Command Name	date
Description	The date command is used to print out, or change the value of, the system's time and date information
Example 1	date
Output 1	Sat Aug 5 03:01:30 EDT 2017
Example 2	date +"%Y-%m-%d %H:%M:%S"
Output 2	2017-08-05 03:02:05

Command Name	time
Description	time command tell us how long it took for a command to execute. The time command runs the specified program command with the given arguments. When command finishes, time writes a message to standard output giving timing statistics about this program run. These statistics consist of: 1. The elapsed real time between invocation and termination. 2. The user CPU time. 3. The system CPU time
Example	Time
Output	Sat Aug 5 03:04:35 EDT 2017 real 0m0.005s user 0m0.002s sys 0m0.003s

Command Name	pwd
Description	pwd prints the full pathname of the current working directory
Example	Pwd
Output	/home/scls-host1/secondcampus

Command Name	who
Description	The who command prints information about all users who are currently logged in
Example	who
Output	root pts/0 2017-08-05 03:31 (192.168.0.5)

Command Name	whoami
Description	whoami prints the effective user ID. This command prints the username associated with the current effective user ID
Example	whoami
Output	root

Command Name	w
Description	w displays information about the users currently on the machine and their processes The header of the output shows (in this order): the current time, how long the system has been running, how many users are currently logged on, and the system load averages for the past 1, 5, and 15 minutes. The following entries are displayed for each user: login name, the tty name, the remote host they are logged in from, the amount of time they have been logged in, their idle time, JCPU, PCPU, and the command line of their current process
Example	w
Output	03:36:15 up 152 days, 1:57, 2 users, load average: 0.00, 0.02, 0.05

	USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT root pts/0 192.168.0.5 03:31 7.00s 0.36s 0.05s w

Command Name	**id**
Description	Print user and group information for the specified USERNAME, or (when USERNAME omitted) for the current user
Example	id
Output	uid=0(root) gid=0(root) groups=0(root) context=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023

Command Name	**uname**
Description	Print certain system information. Default OPTION for uname is -s option
Example	uname –a
Output	Linux scls-host1 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

Command Name	**uptime**
Description	uptime tells you how long the system has been running. uptime gives a one-line display of The current time, how long the system has been running, how many users are currently logged on, the system load averages for the past 1, 5, and 15 minutes
Example	uptime
Output	03:41:15 up 152 days, 2:02, 2 users, load average: 0.03, 0.03, 0.05

Command Name	**ls**
Description	List information about the FILEs (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified
Example	ls –lhart
Output	total 20K dr-xr-xr-x. 22 root root 4.0K Aug 2 11:09 .. dr-xr-xr-x. 22 root root 4.0K Aug 2 11:09 . -rw-r--r--. 1 root root 21 Aug 2 11:09 first.txt -rw-r--r--. 1 root root 30 Aug 3 04:58 second.txt

Command Name	**mkdir**
Description	mkdir is used to create directories on a file system. If the specified DIRECTORY does not already exist, mkdir creates it. We can create more that one directory using this command
Example	mkdir directory1 directory2 directory3
Output	

Command Name	**touch**
Description	touch command will create a file with 0 bytes. Just like mkdir, we can create more than one file using this command The touch command updates the access and modification times of each FILE to the current system time. If you specify a FILE that does not already exist, touch creates an empty file with that name

Example	touch test1.txt test2.txt test3.txt
Output	

Command Name	**file**
Description	The file command is used to determine a file's type. The type displayed will usually contain one of the words text (the file contains only printing characters and a few common control characters and is probably safe to read on an ASCII terminal), executable (the file contains the result of compiling a program in a form understandable to a kernel), or data meaning anything else (usually binary or non-printable)
Example	file first.txt
Output	first.txt: ASCII text

Command Name	**cat**
Description	cat reads data from files, and outputs their contents. It actually is used to Display text files, Copy text files into a new document, Append the contents of a text file to the end of another text file, combining them
Example	cat first.txt
Output	Hi Friend How are you How did you do your exam

