Plot Builder

New Interactive Plot Builder

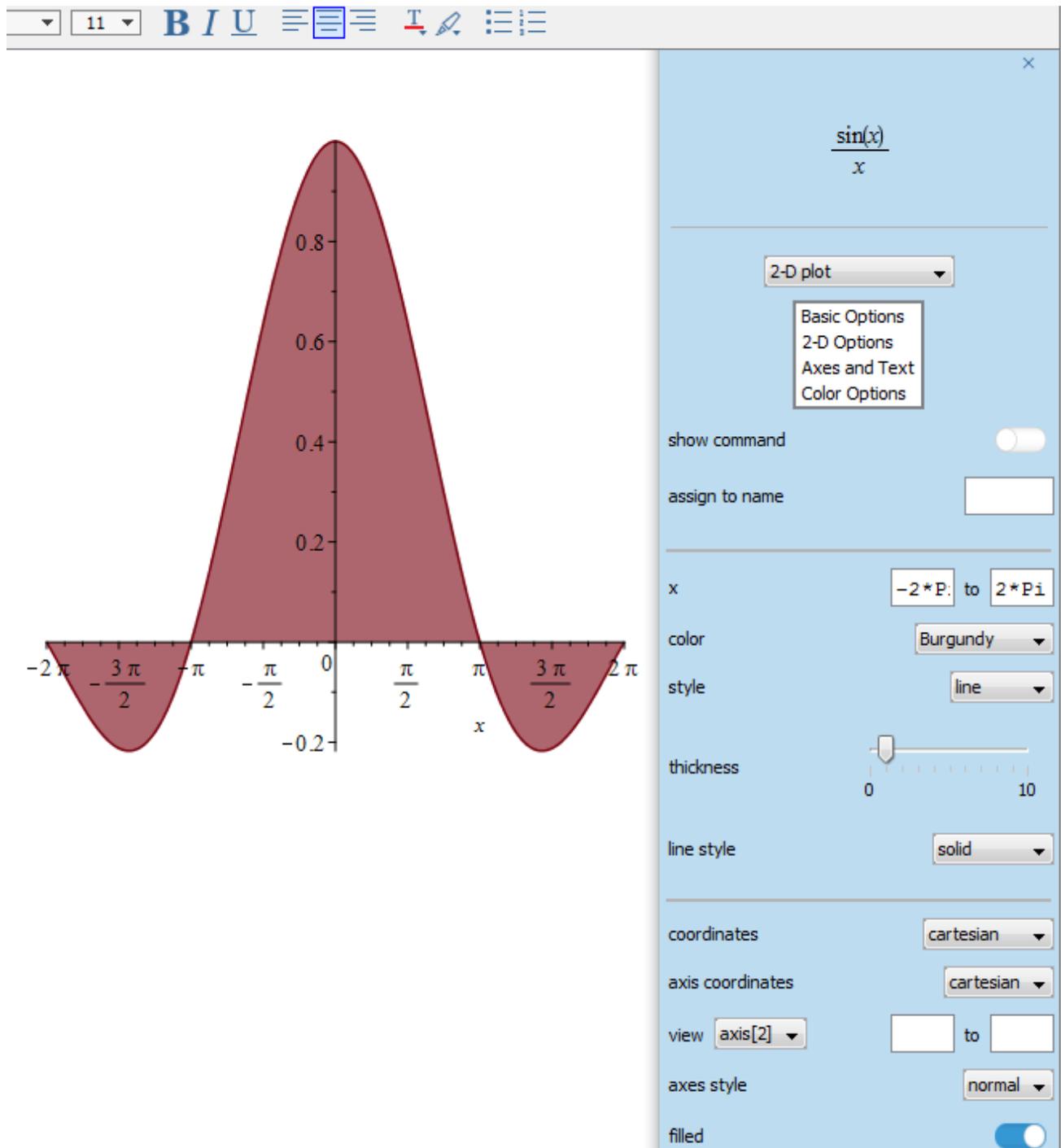The interactive plot builder, which provides an easy-to-use interface for creating and customizing plots, has been completely updated for Maple 2017. This feature now uses a control panel that emerges dynamically from the right side of the Standard User Interface window.

Key features include:

• Support for the creation and customization of a wide variety of 2-D and 3-D plots using a point-and-click interface.

• Plots appear directly in the worksheet, without a separate preview window.

• Plotting options are controlled and set by embedded component controls in the panel.

• Changes to plotting options can be seen directly, with the displayed plot updating automatically.

• The options controls adjust dynamically in the panel, so that only relevant controls are displayed.
  - This includes changing the plot type, for example changing from a 2-D implicit plot to a 2-D density plot.
  - Additionally the available controls for the current plot type adjust dynamically. For example when the control for **style** is changed from **line** to **point** then the control for **thickness** becomes hidden and is replaced by controls for **symbol** and **symbol size**.

