CompTIA Linux+ - Quiz Questions with Answers

1.0 System Management

1.

An administrator wants to change the clock from local time to UTC. Which command should they run to do this?

timedatectl set-timezone UTC

date set-timezone UTC

hwclock set-timezone UTC

localectl set-timezone UTC

Correct answer: timedatectl set-timezone UTC

The timedatectl command can display a list of time zoned data files, change the time zone, and set the time. Setting the clock may not work if automatic time synchronization is enabled.

The date command shows or sets the date. The hwclock command sets the time in the system's BIOS or UEFI. The localectl command sets the locale.

2.

An administrator is about to do a snapshot of a system. What command should they run FIRST to make sure that there are no open files?

lsof

ls

ps

top

Correct answer: lsof

The list open files (lsof) command shows which files are open by which processes.

The ls command is used to show files and directories. The ps command is used to show active processes. The top command is used to show a real-time view of processes.

3.

Which command will give a hierarchical view of USB hubs and devices attached to each?

lsusb -t

lsusb -d

lsusb -v

lsusb -s

Correct answer: lsusb -t

The command lsusb -t will display USB information in a tree format. It shows the hub, driver, and transfer speed.

The -d option only displays devices from a specific vendor ID. The -v option is for verbose mode. The -s option only displays options for a particular bus.

4.

What do two exclamation points (!!) in the password field of the /etc/shadow file mean?

The user's password has not been set

The user's account is locked

The user's password is encrypted with the MD5 algorithm

The user's password hash has not been salted

Correct answer: The user's password has not been set

Two exclamation points in the second field of the /etc/shadow file mean that a password has not been set. Setting a password will fill this field with a salted and hashed version of the password.

A locked account will have a single exclamation point before the password. The algorithm is determined by what is in the /etc/login.defs file. All passwords should be salted.

5.

Which is the PRIMARY tool for working with a repository on a Red Hat-based Linux distribution?

yum

apt

dpkg

make

Correct answer: yum

Yellowdog Update Manager (YUM) lets an administrator install, remove, and query software packages in a Red Hat repository. The repository files are stored in the folder /etc/yum.repos.d.

Debian-based systems use the apt suite of tools to work with repositories and the dpkg tool to interact with a package management database. The make command is for compiling software.

6.

Initialization scripts for each service are typically located in which directory for Linux distributions based on SystemV?

/etc/init.d

/etc/grub.d

/etc/sysctl.d

/etc/sysconfig

Correct answer: /etc/init.d

For Linux distributions based on SystemV, initialization scripts for each service are typically located in the /etc/init.d directory.

The /etc/grub.d folder is for the GRUB bootloader settings. The /etc/sysctl.d folder is for system configuration parameters. The /etc/sysconfig directory holds network configuration files.

7.

An administrator wants to quickly resolve a hostname to an IP address. What command gives them ONLY this information WITHOUT any added details?

Host

Dig

Mtr

Netstat

Correct answer: Host

The host command queries the DNS server to resolve a hostname to its IP address. The syntax for this command is to just type the hostname after the command, such as host google.com.

The dig command gives a lot of extra details, including query time and authoritative server, which are not needed in this scenario. The mtr command traces the route to the host along with giving the same information as the ping command. The netstat command lists network connections, displays routing tables, and displays network interface information.

8.

With System V initialization, which file brings the system to a predefined runlevel?

/etc/inittab

/etc/rc.local

/etc/resolv.conf

/etc/systemd/system/default.target

Correct answer: /etc/inittab

The /etc/inittab file is a configuration file for initializing the system. Each line of the file tells which directory has scripts to run for the specified runlevel.

The /etc/rc.local file is a script run upon boot or changing runlevels with commands that run in the background. The /etc/resolv.conf file is for configuring DNS information. The /etc/systemd/system/default.target file is for default group of units in the systemd initialization process.

9.

An administrator wants to make a backup of files that have only been changed since the last backup operation. Which type of backup should they use?

Incremental

Differential

Snapshot

Full

Correct answer: Incremental

An incremental backup makes a copy of files that have changed since the last backup regardless of the type of backup that was previously performed.

A differential backup only copies files that have changed since the last full backup. A snapshot uses a full backup and then pointers in a reference table that keeps track of changes. A full backup is a copy of all the data on a system, ignoring its modification date.

10.

In which situation would an administrator use the unlink command?