Command Name	**more**
Description	more command is a filter for paging through text one screen at a time. It displays text, one screen at a time
Example	more /var/log/syslog.1
Output	

Command Name	**less**
Description	less is a program similar to more, but it has many more features. less does not have to read the entire input file before starting, so with large input files it starts up faster than text editors like vi. Less can also search for a particular string in a file
Example	less /var/log/syslog.1
Output	

Command Name	**head**
Description	head makes it display the first part of file(s), by default, prints the first 10 lines of each FILE to standard output
Example	head /var/log/kern.log
Output	

Command Name	**tail**
Description	tail command is the reverse of head command. tail outputs the last part, prints the last 10 lines of each FILE to standard output
Example	tail -f will follow the optput appended data as the file grows
Output	

Command Name	cp (copy)
Description	The cp command is used to make copies of files and directories. Copy will retain both the source and destination files
Example	cp first.txt copy.txt
Output	

Command Name	mv (move)
Description	The mv command is used to move or rename files. Copy will retain only the destination file. Source file will be removed or deleted from the file system
Example	mv first.txt move.txt
Output	

Command Name	rm (remove)
Description	rm removes each specified FILE. By default, it does not remove directories. rm -r remove directories and their contents recursively
Example	rm -rf /home/scls-host1/mydirectory OR rm /home/scls-host1/mydirectory/myfile.txt
Output	

Command Name	cd (change directory)
Description	cd command allows you to change your working directory. You use it to move around within the hierarchy of your file system
Example	cd /home/scls-host1/mydirectory OR cd ../..
Output	

Command Name	which
Description	which command tells us the directory location of the files, which is passed to it as a command. It will searching the paths in the PATH environment variable for executable files matching the names of the arguments
Example	which python OR which head
Output	/usr/bin/python OR /usr/bin/head

Command Name	wc (word count)
Description	wc prints newline, word, and byte counts for each FILE, and a total if more than one FILE is specified. wc -l option will print the total number of lines in a file
Example 1	wc first.txt second.txt
Output 1	10 10 21 first.txt 10 10 30 second.txt 20 20 51 total
Example 2	wc -l first.txt
Output 2	10 first.txt

Command Name	pipe and redirection operators
Description	Every program we run on the command line has three data streams connected to it 1. STDIN (0) - Standard input (data fed into the program) 2. STDOUT (1) - Standard output (data printed by the program, defaults to the terminal)

	3. STDERR (2) - Standard error (for error messages, also defaults to the terminal) Piping and redirection is the means by which we may connect these streams between programs and files to direct data in useful ways Using pipes, we can send data from one program to another, which means is, feed the output from the program on the left as input to the program on the right
Example 1	wc first.txt second.txt > count.txt OR wc first.txt second.txt 1> count.txt
Output 1	
Example 2	ls -l |head -3
Output 2	total 16 -rw-r--r--. 1 root root 21 Aug 2 11:09 first.txt -rw-r--r--. 1 root root 30 Aug 3 04:58 second.txt

Command Name	**tee**
Description	tee copies data from standard input to each FILE, and also to standard output. We can sya that, tee duplicates its input, routing it to multiple outputs at once The tee command is named after the T-splitter in plumbing, which splits water into two directions and is shaped like an uppercase T
Example	w|tee users.txt
Output	11:50:42 up 153 days, 10:11, 2 users, load average: 0.04, 0.03, 0.05 USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT root pts/0 10.132.159.28 11:23 2.00s 0.71s 0.12s w
users.txt file content	11:50:42 up 153 days, 10:11, 2 users, load average: 0.04, 0.03, 0.05 USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT root pts/0 10.132.159.28 11:23 2.00s 0.71s 0.12s w

Command Name	**lsof (list open files)**
Description	lsof lists information about open files on the system, including which process has the file open. An "open file" is any file on disk, named pipe, network socket, Unix socket, or device which is open by a process
Example	lsof|head
Output	COMMAND PID TID USER FD TYPE DEVICE SIZE/OFF NODE NAME systemd 1 root cwd DIR 253,0 4096 128 / systemd 1 root rtd DIR 253,0 4096 128 / systemd 1 root txt REG 253,0 1490008 68368013 /usr/lib/systemd/systemd

