

# Quick Reference Sheet

## Basic Shell Commands and Utilities

<i>Command</i>	<i>Description</i>	<i>Examples</i>
<code>cat &lt;file-path&gt;</code>	Concatenate files and print on the standard output.	<code>cat fractal.pbs</code> <code>cat cfd/Makefile</code>
<code>cd &lt;directory-path&gt;</code>	<b>C</b> hange <b>D</b> irectory Changes the current working directory.	<code>cd sharpen</code> <code>cd /work/y14/y14/guestXX</code> <code>cd ..</code>
<code>cp &lt;old-file-path&gt; &lt;new-file-path&gt;</code>	<b>C</b> opies a file.	<code>cp cfd.f90 cfd.f90.old</code> <code>cp cfd.tar.gz /work/y14/y14/guestXX</code>
<code>diff &lt;file-path1&gt; &lt;file-path2&gt;</code>	Prints the <b>d</b> ifference between files. Compares line by line.	<code>diff flow.dat</code> <code>../verify/flow_1.1000.dat</code>
<code>ls &lt;directory-path&gt;</code>	<b>L</b> ists directory contents. On its own lists the current working directory. Can list and sort by size, modification date, etc.	<code>ls</code> <code>ls -l</code> <code>ls -lt</code> <code>ls /work/y14/y14/guestXX</code>
<code>grep &lt;file-path&gt;</code>	<b>G</b> lobal <b>R</b> egular <b>E</b> xpression <b>P</b> rint Selects lines in files that match patterns.	<code>grep PBS cfd.pbs</code>
<code>make</code>	Builds software in the current working directory. Compilation is directed by a Makefile.	<code>make</code>
<code>man &lt;command&gt;</code>	Displays the <b>m</b> anual page for a given command.	<code>man ls</code> <code>man cp</code> <code>man man</code>
<code>mkdir &lt;new-directory-path&gt;</code>	<b>M</b> akes a new <b>d</b> irectory at the specified path.	<code>mkdir exercises</code>
<code>mv &lt;old-path&gt; &lt;new-path&gt;</code>	<b>M</b> oves (renames) a file or directory.	<code>mv cfd /work/y14/y14/guestXX</code> <code>mv typo.txt typo.txt</code>
<code>rm &lt;file-path&gt;</code>	<b>R</b> emoves (deletes) a file.	<code>rm delme.txt</code>
<code>rmdir &lt;directory-path&gt;</code>	<b>R</b> emoves (deletes) an empty <b>d</b> irectory.	<code>rmdir empty-dir</code>
<code>tar &lt;file-path&gt;</code>	<b>T</b> ape <b>a</b> rchive utility. Saves to or extracts files from a single archive.	<code>tar -xzvf sharpen.tar.gz</code>
<code>wget</code>	<b>W</b> orld <b>W</b> ide <b>W</b> eb <b>g</b> et Downloads files from the Web.	<code>wget http://example.com/file.zip</code>

## Paths

<i>Type</i>	<i>Description</i>
/	On its own refers to the root of the filesystem.
/path/from/root	An absolute path
path/no/leading/slash	A path relative to your current working directory.
.	Refers to the current directory.
..	Refers to the parent of the current directory.
*	A wildcard that matches zero or more characters in a filename. *.txt matches all files ending in .txt

## Text Editors

<i>Name</i>	<i>Description</i>	<i>Examples</i>
emacs	A widely used editor with a focus on extensibility.	emacs -nw sharpen.pbs CTRL+X CTRL+C quits CTRL+X CTRL+S saves
nano	A small, free editor with a focus on user friendliness.	nano sharpen.pbs CTRL+X quits CTRL+O saves
vi	A mode based editor with a focus on aiding code development.	vi cfd.f90 :q in command mode quits :q! in command mode quits without saving :w in command mode saves i in command mode switches to insert mode ESC in insert mode switches to command mode

## PBS Commands

<i>Command</i>	<i>Description</i>	<i>Examples</i>
aprun <program-path>	<b>R</b> uns an <b>a</b> pplication on the compute nodes. Used in job scripts or in an interactive job.	aprun -n 24 ./sharpen aprun -n 5 ./fractal-set aprun -n 48 -N 24 ./two-nodes
qdel	<b>D</b> eletes the specified job from the <b>q</b> ueue.	qdel 1448896
qstat	Display <b>s</b> tatus of PBS batch jobs, <b>q</b> ueues, or servers.	qstat qstat -u guestXX qstat -f 1448896
qsub <file-path>	<b>S</b> ubmits a PBS job to the <b>q</b> ueue.	qsub -q <resID> run_fractal.pbs qsub post_course_script.pbs