

HPC Hints and Tips

This document provides a few tips and tricks for performing work using the HPC resource.

Connecting to the HPC

Once you have been given HPC access by James, you should be able to log on using `ssh`. To do this, enter the following command on your terminal:

```
ssh <USERNAME>@login.cx1.hpc.ic.ac.uk
```

After entering your Imperial password, you will be granted access to the HPC bash shell.

Copying items to the HPC from the terminal

scp

In order to copy files to/from a remote server, you will need to use either an FTP client or the command-line tool `scp`.

One major advantage of `scp` is that it is quick, scriptable, and operates in a manner very similar to the `cp` command

To `scp` a file to the HPC, you will need to use the following command:

```
scp path/to/file.txt <USERNAME>@login.cx1.hpc.ic.ac.uk:/home/<USERNAME>/
```

rsync

For mass uploads and downloads, it may be good to switch over from `scp` to using the `rsync` command instead. Whilst these nominally do the same job, `rsync` will (with the right flags) check whether files have changed and only transfer files which require updating.

If we wished to use `rsync` to copy the whole of our home directory to the current local directory, we would need to use:

```
rsync -chavzP --stats <USERNAME>@login.cx1.hpc.ic.ac.uk:/home/<USERNAME>/ .
```

A distinct downside of `rsync` is in its reliance on arcane flags to modify behaviour. This can lead to unexpected results, even with only minor spelling mistakes.

Mounting your partition as a network drive

There is a possibility for mounting your HPC partition as a network drive, using the `mount` command.

```
sudo apt install cifs-utils
cd /media/
mkdir HPC
sudo mount -t cifs -o username=<USER> //rds.imperial.ac.uk/rds/user/<USER> HPC
```

Note: this might take a while to work, or it may not work at all.

In the end it's likely not worth worrying about greatly, but if it works it can make things that little bit easier.

Checking jobs on the HPC without logging on

Checking the progress of jobs on the HPC can be done using the `qstat` command on the HPC bash terminal. This is a little annoying however as it's a good few keystrokes to connect, enter your password, enter `qstat` then disconnect. The process also fills your screen with a lot of unhelpful text e.g. the logon banner text.

With the following command, we can pass a call to `qstat` through our secure shell:

```
ssh <USERNAME>@login.cx1.hpc.ic.ac.uk "(/opt/pbs/bin/qstat)"
```

We can also reduce the amount of typing we need to do even further by adding our ssh keys to the `/home/<USERNAME>/.ssh/authorized_keys` file, removing the need to enter a password.

[Here is another useful tutorial for this.](#)

Just as an aside, many of these can be scripted as either aliases or little shell tools. I personally

have ones such as `cx1login` , `cx1send` and `cx1check` .