

CONNECTING TO DEPARTMENT OF COMPUTER SCIENCE SERVERS BOTH FROM ON AND OFF CAMPUS USING TUNNELING, PuTTY, AND VNC Client Utilities

DNS name: turing.cs.montclair.edu

-This server is the Departmental Server and is set-up to run a variety of applications and development environments into which both faculty, staff, and students can login to utilize its resources.

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I Basic Connection

-In order to log into the server, use ssh which is used to create a secure shell connection through PuTTY or similar software, to establish a connection.

-The PuTTY program can be downloaded from the following url

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

-Secure shell can also be established using ssh at the Mac OS X command line or any other Unix-like operating system that supports secure shell.

Below is a sample screenshot using PuTTY to connect to turing.

Insert the DNS (Domain Name System) name: turing.cs.montclair.edu in the host name section in the red circle shown in figure 1

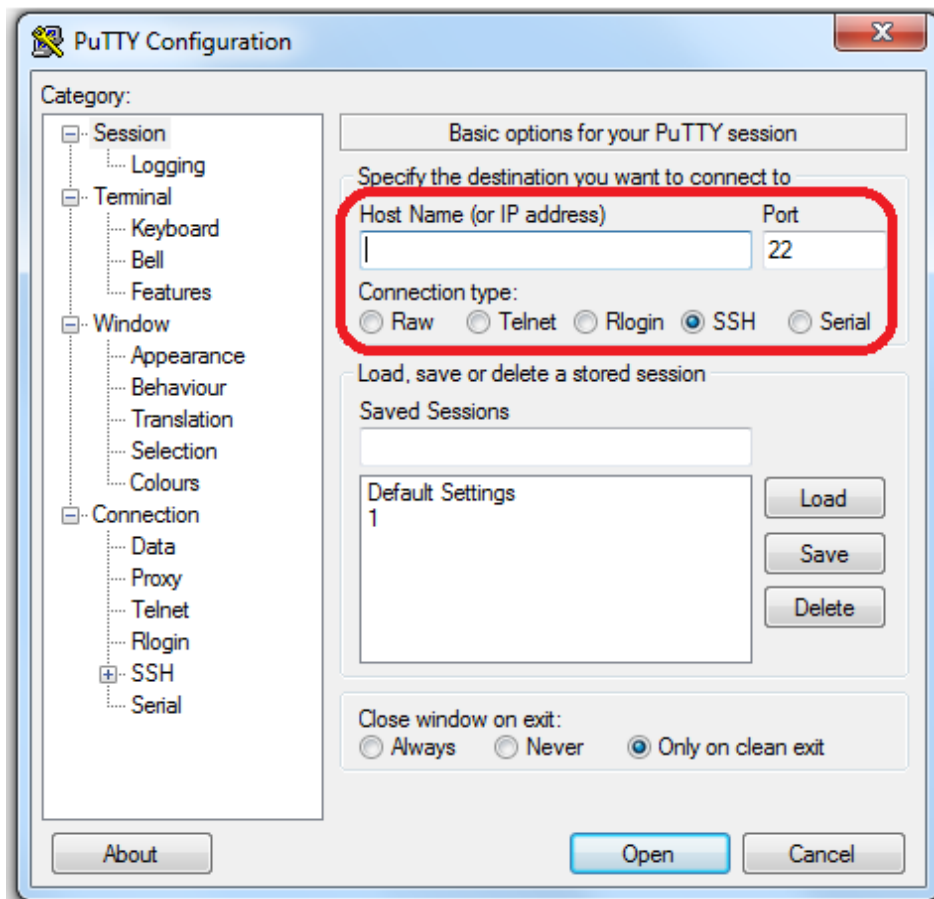


Figure I

-The red box in **Figure I**, contains the DNS name for the server, the default ssh port number, and the connection type of "SSH".

-Upon pressing open, you will be presented with a login screen seen below, e.g.

