

Secure Shell and X-Win32 Setup and Usage Guide

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1 Introduction

UNIX and Linux machines (*nix) have console-based interaction through TTY sessions, as well as graphical interaction through X-Windows sessions.

Multiple users can be connected to the same *nix machine through multiple TTY sessions or X-Windows sessions. *nix machines have *named resources* for resources such as the display, and the physical display connected to the machine is 'display :0'.

Secure Shell (or SSH) is a tool used to open an encrypted remote shell (TTY console) on a UNIX or Linux machine. Once a session is established with a remote machine, all commands are executed *on the remote machine*. SSH clients include *PuTTY* and the aptly named *SSH Secure Shell Client*.

X-Win32 is a MS Windows-based tool for running remote X-Windows on a *nix machine, but having the display output piped to the local machine. Similar tools for this purpose include *Exceed* and *Virtual Network Computing*, more commonly called *VNC*. All of these tools redirect keyboard and mouse input from your local machine to the remote machine, and direct the display output from the remote machine to the local machine.

2 Secure Shell Setup

First things first, find and open the program, as shown in Figure 1. Using PuTTY is also fairly easy, and requires a similar setup to that shown here.



Figure 1: Finding the Secure Shell Client on Nexus

When you have loaded the program, you have the options of performing a ‘Quick Connect’, or of loading a Profile, as shown in Figure 2 below. Under ‘Profiles’ is an option to create a new profile. While this step is unnecessary, it is often useful to only have to configure the system once, and use the same profile.

Choose to create a new profile, and you will be presented with the dialogue shown in Figure 2. Create a profile name that you will remember, and select ‘Add to Profiles’.

