pointer across the plot region to select a specific region to zoom in on. The selected region fills the plotting area. To return a plot to the original view, click **Autoscale** (). Alternatively, double-click in a plot to return the plot to the original view.

When in **Zoom** mode () , you can pan by holding **Shift** and dragging the pointer across the plot. If you drag along the x- or y-axis, you can pan only right/left or up/down.

From the pop-up toolbar you can probe a point by hovering your pointer over the plot. There are options to toggle spike lines and to view the x- and y-values when you hover your pointer over the plot. The following figure illustrates these options: The top plots show the probe data in one format () which shows the y-value at the given x-value; the bottom plots show the probe data in the other format () which shows the (x, y)-coordinate of the data. The plots on the right show the spike lines, dotted lines reaching from the probed point to the x and y axes.



The difference between the point probe options becomes more clear when you have a plot of multiple curves. The **Show closest data on hover** option shows you one data point. The **Compare data on hover** option shows you the y-values of all the curves at the given x-value. See the following figure.

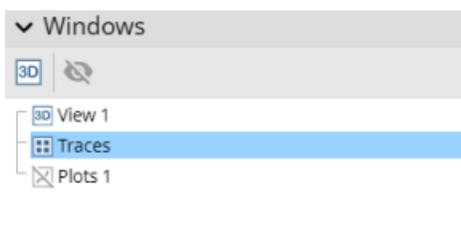


For information on how to make a plot of multiple variables, see *The Variables Palette* (page 13).

**Tip:** The yellow vertical line is the current time indicator. It can be toggled off using the **Show/hide time indicator** button () in the main toolbar at the top of the MapleSim Insight application window. You can change the color of the time indicator line in Application Settings, in the Display Settings.

## The Windows Palette

The **Windows** palette of the **Simulation Results** () tab lists all the 3-D visualization windows and 2-D plot windows.



The following tools are displayed in the Windows palette.

Control	Description
	Create new 3-D window.

	<b>Hide all windows.</b> Hide all windows, making the visualization area empty.
---	---

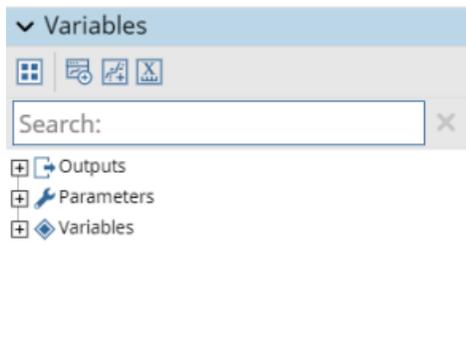
By right-clicking in the Windows palette, you can also choose to show/hide the selected window, show or hide all windows, delete the selected window, or rename the selected window.

Windows that are not shown have their icons grayed out. Double-click on the name of a window in the Windows palette to toggle between show and hide window.

You can create up to four 3-D windows. There is no limit on the number of plot windows you can create.

## The Variables Palette

The **Variables** palette of the **Simulation Results** () tab lists inputs, outputs, parameters and variables for the current model. The palette is used to create new plots or to add a new variable to a plot. Use the search field in the Variables palette to find a variable quickly.



The following tools are displayed in the Variables palette.

Control	Description
	<b>Add Variable to Traces.</b> Select a variable then click this button to add a trace for this variable to the <b>Traces</b> window.
	<b>Create new plot.</b> Create a new plot for the selected variable.
	<b>Add variable to existing plot.</b> Add the selected variable to the selected plot.
	<b>Set the x-axis variable.</b> Place the selected variable on the x-axis of the selected plot.

You can create up to four 3-D windows. There is no limit on the number of plot windows you can create.

However, you can only have one traces window.

Right-click on a variable to access menu items to create new plot window, create new plot, add variable to plot, or set x-axis.

Double-clicking on a variable that is already plotted brings that plot window to the foreground with the plot for that variable selected, unless the **Traces** window is selected. In this case it will try to add the variable to the **Traces** window instead.

### To create a new plot window configuration:

- Select a variable from the Variables palette. Click the **Create new plot** button (). A new plot window is created containing the selected variable.  
Alternatively, if the variable is not yet plotted, double-clicking the variable from the Variables palette also creates a new plot window with this variable plotted in it.

**To add a plot to an existing plot window:**

1. In the Windows palette, select the plot window to which you want to add a plot.
2. Do one of the following:
  - Select a variable from the Variables palette. Click the **Add variable to existing plot** button .
  - Double-click a variable from the Variables palette.

