

Connecting to the Unix Machines from your Windows PC in the Hall (Running X11-based programs on the Suns from your PC)

In order to connect to and run a Unix application on one of our Sun machines in the lab, and have the application display on your Windows PC in the hall, you need an **x server** running on your PC as well as a secure means of connecting to the Sun machine. One approach is to download and use the freely available **Cygwin** software which has an X server as well as an **ssh** client.

Cygwin has many other tools and utilities, but these (**x server** and **ssh**) are the only two software packages needed to have an X11 program running on one of the Sun machines and having it display on your PC.

The remainder of this document will walk you through installing **Cygwin** and running Netbeans on a Sun machine from your room.

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

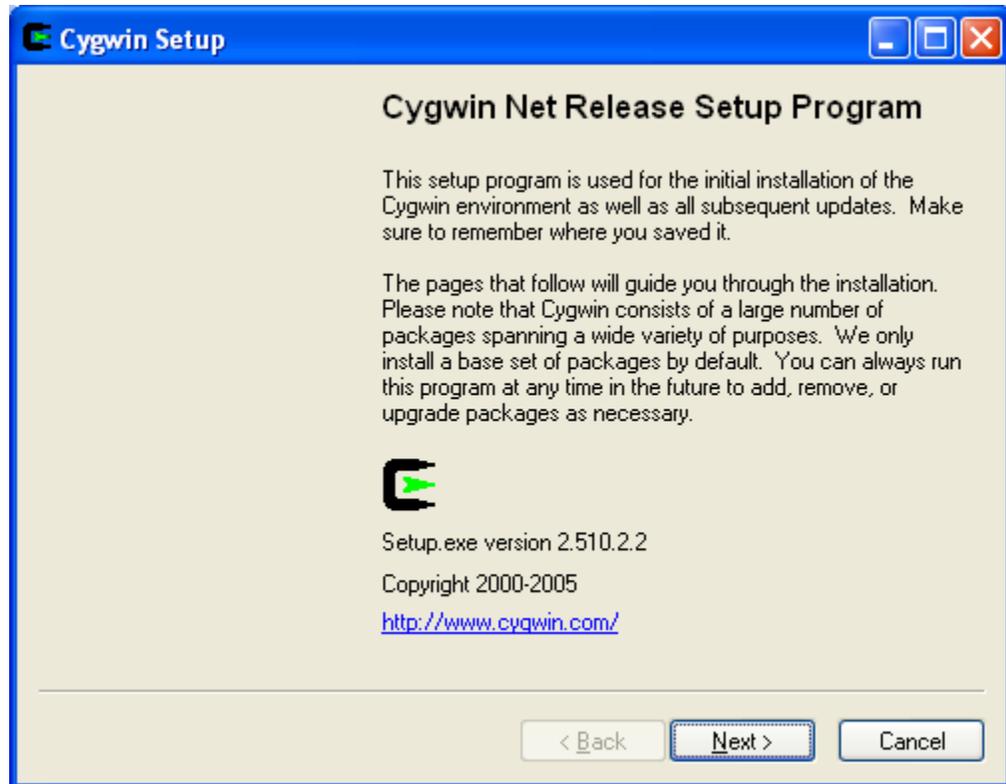
1. Install software:

1a. Create the folders:

C:\cygwin
C:\cygwin\install

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

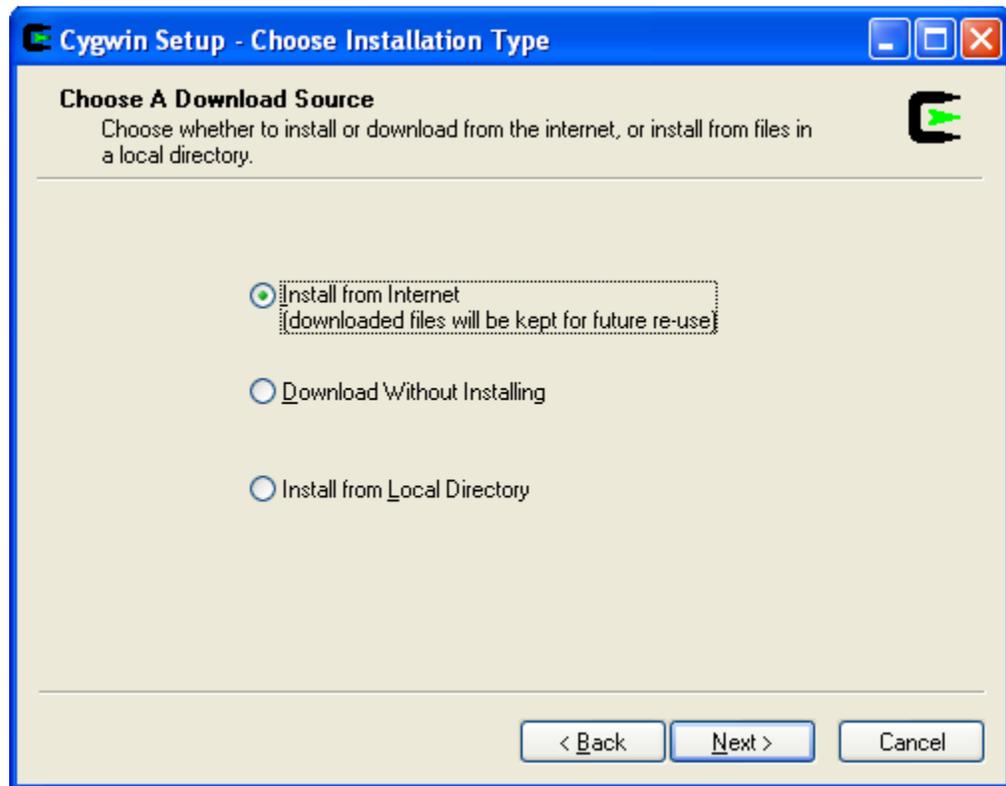
1c. Run the Cygwin setup program: C:\cygwin\setup.exe



Select **Next >** ...