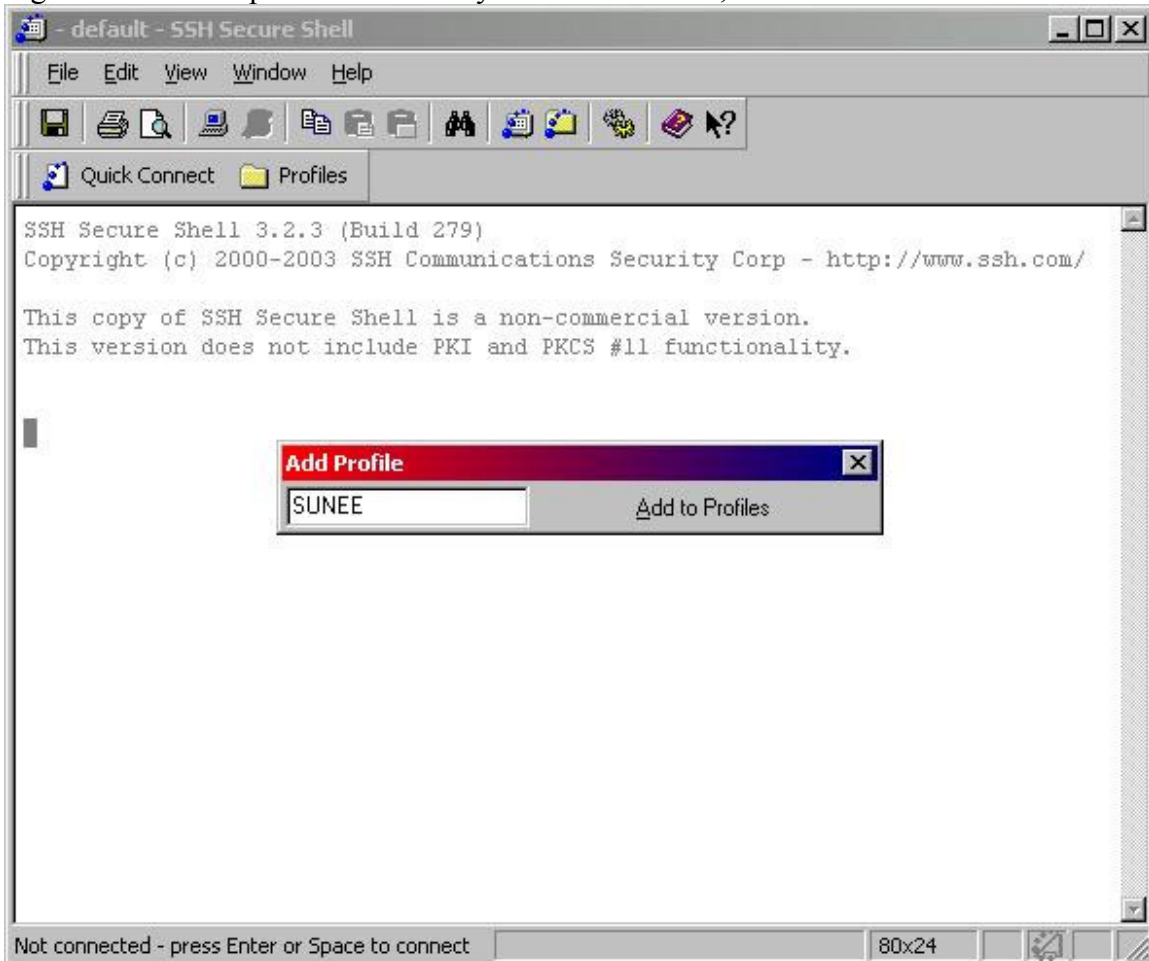


Figure 2: Creating a profile in the Secure Shell client

When you choose to run the profile (now located under ‘Profiles’) for the first time, or if you choose the ‘Quick Connect’ option, you will be presented with the dialogue shown in Figure 3 below. Choose a host name (note, from on-campus access, the ‘.uwaterloo.ca’ is unnecessary), you can use the E&CE list of SUNEE computers given on the [Unix Client Page \(iee.uwaterloo.ca/clients/\)](http://iee.uwaterloo.ca/clients/) to find a host name.

Enter the host name and your user name in the dialogue box. Choose the Authentication method to be ‘Password’, and select the ‘Connect’ button to connect to the remote host. If you have selected a profile to bring up this dialogue, your connection information will be saved along with the profile after successfully connecting to the remote host.

