

XVII. File and Data Management

Note: If using ssh or scp to come in from outside computers into the online workstations, a fixed IP address will need to be given permission in the router on that workstation for the connection to be allowed. BSCL addresses are already allowed.

Transferring Files

To/from a PC running Windows use Winscp program for file transfer:

<http://winscp.net/eng/download.php>

To locations outside the NMR lab

BSCL now runs secure shell and does not allow rlogin, telnet etc. The NMR lab workstations also all run on secure shell. Alternatives to scp or sftp include using a flash drive or CD to move files to BSCL.

Instructions on using secure shell can be found at:

www.msi.umn.edu/user_support/ssh

In secure shell, "ssh" replaces telnet and rlogin and "scp" replaces ftp. Directories as well as files can be moved using scp.

To move a file with scp from the NMR lab to BSCL

(while logged into a BSCL workstation):

note: scp will encrypt everything and may be slow for large files

Open a UNIX terminal. In the terminal:

```
>scp (username@machinename):file.doc newfilename.doc
```

The format is **>scp [-r] username@location:file destination:filename**

So, an example of moving a file:

```
>scp beverly@nmr1.biochem.umn.edu:test.doc test.doc
```

An example of moving a .fid file (.fid files are actually directories!):

```
>scp -r beverly@nmr1.biochem.umn.edu:test.fid test.fid
```

The computer will prompt for the password for the remote machine.

To login remotely to a workstation with secure shell:

Open a UNIX terminal. In the terminal:

```
>ssh -l username machine name
```

An example:

```
>ssh -l beverly nmr1.biochem.umn.edu
```

The first login this way, a message about adding this to the list of known hosts will appear. The computer will ask to continue. The user *must* respond "yes" (not just 'y') to

this question. The password for the remote machine will be prompted. If the username is not the same in BSCL as in the NMR lab, specify the username.

Workstation names in the NMR lab:

inova5001.biochem.umn.edu

inova6001.biochem.umn.edu

inova6002.biochem.umn.edu

inova8001.biochem.umn.edu

nmr1.biochem.umn.edu (offline station, Ultra 10)

To transfer files between online workstations

The accounts on the workstations in the NMR lab are independent of each other, but all of the files will have read access, so they can be copied over. The machines are networked so files can be copied without using ftp.

First method:

At the offline station where the data exists, using the right mouse button on the wallpaper, select **[Files] [File Manager]**. A file manager window will open displaying the current directories and files. Open a second file manager and go to the workstation where the data resides by typing in the directory in the path space, i.e.

/net/inova8001/data/username.

Select the directory/file to move by highlighting it. Then hold down the control key and drag the directory/file to be copied to the other file manager window. Files cannot be moved directly this way between workstations because they do not have permission in other accounts. The accounts are independent of each other and do not know that the user is the same person.

Second method:

While sitting at the offline station, go up the file system using **[Set Directory] [Parent]** to a directory called /net. Change the directory into /net. (The window will likely be empty.) Then click on **[Change]** and enter the machine name: **>inova8001/data**

The directories that should then appear will be those from 8001. Then choose the directory on 8001 and select the new data file to copy. Load the data file. Then at the command line type **>cd**. This goes back to the file system on the offline machine. Then use **>svf** to save the file onto the offline machine. This method will be tedious if many files will be moved.

Third method:

Since the machines are networked, files can be copied directly through a UNIX terminal window. In a terminal window use:

>cd /net/inova8001/data/username

to look into the directories on 8001. If in the destination directory on the offline machine, use:

>cp -r /net/inova8001/data/username/mydata.fid .

(remember to put a space and then a period to specify the destination) or similarly,
>**cp -r /net/inova8001/data/username/mydata.fid newdirectory/**.

Alternatively, while in a terminal window to transfer to nmr1 from inova5001,

>**cd /net/inova5001/data/username**

>**cp -r *.fid ~/.**

This command uses a wild card (*) to select every directory that ends in .fid and the ~/. indicates to copy the files back to the home directory and give it the same name on nmr1.

Keep in mind that one VNMR data file, a .fid file, is a directory so use **cp -r**. Parameter sets are also directories and require **cp -r**. Long pathnames can also be copied from within a terminal window or between terminal windows using the left mouse button to highlight and the middle mouse button to paste.