3

The Graphical Interface

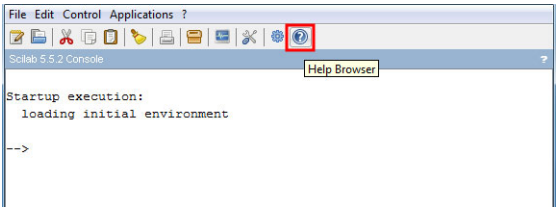
In addition to the console, Scilab's graphical interface is made up of several windows which can be added to or removed from the main window (see Figure 2.2 video). In this chapter, you will learn the basic functionalities of Scilab's main windows.

3.1. The online help

The first window to be familiar with is, without doubt, the help browser window. It can be accessed in different ways:

- from the menu bar by clicking ? then SCILAB HELP
- by pressing the F1 key
- from the toolbar shortcut (see Figure 3.1)

Figure 3.1 : Toolbar shortcut for the online help



- from the console by entering one of the following commands:
  - `help` which lets you know what a command does and how to use it
  - `apropos` which lets you know which commands are relevant to a topic or keyword

```
-->apropos sinus
-->help sin
```

In either case, the window in Figure 3.2 opens up.

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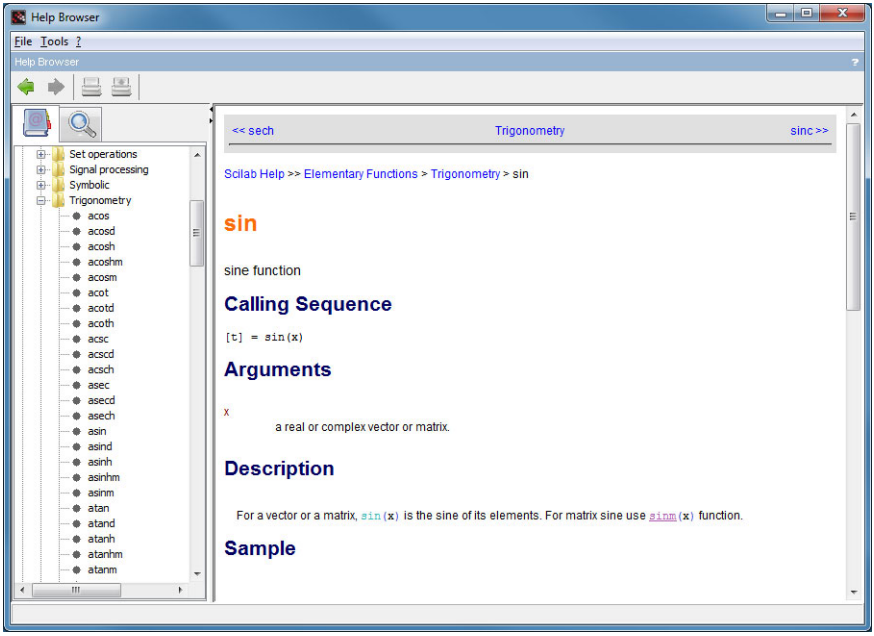
Figure 3.2 : Help window



Tip *› If you wish to get help on the* `sin` *command, enter* `help sin`*. On the other hand, if you need help with the mathematical concept of* `sine`*, use* `apropos sine`*. In both cases, you should get a link redirecting you towards the* `sine` *function's help page.*

For each command, the help page is made up of several sections:

Calling sequence

Describes how to call a command to evaluate it in the Scilab console. In general, the calling sequence is of the form:

```
[output1,output2,...]=command(input1,input2,[option1,[option2]])
```

This sequence format means that `command` takes in two input values, indicated by `input1` and `input2`, and two optional values, `option1` et `option2`, enclosed in brackets `[` and `]`. The output values `output1` and `output2` can be retrieved by using brackets. There are several ways to call the command, for example:

- `ouput1=command(input1,input2)`
- `[output1,output2]=command(input1,input2)`

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- `[output1,output2]=command(input1,input2,option1)`
- `output1=command(input1,input2,option1,option2)`
- `...`

Caution *› Whatever the syntax used, the value of* `output2` *can never be retrieved without the value of* `output1`*. Likewise,* `option2` *cannot be specified without first specifying* `option1`*.*

Arguments

Describes the type of arguments expected for the different values (`input1,input2,option1,... output2`) present in the calling sequence (see Chapter Variables, Constants and Types).