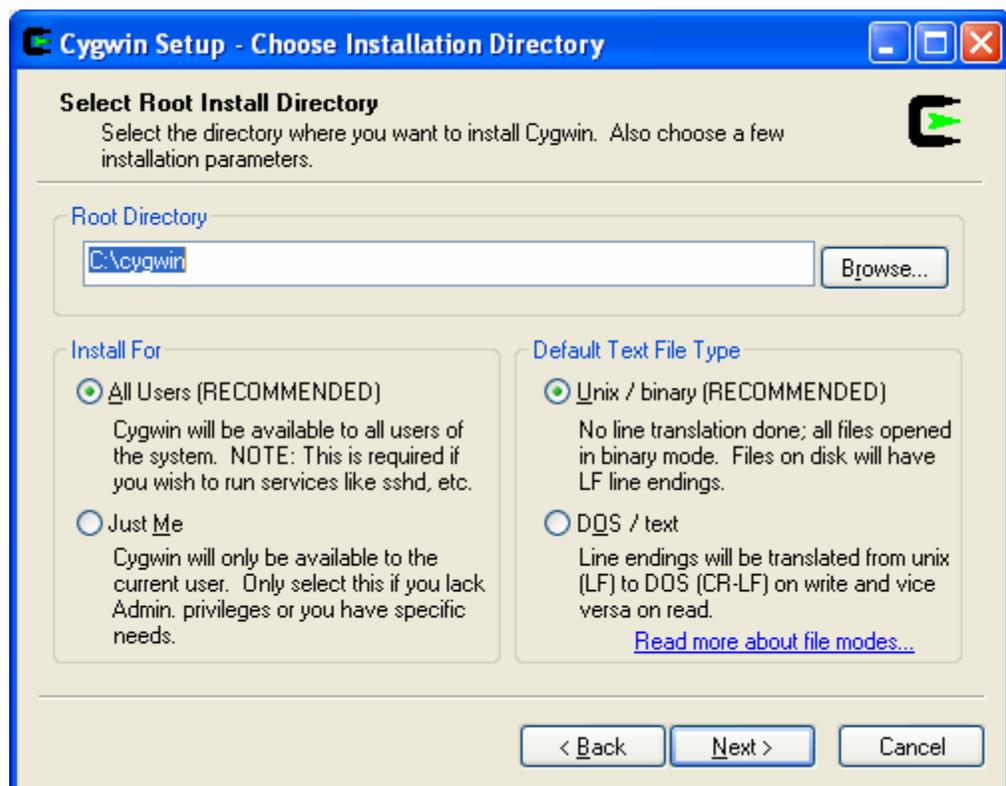
Running X11 programs on the Suns, displaying them on your PC

Select **Install from Internet**



Select **Next >** ...

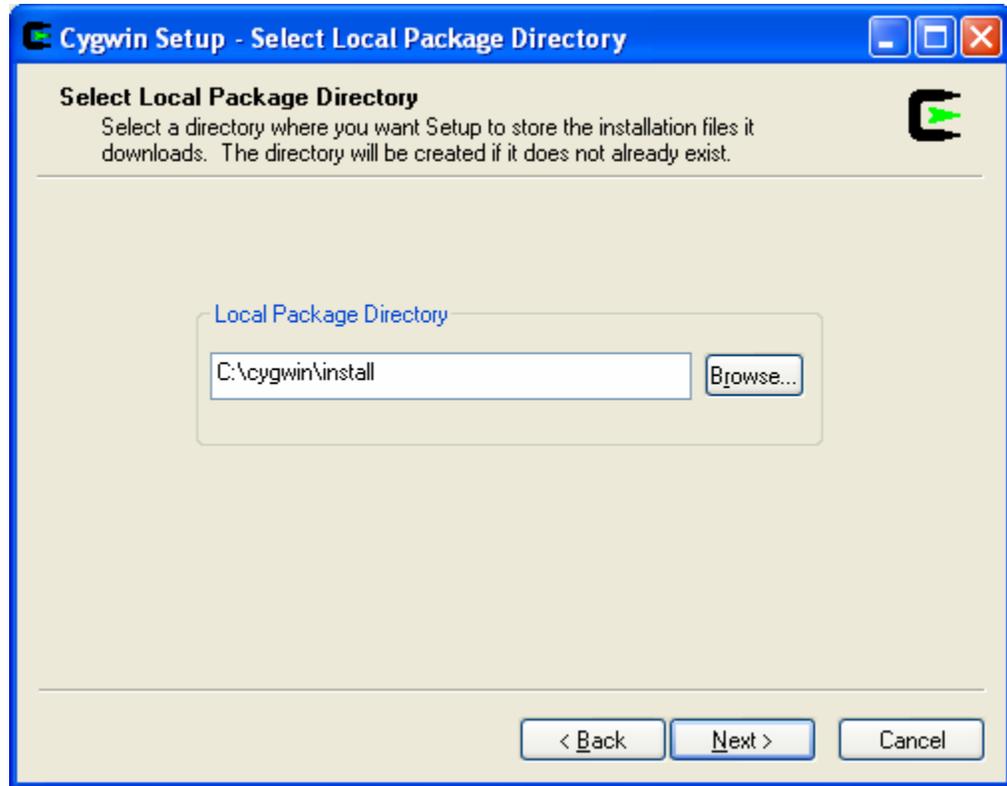
Select **All Users**, **Unix**



Select **Next >** ...

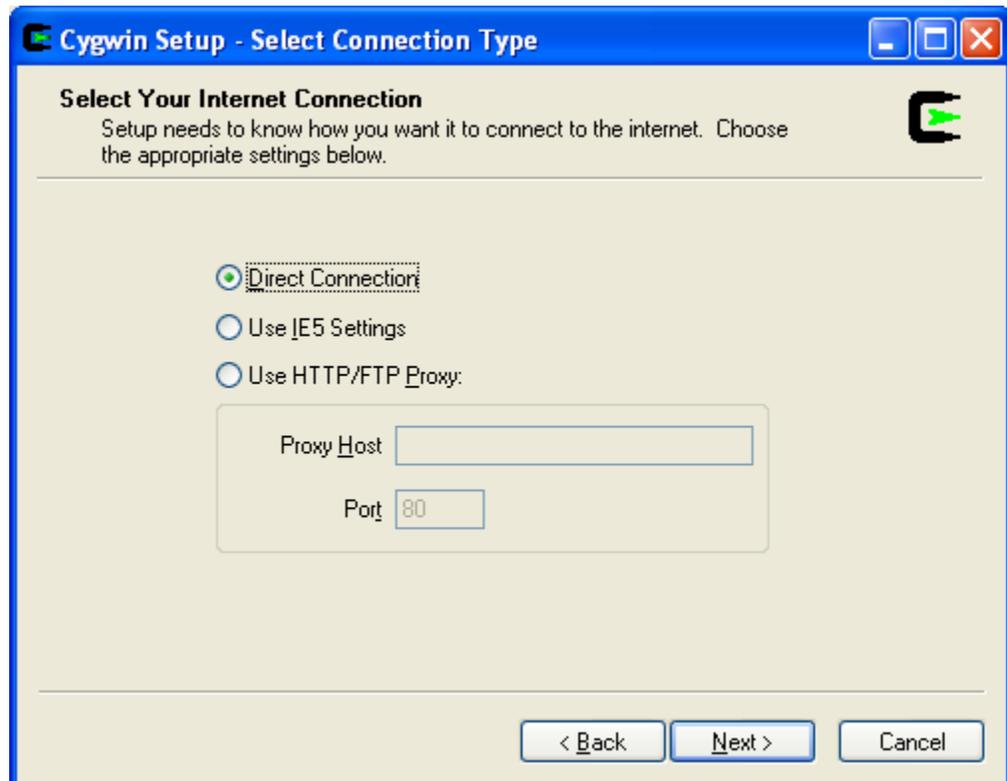
Running X11 programs on the Suns, displaying them on your PC