Command Name	**ps (process status)**
Description	ps command will display the status of currently running processes on the system
Example	ps -aef
Output	UID PID PPID C STIME TTY TIME CMD root 1 0 0 Mar06 ? 00:46:37 /usr/lib/systemd/systemd --switched-root --system --deserialize 21 spectrum 1345 1315 0 Mar06 ? 05:07:24 /usr/Spectrum/bin/JavaApps/bin/telnetd -Xms128m -Xmx256m com.aprisma.spectrum.telnetd.Telnetd spectrum 1347 1315 0 Mar06 ? 00:49:27 /usr/Spectrum/LS/LocServer

	spectrum 1348 1315 0 Mar06 ? 05:17:31 /usr/Spectrum/bin/JavaApps/bin/ncmservice -Xms128M -Xmx512M - XX:+HeapDumpOnOutOfMemoryError -Dvbroker.agent.enableLocato r=false -Dvbroker.orb.admDir=/usr/Spectrum/bin/VBNS - Dborland.enterprise.licenseDir=/usr/Spectrum/bin/VBNS/license - Dborland.enterprise.licenseDefaultDir=/usr/Spectrum/ bin/VBNS/license -Djava.endorsed.dirs=/usr/Spectrum/lib/endorsed - DSPECROOT=/usr/Spectrum com.aprisma.spectrum.scmd.ScmService

Command Name	**history**
Description	history command will list all the previously executed commands in the system. This simplifies spelling corrections and the repetition of complicated commands or arguments
Example	history
Output	2 grep --help 3 bg 4 fg 5 pine 6 cd public_html

Command Name	**What is a wildcard**
Description	Wildcards are a set of building blocks that allow you to create a pattern defining a set of files or directories **Wildcard characters** * - represents zero or more characters ? - represents a single character [] - represents a range of characters
Example	ls -l a*
Output	-rw-r--r--. 1 root root 0 Aug 7 07:50 aaa.txt -rw-r--r--. 1 root root 0 Aug 7 07:50 abb.java -rw-r--r--. 1 root root 0 Aug 7 07:50 abc.txt -rw-r--r--. 1 root root 0 Aug 7 07:50 acc.html

Command Name	**grep (globally search a regular expression and print)**
Description	grep is a command-line utility for searching plain-text data sets for lines that match a regular expression. It searches for the PATTERN of text that you specify on the command line, and outputs the results for you
Example	cat /etc/passwd|grep root
Output	root:x:0:0:root:/root:/bin/bash operator:x:11:0:operator:/root:/sbin/nologin

Command Name	**df (disk free)**
Description	The df command displays the amount of available disk space being used by file systems
Example	df -lh
Output	Filesystem Size Used Avail Use% Mounted on /dev/mapper/rhel-root 38G 29G 9.0G 77% / devtmpfs 7.8G 0 7.8G 0% /dev tmpfs 7.8G 84K 7.8G 1% /dev/shm

Command Name	du (disk usage)
Description	du estimates and displays the disk space used by files
Example	du -sh /home/
Output	235M /home/

Command Name	watch
Description	watch is used to run any designated command at regular intervals. It displays its output on a console
Example	watch -n 5 free -m
Output	Every 5.0s: free -m Mon Aug 7 08:08:37 2017 total used free shared buff/cache available Mem: 15880 1349 12060 277 2470 13939 Swap: 3967 986 2981

Command Name	scp (secure copy)
Description	scp command will copy a file or directory from one system to another server
Example	scp /home/scls-host1/html/image*.jpg scls-host1@192.168.0.9:/home/scls-host5
Output	

Command Name	ssh (Secure Shell)
Description	With the ssh command you can log in to a remote computer and work on it remotely. That is, it enables you to connect to another computer on the Internet, that could be physically located anywhere in the world, and open a window on your local machine that lets you run programs interactively on the remote machine
Example	ssh scls-host1@192.168.0.12
Output	

