System Information

General

`uname -a`	Linux system information
`cat /etc/redhat-release`	Linux distribution version
`hostname`	System host name
`ifconfig -a`	Display network interfaces and ip address
`date`	Current date and time
`w`	Display who is logged into the server
`whoami`	Who are you logged in as

Hardware

`free -h`	Display free and used RAM/Memory
`df -h`	Display free and used space in file system
`du -ah`	Display the disk usage for all files and directories

File and Directory Commands

Navigation

`pwd`	Display the current working directory
`cd ..`	Go up one level
`cd`	Go to your home directory
`cd /Downloads`	Go to the Downloads directory inside your home directory
`cd /dev/null`	Navigate to the /dev/null directory

Files

`ls -al`	Display all files in detail
`rm file_name`	Remove/delete a file
`rm -r directory_name`	Recursively remove a directory and its contents
`cp file1 file2`	Copy file1 to file2
`cp -r source_dir destination`	Copy source recursively to destination
`mv file1 file2`	Move file1 to file2
`ln -s /path/to/file linkname`	Create a symbolic link to linkname
`touch file_name`	Creates and empty file or updates the access info
`cat file`	See the contents of a file
`less file`	Scroll through the file
`head file`	Display the first 10 lines
`tail file`	Display the last 10 lines
`tail -f file`	-f follows the file as it is appended too

File Permissions

Type indicates the file type. The most common values are:

- file
d directory
l symbolic link

Groups are collections of users. You can view the groups you belong too as follows:

`id` Displays the user and group ids of the current user
`groups` Displays the groups of the current user

Others or World permissions apply to any user on the system.

Permissions can be assigned as numbers or as characters.

	4	2	1	
0	-	-	-	no permissions
1	-	-	x	only execute
2	-	w	-	only write
3	-	w	x	write and execute
4	r	-	-	only read
5	r	-	x	read and execute
6	r	w	-	read and write
7	r	w	x	read, write and execute

`chmod 777 file_name`	Assigns rwx permissions to all three levels for file_name
`chmod 760 file_name`	Assigns rwx to user, rw- to group and — (no permissions) to other
`chmod 644 file_name`	Assigns rw- to users, r– to groups and others
Note	Use 777 carefully
`chgrp group_name file_name`	Change the group to group_name for file_name
`chgrp -R group_name directory`	Change the group recursively to directory and subdirectories

Searching

`grep pattern file_name`	Find the pattern in file_name
`grep -r pattern directory`	Find the pattern recursively in directory
`find -name 'notes*'`	find files in your home directory starting with notes

Archiving Files

`tar czf archive.tar.gz directory`	Create a gzip tar file named archive.tar.gz
`tar xzf archive.tar.gz`	Extract a gzip tar file
Note	Remove the z to create/extract a normal tar file.
`zip -r dirName.zip directory`	Create a windows zip file for a directory
`zip files.zip file1 file2`	Create a windows zip file that contains 2 files
`unzip files.zip`	Extract a windows zip file

Process Management

`ps -eF`	List all processes on the system
`ps -ejH`	Print the process tree
`ps -eLF`	List information about threads
`ps -eF | grep process_name`	Prints information on process_name
`top`	Display the top processes - q to quit
`kill -9 PID`	Kills the process with id PID
`program &`	Starts the application program in the background
`bg`	Lists the stopped and background processes
`fg`	Brings the most recent background process to the foreground

SSH

Usage

`ssh host`	Connect to the host as your local username
`ssh user@host`	Connect to host as user
`ssh -p 999 user@host`	Connect to host at port 999 as user
`ssh -Y user@host`	Connect to host with trusted X11 forwarding
`ssh -i PATH/KEY_NAME user@host`	Connect with ssh key to host

Key Generation

`ssh-keygen ..`	Generate ssh key
`-t rsa -b 4096 -o`	4096 bit OpenSSH formatted RSA key
`-t ed25519`	Alternative to above using EdDSA encryption - OpenSSH 6.5+
`-a 100`	100 rounds of key derivations, makes password hard to break
`-f /.ssh/id_rsa_$(date +%Y-%m-%d)`	file name for the key in the .ssh direcotry
`-C "Key for yeats"`	Comment related to the key
`Note`	Use a strong passphrase

Adding Keys

`ssh-copy-id -i PATH/KEY_NAME.pub user@host`	Copies the public key to the host

tmux

Sessions

`tmux new`	Starts a new session
`tmux new -s mySessionName`	Starts a new named session
`tmux ls`	List all your tmux sessions
`tmux a`	Attach to the last session
`tmux attach`	Attach to the last session
`tmux a -t mySessionName`	Attach to a specific session
`tmux kill-session`	kill all sessions
`tmux kill-session -a -t mySessionName`	kill all sessions but mySessionName
`tmux kill-session -t mySessionName`	kill mySessionName session

`Ctrl + b $`	Rename sessio
`Ctrl + b d`	Detach from session
`Ctrl + b ( or )`	Move to previous or next session

Windows

`Ctrl + b c`	Create window
`Ctrl + b ,`	Rename window
`Ctrl + b &`	Close window
`Ctrl + b p or n`	Previous or Next window

Panes

`Ctrl + b ;`	Last active pane
`Ctrl + b %`	Split vertically
`Ctrl + b "`	Split horizantally
`Ctrl + b arrows`	Move between panes
`Ctrl + b q`	show pane numbers
`Ctrl + b !`	convert pane to window
`Ctrl + b + arrows`	Resize panes horizantally
`Ctrl + b Ctrl + arrows`	Resize panes vertically
`Ctrl + b spacebar`	toggle pane layouts
`Ctrl + b x`	Close current pane

Transfering Files

Copying files from your local machine to remote server

`rsync -avzhe ssh FILENAME user@host:PATH`
  ssh with password authentication

`rsync -avzhe "ssh -i $HOME/.ssh/KEY_NAME" FILENAME user@host:PATH`
  ssh with key authentication

Copying files from the remote server to your local machine

`rsync -avzhe ssh user@host:PATH/FILENAME LOCAL_PATH`
  ssh with password authentication

`rsync -avzhe "ssh -i $HOME/.ssh/KEY_NAME" user@host:PATH/FILENAME LOCAL_PATH`
  ssh with key authentication

Useful `rsync` options

`--progress`	prints progress bar
`--dry-run`	tests the rsync commands

Getting help

`man command_name`	Displays the manual page for the command
`Google it`	Search Google or stackexchange