To remove a file that shares an inode number with another

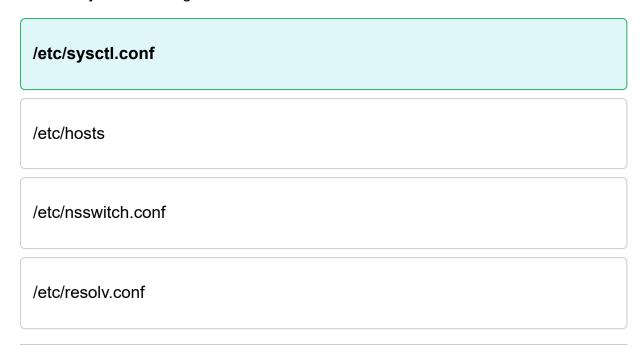To unmount a filesystem

To disable a network interface card

To add or remove modules to the Linux kernel.

Correct answer: To remove a file that shares an inode number with another

Files that share inode numbers are hard symbolic links. They can be removed with the unlink command.

The umount command can unmount a filesystem. The ifdown command can disable a network interface card. The modprobe command can add or remove modules to the Linux kernel.

11.

An administrator wants to disable ICMP messages to increase security. Which file would they use to configure this?

/etc/sysctl.conf

/etc/hosts

/etc/nsswitch.conf

/etc/resolv.conf

Correct answer: /etc/sysctl.conf

The /etc/sysctl.conf file is used to fine-tune networking parameters. It has kernel parameters that are used when working with network interfaces.

The /etc/hosts file is for resolving hostname to IP address locally. The /etc/nsswitch.conf file is for determining which services should be used to resolve hostnames. The /etc/resolv.conf file is used to set the DNS servers the host should use.

12.

A user wants to use SCP (secure copy) to regularly download some files from a remote server. Which command-line tool should the user use for this?

cURL

wget

yum

zypper

Correct answer: cURL

The cURL program supports numerous protocols, including DAP, DICT, FILE, Gopher, IMAP, LDAP, POP3, RTSP, SCP, SFTP, SMTP, and TFTP. It can also issue a warning if a remote server's certificate is self-signed or signed by an untrusted certificate authority.

The wget application supports FTP, FTPS, HTTP, and HTTPS, but it does not support SCP. The yum tool is for working with repositories on Red Hat-based systems. The zypper tool is a command-line package manager for Red Hat-based systems.

13.

An administrator wants to use the Red Hat Package Manager to install an application or upgrade it if it is already there. Which action should they add to the rpm command to accomplish this?

-U

-q

-i

-F

Correct answer: -U

The -U action installs or upgrades a package.

The -q action is to query if a package is already installed. The -i option is to just install the package. The -F option only upgrades if a previous version is there already.

14.

Which utility creates a report of any application and kernel crashes on Red Hat-based systems?

abrt

udevadmin

dmesg

lpq

Correct answer: abrt

Red Hat-based systems use the Automatic Bug Reporting Tool (abrt) to create a report of any application and kernel crashes.

The udevadmin command is for device management. The dmesg tool is for viewing just kernel messages. The lpq command is for showing the print queue.

15.

Which command will immediately reboot a Linux system?

init 6

init 0

shutdown +1 -h

halt

Correct answer: init 6

The init command will switch a system's runlevel. Runlevel 6 is a reboot.

Using the init command with runlevel 0 will halt the system. The shutdown +1 -h command instructs the system to shut down and then halt. It is possible to reboot using the shutdown command, but it would require the -r option. The halt command will shut down the system.

16.

What utility can be used to make an initramfs boot image from tools and files already installed on a system?

dracut

grub2-install

dmesg

fsck

Correct answer: dracut

The dracut utility creates a boot image by using installed framework and files.

You can use grub2-install to install or re-install the GRUB2 bootloader. You can use dmesg to view recent boot messages. The fsck utility is used to check and repair filesystems.

17.

Which Linux tool can be used to display and change settings to a network interface, such as speed and duplex?

ethtool

ifconfig

ss

brctl

Correct answer: ethtool

The ethtool can be used to query and configure network device settings. By default, it will list the current settings but can also change settings like speed, duplex, and auto-negotiation.

The ifconfig command is used to set an address and subnet mask. The ss comand is used to display socket information. The brctl command is used to create and control an Ethernet bridge.

18.

A user wants to search the system for a file called *network* but without file globbing. What command should they run to accomplish this?

> **locate '\network'**

> locate '/network'

> locate '/network/'

> locate 'network'

Correct answer: locate '\network'

The command locate '\network' would search for a file called network but without file globbing. File globbing involves using wildcard characters to find results similar to the search term. Globbing can be avoided by using quotation marks around the pattern and preceding it with a \ character.

The other options are not written in the correct syntax.

19.

An administrator wants to configure their Linux system to use DNS before the /etc/hosts file for resolving hostnames. Which file should they edit to accomplish this?

nsswitch.conf

resolv.conf

apt.conf

dhclient.conf

Correct answer: nsswitch.conf

The nsswitch.conf file has several configuration options. One option defines the order in which name resolution methods will be used. The options are to either use the /etc/hosts file first, then use DNS second, or use DNS first and the /etc/hosts file second.