Command Name	find
Description	find searches for files in a directory hierarchy in your machine. It serches for a file recursively in all directories and sub-directories along its patch
Example	find . -iname first.txt
Output	/home/scls-host1/first.txt

Command Name	runlevels
Description	Remember fan regulator. A runlevel is a software configuration of the system which allows only a selected group of processes to exist There are 7 runlevels from 0 through 7 0-Shutdown 1-Single User 2-Multi User Mode 3-Multiuser Networking 4-Unused 5-Multiuser Networking with display manager (X) GUI 6-Reboot

Example	
Output	

Command Name	**init**
Description	init is the parent of all processes. To know the list of all processess init program can start for each runlevel are defined in a file /etc/inittab
Example	init 6
Output	

Command Name	**sudo (superuser do)**
Description	sudo allows a permitted user to execute a command as another user, according to specifications in the /etc/sudoers file. Alos, it executes a command as privileged user
Example	sudo scp /home/scls-host1/html/image*.jpg scls-host1@192.168.0.9:/home/scls-host5
Output	

Command Name	**top**
Description	top command provides a dynamic real-time view of a running system. It can display system summary information, as well as a list of processes or threads currently being managed by the kernel
Example	top
Output	

Command Name	**free**
Description	Displays the total amount of free and used RAM (physical) and swap memory in the system, as well as the buffers used by the kernel
Example	free -m
Output	total used free shared buff/cache available Mem: 15880 1350 12002 277 2526 13933 Swap: 3967 986 2981

Command Name	**pstree**
Description	pstree displays processes in tree format. The pstree command shows running processes as a tree
Example	pstree
Output	

Command Name	**File Permissions Explained**
Description	Any file or directory that we create or is created by default has three permissions, viz. read, write or execute These permissions are associated with three types of users viz. owner (u), group(g), others(o) It means, every file or directory will have all these three set of permissions (rwx) There are two ways to represent file or directory permissions 1. with symbols (alphanumeric characters u,g,o) 2. with octal numbers (the digits 0 through 7) r=4 w=2

	x=1 Read permission: If a file has this permission, it can be read, else it cannot be read. If a directory has this permission, contents can be shown, else it cannot be shown Write permission: If a file has this permission, it can be modified, else it cannot be modified. If a directory has this permission, contents can be modified, else it cannot be modified Execute permission: If a file has this permission, it can be executed, else it cannot be executed. If a directory has this permission, it can be accessed, else it cannot be acccessed

Command Name	**useradd**
Description	useradd is a low-level utility for adding users to a system
Example	useradd -d /usr/home/myuser -m -c "Second Campus Owner" myuser
Output	

Command Name	**passwd**
Description	passwd command is used to change a users password
Example	passwd scls-host1
Output	Changing password for user myuser. New password: BAD PASSWORD: The password is shorter than 8 characters Retype new password: passwd: all authentication tokens updated successfully.

Command Name	**usermod**
Description	usermod is a command to change a user's system account settings
Example	usermod -a -G root myuser
Output	

Command Name	**userdel**
Description	useradd is a command to remove a user account and all associated files
Example	userdel -r myuser
Output	

Command Name	**groupadd**
Description	groupadd command creates a new group account using the values specified on the command line plus the default values from the system
Example	groupadd mygroup
Output	

Command Name	**groupmod**
Description	groupmod command modifies the definition of the specified GROUP by modifying the appropriate entry in the group database
Example	groupmod -n newgroup mygroup

Output	

Command Name	**groups**
Description	groups command is used to list a user's group memberships
Example 1	groups scls-host1
Output 1	scls-host1 : scls-host1 root
Example 2	groups | wc –w (this will tell us the count of groups current user is associated with)
Output 2	2

Command Name	**groupdel**
Description	groupdel command is used to remove a group Note: You cannot remove the primary group of any existing user; you must remove all the users in that group before deleting that group
Example	groupdel mygroup
Output	

Command Name	**chmod**
Description	chmod command is used to change the permissions of files or directories
Scenario	Say, you are the owner of a file named 'myfile', and you want to set its permissions, where the user can read, write, and execute it; members of your group can read and execute it; and others may only read it.
Example 1 (Using alphanumeric chars)	chmod u=rwx,g=rx,o=r myfile
Example 2 (Using Octal Numbers)	chmod 754 myfile

