

Soma's Software Tips

Software Tips-1



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Software Tips for X-Ray Facility

Introduction

In early 2001 X-Ray Facility ([XRF](#)) upgraded the Image Plate (IP) detector computer from an aging SiliconGraphics Iris Indigo with Irix 5.3 O/S to a dual processor Dell with Windows NT O/S. However, several data processing software programs like, HKL Suite, Mosflm, and DPS are still available only in UNIX (or Linux) O/S. This invariably meant that one has to transfer the data collected at Windows NT machine to one of the Linux machines (usually raccoon) before processing. Since only secure connections are allowed between machines, the transfer usually takes a long time, typically one minute per frame (100-150 kb/s). In addition, the frames being transferred are never in the order in which the data had been collected thus delaying data processing until all the data is transferred. With the help from the Computer Resources we have added a new way to transfer the data that circumvents several of the above mentioned problems. This transfer makes use of one of the programs from **Samba Suite** called **smbclient**.

Another software addition the XRF has implemented is the ability to view the data being collected at XRF from DRS (currently available only for IP detector) without having to walk over to the Facility. This is provided by a service called **vnc** which is started up when the detector computer (anaconda.sb.fsu.edu) is turned on. The progress of the data collection can then be followed by any Java capable browser within the Kasha Laboratory Building (KLB). It is even possible to remotely modify the data collection conditions using the browser. However, at this stage we are recommending that users use the program only to follow the progress rather than modify it since it is quite possible to stop the data collection accidentally that may require human intervention to restart.

Please save the Tips for future reference. A copy of the Tips will be posted in XRF webpage shortly after receiving suggestions and corrections from the users.

smbclient

Computer Resources has installed software called **samba** in `raccoon.sb.fsu.edu`. This software allows two machines with two different operating systems to communicate effectively thus allowing file transfer and file system mounting without the user needing to worry about the different protocols. Part of the Samba Suite available from www.samba.org is a utility called **smbclient**, which resides in the Linux (UNIX) side of the client/server connection. **smbclient** provides an ftp-like connection between a native Linux (Network File System NFS) machine and a Windows NT machine (Common Internet File System (CIFS)/SMB protocol). This allows quick file transfers between two different machines. In addition, there is no need for the Windows NT machine to be running a FTP server; the requests are handled via Windows NT share.

Using **smbclient** it is now possible to transfer files from `anaconda.sb.fsu.edu` to any Linux/UNIX machine (say, `raccoon.sb.fsu.edu`) very quickly. Since the transfer is not encrypted, the process is fast (~2 Mb/s, compared to 150 kb/s with `sftp`). Another advantage is that since the transfer is initiated from Linux side and NOT from the NT side, the

user can initiate the transfer from any machine that allows a secure connection to the Linux box.

smbclient session:

Given below is a typical smbclient session where data collected at Windows NT machine (anaconda) is transferred to a Linux (raccoon) machine.

Note: (Courier Font: machine output; ***Bold Italic Courier Font***: user input; Garamond Font: comments; ↵: Enter or Carriage Return).

Log into the Linux machine raccoon and at the prompt issue the following command to query the Windows NT machine for all allowed **shares** from which we will get our files (during a regular transfer query session can be omitted, given here only for completeness):

```
soma@raccoon[10:15am]~>smbclient -L \\.\anaconda -U soma ↵
a simpler alternative is to use single quotes (‘ ’) and required (less) backslashes,
soma@raccoon[10:26am]~>smbclient -L '\\anaconda' -U soma ↵
added interface ip=128.186.103.108 bcast=128.186.103.255
nmask=255.255.254.0
```

Note the use of backslashes (\\.\ or single quotes and '\\'). Now provide the password for the **Windows NT machine**, for the user “soma”,

```
Password:***** ↵
Domain=[XRAY] OS=[Windows NT 4.0] Server=[NT LAN Manager 4.0]
```

We briefly connect and query the Windows NT machine under XRAY domain before returning to Linux prompt. All directories and possible shares are then displayed:

Sharename	Type	Comment
ADMIN\$	Disk	Remote Admin
IPC\$	IPC	Remote IPC
HPPrinter	Printer	HP LaserJet 4M Plus
C\$	Disk	Default share
D\$	Disk	Default share
data	Disk	
print\$	Disk	Printer Drivers