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



Select **Next > ...**

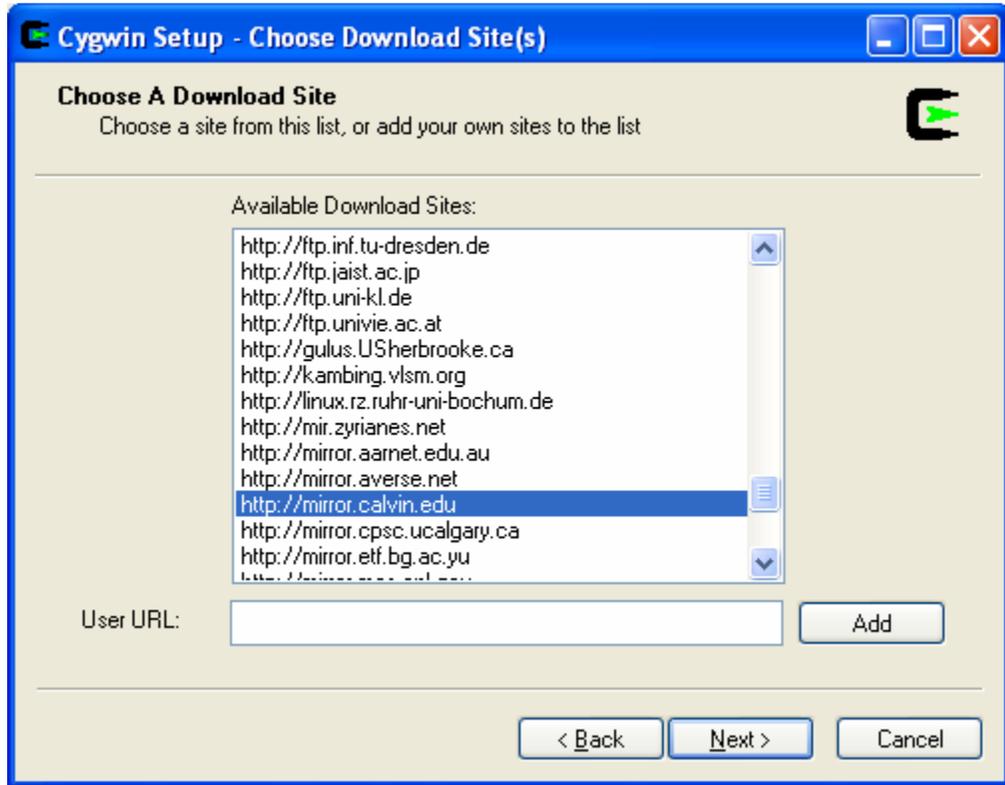
Select **Direct Connection**



Select **Next > ...**

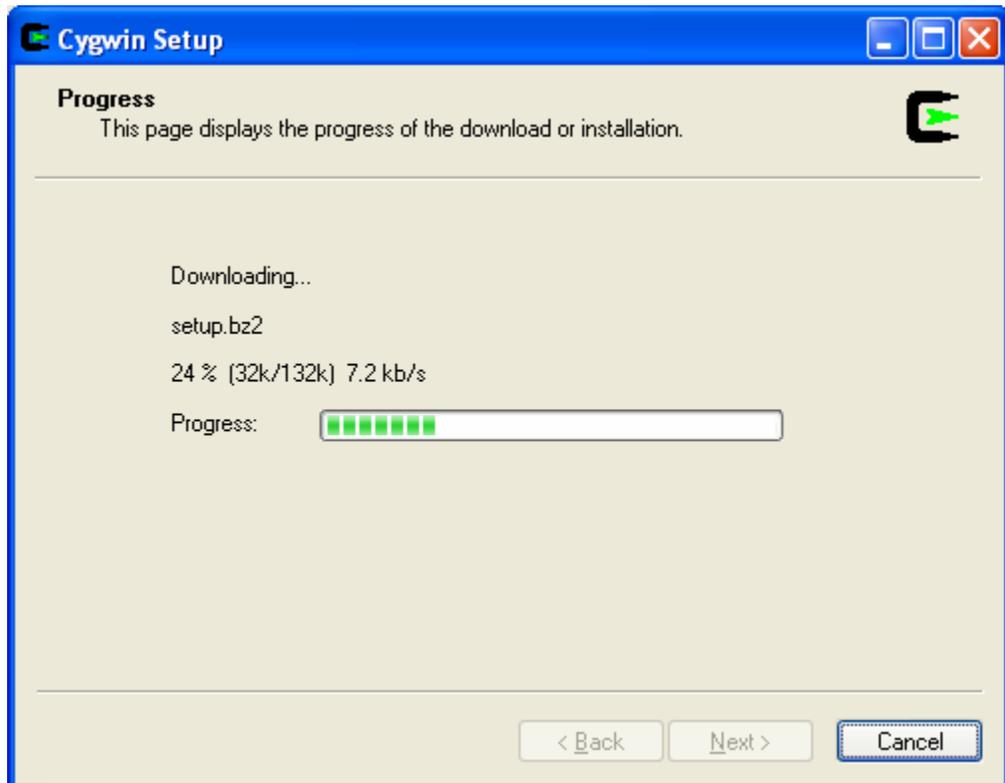
Running X11 programs on the Suns, displaying them on your PC

Highlight a download site:



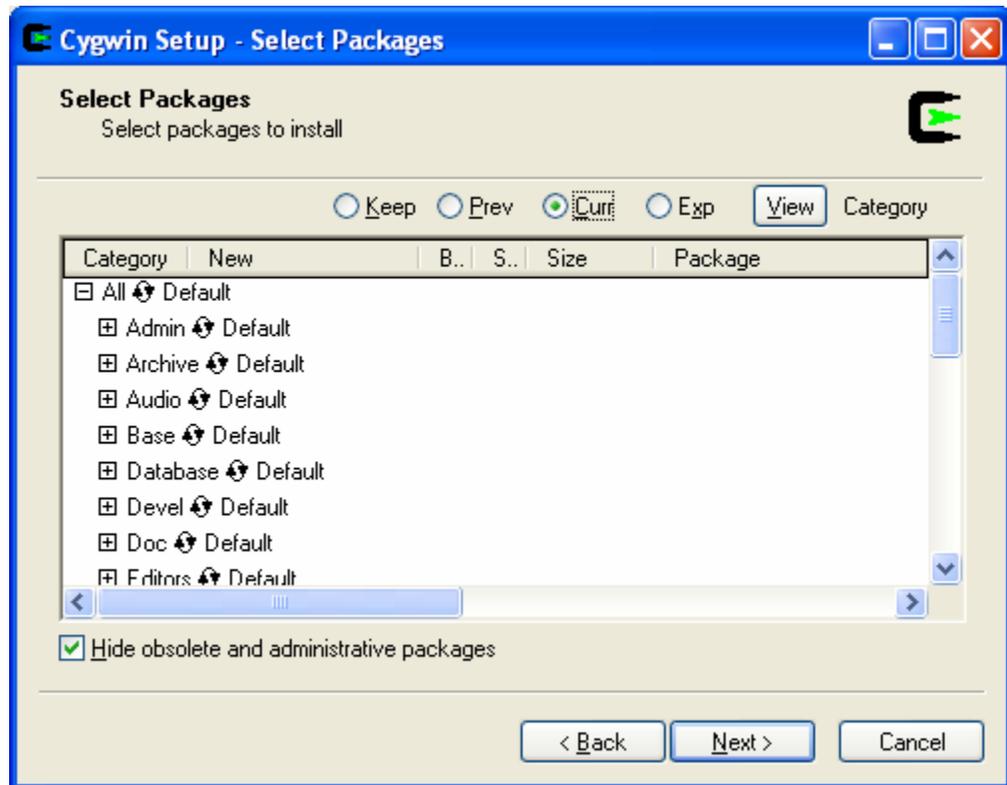
Select **Next >** ...

