

Running X11 programs on the Suns, displaying them on your PC

To do this you need two pieces of software:

- (1) an **x server** running on your PC, and
- (2) a **secure shell** for making a network connection to a UNIX host.

There's a variety of software that can be used, for example:

Cygwin/X + Cygwin/openssh
Cygwin/X + PuTTY ssh
WinaXe + PuTTY ssh

The approach described here uses freely available **cygwin** software. Cygwin has many other tools and utilities, but we only need the X server and the secure shell. Note that these directions apply only to a PC – you're on your own if you have a Mac!

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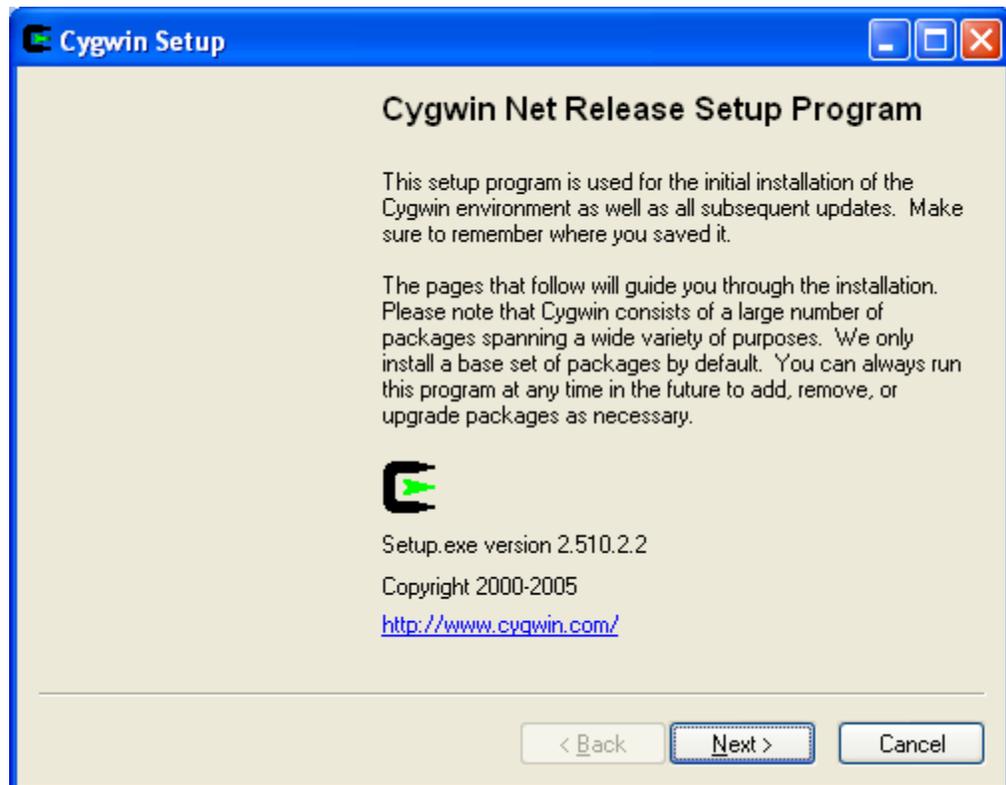
1. Install software:

1a. Create the folders:

`C:\cygwin`
`C:\cygwin\install`

1b. Download <http://cygwin.com/setup.exe> to `C:\cygwin`

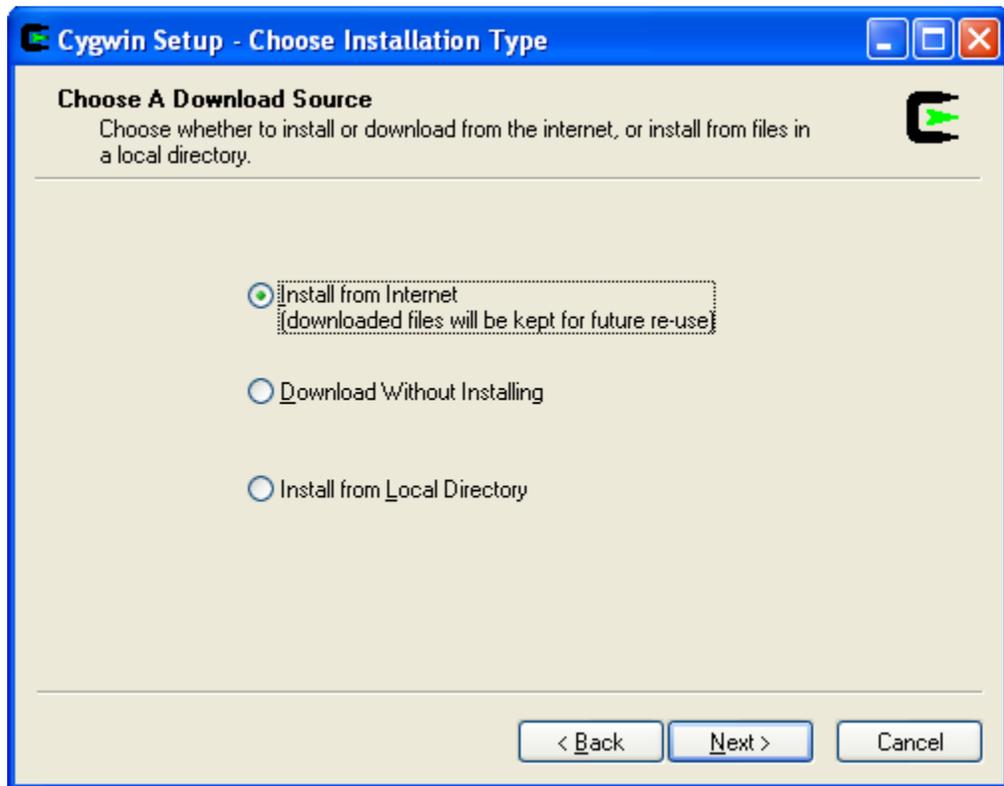
1c. Run the Cygwin setup program: `C:\cygwin\setup.exe`



Select **Next >** ...