Command Name	**chown**
Description	chown changes the user or group ownership of each given file
Scenario 1	Set the owner of file file.txt to user hope
Example 1	chown hope file.txt
Output 1	
Scenario 2	Recursively grant ownership of the directory /files/work, and all files and subdirectories, to user hope
Example 2	chown -R hope /files/work
Output 2	

Command Name	**What is a background process and how to run a command or program in background**
Description	A background process is a process that is executed independently of the shell, leaving the terminal free for other work. To run a process in the background, include an & (an ampersand) at the end of the command you use to run the job
Example 1	sleep 120 &
Output 1	[1] 44399
Example 2	sleep 240 &
Output 2	[2] 44400
Command Name	jobs
Description	jobs command will list all background jobs
Example 3	jobs

Output 3	[1]- Running sleep 120 & [2]+ Running sleep 120 &
Example 4 (To bring second background process to foreground in above example)	fg %2
Description	Use ^Z (Ctrl + Z) key to suspend current forground process
Output 4	[2]+ Stopped sleep 120
	Check what all jobs are running in the background: jobs Output: [1]- Running sleep 120 & [2]+ Stopped sleep 120 Again issue 'bg' command to start the last suspended background process [2]+ sleep 120 & Check what all jobs are running in the background: jobs [1]- Running sleep 120 & [2]+ Running sleep 120 &

Command Name	**gzip**
Description	gzip command is used to compress a file. gzip reduces the size of the named files using Lempel-Ziv coding (LZ77) The output of this command would be a file that is taken as input appended with gz extension
Example	gzip messages-20170717
Output	messages-20170717.gz

Command Name	**gunzip**
Description	gunzip command is used to decompress a file
Example	gunzip messages-20170717.gz
Output	messages-20170717

Command Name	**tar (tape archive)**
Description	tar command is used to create, maintain, modify, and extract files that are archived in the tar format
Example 1 (to compress a directory	tar -czvpf log.tar.gz /var/log/
Output 1	log.tar.gz
Example 2 (to compress a directory	tar -xzvpf log.tar.gz
Output 2	log

Command Name	**cron**
Description	cron is the system process (daemon) which will automatically execute a command or program according to a schedule. The schedule is called the crontab crontab(cron table) is the name of the program used to edit that schedule Command to list all cronjobs: crontab -l

	Command to editl all crontab: crontab -e crontab format crontab contains below mentioned six pieces of information, each separated by a space. First five pieces of information tell cron when to run the job, and the last piece of information tells cron which job to run 1. A number (or list of numbers, or range of numbers), m, representing the minute of the hour; 2. A number (or list of numbers, or range of numbers), h, representing the hour of the day; 3. A number (or list of numbers, or range of numbers), dom, representing the day of the month; 4. A number (or list, or range), or name (or list of names), mon, representing the month of the year; 5. A number (or list, or range), or name (or list of names), dow, representing the day of the week; and 6. command, which is the command to be run, exactly as it would appear on the command line.
Example	
Output	

Command Name	**kill**
Description	kill command is used to kill or terminate a process. It actually send a signal to a process. The default signal is 'TERM' (terminate) Syntax: kill <PID>
Example	kill 1234
Output	

Command Name	**killall**
Description	This command is similar to kill, but it is used to kill a process by name
Example	kill prime.java
Output	

Command Name	**vmstat**
Description	This command is used to display virtual memory statistics. This output is used to help identify performance bottlenecks
Example	vmstat
Output	procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu----- r b swpd free buff cache si so bi bo in cs us sy id wa st 1 0 1009488 12207164 0 2644708 0 0 3 27 1 1 2 1 97 0 0

Command Name	**export**
Description	export command marks an environment variable to be exported to child-processes, so that the child inherits them. In other words,, it is used to make a variable global