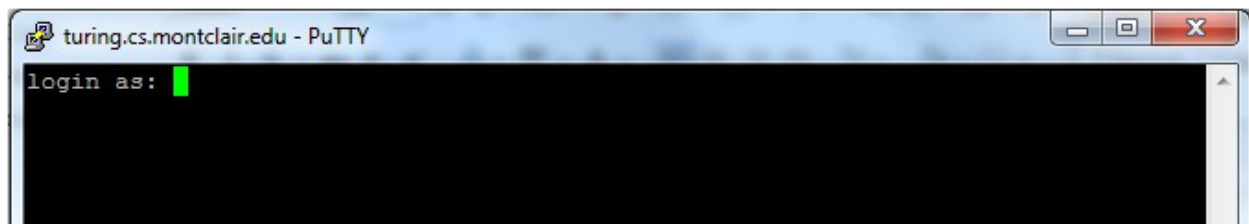


Figure 2

At this point, enter your MSU NetID and corresponding password. If you do not have a NetID, please see MSU's Office of Information Technology's instructions to obtain one.

for faculty / staff:

http://oit.montclair.edu/documentation/accounts/netid_how_to_activate_faculty_and_staff.pdf

for students:

http://oit.montclair.edu/documentation/accounts/netid_how_to_activate_students.pdf

or see video at the hyperlink:

<http://www.njvid.net/showvideo.php?pid=njcore:23330>

-Upon logging in successfully, your account will be placed in your home folder, having a corresponding directory of /home/local/ADMSU/(NetID)

-Now you can execute basic Unix commands from the Bash shell, change shells, or run scripts etc.; anything you could do from a terminal window on a Unix platform.

-As always, please remember to logout of your session when you have finished.

-This connection method will operate from either on or off campus locations provided you have a viable Internet connection.

II. Connection Using VNC Software from on Campus Locations

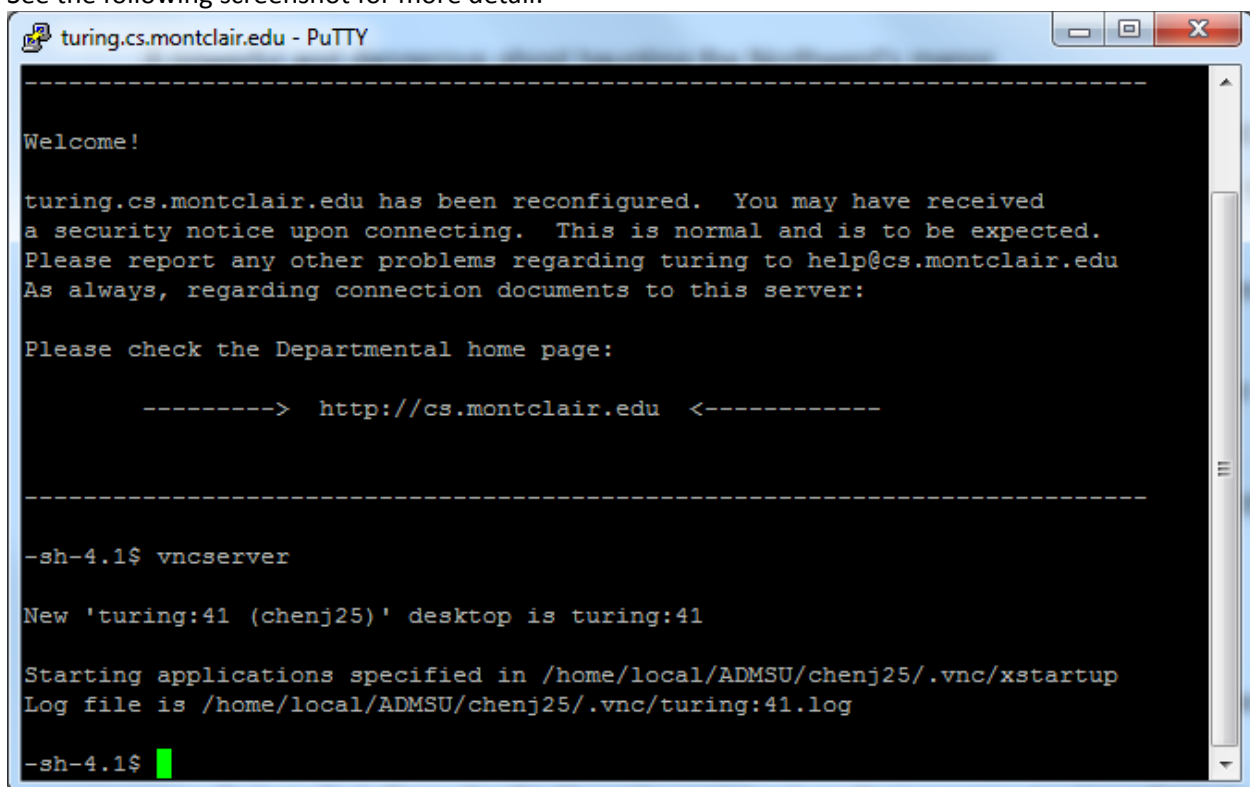
-The use of Virtual Network Connections (VNC) Connections allows people with login rights to the Linux Departmental servers to connect through a graphical user interface (GUI) to access resources.