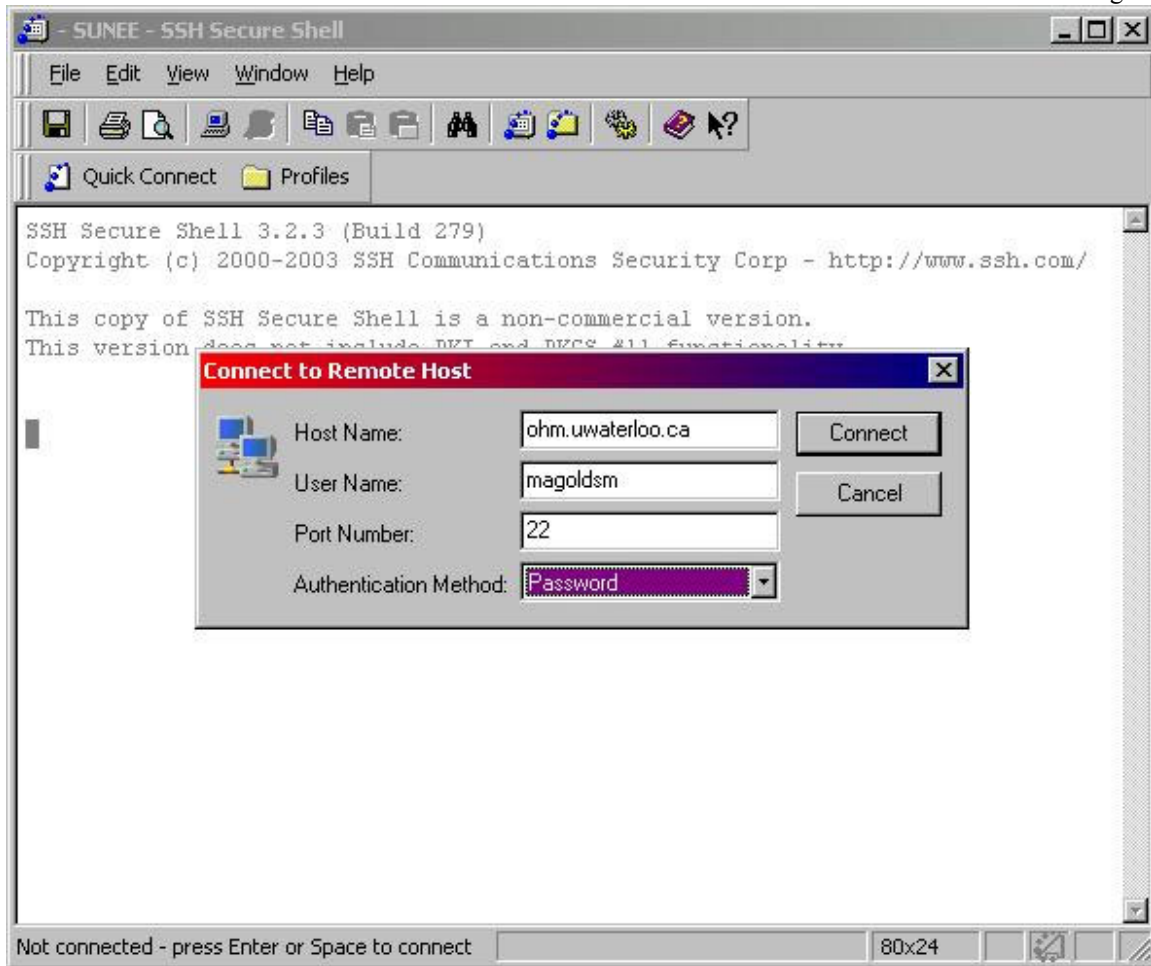


Figure 3: Configuring a profile in the Secure Shell client

3 Secure Shell Usage

Once you have entered your connection information, and have selected the ‘Connect’ button, the client will attempt to contact the remote host you specified, and establish a secured communication channel with the remote host. If the client can successfully contact the remote host, the Secure Socket Layer protocol will attempt to exchange security keys with your client, as shown in Figure 4 below. You can choose to have the remote key (which is created specifically for your user) stored in a database of keys on your local machine by selecting ‘Yes’, or you can choose to have the key used for the current session, but *not* stored in the database by selecting ‘No’. By selecting ‘Cancel’ you will terminate the session.