The resolv.conf file informs the system of the IP addresses of one or more DNS servers. The apt.conf file is used for managing the configuration of the APT suite of tools. The dhclient.conf file is for configuring DHCP.

20.

Which Linux file specifies the DNS servers that a host will use?

resolv.conf

hosts

nsswitch.conf

modprobe.conf

Correct answer: resolv.conf

The resolv.conf specifies the default domain name as well as the DNS servers to use. A DNS server is specified after each "nameserver" keyword in the file.

The hosts file is for resolving hostnames locally. The nsswitch.conf file is for determining if the hosts file or DNS should try to resolve a hostname first. The modpobe.conf is for configuring the modprobe tool that loads and unloads kernel modules.

21.

An administrator is using the nmcli tool to enable the network interface eth0. Which command should be run to enable the network interface eth0?

nmcli con up eth0

nmcli general status

nmcli con edit eth0

nmcli con down eth0

Correct answer: nmcli con up eth0

The nmcli command can be used to view and configure network information. The syntax of the nmcli command is nmcli [options] [subcommand] [arguments]. To enable a specific network interface, you should use the command nmcli con up [interface].

Using the command nmcli general status will display a summary of network connectivity data. The command nnmcli con edit [interface] will enter an interactive mode to configure the specified interface. The nmcli con down [interface] command will disable the specified interface.

22.

Which directive in /etc/ssh/sshd_config should be enabled to allow for SSH port forwarding?

AllowTCPForwarding

X11Forwarding

PermitRootLogin

UsePAM

Correct answer: AllowTCPForwarding

The AllowTCPForwarding directive must be set to yes in the ssh_config file. Removing the # symbol at the start of the line will uncomment it to make it active.

The X11Forwarding directive is for tunneling an X11 connection. The PermitRootLogin directive should be disabled for security. The UsePAM (Pluggable Authentication Module) is not related to SSH port forwarding.

23.

Which subdirectory in /sys is for devices that connect components?

/sys/bus

/sys/block

/sys/device/

/sys/kernel

Correct answer: /sys/bus

The /sys/bus directory is for data buses. Each subdirectory here has device and driver directories.

The /sys/block directory has entries for each block device. The /sys/device directory is for a hierarchical list of devices. The /sys/kernel directory is for the kernel status.

24.

An administrator wants to see which bootloader files are on a system that uses the UEFI boot method. What file extension would these files have which allows for the administrator to easily identify them?

.efi

.conf

.cfg

.list

Correct answer: .efi

UEFI uses a disk partition that can hold many different bootloaders, which end in the .efi extension. These are located in the /boot/efi folder.

A file that uses .conf is lilo.conf, which is a configuration file for the original Linux Loader. An example of a file that uses .cfg is grub2.cfg, which is the configuration file for GRUB2. A file that uses .list is menu.list, which has the menu commands in GRUB (Legacy).

25.

An administrator is examining a Linux system that has been brought to them. They want to see which version of GRUB the system is running. What command can they run to find out this information?

grub-install -v

dracut -v

grub2-mkconfig

mkinitrd

Correct answer: grub-install -v

The first version of GRUB was created in 1999 and is now referred to as GRUB Legacy. GRUB2 was created in 2005 as a complete rewrite of the GRUB Legacy system. You can use grub-install -v to see which version of GRUB your system is using. The dracut command is for making an initramfs image. The -v options will provide verbose output. You can use grub2-mkconfig to assemble the grub.cfg file. The mkinitrd command may be used to create an initramfs file in Debian-based systems.

26.

Which directory contains system statistics about partitions used by the kernel?

/proc/partitions

/etc/mtab

/etc/fstab

/sys/block

Correct answer: /proc/partitions

The /proc folder is a filesystem that the kernel uses to record system statistics. The /proc/partions folder is for information on partitions.

The /etc/mtab file is for listing currently mounted filesystems. The /etc/fstab file is for automatically mounting drives. The /sys/block directory has symbolic links for each block device discovered by the system.

27.

Which option to the cp command does a recursive copy and keeps the original files' attributes?
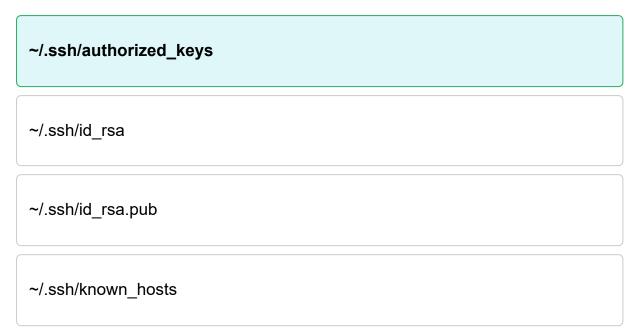
-a

-f

-v

-n

Correct answer: -a

The -a option performs a recursive copy and keeps attributes like permissions, ownership, and timestamps.