Example	export PATH
Output	

Command Name	**ifconfig (interface configuration)**
Description	ifconfig is used to find IP Address of a Linux machine. It is also used to configure, or view the configuration of, a network interface
Example	ifconfig|grep inet
Output	inet adder 192.168.0.12

Command Name	**hostname**
Description	The hostname command shows or sets the system hostname
Example	hostname
Output	scls-host1

Command Name	**ping**
Description	ping command is ues to check whether a machine is dead or alive. It is a simple way to send network data to, and receive network data from, another computer on a network
Example	ping 192.168.0.12
Output	192.168.0.12 is alive

Command Name	**traceroute**
Description	traceroute prints the route that packets take to a network host
Example	traceroute secondcampus.in
Output	root@lodisun042ae:~# traceroute ca.com traceroute: Warning: ca.com has multiple addresses; using 10.145.196.27 traceroute to ca.com (10.145.196.27), 30 hops max, 40 byte packets 1 lodirt01-vlan2001.ca.com (10.131.194.1) 0.423 ms 0.425 ms 0.301 ms 2 inhygr44-port-ch207.ca.com (10.134.253.117) 0.404 ms 0.461 ms 0.314 ms 3 inhynx64-poch204.ca.com (10.134.253.26) 0.605 ms 0.801 ms 0.589 ms 4 inhygr48-gi0-0-1-inhyrb03-w4-1.ca.com (10.134.253.198) 0.332 ms 2.362 ms 0.381 ms 5 inhygr49-gi-2-0-0-att-wan.ca.com (155.35.1.41) 0.914 ms hyderabad-verizon-peer.ca.com (155.35.1.33) 5.752 ms 3.440 ms 6 138.42.21.9 (138.42.21.9) 216.536 ms rtp003232rts.ca.com (130.200.200.73) 227.410 ms 138.42.21.9 (138.42.21.9) 216.467 ms 7 useqwagr49-g0-0-0.ca.com (130.200.200.74) 224.587 ms 224.604 ms useqwagr48-g0-0-0.ca.com (138.42.21.10) 222.512 ms 8 169.254.249.45 (169.254.249.45) 226.242 ms 226.207 ms 226.243 ms 9 aws-22800024.ca.com (10.145.196.27) 234.739 ms 234.552 ms 234.366 ms

Command Name	**netstat**
Description	netstat is a command-line tool that displays network connections (both incoming and outgoing), routing tables, and a number of network interface and network protocol statistics
Example	netstat -tpnl (This command will show all listening tcp connections along with its PID)
Output	Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name tcp 0 0 0.0.0.0:4105 0.0.0.0:* LISTEN 3228/cam

	tcp 0 0 0.0.0.0:3306 0.0.0.0:* LISTEN 1337/mysqld tcp 0 0 0.0.0.0:65259 0.0.0.0:* LISTEN 1315/processd tcp 0 0 0.0.0.0:111 0.0.0.0:* LISTEN 1332/rpcbind tcp 0 0 0.0.0.0:61904 0.0.0.0:* LISTEN 1315/processd

Command Name	**nslookup (name server lookup)**
Description	nslookup command is used to query internet name servers interactively for information
Example	nslookup google.com
Output	Server: inhynw16.ca.com Address: 155.35.34.108 Non-authoritative answer: Name: google.com Addresses: 2404:6800:4007:802::200e 172.217.26.206

Command Name	**wget (web get)**
Description	wget is a command-line utility which is used to download file(s) over a network
Example	wget http://ftp.gnu.org/gnu/wget/wget-1.5.3.tar.gz
Output	--2012-10-02 11:28:30-- http://ftp.gnu.org/gnu/wget/wget-1.5.3.tar.gz Resolving ftp.gnu.org... 208.118.235.20, 2001:4830:134:3::b Connecting to ftp.gnu.org|208.118.235.20|:80... connected. HTTP request sent, awaiting response... 200 OK Length: 446966 (436K) [application/x-gzip] Saving to: wget-1.5.3.tar.gz 100%[==========>] 446,966 60.0K/s in 7.4s 2012-10-02 11:28:38 (58.9 KB/s) - wget-1.5.3.tar.gz