Description

Provides a more detailed explanation of what the `command` does.

Examples

Demonstrates how to use the `command` through examples of varying complexity. The source code displayed in the shaded box can be directly executed in the console or opened in the text editor by clicking the two buttons in the upper-right corner (See Figure 3.3).

Figure 3.3 : *Online help source code*

See also

Redirects to other help pages which may supplement the `command` help page.

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3.2. The text editor

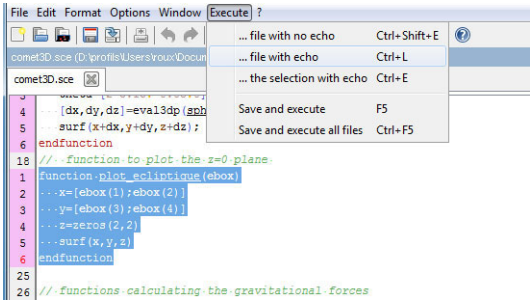
Scilab includes a text editor called SciNotes, which can be called in different ways:

- from the menu bar APPLICATIONS/SCINOTES
- from the Toolbar icon 
- from the console with the command `editor` or `scinotes`

This editor possesses all the functionalities of a text editor intended for computer programming:

- semiautomatic formatting such as commenting/uncommenting parts of code, indentation of nested commands
- syntax coloring and command completion, autocompletion of closing parentheses
- search/replace function including the use of regular expressions
- several execution modes for the editor code (with/without echo) (see Figure 3.4)
- operation of Windows/Linux file formats (newlines CR and/or LF) and input and output character encodings (UTF-8, Latin1, ASCII, etc.)

Figure 3.4 : *SciNotes text editor*



In the Part Programming, we will use this text editor to write programs in the Scilab language. You will discover various features used to control the launch and execution of Scilab programs in the editor and console graphical interfaces. They are accessible from the CONTROL menu. You can see an example of their use in the following video.

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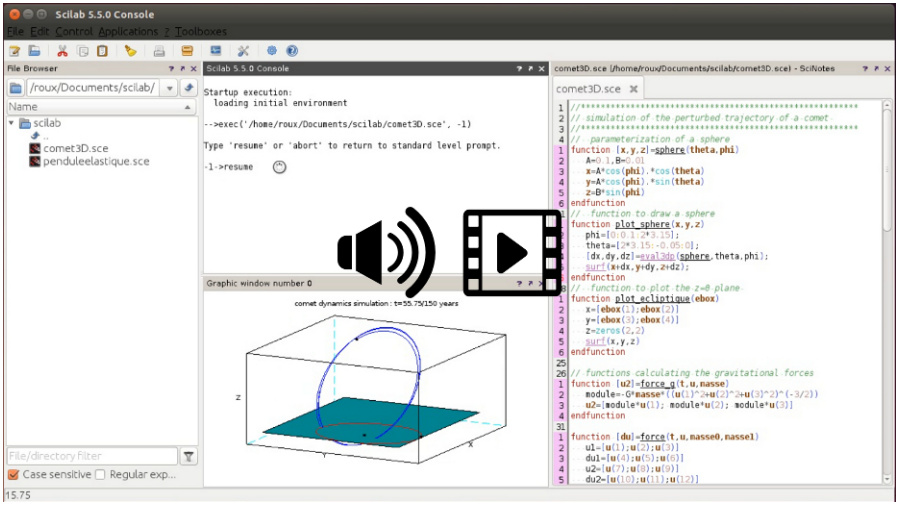
Figure 3.5 : *Controlling the execution of Scilab programs (video)*