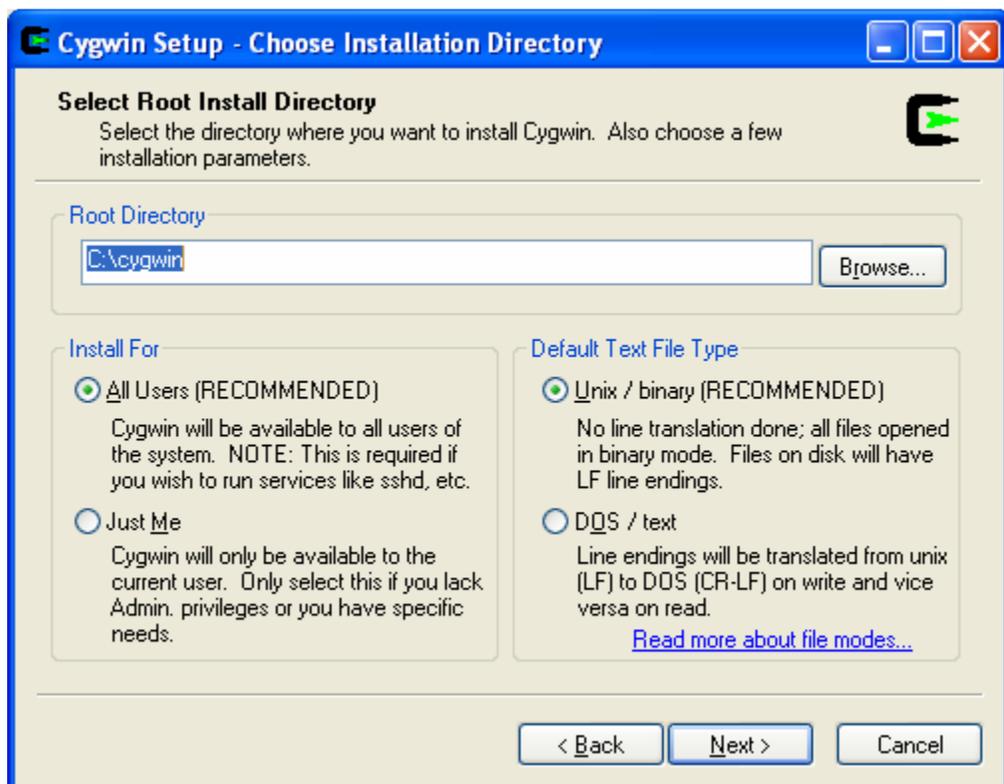
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Select **Install from Internet**



Select **Next >** ...

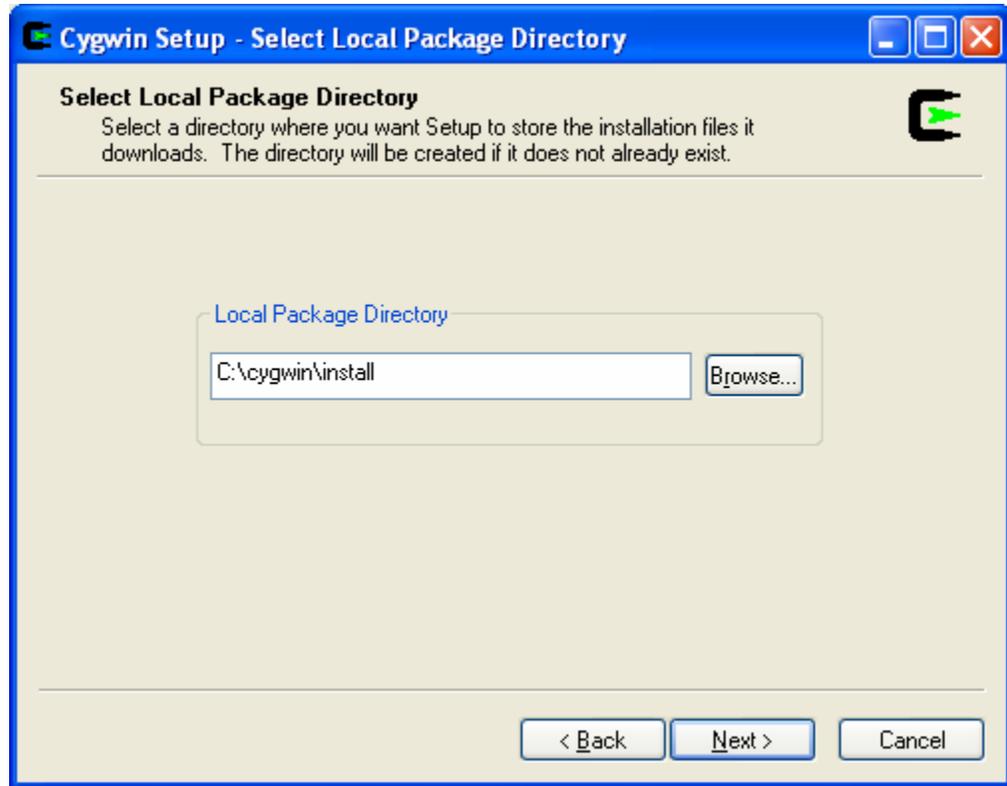
Ensure `c:\cygwin` is the **Root Directory**, select **All Users**, **Unix ...**



Select **Next >** ...

