

SCILAB

Glance and demonstration

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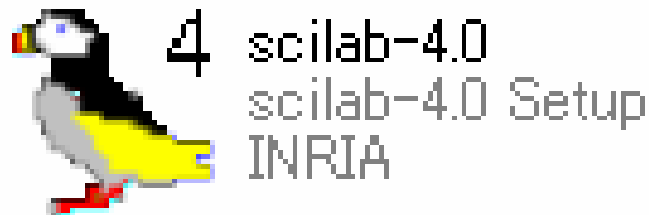
- Introduce main features
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Main features

- 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
```

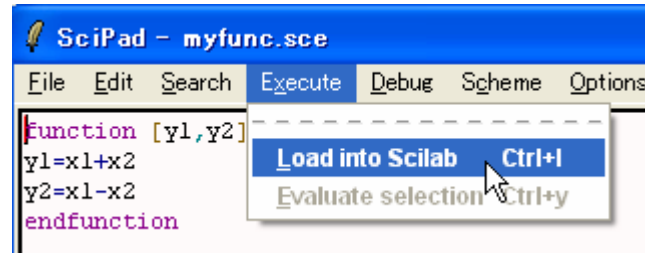
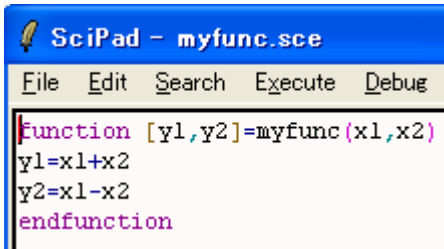
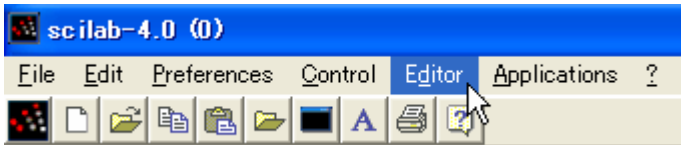
```
-->W($,:)  
ans =  
  
0.5442573 0.2164633 0.3076091 0.312642
```

★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 displays the Scicos interface within the Scilab 4.0 environment. The main window shows a simulation diagram with a 'sinusoid generator' block connected to a clock block, which in turn feeds into a simulation block. A plot window shows a sine wave with a period of 7 units. Several menu options and dialog boxes are visible:

- Applications Menu:** Scicos, EditGraph, m2sci, Browser Variables.
- Palettes Menu:** Context, Smart Move, Move, Copy, Copy Region, Replace, Align, Link, Delete, Delete Region, Add new block, Flip, Undo, Pal editor.
- Choose a Palette Dialog:** Sources, Sinks, Linear, Non_linear, Events, Threshold, Others, Branching, Electrical, ThermoHydraulics, OldBlocks, DemoBlocks.
- Set Block properties Dialog:** Parameters for the simulation block, including Final integration time (30), Realtime scaling (0), Integrator absolute tolerance (0.0001), Integrator relative tolerance (0.000001), Tolerance on time (1.0000-10), max integration time interval (100001), solver Q[bode]/100[deat] (0), and maximum step size (0 means no limit).
- Simulate Menu:** Setup, Compile, Eval, Debug Level, Run.

HW 4

- 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)