-To establish a Virtual Network Connection, Virtual Network Connection software must be obtained.

- One popular type of VNC software is TightVNC for Microsoft Windows environments. For a more comprehensive comparison of VNC clients, connectors to VNC servers, and other platforms see: http://en.wikipedia.org/wiki/Comparison_of_remote_desktop_software

-To connect to turing, you must first login to the machine and start a VNC Server Session. This is accomplished by typing in the command "vncserver"

See the following screenshot for more detail:



```
turing.cs.montclair.edu - PuTTY
-----
Welcome!

turing.cs.montclair.edu has been reconfigured.  You may have received
a security notice upon connecting.  This is normal and is to be expected.
Please report any other problems regarding turing to help@cs.montclair.edu
As always, regarding connection documents to this server:

Please check the Departmental home page:

-----> http://cs.montclair.edu <-----

-----

-sh-4.1$ vncserver

New 'turing:41 (chenj25)' desktop is turing:41

Starting applications specified in /home/local/ADMSU/chenj25/.vnc/xstartup
Log file is /home/local/ADMSU/chenj25/.vnc/turing:41.log

-sh-4.1$
```

Figure 3

-If this is the first time you are using VNC, you will be prompted to create a password. This can be same as your NetID password or it can be different. However, it is this password and NOT the NetID password that must be entered in the following step. **This password should have similar strength to that you use with your NetID.**

-Note the server connection number in this example is 41.

Through this number, it is possible to establish a VNC session with a VNC Viewer, using the syntax <server_name>:<connection number (the number created in turing VNC server)> as seen in Figure 4

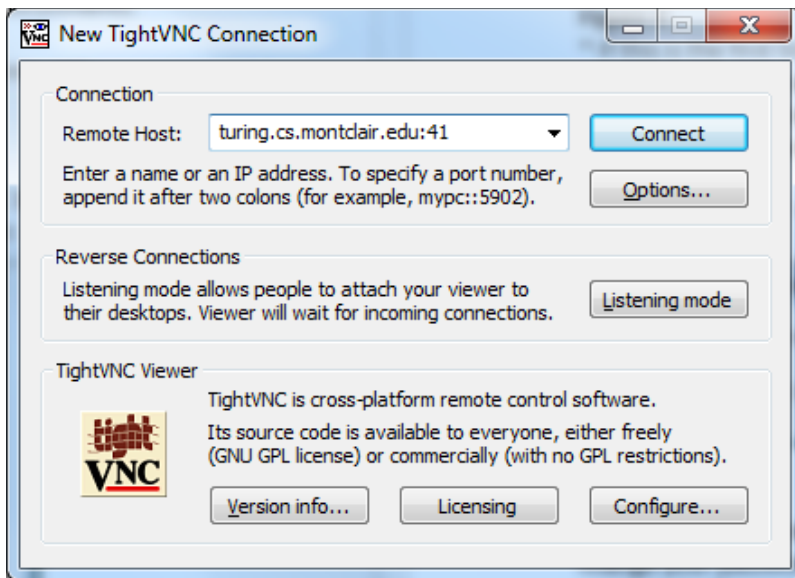


Figure 4

- After pressing connect, you will be presented with the window in Figure 5.
- Enter the password you created to access your VNC sessions.