Server	Comment
ANACONDA	
Workgroup	Master
IMB2	PHE
XRAY	ANACONDA

In the list above we are allowed to **share** only **data** or **HPPrint**. Now let us look at a regular transfer session. First, we connect to Windows NT **share** using the program (Note the backslashes “\\.\ & \\” and that ‘-L’ option is only for queries):

```
soma@raccoon[10:26am]~>smbclient '\\anaconda\data' -U soma ↵
added interface ip=128.186.103.108 bcast=128.186.103.255
nmask=255.255.254.0
Password: ***** ↵
Domain=[XRAY] OS=[Windows NT 4.0] Server=[NT LAN Manager 4.0]
Now inquire about directory and contents of the remote machine (Window NT). You can
do the same for the local machine by preceding the command with the escape character (!).
smb: \> pwd ↵
```

```

Current directory is \\anaconda\ |data is default; hence not shown
smb: \> !pwd ↵ |inquiry about local machine
/home/soma
smb: \> ls ↵ |inquiry about remote machine
. D 0 Wed Feb 27 17:10:12 2002
.. D 0 Wed Feb 27 17:10:12 2002
azzi D 0 Mon Feb 18 11:16:33 2002
brych D 0 Wed Jan 23 13:16:09 2002
... ..
soma D 0 Wed Jan 23 13:16:16 2002
yousef D 0 Wed Jan 23 13:16:14 2002

```

34726 blocks of size 1048576. 14869 blocks available

```

smb: \> cd soma ↵
smb: \soma\> cd .. ↵ |go one up; parent directory
smb: \> cd SOMA ↵ |case insensitive
smb: \> cd soma\HLJan02-1R\Test\Images ↵
smb: \soma\HLJan02-1R\Test\Images\> ls ↵
. D 0 Fri Jan 18 16:51:35 2002
.. D 0 Fri Jan 18 16:51:35 2002
Test_s0001.osc A 7223800 Fri Jan 18 16:12:05 2002
Test_s0002.osc A 7223800 Fri Jan 18 16:51:35 2002

```

34726 blocks of size 1048576. 14869 blocks available

To transfer a 7.22 Mb file Test_s0001.osc, we issue the command get (by default all transfers are binary):

```

smb: \soma\HLJan02-1R\Test\Images\> get Test_s0001.osc ↵
getting file Test_s0001.osc of size 7223800 as Test_s0001.osc
(7097.0 kb/s) (average 7097.0 kb/s)

```

Confirm the presence of Test_s0001.osc in the local (Linux) machine.

```

smb: \soma\HLJan02-1R\Test\Images\> !ls -ltFa *.osc ↵
-rw-r--r-- 1 soma users 7223800 Feb 28 10:35 Test_s0001.osc
smb: \soma\HLJan02-1R\Test\Images\> cd ..\..\ ↵ |note use of “\”
smb: \soma\HLJan02-1R\> pwd ↵
Current directory is \\anaconda\soma\HLJan02-1R\
smb: \> help ↵ |”help” command
ls dir du lcd cd
pwd get mget put mput
rename more mask del open
smb: \> help more ↵ |specific help about “more”
HELP more:
<remote name> view a remote file with your pager
smb: \> more soma\document.log ↵ |“more” a remote file ‘document.log’
getting file /tmp/smbmore.y7ykZe of size 52526 as
/tmp/smbmore.y7ykZe (1221.3 kb/s) (average 6858.87 kb/s)
Fri Jan 18 14:30:40 2002

```

This document describes new procedure.

```

smb: \> exit ↵ |exit out of smbclient
soma@raccoon[10:50am]~>ls -ltFa ↵ |check file is in Linux side
total 8137
-rw-r--r-- 1 soma users 7223800 Feb 28 10:35 Test_s0001.osc

```

For more information about smbclient and its functionalities please read the man pages for smbclient or check out the samba resources page at www.samba.org or other relevant sites.

vnc

We have installed Virtual Network Computing (vnc) server software on the Windows NT machine (anaconda.sb.fsu.edu) that controls the Image Plate (IP) detector. While vnc is running it gives users the ability to view the data being collected at XRF from anywhere in KLB without having to walk over to the Facility. vnc allows the visualization of any remote desktop connected to the Internet (and running vncserver) with the aid of Java capable browser (Firefox 0.9.3 or Internet Explorer 6.0). The user is authenticated with a password (not transmitted during authentication); however, the session itself is not encrypted. Currently, we are allowing only the visualization of the data progress. In the future, after consulting with Computer Resources and ensuring the security by upgrading the connection via ssh, vnc can be made available to control the data collection.

Vncserver set-up

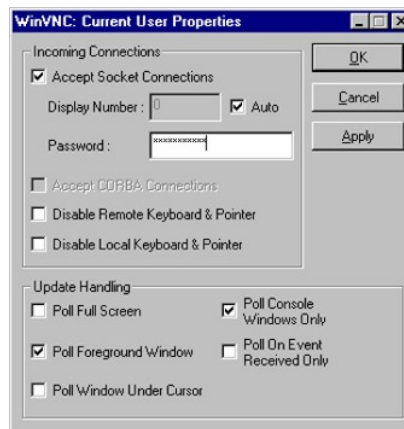
Given below is the procedure to start vncserver session. The session is started just before the data collection is started at Windows NT machine (anaconda).