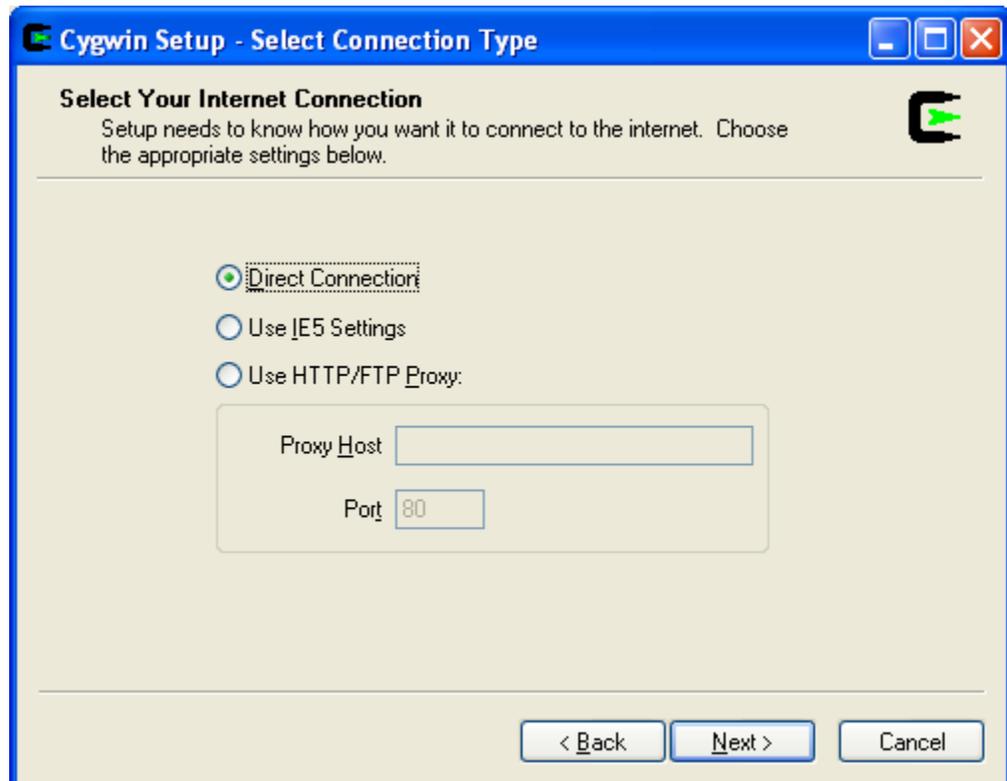
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Enter **C:\cygwin\install** as the **Local Package Directory**