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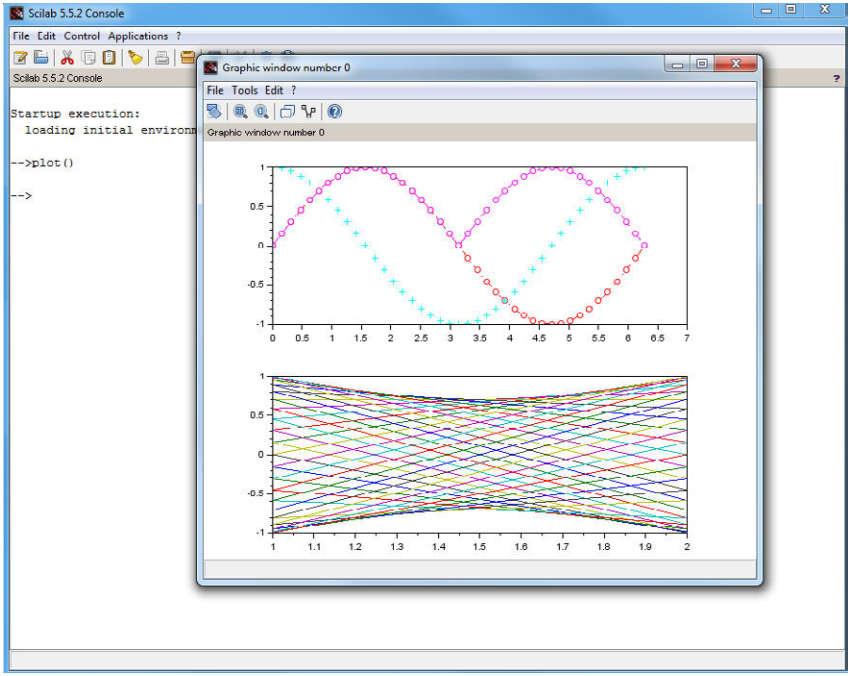
3.3. Other windows

Other Scilab windows have different specific purposes which are outlined here.

Graphics window

Scilab has a large range of graphical capabilities which, when used, cause a graphics window to open. For example, executing the `plot` command from the console opens up the graphics window shown in Figure 3.6.

Figure 3.6 : *Scilab graphics window*



We will study Scilab's graphics properties in detail in Part Creating Plots and you will see how to create various figures in two as well as three dimensions! The graphics window lets the user interact easily with these figures. With the help of a mouse, you can for instance:

- zoom in and out, and restore the initial display scale
- modify the view angle for three-dimensional figures

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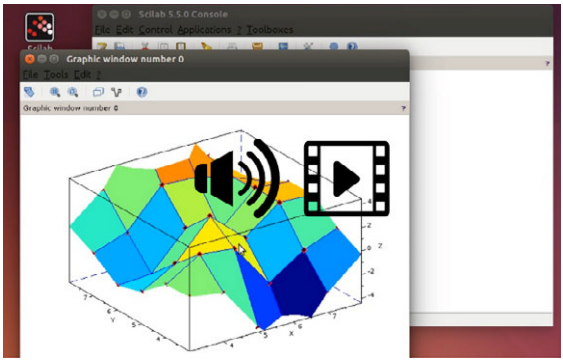
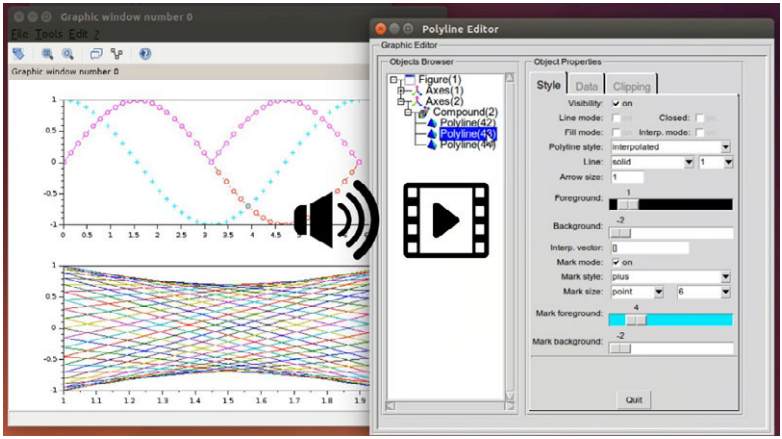
The following video demonstrates how to use these capabilities.

