Scilab GTK 4.0 in Windows XP + CYGWIN

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Motivation

Almost all the new PC arrives with a Windows XP pre installed. The Windows platform is not suitable for real time embedded systems software development because Windows XP is not a real time OS and, also accepting its performances limitations, the minimum hardware requirement is too high for the medium and small size embedded systems.

Windows can be used as cross development platform using open source free tools. Run a full Linux installation inside Windows is possible using modern virtualization tools as VMware or QEMU, but the speed performances are low and this kind of development environment are more complicated to handle than a plain, native Linux installation.

CYGWIN is a valid, open source, alternative that limit the resources requirements running all the usual open source applications, text based and X11 (Gnome and KDE) graphical applications, inside Windows.
Unfortunately CYGWIN has not yet reach the maturity of the modern Linux distributions. The basic installation is easy, but if you need some additional package you can find some difficulties. I written this short how-to to avoid the waste of time: live is too short.

This short how-to explain step-by-step the set-up of a complete CYGWIN installation able to run Scilab GTK 4.0 and the internal Scicos dynamical systems simulator. Scicos can be used as automatic code generation tool for real time embedded systems. Cross compilation is possible with GCC-specific_target versions.

Introduction

I assume a Windows XP / Service Pack 2 up-to-date clean installation in "C:\".
You will need also an active Internet connection. For a full installation the average download is in the order of 700Mbyte, then you need a quite good connection and a modest dose of patience.

CYGWIN Installation

The Cygwin "setup" programs is intelligent enough to find automatically all the basic CYGWIN installation repositories. After the basic installation you may need additional packages available in other repositories that CANNOT be used for the basic installation because does NOT contains the basic packages. In other words there are two kind of repositories:
1) the basic installation, find automatically by the "setup" program
2) the additional packages repositories
For this reason, I installed CYGWIN in ***two steps***.

First Step

Create an empty folder "C:\cygwinfiles". From " http://www.cygwin.com/" download "http://www.cygwin.com/setup.exe" in "C:\cygwinfiles".

I suggest to create a short-cut on the desktop because you will use this software many times.

Run it.

Accept all the default settings.

If you have special Internet connection, choose alternative parameters in the relative window. "Setup" will ping Internet and will show a list of "basic installation" repositories.
I choose "ftp://bo.mirror.garr.it" (GARR, Bologna, Italy) because is the fastest CYGWIN Italian repository. The installation window show a selection three that you can expand/contract; Basically you can do a selective, package by package installation.

I opted for a FULL installation of ALL the packages available in this repository clicking over the the top of the three until "Install" appear. It is a quite big overkill but I'm not able to specify every packages. It is a 650 megabytes download.

At the end of download "setup" will unpack and install all the packages automatically.

Test the basic installation launching Cygwin with a double click over the relative icon; inside the terminal launch some Unix commands.
To test the X11 server, run "*startx*": a brand new "xterminal" window will open and a big "X" applet icon will appear in the Windows tool-bar in the bottom right of the screen.

If these tests work, pass to the next step.

Download scilab GTK 4.0 from
"http://cermics.enpc.fr/~jpc/scilab/site/Scilab-Gtk/Scilab-Gtk/scilab-gtk-4.0.tar.gz"
in "C:"

Launch cygwin; in the terminal change directory to "/usr/local"

cd /usr/local

run the command

tar xzvf /cygdrive/c/scilab-gtk-4.0.tar.tar

CYGWIN "mount" (map) the Windows "C:\" drives in "*/cygdrive/c/"*: it is a way to copy files between the two environment.For reason beyond our knowledge, Windows change names/extensions of the tar files after the download.
The last command create a scilab-gtk-4.0 directory and unpack all the files there; go to this directory with

cd scilab-gtk-4.0

and run

./configure

Unfortunately the Italian repository does not contains ALL the packages required by Scilab GTK:

configure does not end properly because is not able to find the "*vte*" package.

Beware: Different repository contains different, potentially incompatible build. If you are able to find ALL the package from a single repository, it is really a better solution.
After the main installation, launch the scilab GTK "*./configure*" and take note of the files/packages not yet presents, then switch to "ftp://sunsite.dk".

Second Step
Run "setup". When ask "Choose A Dowload Site" (repository selection) put inside "User URL" "ftp://sunsite.dk", then click over the "Add" button. In the "select Packages" window expand the "Gnome" package group; inside the "Gnome" package group select ALL the packages called "vte-xxxx": select both binary AND source. Finalize the installation.

Scilab GTK
Launch cygwin terminal; launch X with the command

startx

this command will open a new "xterminal" window more handy than the basic cygwin bash terminal because you can use the usual selection (mouse), copy (control-c), paste (control-v) Window commands between applications.
Scilab needs X too to start: go to the Scilab GTK source directory

cd /usr/local/scilab-gtk-4.0

launch

./configure --without-java --without-pvm

then compile Scilab with

make all

Before run Scilab you need to create a new directory

mkdir /share

and create two symbolic links with

ln -s /usr/share/tcl8.4 /share/tcl8.4

and

ln -s /usr/share/tk8.4 /share/tk8.4

Finally, you can run scilab with

bin/scilab

Notes:

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            ScilabGTK-4.0

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            (INRIA, ENPC)
ScilabGtk is based on Scilab BUILD4 svn branch (post 4.0) with a Gtk2 Gui.
This version is not supported by the Scilab Consortium development team.
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Startup execution:
  loading initial environment

 No right to write in /home/Simone Mannori

-->
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Know Issues

1) The " No right to write in /home/Simone Mannori" is not yet fixed.

Many Many Many Thanks To:

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and all the People of the "*Evil*" **Scilab Consortium**