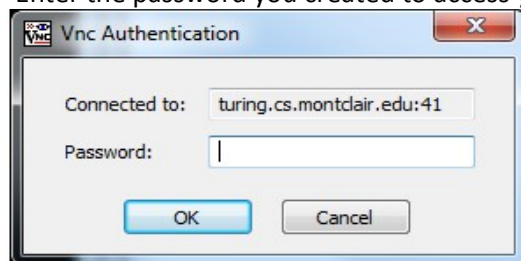


Figure 5

- After connecting to the vncsession – you will have a window to your desktop: e.g.
- You will need to enter your NetID at the graphical login screen in Figure 7, doing so will result in the screen seen in Figure 8

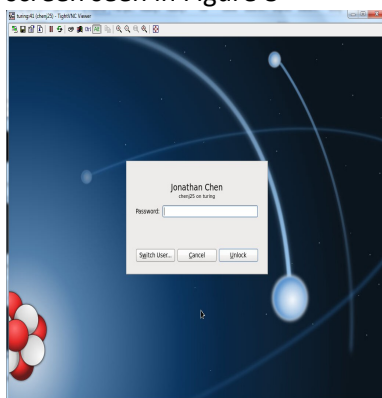


Figure 7

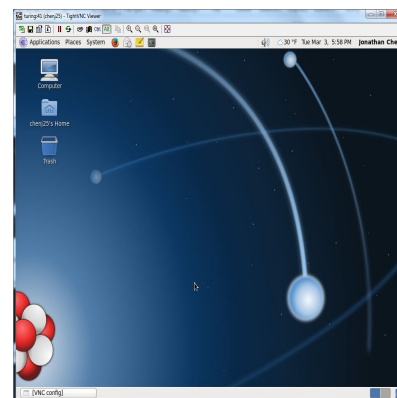


Figure 8

III. Terminating a VNC Session

-When you are ready to terminate your connection to the VNC session, issue the command below:
vncserver -kill :<session #> where the session number is the one you used to connect to the VNC server.

-In figure 9, the command would be vncserver -kill :41

You should receive similar output to the following once you entered the command:

```
-sh-4.1$ vncserver -kill :41  
Killing Xvnc process ID 7349  
-sh-4.1$
```

Figure 9

-If you only close the VNC server window, you will terminate your portal into the session but the VNC server will remain active.

IV. CONNECTION USING VNC SERVER FROM OFF CAMPUS - Windows

Using IP tunneling and port forwarding, it is possible to connect to a VNC session from off campus.

Disclaimer: The Department does not provide support for students' personal computer problems and takes no liability associated with possible problems when attempting to use the techniques shown. These techniques may or may not work with your specific configuration.

-We have seen varied degrees of success thus far. In some cases, connections have been successful; in others they have not. If you are unsuccessful with the process outlined here, a gateway through which you are trying to connect may be blocking the traffic, either via software or hardware.

-It is recommended that in such situations, check any local software firewalls on your client computer,

Overview

-The procedure outlined below has been summarized and adapted from various sources in publically available documents accessible via the Internet.

-To use port forwarding, you must first establish a secure connection via ssh as outlined in Section I of this document. You must also direct this connection to forward VNC traffic from your local machine to a VNC server session you establishd, according to Section II. As outlined below, this is a multi-part process.

-PuTTY is shown for illustration purposes, but you may use any ssh client capable of forwarding IP traffic. Establish the connection to turing as shown in Figure 1, in Section I.

-First, establish a vnc server session through the process outlined in Section IA of this document. After you receive a message with your VNC session number, similar to the one in Figure 3, logout of this ssh session. Now, reopen your ssh client.

-You must modify additional options, but using the "Tunnels" section under "SSH" (Figure 10) In PuTTY, is needed to enable the port forwarding.