Select **Next > ...**

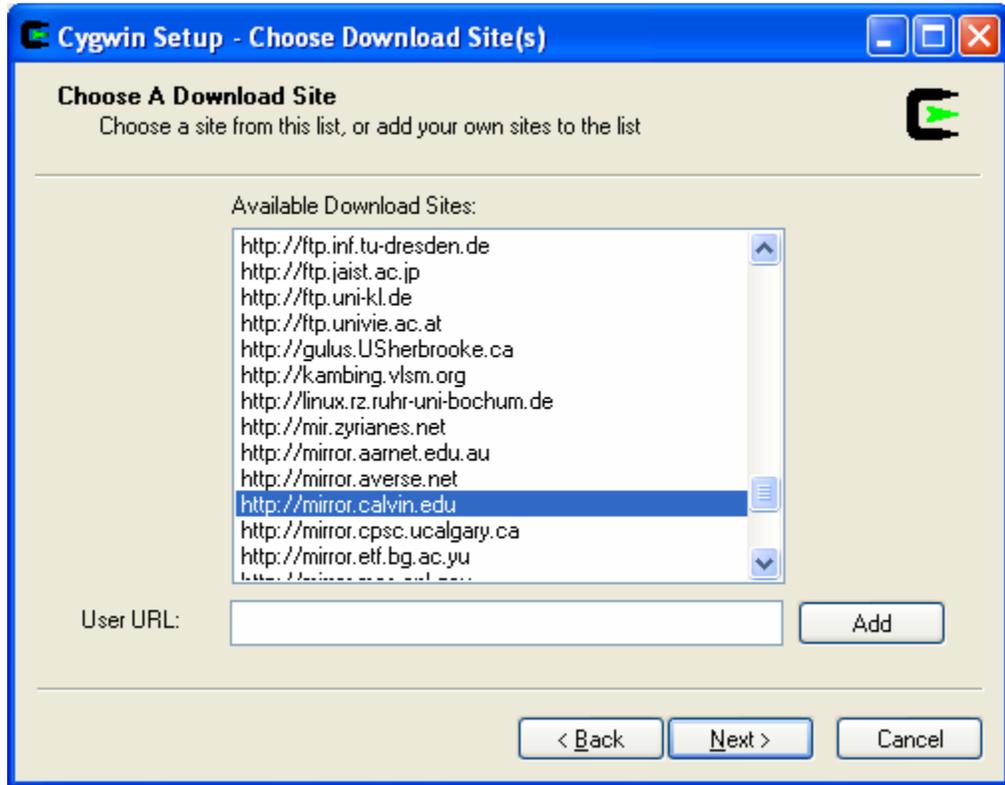
Select **Direct Connection**



Select **Next > ...**

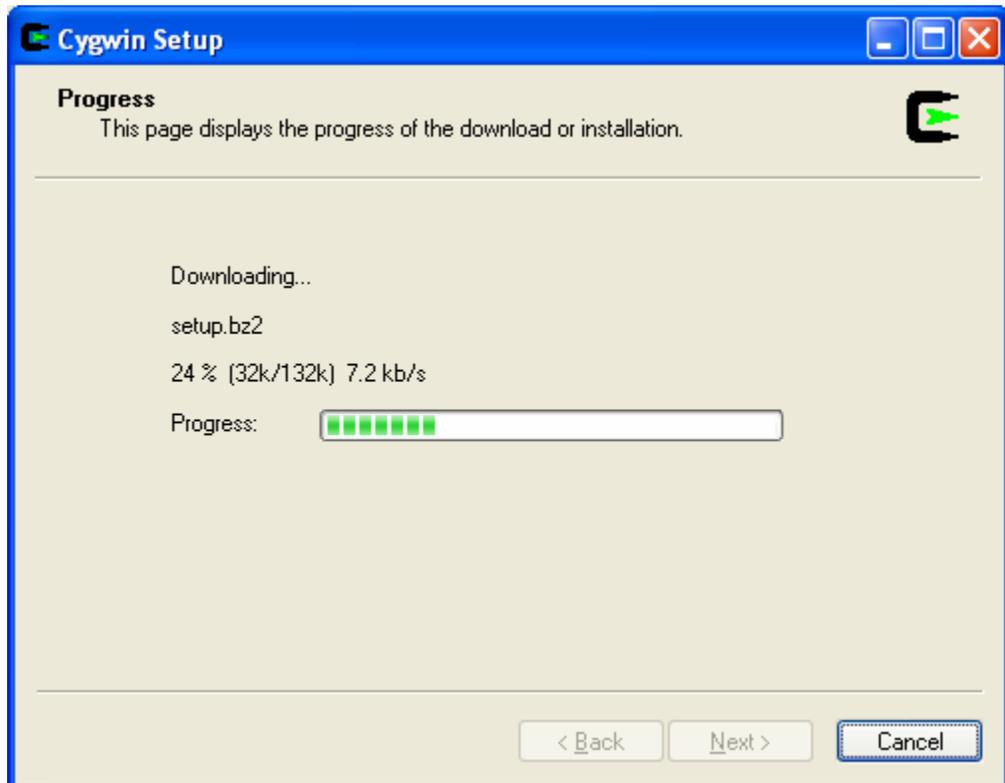
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Highlight a download site:



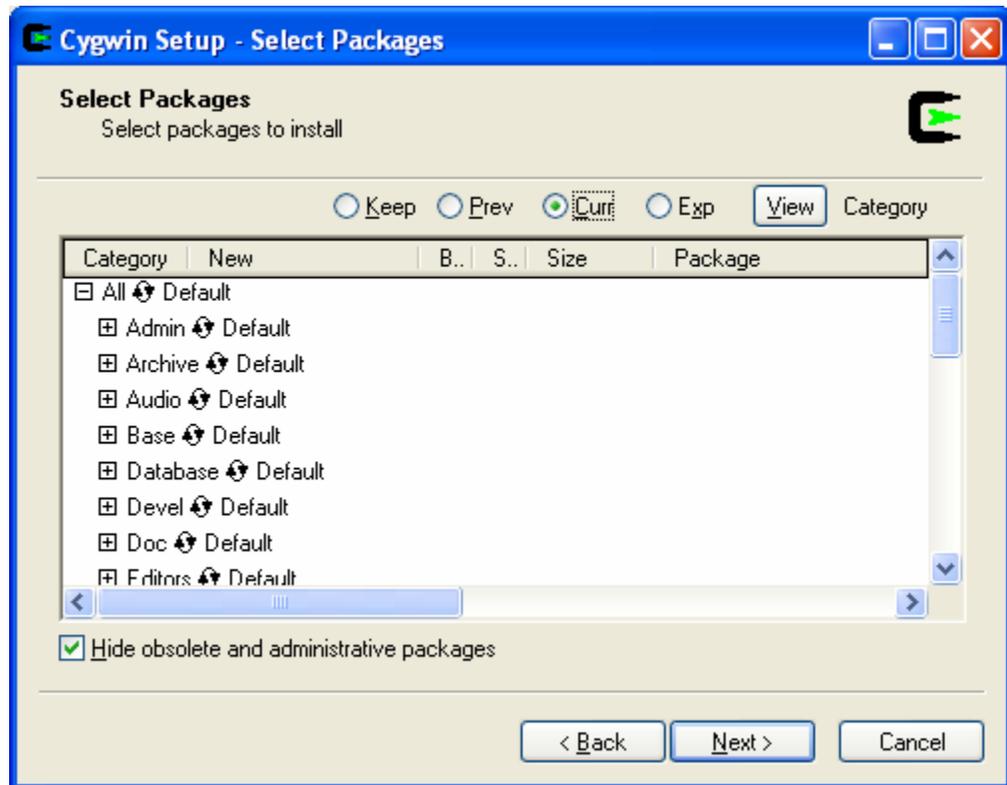
Select **Next >** ...