Setup will begin downloading ...



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

Select **Curr**



Select these packages:

X11 Default

6.8.99.901-1 2k xorg-x11-base:

Net Default

4.5p1-1 515k openssh:

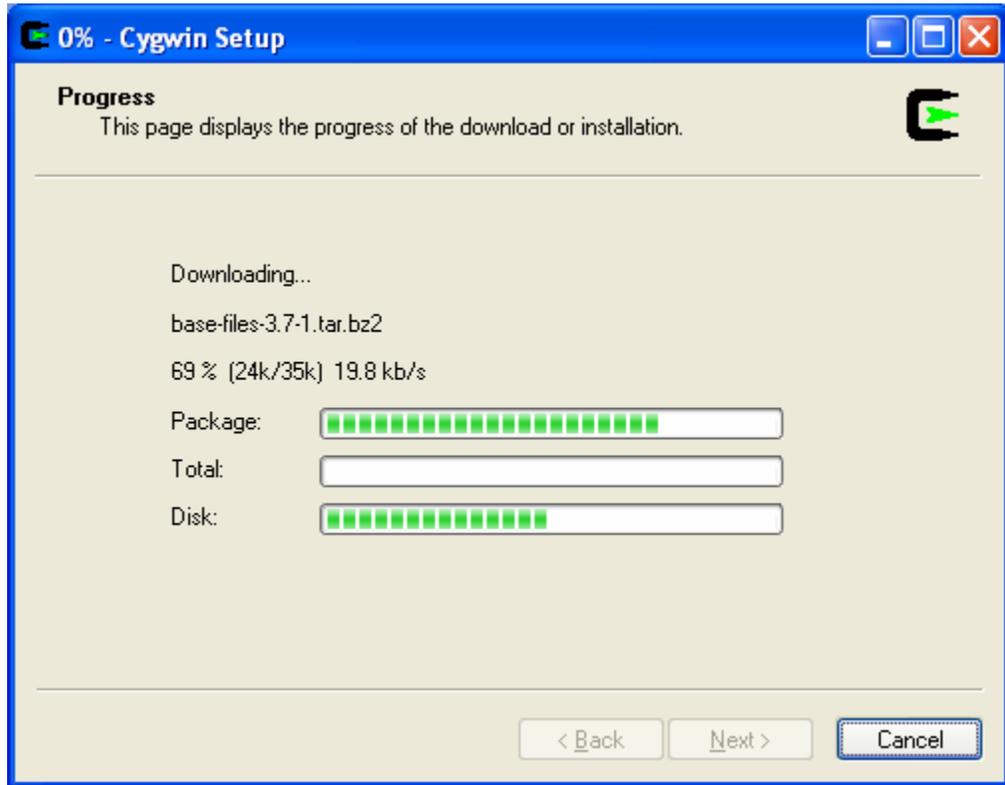
Editors Default

21.4.20-2 6526k xemacs
 2005-12-08-01 23,631k xemacs-sumo

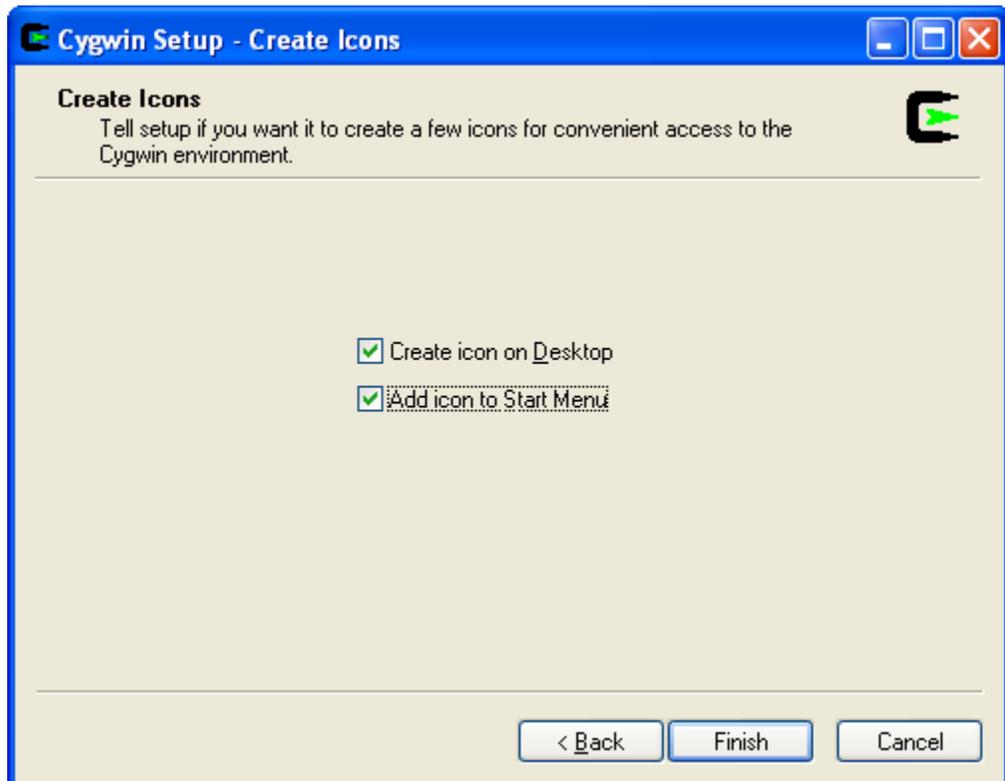
... then select **Next >** ...

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

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



Select both checkboxes:



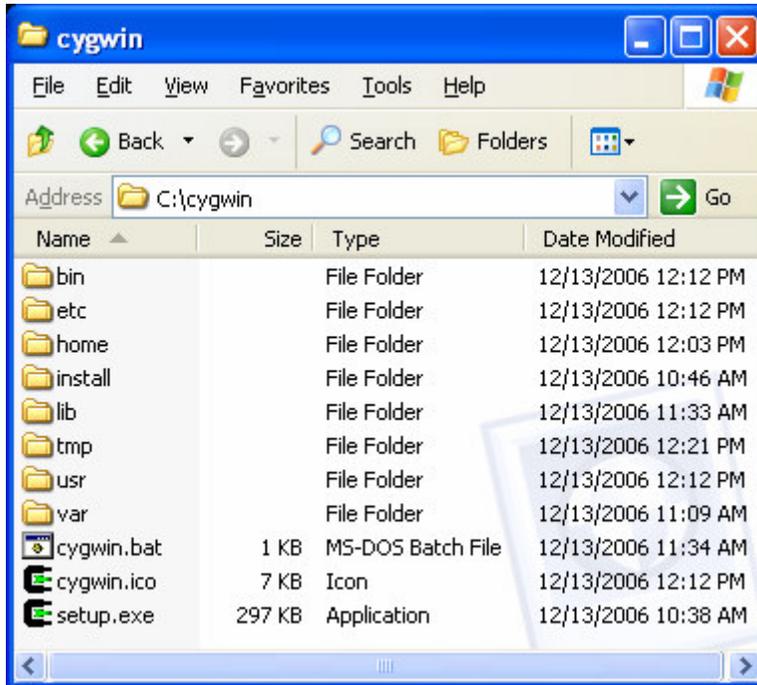
Running X11 programs on the Suns, displaying them on your PC

Select **Finish** > ...