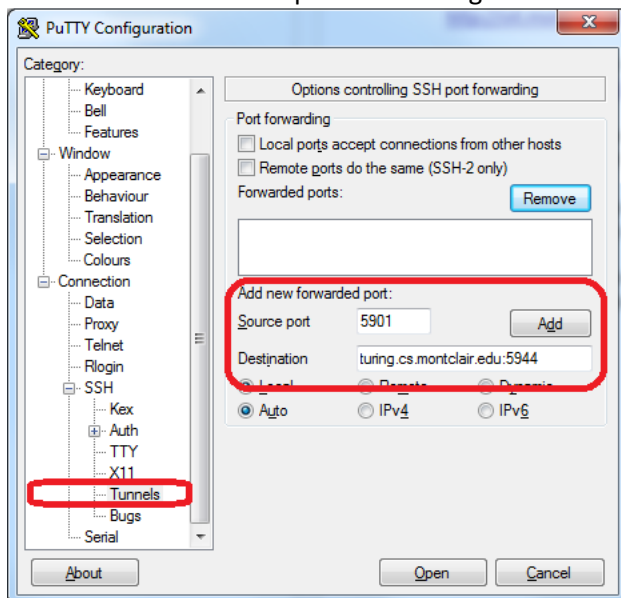


Figure 10

In this section, all information will be entered as shown in Figure 11.

-Enter the source port number as “5901”. If you are using Windows, this port corresponds to port 1 of those ports from which VNC traffic can originate.

-In the destination, enter the DNS name of turing, followed by a colon and the destination port number.

Please note, this is different from the instructions mentioned concerning the session number, in Section II. The destination port number is the number of your VNC session + 5900.

-The example above uses session 44, thus the port number is 5944. Once you have entered the appropriate information for the port number, click “Add”.

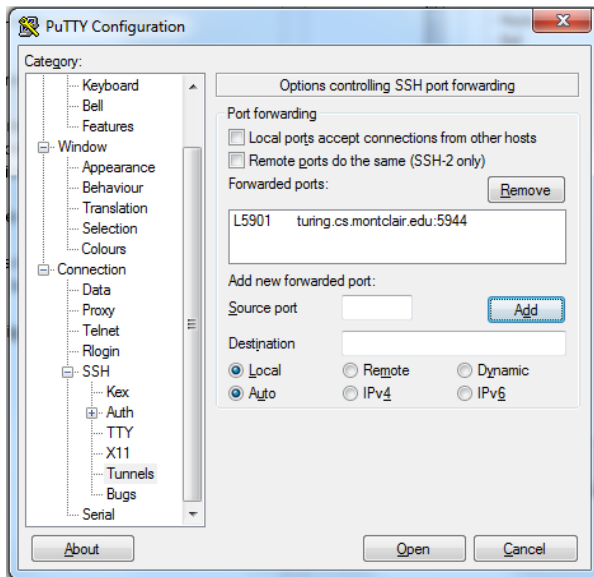


Figure 11

The session can be saved and after saving, login into turing

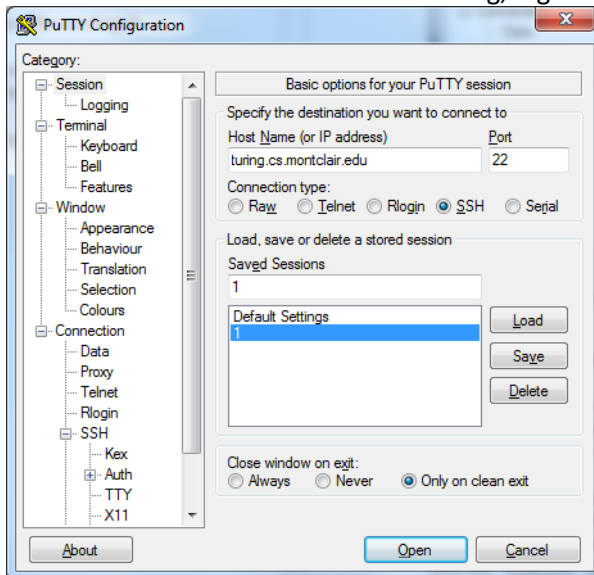


Figure 12

At this point, you are ready to initiate an ssh connection that directs VNC traffic from your local computer through the SSH tunnel to a VNC session on turing. If you are using PuTTY, return to the session tab, as shown in Figure I in Section II.