The new plot is appended to the end of the current plot window.

**To add a variable to an existing plot:**

- Select a plot, then right-click on a variable from the Variables palette and select Add Variable to Plot. Alternatively, select a variable from the **Variables** palette and drag it onto a plot.

By default, plots show time on the horizontal axis. To instead place a specified variable on the x-axis of a plot:

1. Select a plot.
2. Select a variable from the Variables palette.
3. Click the **Set the x-axis** button .

**To add a variable to the Traces window:**

1. Select a variable from the Variables palette.
2. Click the Add Variable to Traces button .

A trace plot of the variable is added to the Traces window.

**Note:** You can also select a variable from the tree view, and drag and drop it in the **Traces** or **Plots** window. If you drop it in the **Traces** window a new trace plot is created. If you drop it in the **Plots** window a new curve is added to the plot where you dropped the variable.

## Recording 3-D Visualization Results

To record a video of your simulation:

1. Select Record Video (.
2. By default, the entire simulation is recorded.
3. When prompted, select the directory where you want to save your simulation, assign an appropriate name for the file.
4. Choose the video save format mp4/webm, then
5. Click **Save**.

### Changing Video Recorder Settings

You can adjust the video recording settings from the **Recorder** tab in the **Application Settings** window.

## Application Settings

To open the Application Settings dialog, click **Application Settings**  in the main toolbar. The Application Settings dialog consists of the following tabs: Connection, Display, Values, Keyboard, Mouse, and About. Click a tab to view and customize the relevant settings.

## Connection Settings

Control the connection settings. When using MapleSim Insight, the saved simulation data includes data from a window in time. You can control how much data is stored by adjusting these settings.

Application Settings		✕	
Connection	Update Rate	<input type="text" value="40"/>	fps
Display	Keep All Data	<input type="checkbox"/>	
Keyboard	Samples per second	<input type="text" value="40"/>	
Mouse	Max Buffer Size	<input type="text" value="250"/>	MB
Recorder	Memory Usage	<input type="text" value="0"/>	MB
About	Timeout	<input type="text" value="3"/>	Seconds
		<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

- Set the frame rate (in FPS) for the animation in the **Update Rate** field. By default the frame rate is 40 FPS.
- By default, **Keep All Data** is unchecked. The FMU will store the computed limit of **Samples per Second** and the user can change this value anywhere from 1 to the computed limit. This option is persisted across all FMUs.
- The **Samples per Second** limit that can be recorded for an FMU is limited by the defined step-size of an FMU (cannot be greater), or the amount of storage a single sample would require (larger models will have a smaller maximum number of samples per second).
- When **Keep All Data** is selected, the **Samples per Second** value will automatically be set to the computed limit and cannot be edited by the user.

Application Settings		✕	
Connection	Update Rate	<input type="text" value="40"/>	fps
Display	Keep All Data	<input checked="" type="checkbox"/>	
Keyboard	Samples per second	<input type="text" value="412"/>	
Mouse	Max Buffer Size	<input type="text" value="250"/>	MB
Recorder	Memory Usage	<input type="text" value="8.591"/>	MB
About	Timeout	<input type="text" value="3"/>	Seconds

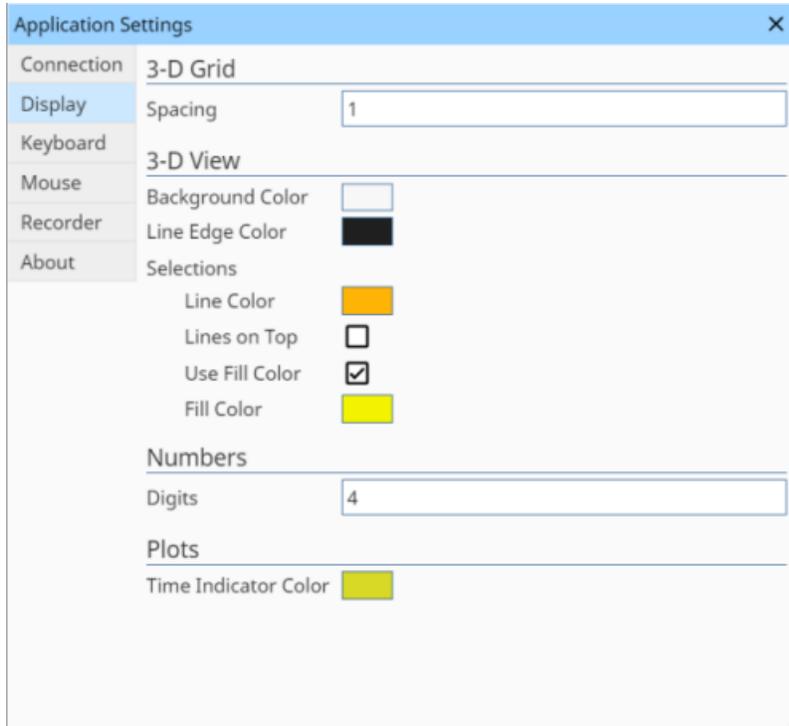
- Set the **Max Buffer Size**. When the max buffer size is reached, the oldest data is thrown out so the latest captured data can be stored. The default is 250 MB. Note: The Max Buffer Size cannot be changed while a simulation is running (all other parameters can be changed).

