

### Information

pwd	print working directory
cat	print file [on screen]
hostname	display hostname -i [displays network address] -l [displays all local IPs]
date	set/display date & time
whois	
uptime	display how long the system has been running
cal	displays calendar
uname -a	displays Linux system info
uname -r	displays kernel info
lsb_release -s	

### Manage Users

su -	switch to root user & move to that directory
adduser	add new user
usermod -aG sudo <i>username</i>	add user to sudo list
groups <i>username</i>	list groups a user belongs too
su mfsmith	switch to listed user mfsmith
passwd	change password for current user name
passwd mfsmith	change password for listed user
adduser mfsmith -or- useradd mfsmith	Creates a new user
usermod mfsmith	modify username account
deluser mfsmith -or- userdel	Deletes user
deluser mfsmith --remove-- all-files	Deletes the user and removes all files in directory
getent powerusers   less	print user groups
usermod -l newusername oldusername	change user name
sudo chfn mfsmith	edit basic info i.e. full name, room #, phone #

### Process Management

ps	displays users current processes
ps -ef	displays all processes
pmap	displays memory usage
pstree	display in a tree

### Process Management (cont)

ps -ef   grep wa	display all info reference this process
ps kill 84679	kill process id 84679
ps killall java	kill all processes named java
top	show all running proicesses

### Disk/Hardware Mgmt

df -h	disk usage
ps	running processes

### System Monitoring

whoami	display user
uptime	system run time
cat /proc/cpuinfo	
free -h	display free memory}
lshw	print hardware configuration
last reboot	disaply date & time of last reboot
w	display currently logged in users

### Searching

locate [name of file]	searches system & locates that directory
find . -name [9414811_497-94.pdf]	search in current directory for file name
find /home -name *.jpg	search file type in listed directory
<i>Using GREP</i>	grep searches for patterns in files
grep -r	
command   grep	searches the output of a command

### OS Maintenance

sudo apt update	check for updates in current version
apt-get install docker	install docker
apt-get updaters && apt-get upgrade	

### Misc Need Organizing

ssh mfsmith@srv-tower	log into machine
scp mfsmith@srv-tower :srv-dc	
scp<username.>@<host>:[remote source] <local. destination	copies files from the host to the destination



### Working with Processes

ps tree	display a tree of processes
systemctl process name	control the systemd init system & service manager

### Working with File Permissions

chmod 777 [name of file]	assign read, write & execute to all users
chmod 755 [name of file]	read, write & execute for owner - read & execute for all other users
chmod 766 [name of file]	full permission to owner - read and write to others

### SuperUser

su - Change to superuser & stay at root directory

### General Maintenance

Update & Upgrade the Debian OS

sudo apt-get update && sudo apt-get upgrade

### Installs - Frequently Used

vagrant@debian11:~\$ sudo apt-get install nano -y

### Basic Network Mgmt

vagrant@debian11:~\$ ip -c link show | displays network devices

vagrant@debian11:~\$ sudo cp /etc/network/interfaces ~/ file | creates a copy of the network file

vagrant@debian11:~\$ sudo nano /etc/network/interfaces | opens the network file for editing i.e. creating a static IP

```
# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
-auto enp0s3
iface enp0s3 inet static
-address 192.168.1.97
-netmask 255.255.255.0
-gateway 192.168.1.1
-dns-domain example.com
-dns-nameservers 1.1.1.1
```

sudo systemctl restart networking

### Directory Structure

### Directory Structure (cont)

/lib	shared library files and kernel modules
/usr	user utilities and apps
/dev	device files i.e. mouse, keyboard, harddrive, etc.
/sbin	system binary files
/opt	option software
/media	temp storage/flash drives

### Directory Colors

Blue   Directory	Yellow   Device
Green   Executable	Magenta   Graphic Image
Cyan   symbolic Link	Red   Archive File
	Red & Black   Broken link

### Working with Directories

ls	list contents of current directory
ls -r	list files in subdirectories
ls -al	list files with directories, size, permissions etc.
ls -l	list files and permissions
	r [read] w[write] x [execute] -= [no permissions]
ls -a	list contents of current directory including hidden files
ls -lart	long, include hidden, ,
ls -d*/	list directories
cd ~	jump to users home
cd ..	jump to last directory
cd /	jump to root home directory
cd -	previous working directory
cd ../../	back up two levels

### File Management

cp file name [-r creates destination]	
mv Linux Command Cheatsheet to Linux Command Line Cheatsheet	is also for renaming
cat filename	
less	
mkdir/rm directory	
rm	
cd	

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/	root directory of operating system
/etc	host system config files
/var	storage for file which grow in size
/bin	user binary files i.e. cat, grep, etc.
/proc	system processes
/srv	system services
/mnt	ppermenet storage
/home	home directory for logged in user

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### Troubleshooting

Issue:	usermod command not found
Resolution:	use su - instead of su root
Issue:	wget command not found
Resolution:	sudo apt-get install wget
Issue:	cannot access repositories
Resolution:	manually add site via <b>nano /etc/apt/sources.list</b>

### Basic Mariadb Commands

Log into DB	sudo systemctl enable mysql
	sudo systemctl restart mysql
	sudo mysql -u root -p

### Basic Queries

select user from mysql.user;	displays all database users
show grants for 'zabbix'@'localhost'	displays user privileges
set password for 'zabbix'@'localhost' = password ('zabbix');	

### Install Mariadb-Server

sudo apt install mariadb-server
sudo mysql_secure_installation
sudo mariadb
CREATE DATABASE example_database;
ALTER DATABASE test CHARACTER SET='utf8' COLLATE='utf-8_bin';
GRANT ALL ON example_database.* TO 'example_user'@'localhost' IDENTIFIED BY 'password' WITH GRANT OPTION;
FLUSH PRIVILEGES;
exit
sudo mariadb mariadb -u example_user -p
SHOW DATABASES;

### Networking Command/Queries

ip a	display IP Address, routing, devices and tunnels
netstat	displays all active TCP connections, ports
<b>-nutlp [displays tcp/udp ports &amp; application running on port]</b>	
<b>-e [includes ethernet stats] -o [includes PIDs] -p [displays protocols] -r [displays routing table]</b>	
ping	test communication with machines
traceroute srv-dc	print packet route
host	DNS lookup utility

### Networking Command/Queries (cont)

hostname	show or set system name
iptables	utility for packet filtering and NAT
mtr	network diagnostic tool
telnet	access to the telnet tool
ufw	application to manage filters and firewalls
mtr	diagnostic tool
nbtstat	displays netbios over tcp
arp	displays caches apr table
pathping	displays info about network latency/loss between hops
tcpdump	

### Firewall

sudo apt-get install ufw	install firewall application
sudo ufw allow 'Nginx HTTP'	allow application to pass through firewall
sudo ufw status	check firewall status
sudo ufw disable	disable firewall
sudo ufw enable	enable firewall
sudo ufw allow 22	allow port number to pass
sudo ufw reset	reset firewall