You should get a login prompt, as shown in Figure II. Upon successful login, you should be able to connect to your previously established VNC session, using a VNC viewer, as outlined in Section II, with the following modification. Instead of entering “turing.cs.montclair.edu: <session number>” in the server box, use “localhost” with port 1, instead.

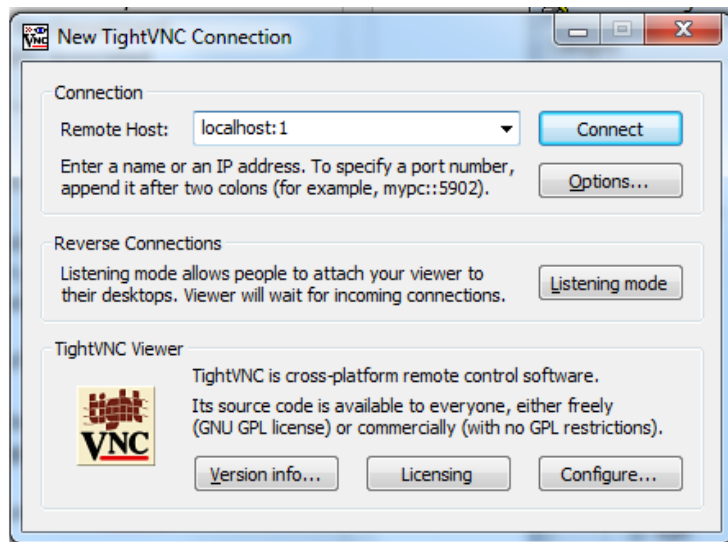


Figure 13

At this point, you should be prompted for a password. Enter the password that you had established for VNC sessions –as discussed in section II. If all goes well, you should see a screen similar to Figure 7 and upon authentication, a screen similar to Figure 8 at login.

After you have completed work, close your VNC session and terminate the vnc server process using the process outlined in Section III.

* Of note, unlike the method used to establish a VNC connection in Section II, the process used here DOES offer connection security as all traffic is tunneled through the ssh protocol. This is therefore the recommended way to utilize VNC to turing, both on and off campus if possible.

V. CONNECTION USING VNC SERVER FROM OFF CAMPUS

– requires Mac OS and raw SSH

The procedure for connecting using Mac OS is similar to the method used in Windows, except that the tunnel is established via terminal window instead of with PuTTY, or similar ssh client. The following process is found in Section IIA, on a Mac: (all terminal commands are the same between mac and window)

1) Create a terminal window on your Mac. The terminal application is found in Applications > Utilities

2) Log into turing.cs.montclair.edu. Use your password for turing when prompted.

```
ssh netID@turing.cs.montclair.edu
```

3) Start the vncserver. Note the display number it returns to you.

4) logout of turing by typing “exit”

5) Open a new terminal window to log back in turing and establish a secure ssh tunnel linking port 5901 on your local machine to port 590x on turing. Replace the x with the display number you noted earlier – it is 4 in this example.

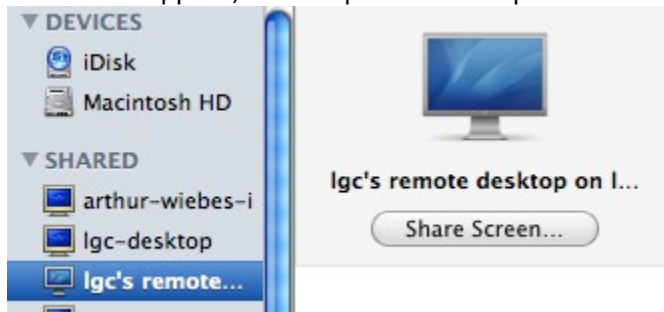
The command format for this as shown, is `ssh -L <your local port>:127.0.0.1:<VNC session # + 5900> -C your_NetID@turing.cs.montclair.edu`. At the password prompt, enter the password for your **NetID**. How the data is inserted is shown in the image below

6) Start a VNC application on your Mac.

