

SCILAB

Glance and demonstration

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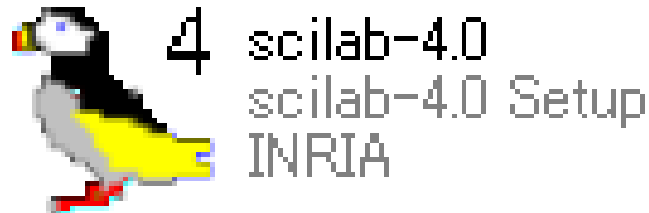
- Introduce main features
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Main features

- Free software
- <http://www.scilab.org/>
- For calculation numerical, programming, simulation and graphics environment.
- Base on MATRIX (like MATLAB)
- SCILAB can be run on UNIX, Linux, Windows(9X/2000/XP), etc.
- Latest version: SCILAB 4.0

How to install

- For the binary version, the minimum volume for running SCILAB is about 40 MB when decompressed.
- The simplest way to install and use SCILAB is download [scilab-4.0.exe](#), run and follow its steps.



How to use: Command lines

- enter a command line by typing after the prompt

```
-->a=1;

-->A=2;

-->a+A
ans =

    3.

-->>//Two commands on the same line

-->c=[1 2];b=1.5
b =

    1.5

-->w=rand(3,4)
w =

    0.7263507    0.2320748    0.8833888    0.9329616
    0.1985144    0.2312237    0.6525135    0.2146008
    0.5442573    0.2164633    0.3076091    0.312642

-->w($,$)
ans =

    0.312642

-->w($,:)
ans =

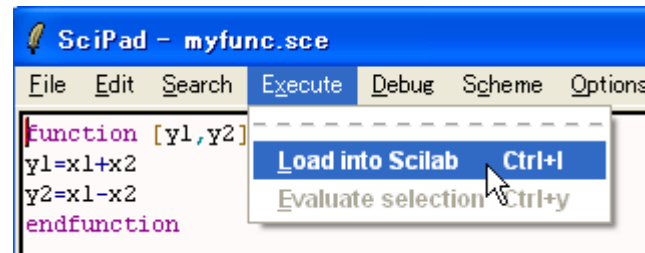
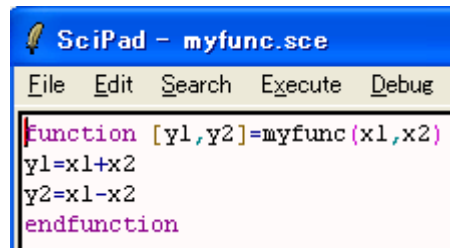
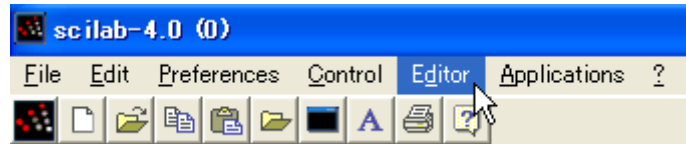
    0.5442573    0.2164633    0.3076091    0.312642
```

★Hints:

- Scilab is case-sensitive.
- // is not interpreted (it is a comment line)
- % is used in front of defined keywords (e.g. %e = 2.718)
- The \$ symbol stands for the last row or last column index of a matrix or vector.
- The colon symbol stands for “all rows” or “all columns”

How to use: Editor

- Programming: You can open SCIPAD to write your program



```
-->[a b]=myfunc(7,8);
```

```
-->[a b]  
ans =
```

```
15. - 1.
```

★ Hints:

- When save file, remember write filename + extension (*.sce , *.sci)
- .sce files are executed
- .sci files are loaded to be used when we need them

How to use: Scicos

- Scicos is a SCILAB toolbox, having function as Simulation tool.

The screenshot illustrates the Scicos software interface. The main window shows a menu bar with 'Applications' selected, leading to a 'Scicos' submenu. The 'Diagram' menu is open, showing 'Palettes' selected. A 'Choose a Palette' dialog box is open, listing various block categories like 'Sources', 'Sinks', 'Linear', etc. The main diagram area shows a 'sinusoid generator' block connected to a block with a sine wave icon. A 'Set Block properties' dialog box is open, showing simulation parameters such as 'Final integration time' (30) and 'Integrator absolute tolerance' (0.0001). The 'Simulate' menu is open, with 'Run' selected. A plot window shows a sine wave with a peak value of 1.2 and a period of approximately 1.5 units. The plot is labeled with the number '7'.

```
-->W=rand(3,4)
W =
```

Parameter	Value
Final integration time	30
Realtime scaling	0
Integrator absolute tolerance	0.0001
Integrator relative tolerance	0.000001
Tolerance on time	1.000D-10
max integration time interval	100001
solver 0([sodar]/100(dast))	0
maximum step size (0 means no limit)	0

Practice

- 0) Setup SCILAB in your computer and Try page 5 and 6.
- 1) Try the following command to make plot
 - -->Fs=1/16
 - -->n=0:Fs:10
 - -->x=cos(2*%pi*n)
 - -->plot2d(n,x)
- 2) Try the following command to make plot
 - -->Fs=1/16
 - -->n=0:Fs:8-Fs
 - -->zero=[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0]
 - -->one=[1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]
 - -->phi=%pi*[zero one zero one one one zero zero]
 - -->subplot(2,1,1)
 - -->plot2d(n,phi)
 - -->subplot(2,1,2)
 - -->x=cos(2*2*%pi*n+phi)
 - -->plot2d(n,x)