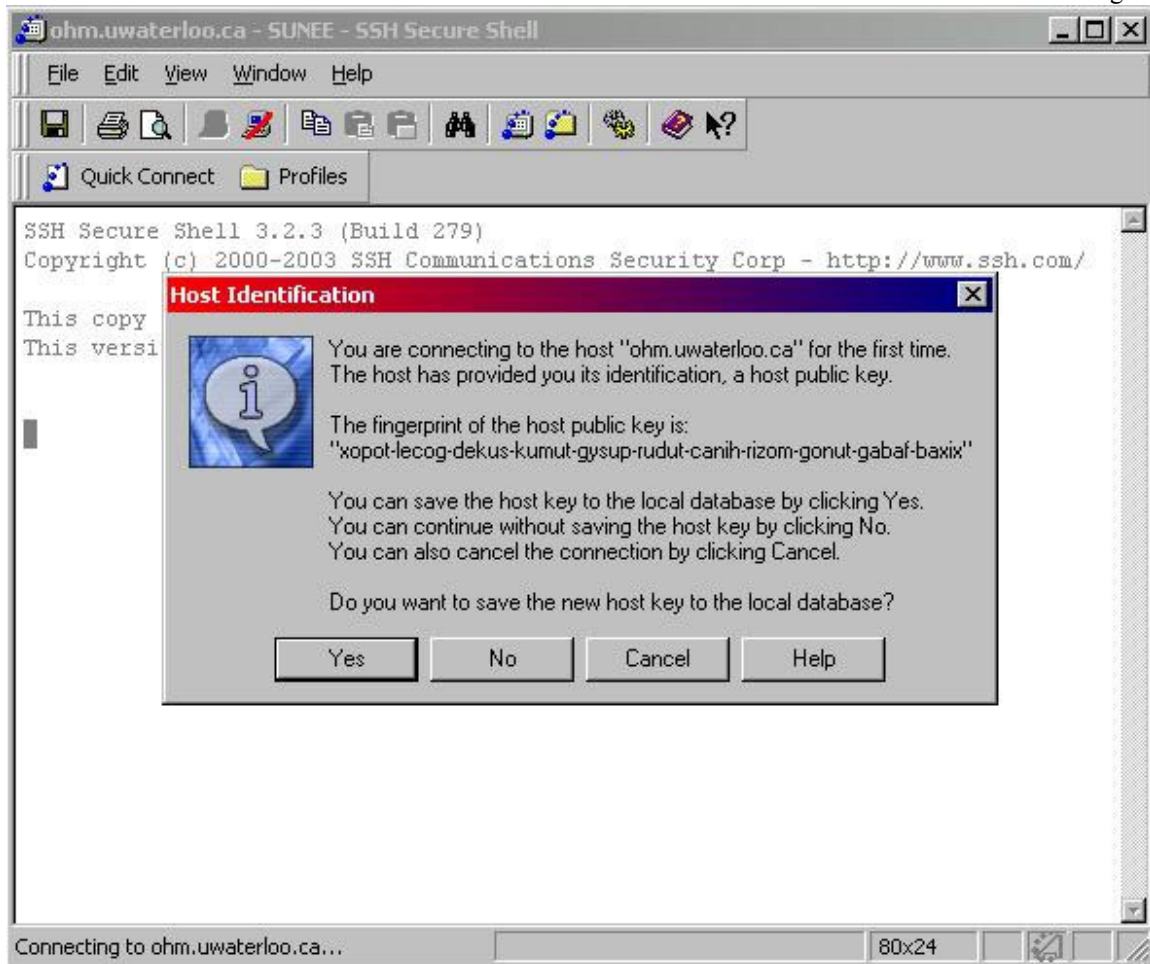


Figure 4: Connecting to a remote host using the Secure Shell client

Once you have chosen to accept the key, the client will present you with a TTY connection dialogue that is *actually running* on the remote machine. This dialogue will ask you for your username if you did not enter that in the connection information dialogue box in Figure 3, followed by your password. If you have never accessed a SUNEE machine on campus before, your password should be your **student ID number**. You can run the *passwd* command on any SUNEE machine to change your password once you have logged in.

Once your password has been accepted, you will be presented with a command prompt from the remotely running C-shell (or Bash shell), at which point you can execute any command you wish to run on the remote machine. Note that any program that requires X-Windows **cannot** be run through a TTY console.

4 X-Win32 Setup (X-Config)

First, find the application X-Config as shown in Figure 5 below, and choose to execute it.

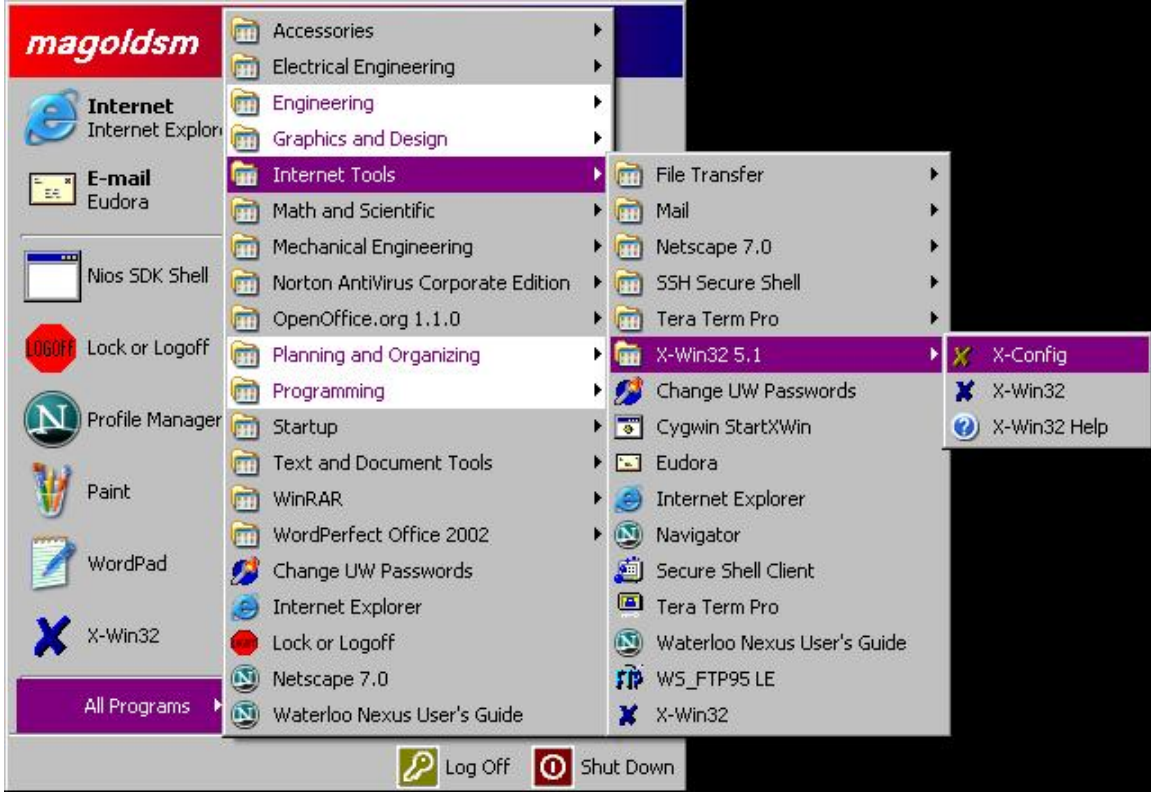


Figure 5: Finding the X-Config application on Nexus

This will bring up the session and configuration manager for X-Win32. Choose to create a new session from the 'Sessions' tab, as shown in Figure 6 below. You will be presented with a dialogue to choose the connection method.