This can be done through screen sharing; when someone access a computer's desktop remotely. People can use this feature so they can access computer files and servers that are far away from themselves.

Screen sharing requires another computer connected to the local network with remote desktop (VNC) or the screen sharing option enabled.

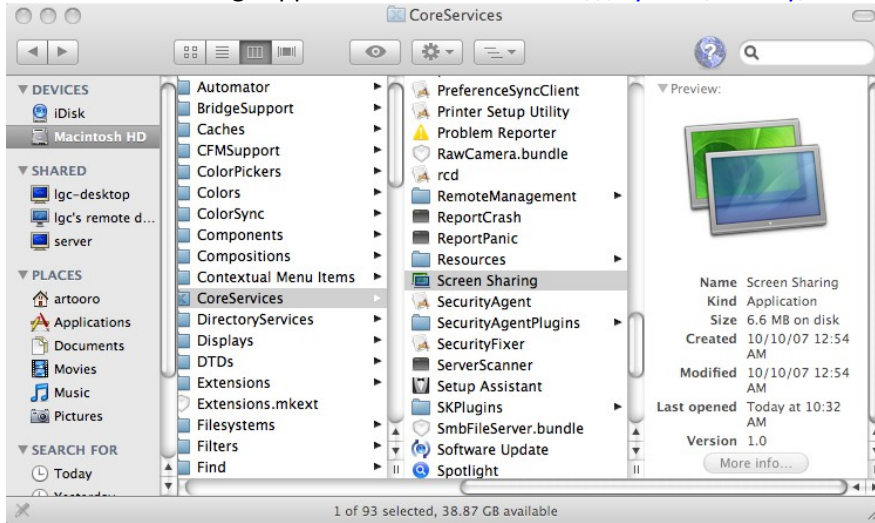
Once that happens, the computer shows up in the Shared section of the Finder like this:



Clicking on “Share Screen” requests a password. Then you can take control of the other computer remotely.

Screen sharing is also cross platform compatible so it can be used as a general purpose VNC client purposes.

The “Screen Sharing” application is stored in <file:///System/Library/CoreServices/>.



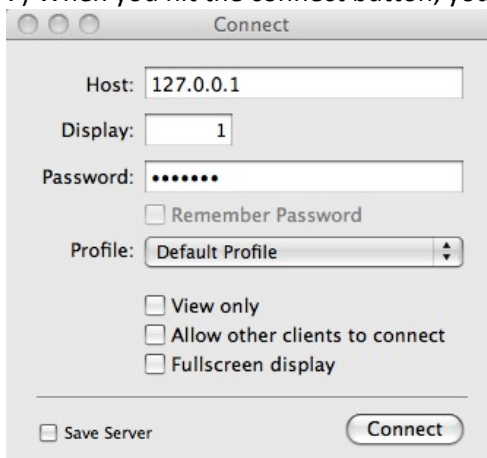
You can drag it into the Dock and now it's available to connect to your box whenever you want. You still need a host and password if needed

<http://macs.about.com/od/usingyourmac/qt/Mac-Screen-Sharing-How-To-Connect-To-Another-Macs-Desktop.htm>

I use “Chicken of the VNC” which can be downloaded from the internet. The host you want to connect to is 127.0.0.1 (localhost), the display number is 1, and the password is your vncserver password (not your password on turing – e.g. not your NetID password).

There is also a VNC program that is included in the operating system. It can be found in Library/CareServices/ScreenSharing.app

7) When you hit the connect button, you should see your vnc session



Note, it is better to use 127.0.0.1, here rather than “localhost” as seen in the method used in Section IV.

8) When you hit the connect button, you should see your vnc session.....e.g. figure 7; once you authenticate using your NetID password, you should see the desktop screen, as shown in figure 8.

As always, please follow the instructions in Section III once you close the VNC window to end the VNC server process. If you don't the sessions hang about forever and use resources. There are only a limited number of vncservers that are supported at any one time so failure to kill the vncserver may result in others being prevented from accessing turing.