The Cygwin installation is done.



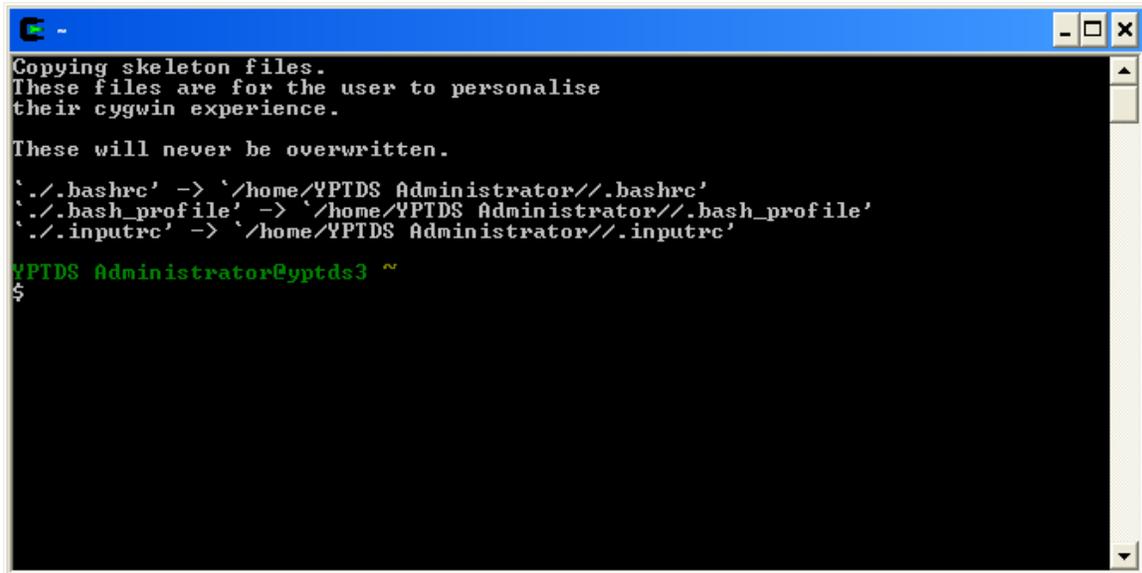
The `c:\cygwin` folder should look like this:



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

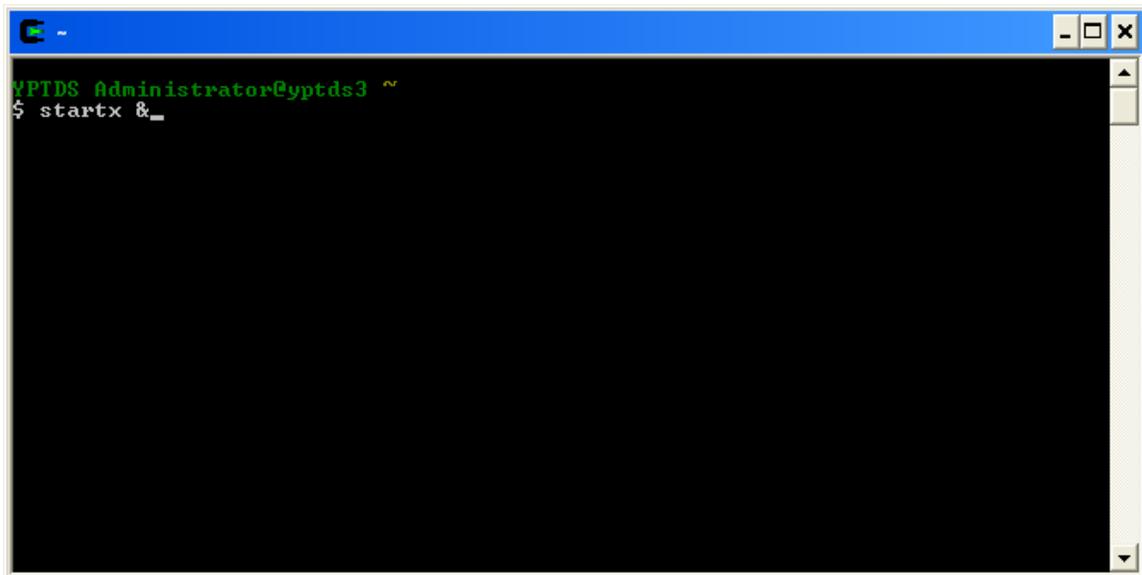
2. To run programs on a Sun and display on your PC:

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 minus, maximize, and close button. The terminal text is as follows:

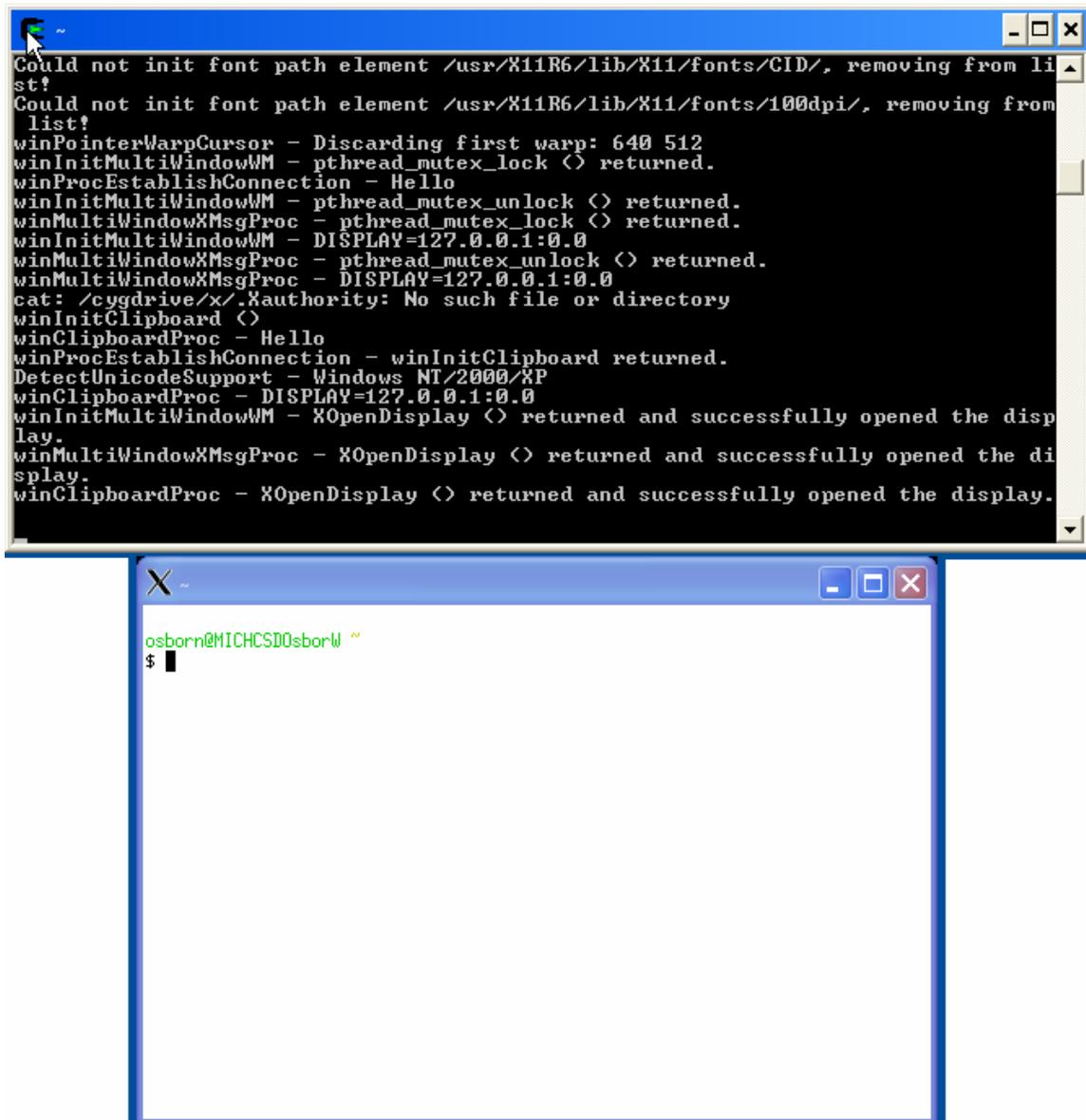
```
C -  
Copying skeleton files.  
These files are for the user to personalise  
their cygwin experience.  
  
These will never be overwritten.  
  
'./bashrc' -> '/home/YPTDS Administrator/./bashrc'  
'./bash_profile' -> '/home/YPTDS Administrator/./bash_profile'  
'./inputrc' -> '/home/YPTDS Administrator/./inputrc'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

2b. Start the `x server` on your PC:

A screenshot of a Cygwin terminal window. The window has a blue title bar with a minus, maximize, and close button. The terminal text is as follows:

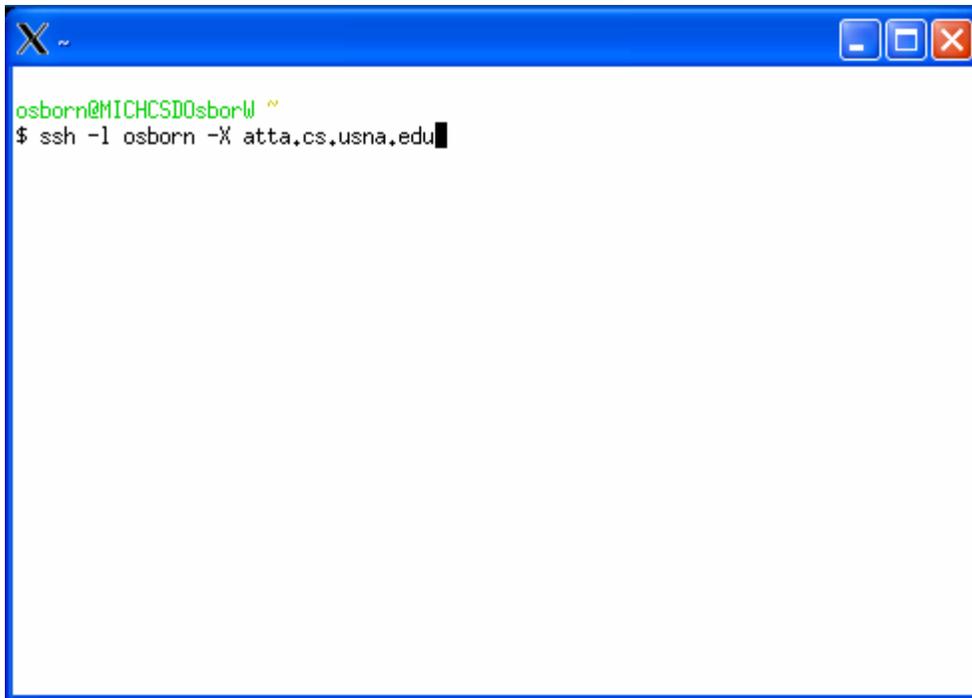
```
C -  
  
