

## What is Linux?

Linux (pronounced lie-nooks) is the name given to a family of Unix-like operating systems. The Linux kernel was originally developed by Linus Torvalds in 1991. Red Hat Enterprise Linux is one of the operating systems available on HPC Wales which was originally developed by Red Hat Incorporated in 1993. Linux was originally developed as a free Unix-like operating system for Intel x86 based personal computers. It has since been ported to more computer hardware platforms than any other operating system. It is a leading operating system on servers and other big iron systems such as mainframes and supercomputers.

### Command Prompt Basics

Command	Description
man man	displays manual information on the manual command
man <command>	displays manual information on command
clear	clears the screen
exit	exits the command interpreter

### Manipulating Directories

Command	Description
cd ..	change to the parent directory
cd <directory>	change to directory <directory>
mkdir <directory>	create directory <directory>
rmdir <directory>	remove directory <directory>

## Listing Files

Command	Description
<code>ls</code>	display list of files and sub directories in standard format < name > excluding hidden files
<code>ls -a</code>	display list of files and sub directories in standard format < name > including hidden files
<code>ls -l</code>	display list of files and sub directories in long format < permissions owner group size date time name >
<code>ls -lh</code>	display list of files and sub directories in long format < permissions owner group size date time name > with human readable size
<code>ls -lt</code>	display list of files and sub directories in long format < permissions owner group size date time name > sorted by time
<code>ls -lr</code>	display list of files and sub directories in long format < permissions owner group size date time name > in reverse order
<code>ls -ltrh</code>	display list of files and sub directories in long format < permissions owner group size date time name > sorted by time, in reverse order, with human readable size

## Moving Files

Command	Description
<code>mv &lt;source&gt; &lt;dest&gt;</code>	move file <source> to file <dest>
<code>mv -i &lt;source&gt; &lt;dest&gt;</code>	move file <source> to file <dest> prompt before overwriting <dest> if it exists
<code>mv -f &lt;source&gt; &lt;dest&gt;</code>	move file <source> to file <dest> overwrite <dest> if it exists

## Removing Files

Command	Description
<code>rm &lt;file&gt;</code>	remove file <file>
<code>rm -i &lt;file&gt;</code>	remove file <file> prompt before removing
<code>rm -r &lt;directory&gt;</code>	remove directory <directory>
<code>rm -rf &lt;directory&gt;</code>	remove all sub directories and files

## Copying Files

Command	Description
<code>cp &lt;source&gt; &lt;dest&gt;</code>	copy file <source> to file <dest>
<code>cp -i &lt;source&gt; &lt;dest&gt;</code>	copy file <source> to file <dest> prompt before overwriting <dest> if it exists
<code>cp -r &lt;source&gt; &lt;dest&gt;</code>	copy directory <source> to directory <dest> copy all sub directories and files

## Comparing Files

Command	Description
<code>diff &lt;file1&gt; &lt;file2&gt;</code>	display differences between <file1> and <file2>
<code>fgrep "string" &lt;file&gt;</code>	find "string" in <file>
<code>sort &lt;file&gt;</code>	sort <file>

## Other Commands

Command	Description
<code>who</code>	show who is logged on
<code>top</code>	show which tasks are running
<code>watch &lt;command&gt;</code>	run <command> repeatedly
<code>history</code>	show which commands you ran
<code>date</code>	display the date and time

## Other Commands

Command	Description
<code>time &lt;command&gt;</code>	displays the time taken to run <command>
<code>more &lt;file&gt;</code>	displays a file on screen
<code>cat &lt;file&gt; &lt;files&gt;</code>	concatenate file or files and print on screen
<code>head &lt;file&gt;</code>	print top of file on screen
<code>tail &lt;file&gt;</code>	print bottom of file on screen
<code>uniq &lt;file&gt;</code>	omit repeated lines

## Command Modifiers

Wildcards allow you to specify multiple items to operate on

- `ls *.txt`      `rm *.txt`

Redirection allows you to direct the output of one command to a file

- `sort unsorted.txt > sorted.txt`

Filters are external commands that change data in some manner

- `fgrep "string" <file>`

Pipes let you direct the output of one command as input to another

- `ls | find "txt"`

## Getting Help

`man man`

command line documentation

## References

Linux Pocket Guide, First Edition

<http://openisbn.com/isbn/1449316697/>

## Downloading

You can download a version of Linux to run on your local workstation from

<http://centos.org>

Contact us on [support@hpcwales.co.uk](mailto:support@hpcwales.co.uk) or for further information please visit our website [www.hpcwales.co.uk](http://www.hpcwales.co.uk)