Figure 3.7 : *Zooming and modifying the view angle (video)*



Scilab's graphics capabilities are based on a very detailed hierarchical display of graphics objects. This not only allows the creation of complex figures but also of new graphical interfaces (see Section 23.4, Creating your own graphical interfaces). A graphics editor, accessible from the menu bar in the graphics window (menu EDIT then FIGURE PROPERTIES), lets you navigate and modify the different parameters that constitute the graph. The graphics window incorporates modifications in real time (see the following video).

Figure 3.8 : *Using the graphics editor (video)*



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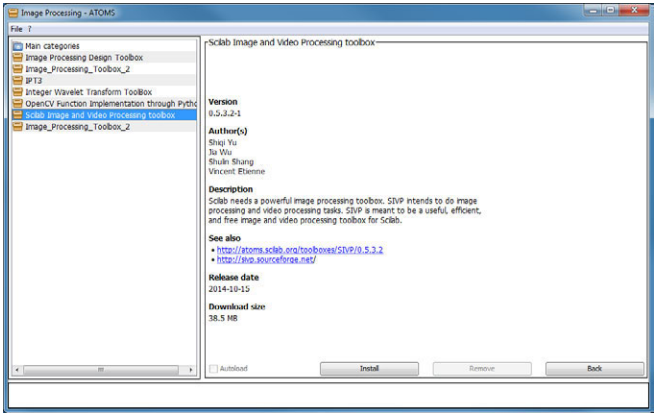
Caution › *The graphics editor currently does not work on the Scilab Mac OS versions.*

ATOMS

The external module manager ATOMS lets you install or uninstall supplementary modules related to Scilab. These modules add advanced capabilities to the software, for example SIVP can be used for image processing or Metanet for graphing and network computations (see Section 5.4, Supplementary modules on Forge).

Figure 3.9 : *Choosing the SIVP supplementary module from the ATOMS window*



Xcos

The bloc-diagram editor Xcos, Scilab's equivalent of Matlab's Simulink toolbox, lets you simulate dynamical systems. For more information on Xcos, see the manuel that is dedicated to it.

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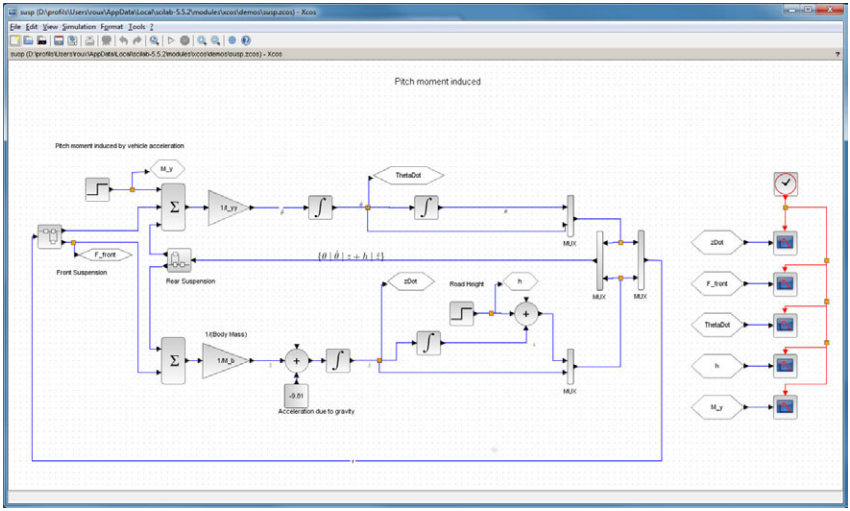
Figure 3.10 : Xcos diagram of a vehicle suspension



Various tool managers

Several managers have been added to Scilab since version 5: a history manager, a variable editor and a file browser. They are loaded by default the first time Scilab is launched (see Figure 2.1). You can also launch them from the console with the commands: `filebrowser`, `browsevar`, `editvar` and `browsehistory`.

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