

Logging In:

```
ssh abcd1234@hpc.sydney.edu.au
ssh -X abcd1234@hpc.sydney.edu.au
```

Data Storage:**On Artemis:**

```
/home/abcd1234 – 10 GB (per User Limit)
/project/MyProj – 1 TB (Project limit)
/scratch/MyProj – 378 TB
```

On RCOS:

```
/rds/PRJ-MyProj
```

Module commands:

```
module avail
module load matlab
module avail matlab
module load matlab/R2017a
module unload matlab
```

Job Queues (all users):

```
defaultQ (default if unspecified)
small-express
scavenger
dtq (data transfer queue for data transfer only)
```

User guides, training, and support:

Install software, Artemis troubleshooting:

<https://sydney.edu.au/trackit>

ICT Services -> Research -> High-Performance Computing Request

HPC Website:

<https://informatics.sydney.edu.au/services/artemis/>

Training:

<https://informatics.sydney.edu.au/services/training/sih.training@sydney.edu.au>

Queue Resource limits:

Queue	Max Walltime	Max Cores per Job/User	Memory per node	Memory per core
Small	1 day	24/128	<123GB	< 20GB
Normal	7 days	120/128	<123GB	< 20GB
Large	21 days	288/288	<123GB	< 20GB
High Memory	21 days	192/192	123 GB to 6 TB	> 20 GB
GPU	7 days	252/252	<185GB	N/A
small-express	12 hours	4/24	<123GB	N/A
scavenger	2 days	288/288	<123GB	N/A
dtq	10 days	2/8	<16GB	N/A
Interactive	4 hours	4/4	<123GB	N/A

Grey shading: defaultQ sub-queues

Interactive: must access via command line (qsub -I)

Max cores per user: 600

Max array job elements: 1000

Max simultaneous jobs per user: 200

N/A = Not Applicable

Minimal PBS Scripts:**Serial job:**

```
#!/bin/bash
#PBS -P MyProj
#PBS -l select=1:ncpus=1:mem=4GB
#PBS -l walltime=1:00:00
cd "$PBS_O_WORKDIR"
<Commands to run computation>
```

Parallel Job:

```
#!/bin/bash
#PBS -P MyProj
#PBS -l select=5:ncpus=4:mem=4GB:mpiprocs=4
#PBS -l walltime=1:00:00
cd "$PBS_O_WORKDIR"
<Commands to run computation>
```

GPU Job:

```
#!/bin/bash
#PBS -P MyProj
#PBS -l select=1:ncpus=1:mem=4GB:ngpus=1
#PBS -l walltime=1:00:00
cd "$PBS_O_WORKDIR"
module load cuda
<Commands to run computation>
```

Data Transfer Job:

```
#!/bin/bash
#PBS -P MyProj
#PBS -l select=1:ncpus=1:mem=4GB
#PBS -l walltime=1:00:00
#PBS -q dtq
cd "$PBS_O_WORKDIR"
rsync -axP /scratch/MyProj/MyData /rds/PRJ-MyProj/MyArchive/
```

Useful, but optional, PBS directives:

```
#PBS -j oe
#PBS -W umask=022
#PBS -M your.email@sydney.edu.au
#PBS -m abe
```

Useful PBS commands:

```
jobstat
qsub MyPbsScript
qdel 1234567
qstat -u abcd1234
qstat -f 1234567
qstat -xf 1234567
```

Interactive Access (all on one line):

```
$ qsub -IXP MyProj -l
select=1:ncpus=1:mem=4GB,walltime=1:00:00
```

Transferring data to/from Artemis:

sftp abcd1234@hpc.sydney.edu.au
For GUI sftp, try CyberDuck or FileZilla

```
rsync -axP /scratch/MyProj/data /rds/PRJ-MyProj/MyArchive/
```

Linux Commands:

Manage Files

ls	list the contents of the current directory
ls -a	list all files, including hidden ("dot") files
ls -lh	list files, showing the long version: permissions, size and date last modified
vi filename	open filename in vim
nano filename	open filename in nano
cat filename	display the contents of filename
less filename	display the contents of filename
cp file1 file2	copy file1 to file2; file1 remains unchanged; file2 is overwritten
mv old new	rename a filename from old to new and delete old file
rm filename	remove (delete) filename

Manage Directories

pwd	show present working directory
cd	change back to home directory
cd ..	change to the previous directory (back one)
cd dirname	change to a directory named dirname
mkdir dirname	make a new directory named dirname
rmdir dirname	remove a directory named dirname, which must be empty

Manage running programs

<Ctrl+s> <control+s>	stop the screen from scrolling
<Ctrl+q> <control+q>	resume scrolling
<Ctrl+z> <control+z>	suspend a program
<Ctrl+c> <control+c>	terminate a program

Miscellaneous Commands

!!	repeat the last command
history	list previous commands
sort filename	sort input filename in numerical and/or alphabetical order, and order displays on the screen
which command	show the path in your directory where a particular <i>command</i> is located
grep "string" filename	find lines with the word "string" in filename and display on the screen
tar -zcf dirname.tar.gz dirname	create .tar.gz file called archive.tar.gz containig the directory dirname
tar -zxf dirname.tar.gz	extract .tar.gz archive called dirname.tar.gz
tar -ztvf dirname.tar.gz	display files contained in archive dirname.tar.gz without extracting them

get filename	download file from remote computer
put filename	upload file to remote computer
cd dirname	change directory on remote computer
lcd dirname	change directory on local computer

smbclient commands

get filename	download file from remote computer
put filename	upload file to remote computer
mget	download multiple files to from remote computer
mput	upload multiple files to remote computer
cd dirname	change directory on remote computer
recurse on/off	toggle recursive file transfer on/off
prompt on/off	toggle confirmation for file transfers on/off
!cd dirname	change directory on local computer
!ls	list files on local computer
!<shell command>	execute any shell command on local computer with the exclamation mark