Setup will begin downloading ...



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Select **Curr**



Select these packages:

X11 Default

6.8.99.901-1 2k xorg-x11-base:

Net Default

4.5p1-1 515k openssh:

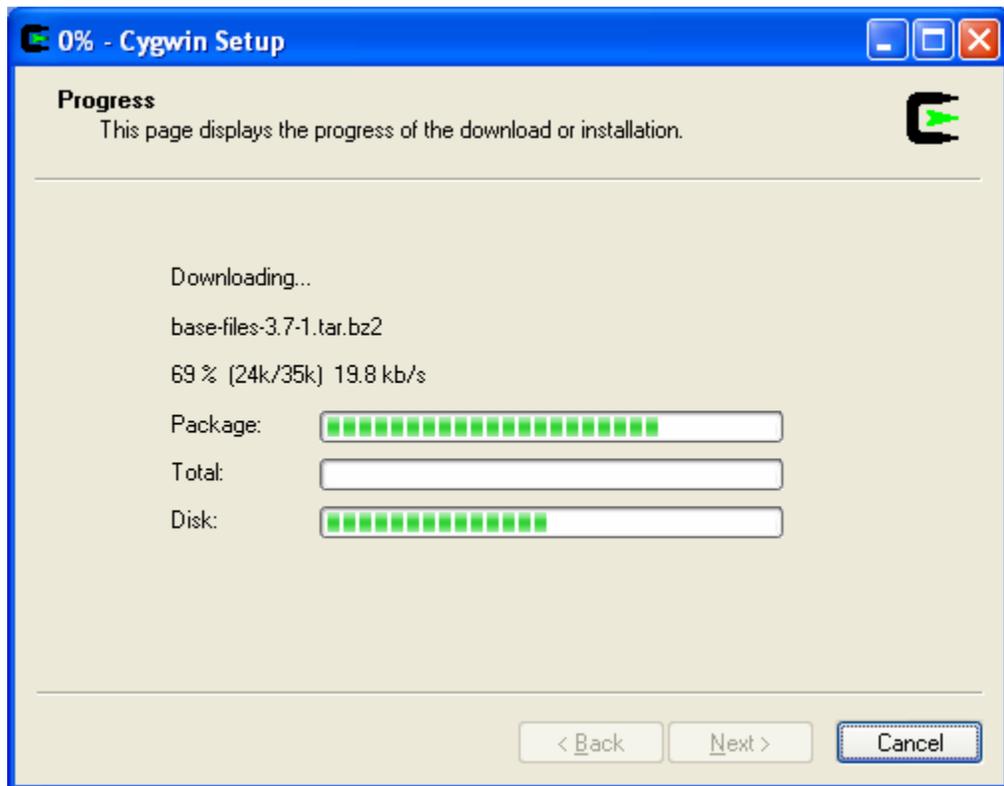
Note: the numbers above refer to the package revision. The current package at the time of your installation may be different (newer) than these.

See step 3 right now for two more packages you may wish to conveniently download at this point.

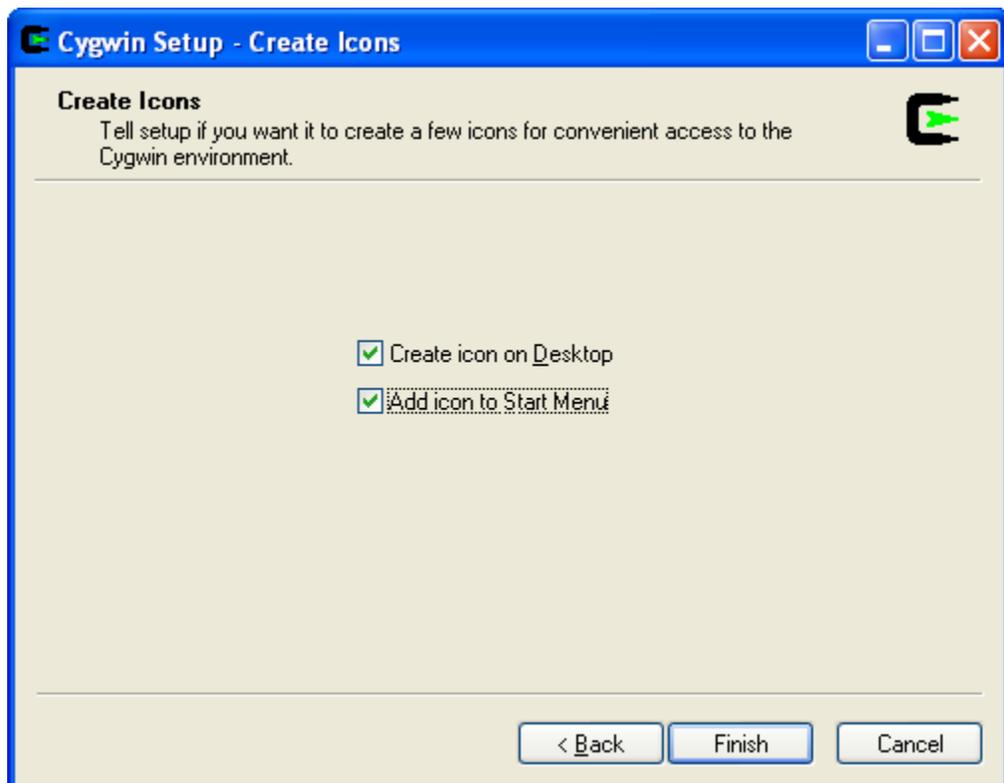
... then select **Next >** ...