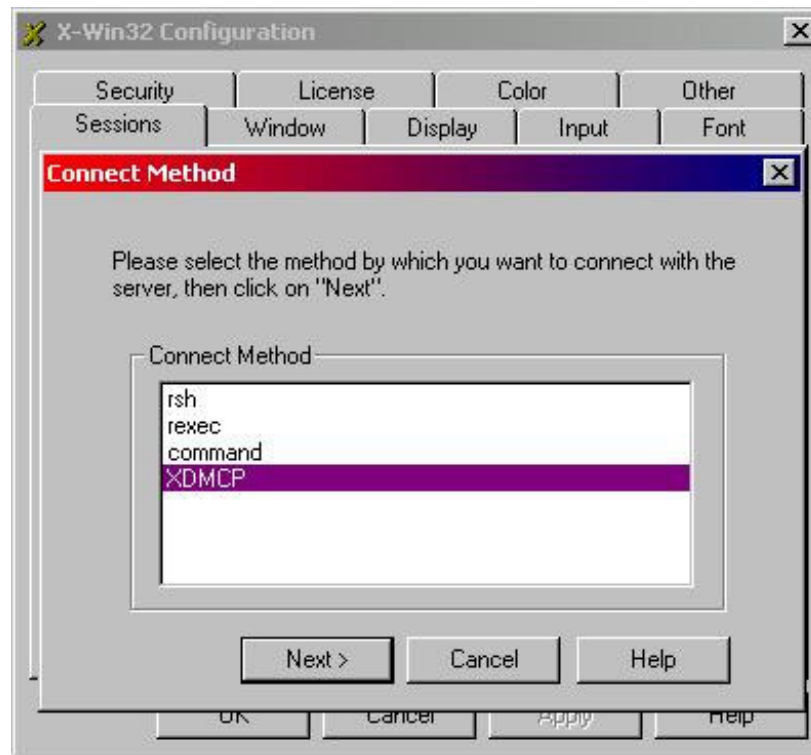


Figure 6: Configuring X-Win32 session information

If you choose 'rsh', the *remote shell*, you have accomplished the same functionality as the SSH client above, with the exception that none of the communications are encrypted. You will wish to choose the 'XDMCP' method, which is the communications protocol for the X Display Manager (XDM), and select 'next'. This will present you with the dialogue shown in Figure 7 below.

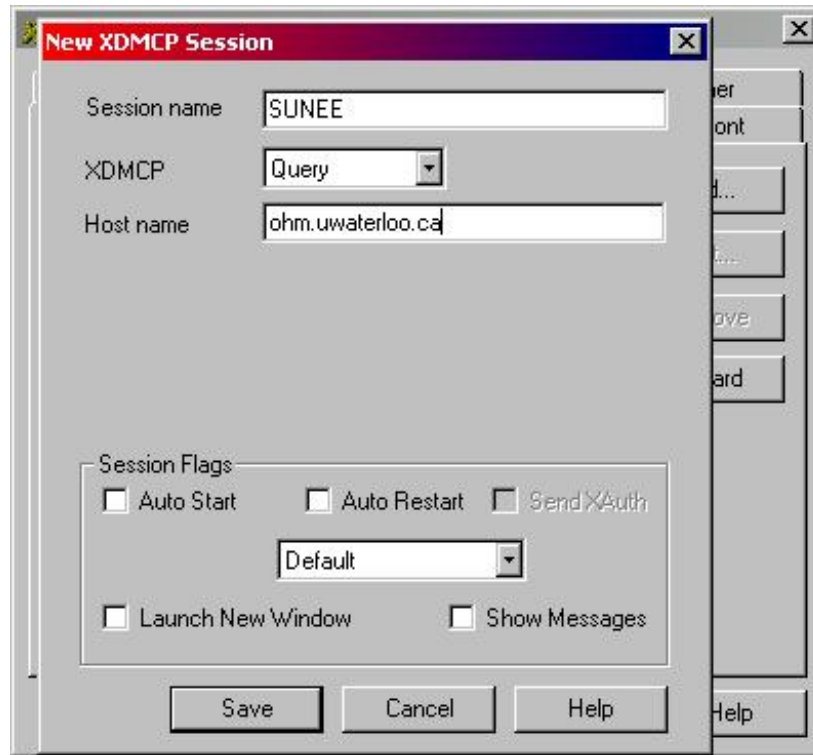


Figure 7: Creating an X-Win32 session

Here you can name your session, and choose the XDM communications protocol method. You will probably want to choose 'Query', which will probe the remote host directly. You may also choose 'Broadcast', which will allow you to choose the host you want to log into post-connection.