• The plot builder appears in a panel that emerges from the right hand side of your workspace when needed, and disappears again when you are done:
  - When the mouse-pointer focus is set elsewhere in the worksheet the control panel will slide out of view, leaving the plot in view.
  - When the focus is set once more to the output region of the displayed plot then the control panel will re-emerge, with the option controls set as before.

• When the control panel re-emerges additional changes can be made to the choice of plotting options, with the plot updated accordingly.

• The currently displayed plot can be assigned to a name from controls in the panel.

- The panel contains a control to toggle on or off the additional display of the relevant plotting command and its options choices.

- Multiple interactive plots can exist separately within a worksheet, with independent control settings.

- When the worksheet is saved and reopened the control panel and previous options settings for each interactive plot are still available.

- The Plot Builder can be invoked by command, or by using the Assistant, or by using the context-sensitive menu of an expression.

The following is an example of the Plot Builder with the control panel visible:
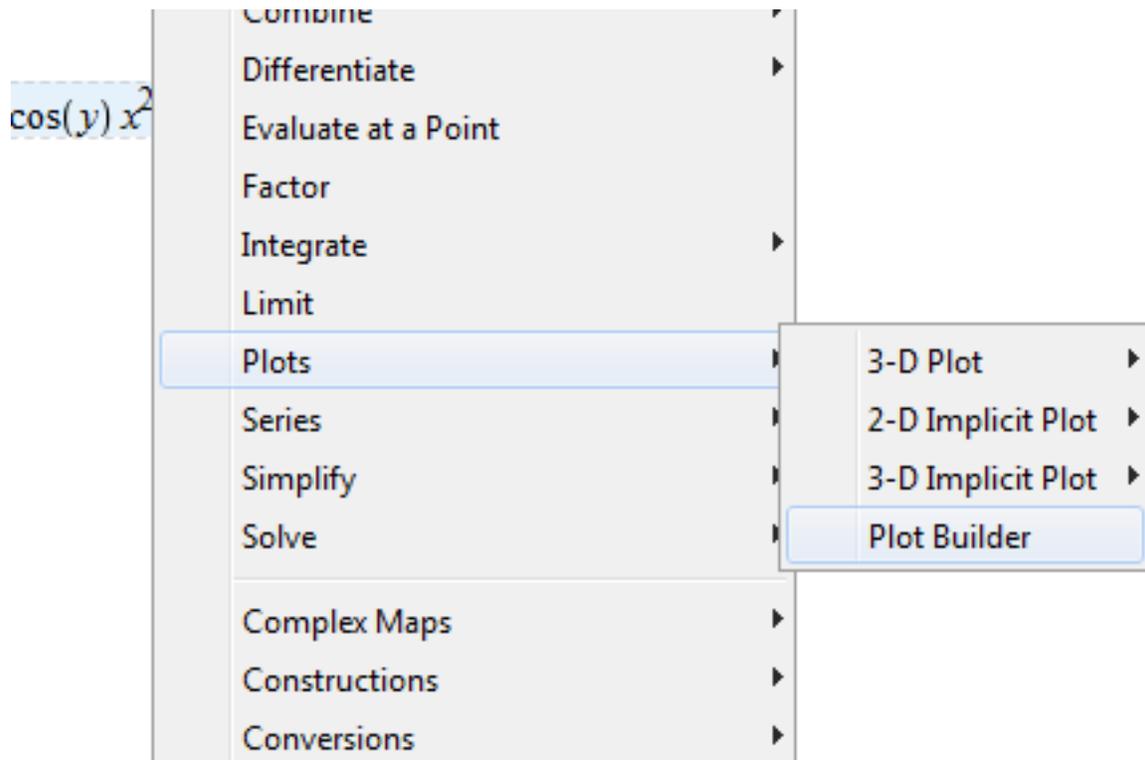
Assistants Access

The new Interactive Plot Builder can be accessed from the Assistants menu, accessed from the Tools menu of the Standard Menu Bar.

When launched in this way, an interactive dialogue allows the expression to be plotted to be entered. This is equivalent to calling the PlotBuilder command with no arguments.

Context Menu Access

The new Interactive Plot Builder can also be launched using the right-click context-sensitive menu for an expression.

Examples:

plots[interactive]

The Maplets-based interactive plot building facility is still available from the command plots[interactive]. If called with no arguments then an initial dialogue allows expressions to be entered.

The main distinctions between that Maplets-based facility and the new Embedded Components-based Plot Builder are:

- The Maplets implementation returns the plot (or plotting command string), while the new Plot Builder allows the plot to be assigned and the plot and command to be displayed.

- The Maplets facility is not modal with respect to interaction. Accessing other parts of the worksheet, or performing intermediate computations, cannot be accomplished until the Maplet is quit.

- The Maplet cannot be revisited, following creation and insertion of the plot into the worksheet, except by relaunching it to obtain a wholly new plot instance. Options choices are not preserved across restart of the Maple kernel, and are not saved as part of the worksheet.