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The selected packages and any required support packages will be downloaded (this will take some time), then they will be installed ...



Select both checkboxes:



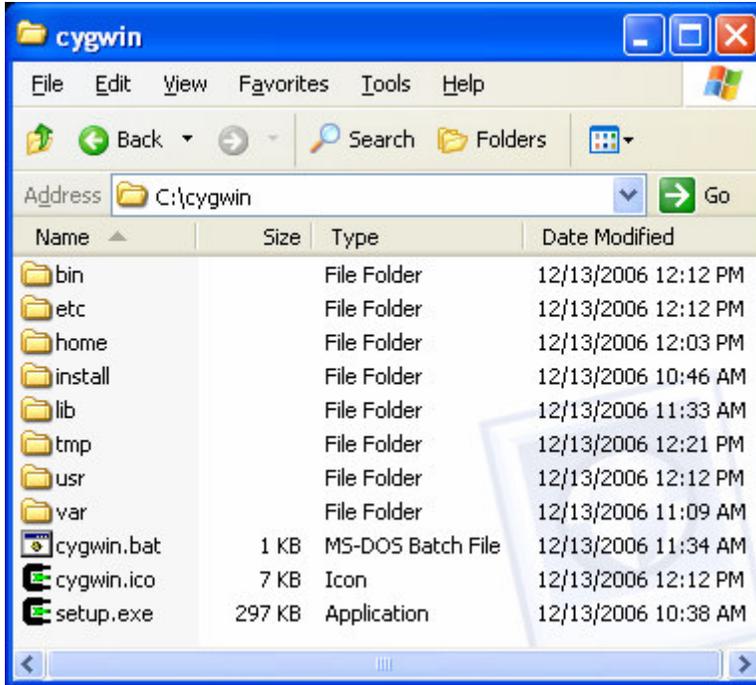
Select **Finish** > ...

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The Cygwin installation is done. Select **OK** ...



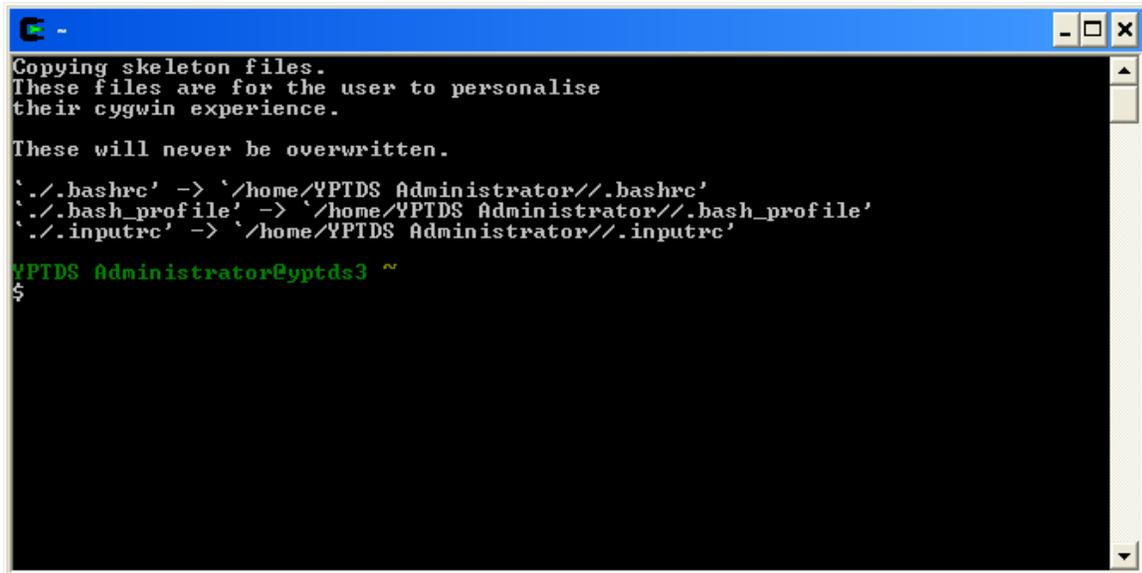
The `c:\cygwin` folder will look like this:



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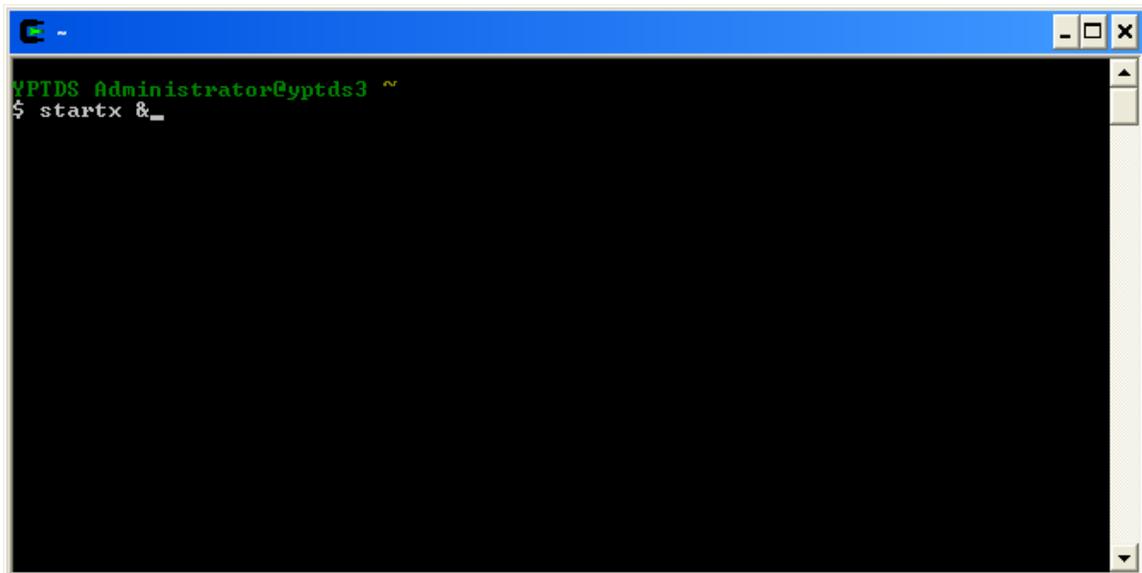
2. To run programs on a Sun and display on your PC:

2a. Double-click on `cygwin.bat`, or the Cygwin icon on the desktop:
The first time you do this, some resource files will be created. You will be presented with a BASH shell window:

A screenshot of a Cygwin terminal window. The window has a blue title bar with a Cygwin icon and standard window controls. The terminal text is as follows:

```
C -  
Copying skeleton files.  
These files are for the user to personalise  
their cygwin experience.  
  
These will never be overwritten.  
  
'./bashrc' -> '/home/YPTDS Administrator/./bashrc'  
'./bash_profile' -> '/home/YPTDS Administrator/./bash_profile'  
'./inputrc' -> '/home/YPTDS Administrator/./inputrc'  
  
YPTDS Administrator@yptds3 ~  
$
```

2b. Start the `x server` on your PC. At the BASH prompt (`$`): `startx` ↵

A screenshot of a Cygwin terminal window. The window has a blue title bar with a Cygwin icon and standard window controls. The terminal text is as follows:

```
C -  
  
YPTDS Administrator@yptds3 ~  
$ startx &_
```

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An `xterm` window will open:



2c. Choose a CS Department UNIX Lab host you wish to connect to (hosts are listed on this web page: <http://www.cs.usna.edu/Restricted/ip.html>) ... for example, the host named `dot.cs.usna.edu` in Michelson 201. At the BASH prompt (`$`), login using `ssh` to that host, with `x11 forwarding` to your PC's display. Use your login name and the hostname you chose:

```
DISPLAY=localhost:0.0 ssh -l stahl -X dot.cs.usna.edu
```



Type **yes** to save the RSA key locally, and continue (enter your password) ...