In either case, you need to provide a host in the host-name section that is running XDM. Most machines listed on the [Unix Client Page \(ieee.uwaterloo.ca/clients/\)](http://ieee.uwaterloo.ca/clients/) are viable hosts. Once again, if you are on campus, the '.uwaterloo.ca' is superfluous. All of the other parameters on this dialogue can be left as their defaults.

Once you have entered all your information, select the 'Save' button to store this session information.

5 X-Win32 Usage

Once you have configured a session, locate the X-Win32 application as in Figure 5. This will open a single large window that does more or less nothing. Right-click on the header bar in order to bring up the command window, as shown in Figure 8 below.

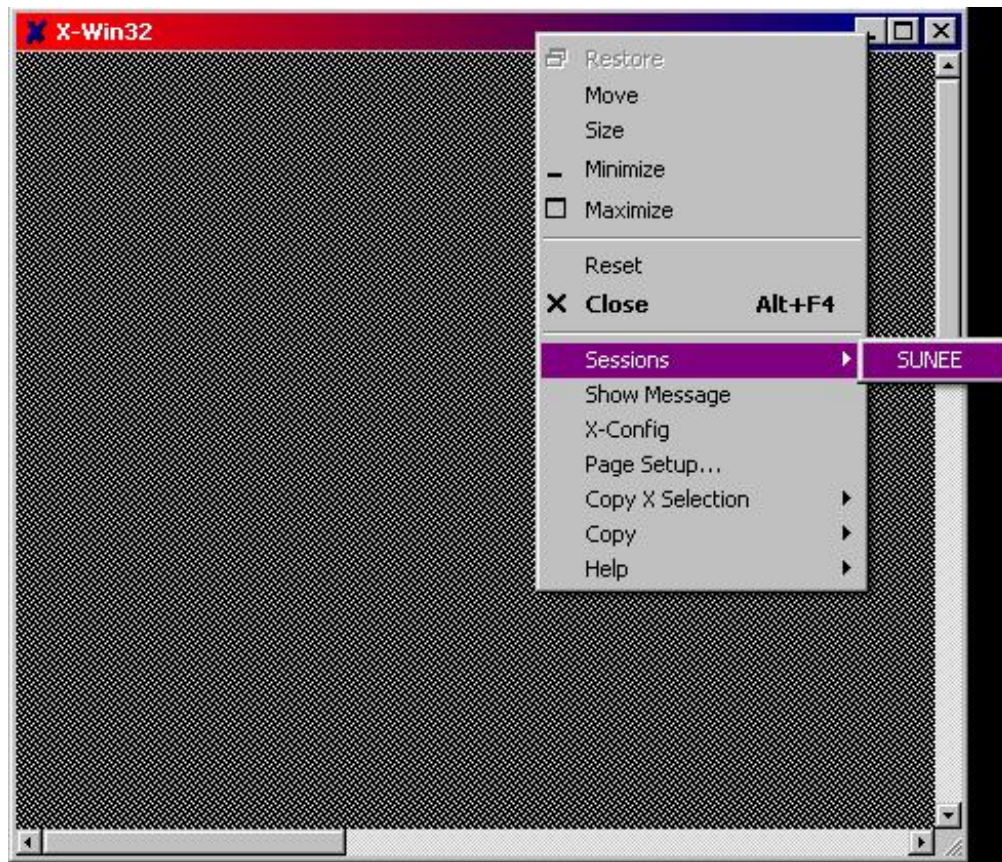


Figure 8: Opening an X-Win32 session

From the command window, select 'Sessions', and select the session you just created. This should black the entire screen and change your cursor to a large 'X' if the client has successfully connected to your host.

Once the client has connected, the remote host will present you with the XDM login dialogue, which will ask you to enter your username and password to connect to the device. Once you have logged in, the X-Windows window manager will start, and you can run all X-windows based applications as if you were sitting at one of the SUNEE workstations themselves.