**Warning:** If you decide to decrease the max buffer size (for example from 250 MB to 50 MB) data that is captured will be thrown out and cannot be recaptured without re-running your simulation.

- View the **Memory Usage**. This shows how much of the buffer has currently been used by the data that has been stored. This is also visible in the status bar at the bottom of the MapleSim Insight window.
- Set the **Timeout** value. This is the default timeout for communication between the automation tool and MapleSim Insight. When no data is transmitted for longer than this timeout, Insight automatically disconnects from the automation tool. In that case, you will not be able to see your results in MapleSim Insight. The default timeout is 3 seconds on Microsoft Windows, and 1 second on Linux. To override the default timeout value, you can adjust this option.

## Display Settings

Control the display settings in 3-D visualizations.



### 3-D Grid

- Set the grid **Spacing**. You can also access this setting in the 3-D Settings Dialog.

### 3-D View

- Specify a **Background Color** and **Line Edge Color** for 3-D visualizations.
- Under Selections, specify how selections are displayed. **Line Color** is the color used for the wireframe of the selected object(s). If **Lines on Top** is selected, the selection appears on top of other objects in the model. This option makes it easier to see the selection even if it is behind another object in the current view. If you select **Use Fill Color**, **Fill Color** is the color used for the filled body of the selected object.

### Numbers

Set the number of digits used.

### Plots

- Specify the **Time Indicator Color** for the time indicator line on 2-D plot windows.

## Keyboard and Mouse Shortcuts

In the **Application Settings** dialog, you can review the current keyboard bindings and mouse settings. This page describes the default settings. The settings can be customized. The process is described below the table of defaults.

### Keyboard Settings

**Table 1: Default Keyboard Bindings**

Action	Keyboard Shortcut
Arrange Windows - Cascade	<b>Shift + C</b>
Arrange Windows - Tile	<b>Shift + T</b>

Camera Mode Pan	<b>F2</b>
Camera Mode Rotate	<b>F4</b>
Camera Mode Zoom	<b>F3</b>
Camera Pose Restore	<b>R</b>
Camera Pose Save	<b>S</b>
Fit Plots To Window	<b>Shift + F</b>
Focus on Selected	<b>F</b>
Help	<b>F1</b>
Pan Camera Down	<b>Arrow Down</b>
Pan Camera Left	<b>Arrow Left</b>
Pan Camera Right	<b>Arrow Right</b>
Pan Camera Up	<b>Arrow Up</b>
Rendering Mode	<b>W</b>
Set Camera View along -X axis	<b>X</b>
Set Camera View along -Y axis	<b>Y</b>
Set Camera View along -Z axis	<b>Z</b>
Set Camera View along X axis	<b>Shift + X</b>
Set Camera View along Y axis	<b>Shift + Y</b>
Set Camera View along Z axis	<b>Shift + Z</b>
Show/Hide Grid	<b>D</b>
Show/Hide Orientation Box	<b>B</b>
Toggle Camera Type	<b>M</b>
View All	<b>V</b>

**To change a keyboard binding:**

1. Select a command from the list under **Application Settings > Keyboard**.
2. Enter the desired key or key combination. (Note that you can select multiple buttons, for example **Ctrl + A**.)  
If that key binding is already in use, the existing assignment is listed under conflicts. If it conflicts with an existing binding that cannot be changed, the conflict is listed in red. (For example, **Ctrl + C** is used for Copy and cannot be used for anything else.) If a conflict is displayed in black, it indicates the current assignment, but it can be reassigned.
3. Click **Assign** to make the change.