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The usual login information appears:

```
X -
Password:
Last login: Wed Dec 13 13:11:07 2006 from netscaler2.usna
##### WARNING ** CAUTION ** WARNING ** CAUTION ** WARNING ** CAUTION #####
#
# THIS IS A DEPARTMENT OF DEFENSE COMPUTER SYSTEM. THIS COMPUTER SYSTEM, #
# INCLUDING ALL RELATED EQUIPMENT, NETWORKS AND NETWORK DEVICES #
# (SPECIFICALLY INCLUDING INTERNET ACCESS), ARE PROVIDED ONLY FOR AUTHORIZED #
# U.S. GOVERNMENT USE. DOD COMPUTER SYSTEMS MAY BE MONITORED FOR ALL LAWFUL #
# PURPOSES, INCLUDING TO ENSURE THAT THEIR USE IS AUTHORIZED, FOR MANAGEMENT #
# OF THE SYSTEM, TO FACILITATE PROTECTION AGAINST UNAUTHORIZED ACCESS, AND #
# TO VERIFY SECURITY PROCEDURES, SURVIVABILITY AND OPERATIONAL SECURITY. #
# MONITORING INCLUDES ACTIVE ATTACKS BY AUTHORIZED DOD ENTITIES TO TEST #
# OR VERIFY THE SECURITY OF THIS SYSTEM. DURING MONITORING, INFORMATION MAY #
# BE EXAMINED, RECORDED, COPIED AND USED FOR AUTHORIZED PURPOSES. ALL #
# INFORMATION, INCLUDING PERSONAL INFORMATION, PLACED ON OR SENT OVER THIS #
# SYSTEM MAY BE MONITORED. USE OF THIS DOD COMPUTER SYSTEM, AUTHORIZED OR #
# UNAUTHORIZED, CONSTITUTES CONSENT TO MONITORING OF THIS SYSTEM. #
# UNAUTHORIZED USE MAY SUBJECT YOU TO CRIMINAL PROSECUTION. EVIDENCE OF #
# UNAUTHORIZED USE COLLECTED DURING MONITORING MAY BE USED FOR #
# ADMINISTRATIVE, CRIMINAL OR ADVERSE ACTION. USE OF THIS SYSTEM #
# CONSTITUTES CONSENT TO MONITORING FOR THESE PURPOSES AND AGREEMENT #
# TO ABIDE BY ALL ESTABLISHED USNA POLICIES. #
#
##### WARNING ** CAUTION ** WARNING ** CAUTION ** WARNING ** CAUTION #####

***** CS/IT DEPARTMENT UNIX COMPUTING POLICY *****

The Computer Science Department UNIX computer system is reserved solely for
support of the Computer Science (CS) and Information Technology (IT)
curriculum. No one is authorized at any time to use the UNIX computers for
activities such as the following:

- downloading or storing anything not related to the CS/IT curriculum
- downloading or storing software not meant to run on the Solaris OS
- downloading or storing any BETA versions of software
- downloading or running DES, rootkits or password cracking programs
- anything in violation of the USNA Honor Concept or USNA policy
- Contests-type programs
- BOINC (formerly setiathome)

If there is a need, due to CS/IT curriculum requirements, to waive any of the
above restrictions, users must submit in writing (hardcopy or e-mail) to the
UNIX systems administrator (cshelp@cs.usna.edu), their request along with a
reason for requesting a waiver. The request will be evaluated by the
Computer Science Department and a reply sent back on an individual basis.
A waiver is not required if the CS/IT instructor has included any of the
restricted activities above as part of the course curriculum.

Thank you for your cooperation.

***** CS/IT DEPARTMENT UNIX COMPUTING POLICY *****

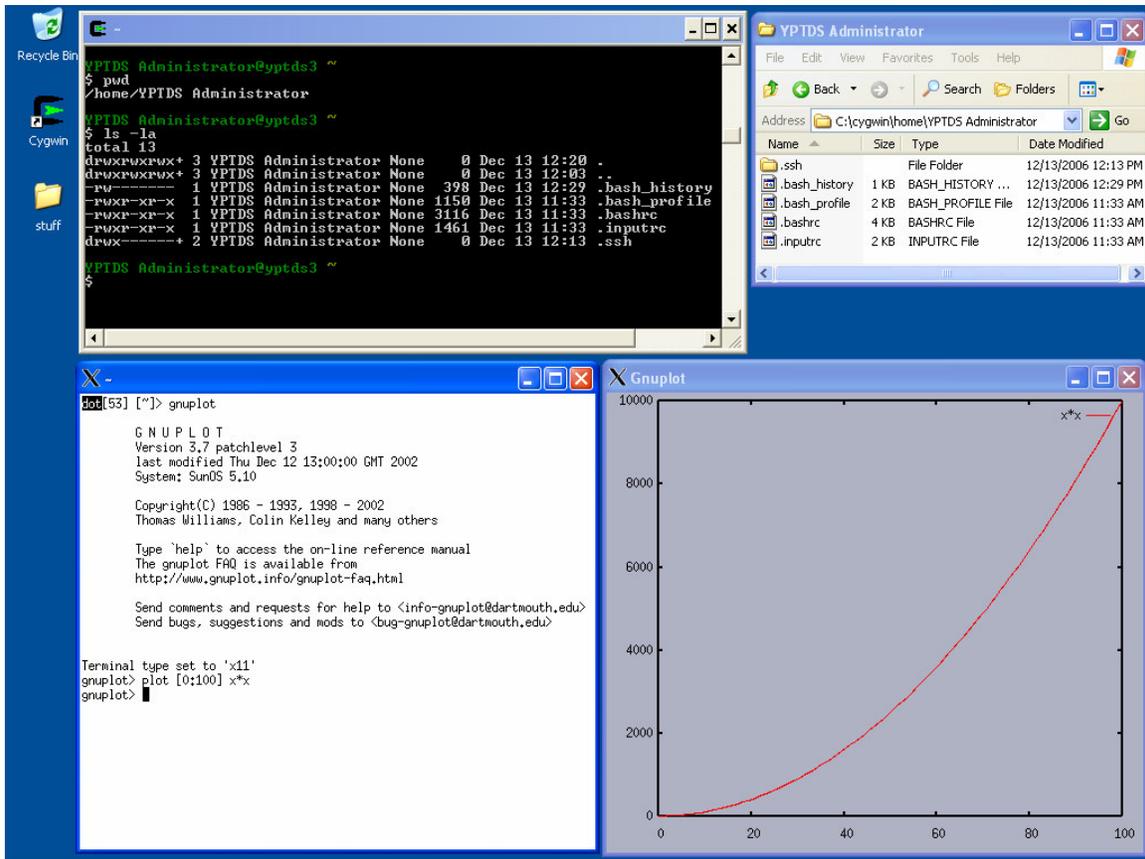
LD_LIBRARY_PATH not set
dot[51] [~]>
```

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2d. You can now run programs on the remote Sun host, and display them on your local PC:

The BASH shell window at the upper left is running on the PC.
`pwd` shows the current directory. `ls -la` shows the contents of the directory.
The XP window at the upper right shows this same directory.

The `xterm` window on the lower left is running on the PC. We have logged in to a Sun and have run `gnuplot` on the Sun, displaying its output on the PC.



3. Other programs ...

You might consider using `C:\cygwin\setup.exe` to download and install:

Editors:

Xemacs:

21.4.19-3

2005-12-08-01

6557k

23,631k

xemacs

xeacs-sumo