YPTDS Administrator@yptds3 ~  
$ startx &_
```

An `xterm` window will open:



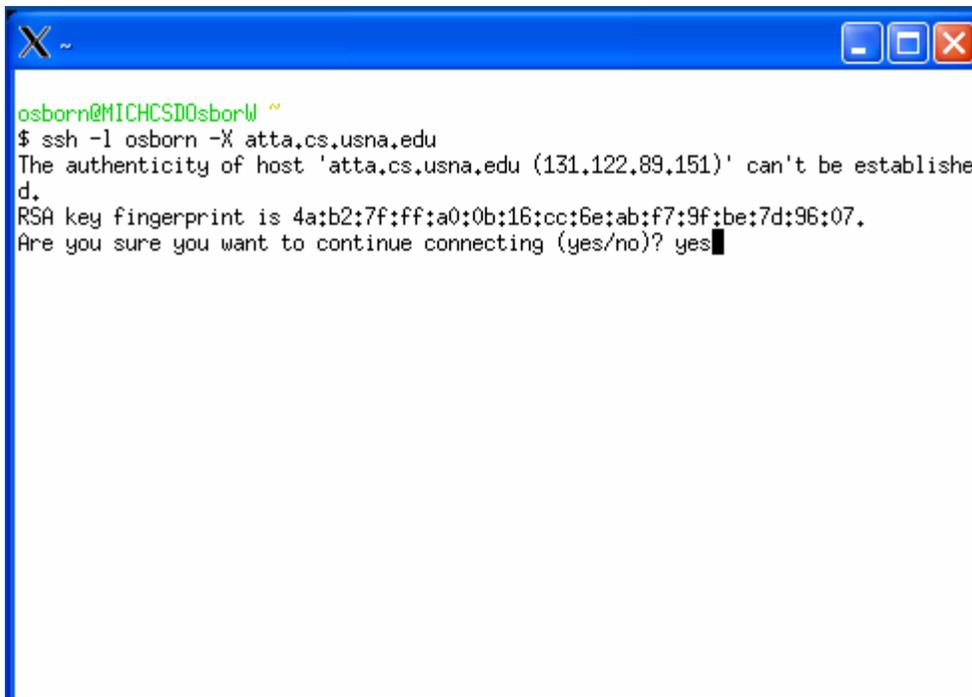
2c. Choose a CS Department UNIX Lab host you wish to connect to (hosts are listed on this web page: <http://www.cs.usna.edu/Restricted/ip.html>) ... for example, the host named **dot.cs.usna.edu** in Michelson 316.

Login to that host, using `ssh` with **X11 forwarding** to the display on your own PC (substitute your login name for **osborn** below, and the hostname to which you are logging in, for example, here we're logging in to **atta.cs.usna.edu**):



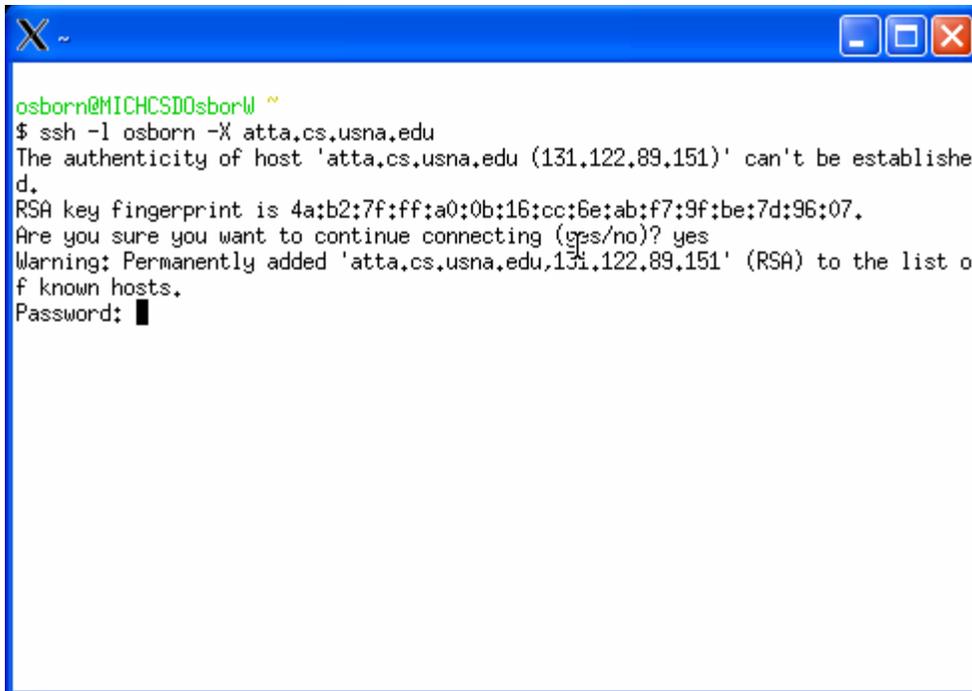
```
X ~
osborn@MICHCSDOsborW ~
$ ssh -l osborn -X atta.cs.usna.edu
```

You will be asked if you want to continue. Type **yes**, which will save the RSA key locally.



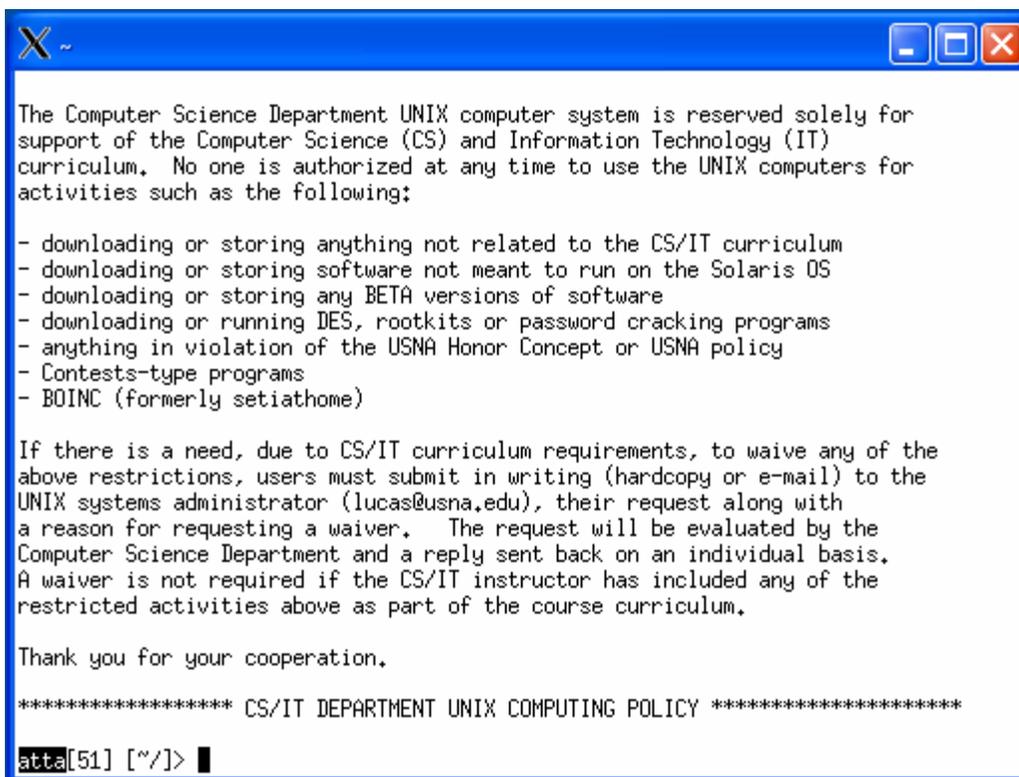
```
X ~
osborn@MICHCSDOsborW ~
$ ssh -l osborn -X atta.cs.usna.edu
The authenticity of host 'atta.cs.usna.edu (131.122.89.151)' can't be established.
RSA key fingerprint is 4a:b2:7f:ff:a0:0b:16:cc:6e:ab:f7:9f:be:7d:96:07.
Are you sure you want to continue connecting (yes/no)? yes
```

You will then be prompted for your Unix password:

A terminal window with a blue title bar containing the text 'X ~' and standard window control buttons. The terminal text shows a user named 'osborn' at 'MICHCS00sborw' running the command '\$ ssh -l osborn -X atta.cs.usna.edu'. The output includes a warning about host authenticity, an RSA key fingerprint, a confirmation prompt 'Are you sure you want to continue connecting (yes/no)? yes', a warning about adding the host to the known hosts list, and a 'Password:' prompt with a cursor.