**To remove a keyboard binding:**

1. Select a command from the list under Application Settings > Keyboard.
2. Click **Remove** to remove the keyboard binding from that command.

**Mouse Settings****Mouse Wheel Settings**

- Roll the wheel to zoom 3-D View: If selected, rotating the wheel button zooms the 3-D view.
- Invert wheel zoom motion: This inverts the direction of the zoom.

**Mouse Motion Settings****Table 2: Shortcuts for Pan, Zoom, and Rotate actions**

Action	Mouse shortcuts
Pan 3-D View	<b>Right Button</b>
Rotate 3-D View	<b>Left Button</b>

Zoom 3-D View	Middle Button
---------------	---------------

### To change the binding for a Mouse action:

1. Select a command from the list under **Mouse Motion Settings**.
2. Enter the desired key or key combination. (Note that you can select multiple buttons, for example **Ctrl + Shift + Left Button**.)  
If that key binding is already in use, the existing assignment is listed under conflicts. If it conflicts with an existing binding that cannot be changed, the conflict is listed in red. If a conflict is displayed in black, it indicates the current assignment, but it can be reassigned.
3. Click **Assign** to make the change.

### Returning to Default Bindings

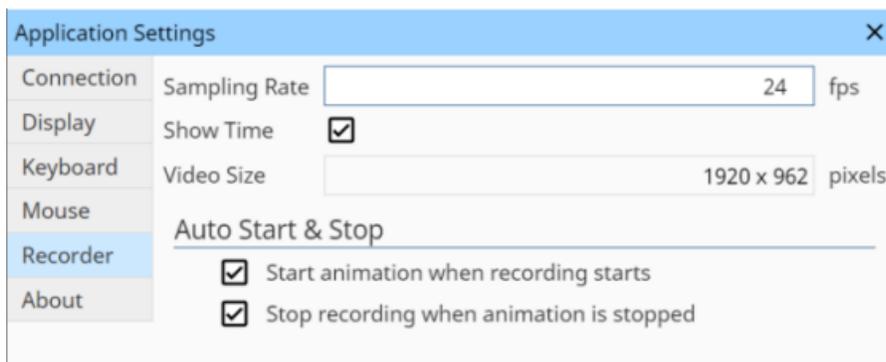
Settings changes are applied globally, so any changes apply to the current and future sessions of MapleSim Insight. If for some reason you need to revert to the default bindings, you can delete the files that store these settings. The next time MapleSim Insight is opened, the default bindings for the shortcuts will be restored. The files are

`C:\Users\<<name>\AppData\Roaming\MapleSimInsight\<version>\commands.json`

`C:\Users\<<name>\AppData\Roaming\MapleSimInsight\<version>\userPreference.json`

### Recorder Settings

You can adjust the video recording settings from the **Recorder** tab in the **Application Settings** window.



From this tab, you can change the Sampling Rate, display or hide the simulation run time, and decide when to start and stop the animation.

**Note:** The MapleSim Insight window controls the size of the simulation output window. So, to resize the video adjust the size of the MapleSim Insight window.

### About MapleSim Insight

Under Application Settings, the About tab displays information about the current version of MapleSim Insight, including version, build ID, licensing information, and copyright information.

## Running FMU Simulations from Maple

You can run FMUs in Insight from Maple using the Insight package for Maple. Specifically:

- CoSimulation FMUs created in MapleSim with the option, **Insight data** can be run directly.
- CoSimulation FMUs created in other tools (or in MapleSim with the **Insight data** option disabled) can be updated to a form that can be executed in Insight.

When you install Insight, if you have Maple installed, the Insight package for Maple will be installed for you.

Insight for Maple commands are of the form:

Insight:-Command(...)

While the FMU is running, Maple will launch Insight and will function just as if Insight was running the FMU directly.

## Troubleshooting

### I cannot find a window.

Solution 1. Ensure the window is not hidden. Hidden windows have their icons grayed out in the Windows palette. Double-click the name of the window to toggle it to visible (.

Solution 2. The window may be minimized, behind another window, or have been moved out of the viewing area. For example, if you are working with the MapleSim Insight application maximized and then make your MapleSim Insight windows smaller, some plots may not be visible. To fix, maximize the MapleSim Insight application so that all plot windows can be found, and arrange them as needed.

## Legal Information

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