Note: (Courier Font: machine output; ***Bold Italic Courier Font:*** user input; Garamond Font: comments).

Log into the Windows NT machine anaconda and vncserver is started automatically. It is run as a service allowing one to even log-in remotely. The service is running if there is a vnc-logo in the Windows Tray. If you don't see it, contact [Soma](#).



Next, the user has to set-up a password so that they can access the desktop remotely. Right click the vnc-logo to get a sub-menu and select “**Properties**” (Figure above). Alternatively, you can arrive at this from Windows NT Start menu as follows: **Start > Programs > Vnc > Show User Settings**. Selecting “Properties” opens another window (see Figure below):



In the “Password:” dialog box, type in a password, preferably different from that of Window’s password. Don’t modify any of the default check boxes. Then press “Apply” and “OK”. Now the `vncserver` has been set-up.

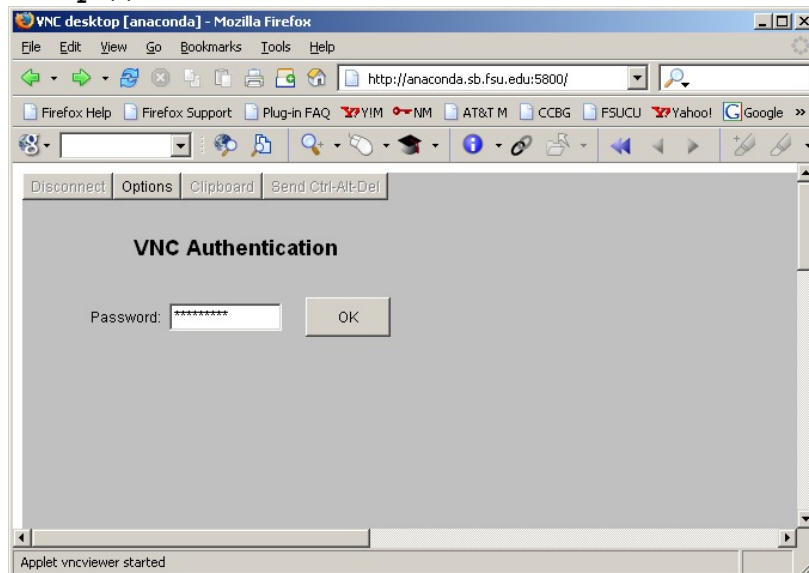
Start CrystalClear software. Proceed with your crystal data collection schedule. After the first frame has been collected, view the image using CrystalClear and remember to leave the CrystalClear display window open.

Vnc client (Staring a viewer)

Given below is the procedure to view your data collection session remotely. Launch any Java capable browser running in any platform (Windows XP, Windows 2000, Linux, UNIX, and Apple). All current browsers are Java capable (if you have difficulties, you may have disabled Java capabilities and you have to enable them, consult your browser documentation for more help).

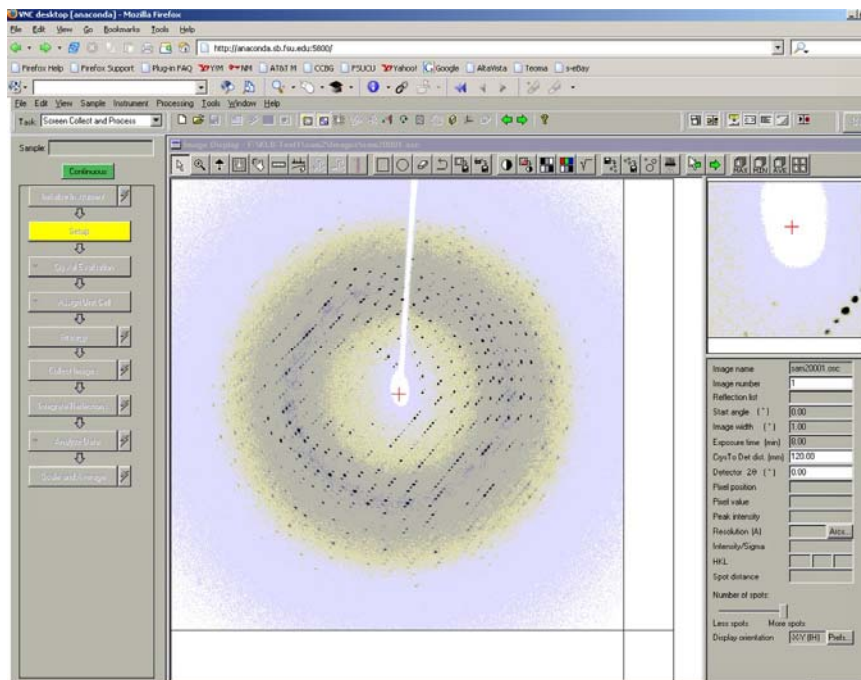
In the Location or Address dialog box of your browser type in the following address (exactly as given below; **note that there is no www prefix**)

`http://anaconda.sb.fsu.edu:5800`



After a brief delay, vnc authentication window will pop open (see Figure above). User may also see a message ‘Applet vncviewer running’ at the status bar of the browser. Type in your `vncserver` password and click the “OK” button.