```
osborn@MICHCS00sborw ~  
$ ssh -l osborn -X atta.cs.usna.edu  
The authenticity of host 'atta.cs.usna.edu (131.122.89.151)' can't be established.  
RSA key fingerprint is 4a:b2:7f:ff:a0:0b:16:cc:6e:ab:f7:9f:be:7d:96:07.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added 'atta.cs.usna.edu,131.122.89.151' (RSA) to the list of known hosts.  
Password: █
```

At this point, you are connected to the Unix machine named **atta** in MI-316. Your X window should look like this:

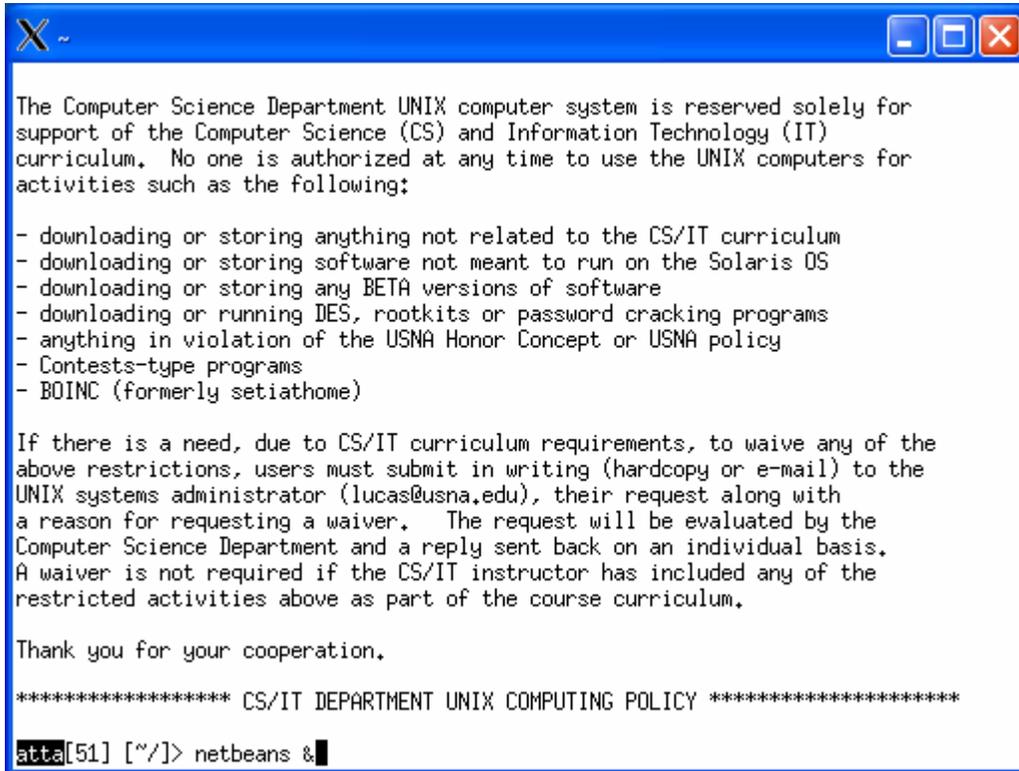
A terminal window with a blue title bar containing the text 'X ~' and standard window control buttons. The terminal text displays a policy notice from the Computer Science Department regarding the use of UNIX computers. It lists several restrictions, such as not downloading unrelated software or running password cracking programs. It also provides information on how to request a waiver and ends with a thank you message and a separator line.

```
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 (lucas@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 *****  
atta[51] [~/> █
```

You can now run programs on the Sun and display them on your PC!

Running Netbeans

To run Netbeans, enter `netbeans &`.

A screenshot of a terminal window with a blue title bar. The window contains a text-based notice from the Computer Science Department regarding UNIX computer system usage. The notice lists several prohibited activities and provides information on how to request a waiver. At the bottom of the terminal, the command 'netbeans &' has been entered, and the prompt 'atta[51] [~/]>' is visible.

```
X ~
The Computer Science Department UNIX computer system is reserved solely for
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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
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- Contests-type programs
- BOINC (formerly setiathome)

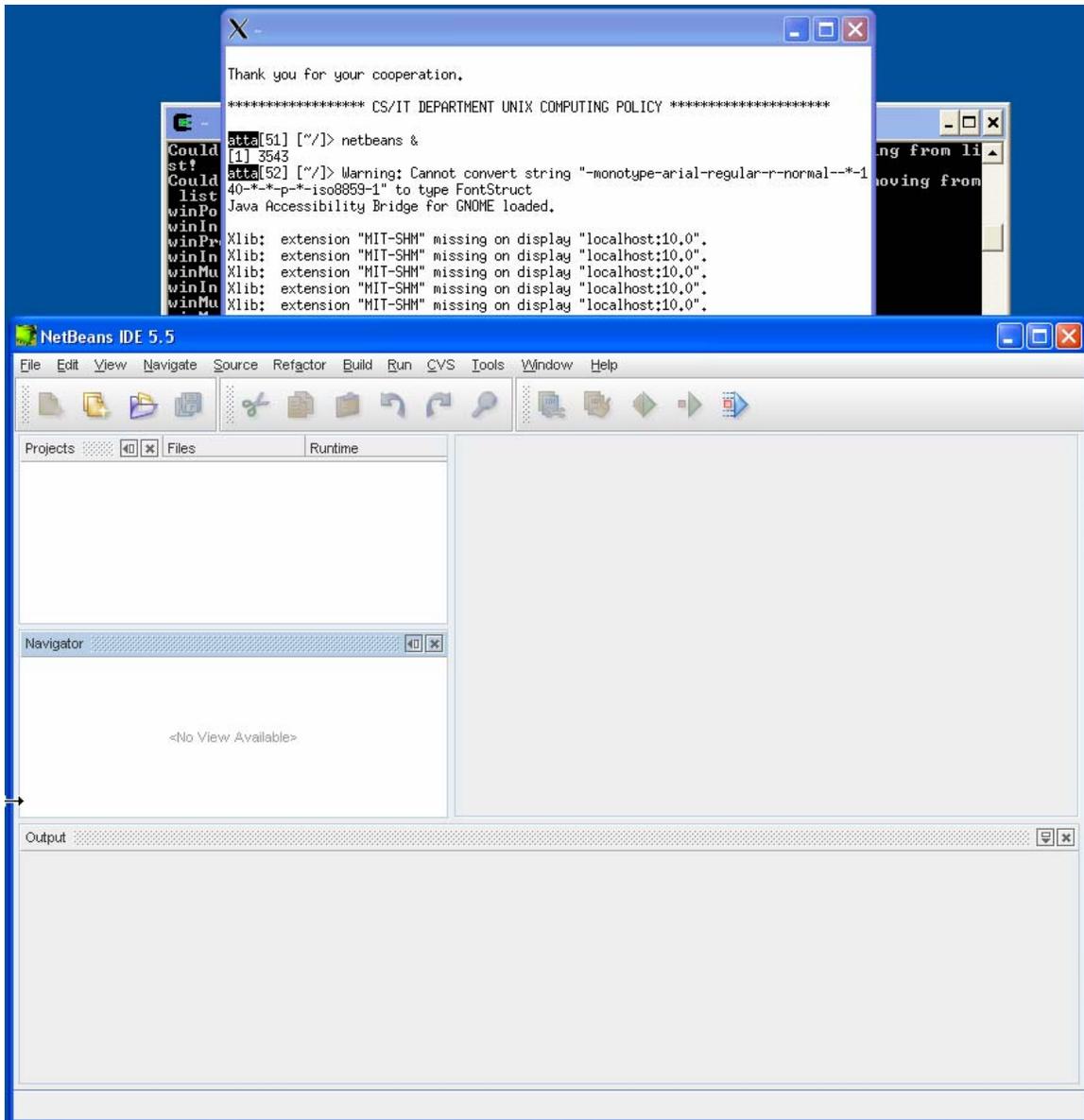
If there is a need, due to CS/IT curriculum requirements, to waive any of the
above restrictions, users must submit in writing (hardcopy or e-mail) to the
UNIX systems administrator (lucas@usna.edu), their request along with
a reason for requesting a waiver. The request will be evaluated by the
Computer 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 *****

atta[51] [~/]> netbeans &
```

Netbeans will display on your windows desktop...but remember, it is running on the Sun box named `atta`. When you create and save your java files, they are being saved to your Unix account!



Exiting your X window and cygwin.

Typing exit at the x window command line will log you out of your Unix account. Typing exit again, will close the x window. You can now type exit at the cygwin command prompt to exit cygwin.