Data server for the Advanced Imaging Facilities (AIF)

User groups who pay the annual charge for microscopy have access to a data server maintained and backup by the computer centre. This system is to store data (raw and analysed) collected using one of the microscope systems in the AIF. However, this is NOT storage for other/general research data. It is also not the idea to move all your data collected over the years now to this server.

To get access to the server please contact Kees Straatman (krs5) to setup an account. Problems with the server should also first be reported to Kees Straatman.

To view your images stored at the server there are some programs available you could use:

- FocalPoint: http://www.bioinformatics.bbsrc.ac.uk/projects/focalpoint/
  (Download and overwrite the old loci_tools.jar within the FocalPoint distribution from http://www.loi.wisc.edu/bio-formats/focalpoint.
)
- IrfanView: http://www.irfanview.com/, this includes a thumbnail viewer although not all microscope formats will be opened.

Unfortunately, not all microscope formats will be opened by the above programs so if you come across a better solution please let me know. We are looking into other options but have not found a good solution for image indexing yet.

To access the server use one of the following options:
1. UOL Windows Clients
You should find the R drive automatically in the list of accessible network drives under ‘My Computer’. Select the drive and go to AIF followed by the name of your group.

2. Non-UOL Windows Clients
Right mouse click on ‘My Computer’ and select ‘Map Network Drive...’

This will open the following dialog box.
Select drive: R

Now type into the Folder option: `\aif.rfs.le.ac.uk\AIF`

Don’t select ‘Reconnect at login’.

You will be prompted to authenticate to connect to the storage system. You will see the following dialogue box

You should enter your UOL username and the UOL domain as shown above “uol\username”. Don’t select ‘Remember my password’ if this is a shared computer or if it is a personal (non-University) laptop or PC.

If you work on a shared computer you have to disconnect the server so the next person cannot access your data or by accident store data on your account. For this right mouse click again on ‘My computer’ and select this time ‘Disconnect Network Drive’, select the R: drive and click OK.
3. Mac Clients
To connect a Mac to the data server select ‘Connect to Server’ from the ‘Go’ menu and a window opens to fill in the sever details. Use the server address as shown below in the blue lined box.

A login screen will appear. Use as ‘Workgroup or Domain’ UOL and use your UOL username and login details to connect to the server. If you work on an open access systems don’t select ‘Remember this password in my keychain’.

Don’t forget to disconnect from the server when you are finished by dragging the data storage icon into the recycle bin.
4. Linux Clients
The computer centre recommends using Nautilus, which can be started at the command line by typing nautilus. You should see the following window:

```
Enter the details and then press ‘Enter’, you will now be prompted for your username and password, as shown in the figure below

Enter your University username and password in the appropriate fields and set the Domain to UOL as shown. If this is a University owned Linux workstation and you do not share it with any other users you may select ‘Remember forever’.

Disconnect............"
5. Recovering files *(by Jon Wakelin, Research Computing Services)*
28 Days of historical “snapshots” are available (i.e. the state of a file, exactly as it was, on each of the previous 28 days). Users are able to recover files themselves and do not need to send a support request to IT services.

5.1 Windows (via CIFS)
To recover a deleted file under Windows, right click on the folder that the file was in and select ‘Properties’. You will see the following window.

If you double click on a folder (or select and click ‘View’) it will open the folder (as it was on the given date) and you will be able to navigate the files as you would with a regular folder. When you have found the file you want to recover you will need to ‘drag-and-drop’ or ‘cut-and-paste’ it to your current folder. NB: The snapshot folders are read-only and you cannot make any changes to their contents.
Drag-and drop from snapshot folder to current folder

Notice date in explorer Window
5.2 Linux, Mac and Windows (manual recovery via CIFS)

Recovering files on Linux and Mac systems is slightly different. Instead users will need to navigate into the .zfs folder that lives at the top level of the share. This method can also be used on Windows although the integrated method shown above is recommended, however we will highlight the process using Windows for convenience.

Inside the .zfs folder you will find a subfolder called ‘snapshot’, and inside that folder you will see 28 sub folders, all begin with the string .auto-<date>. An example is shown on the following page. Unfortunately the date is given in Time-since-epoch format which gives the date as the number of seconds since Jan-01-1970. There are a number of online tools that will convert this number into a meaningful date, for instance, http://www.epochconverter.com.
5.3 Linux, Mac (via NFS)

If you are using NFS to access files via a system managed by Research Computing Services, we will create a set of links that give meaningful, human-readable names to the snapshot directories, so you won’t have to convert time-since-epoch dates. The original .zfs directory is still there, but you will also see a snapshots directory at the top level, e.g.

Change directory to the mount point (for example /rds):

```
[user@mach:/] cd /rds
```

List the files, noting both .zfs and snaphosts directories

```
[user@mach:/rds] ls -l
 total 15
  dr-xr-xr-x 4 root root 4 May 28 17:00 .zfs
  drwxr-xr-x 3 root chem 3 Jun 3 13:33 chem
  drwxr-xr-x 4 root gstep 4 Jun 28 11:36 gstep
  drwxr-xr-x 6 root phys 6 Jun 2 11:52 phys
  drwxr-xr-x 2 root root 3 Jun 29 10:42 snapshots
```

Move to the snaphosts directory and list the files one per line:

```
[user@mach:/rds] cd snapshots/
[user@mach:/rds/snapshots] ls -l
 total 14
  02-Jun-2010
  03-Jun-2010
  04-Jun-2010
  05-Jun-2010
  06-Jun-2010
  07-Jun-2010
  08-Jun-2010
  09-Jun-2010
  10-Jun-2010
  11-Jun-2010
```

You will see a series of directories whose names are human-readable dates. Inside these directories you will find a snapshot of the system, as it was, on the date shown. The files and sub-directories 24 are read only, but you will be able to copy files from the snapshot directories to any location you have write-permission using standard Linux tools such as `cp`.