If everything has been set-up correctly, you should be able to see the exact desktop of `anaconda.sb.fsu.edu` (as you would see, if you were physically sitting in front of the machine). A sample page is shown in the Figure above. After examining the image, it is advisable that the user refreshes the browser window. Password authorization will be required for each subsequent status updates.



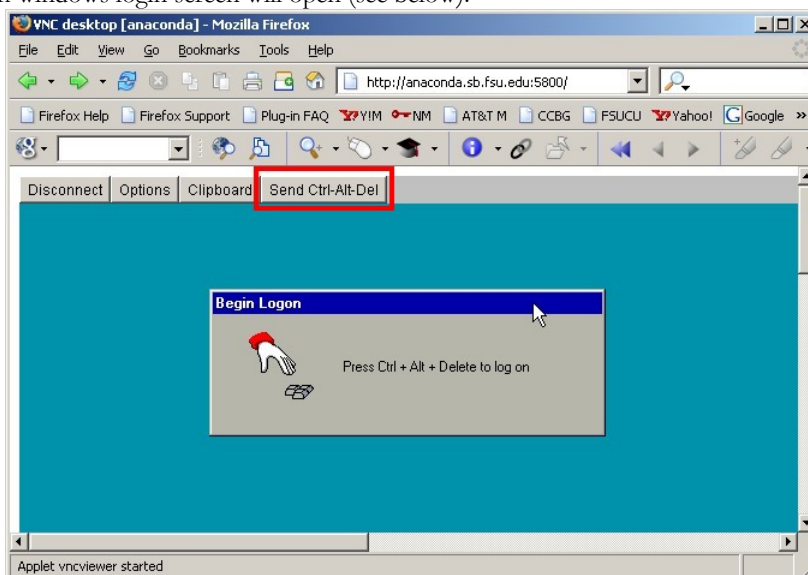
Vnc client (Fresh log-in session)

If no one is logged into `anaconda.sb.fsu.edu` and if a user wants to examine an image collected earlier, the user needs to establish a fresh log-in session. The procedure for that is given below:

In the Location or Address dialog box of your browser type in the following address (exactly as given below; **note that there is no www prefix**)

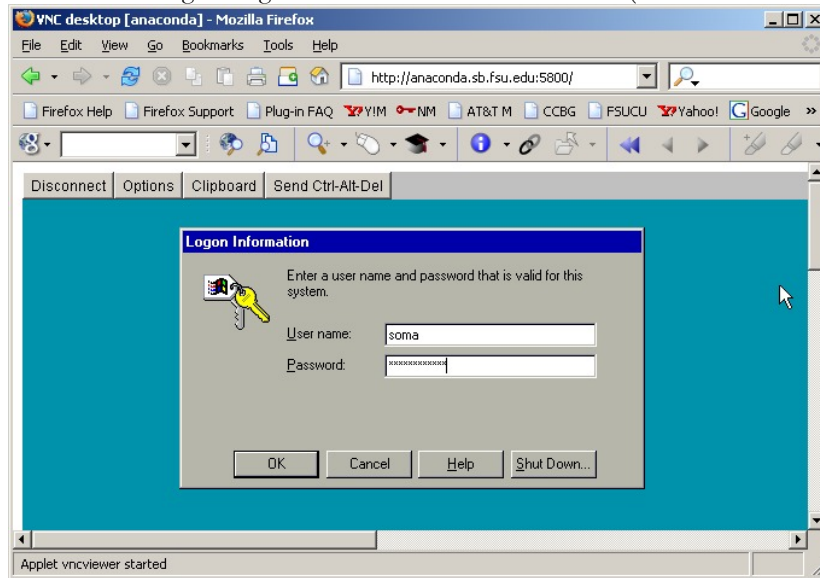
`http://anaconda.sb.fsu.edu:5800`

A vnc authentication window will open. Provide the vncserver's password and click "OK". A fresh windows login screen will open (see below):



Now press the "Send Ctrl-Alt-Del" button on the top left corner (inside the browser window). Don't type "Ctrl-Alt-Del" on your keyboard that will only activate your machine's

(client's) key combination and NOT the remote machine's (server's) key combination. The user will now see the regular log-in screen for the remote machine (anaconda.sb.fsu.edu).



Provide the "User name" and "Password" and press "OK" button to log in. Now the user will be able to launch any program they need.

Conclusion

With these additions, it will become easier to transfer data between computers and it is possible to follow the progress of your data collection remotely. Please send your suggestions and comments to soma@sb.fsu.edu (644-6448).