The -f option forces an overwrite in the target destination. The -v option provides detailed command action information as the command executes. The -n option will not overwrite files with the same name at the target destination.

28.

An administrator wants to do secure remote backups using the scp command. They do not want to have to enter their password since it will be automated through a cron job. To which file should they add their public key to on the SSH server where they will put the backups?

~/.ssh/authorized_keys

~/.ssh/id_rsa

~/.ssh/id_rsa.pub

~/.ssh/known_hosts

Correct answer: ~/.ssh/authorized_keys

A user's public key should be appended to the ~/.ssh/authorized_keys in the user's account on the remote server. It can be appended to the file after copying it and using the cat command.

The ~/.ssh/id_rsa file is for storing your private key after generating your key pair. The ~/.ssh/id_rsa.pub file is for storing the public key after generating the key pair. The ~/.ssh/known_hosts file has public keys of remote hosts to which they have been connected.

29.

An administrator needs to install virtual machines on their server. Which library will give them the tools they need to install and manage the virtual machine managers?

libvirt

libk5crypto

glibc

libcurl

Correct answer: libvirt

The libvirt library can manage a variety of hypervisors. It includes APIs, a daemon, and command-line utilities.

The libk5crypto library has encryption tools. The glibc library is for programming in C. The libcurl library is for file transfer tools.

30.

An administrator is using the UEFI startup method. Where will their partition for this be mounted?

/boot/efi

/etc/default/grub

/boot/grub

/etc/efi

Correct answer: /boot/efi

UEFI uses a special disk partition to store bootloader programs. This is usually located at /boot/efi.

Global variables are kept in /etc/default/grub. Bootloader configuration files for GRUB are stored in /boot/grub. The /etc directory is for storing configuration files and does not typically have a subfolder called /efi.

31.

On a Red Hat-based system, an administrator wants to check which runlevels have ntpd enabled. Which command will accomplish this?

chkconfig --list ntpd

update-rc.d --list ntpd

init --list ntpd

readlink --list ntpd

Correct answer: chkconfig --list ntpd

The chkconfig command is used to display or change the runlevels at which a service starts. These commands can also be found in a service's /etc/init.d script.

The update-rc.d command is used with Debian-based systems. The init command is used to change runlevels. The readlink command is used to view resolved symbolic links.

32.

Which filesystem type is used to provide shared access to files, printers, and serial ports?

SMB

EXT3

NFS

VFAT

Correct answer: SMB

Server Message Block (SMB) was developed by Microsoft to let users interact with network devices like printers. It allows Linux and Windows clients and servers to work together.

The Third Extended Filesystem (EXT3) is specifically for Linux. The Network File System (NFS) is for using network storage devices. The Virtual File Allocation Table (VFAT) filesystem is used on devices like USB sticks.

33.

Which command uncompresses a file that has been compressed using the bzip2 utility?

bunzip2

gunzip

unxz

unzip

Correct answer: bunzip2

The bunzip2 command followed by the filename of the compressed file will decompress it.

The gunzip utility will decompress files that were compressed with gzip. The unxz utility will decompress files compressed with the xz utility. The unzip utility will decompress files compressed with the zip utility.

34.

Which udevadm command will query the udev database for device information?

> **udevadm info**

udevadm control

udevadm monitor

udevadm test

Correct answer: udevadm info

The udevadm command-line tool allows you to send commands to the udev program. The udevadm info command will query the udev database for device information.

The udevadm control command is used to modify the internal state of udev. The udevadm monitor command will listen to kernel events and display them. The udevadm test command simulates a udev event.

35.

Which of the following commands reads out an entire file to the screen?

cat

head

tail

grep

Correct answer: cat

The cat command reads a file and shows all of it on the screen. It is usually used for combining files.

The head command displays the first lines of a file. The tail command displays the last lines of a file. The grep utility is for searching through a file and returning the matching parts of it.

36.

Which configuration file sets options for host systems that use DHCP?

dhclient.conf

sysctl.conf

hosts

nsswitch.conf

Correct answer: dhclient.conf

The dhclient.conf file has configuration options for Dynamic Host Configuration Protocol (DHCP) clients. It can also give initial IP addresses if there is no DHCP server.

The sysctl.conf file is for setting network parameters that interact with the kernel. The host's file is for resolving hostnames to IP addresses. The nsswitch.conf file is for determining which services to use for resolving hostnames.

37.

An administrator wants to be able to remotely connect to remote Linux desktops. They want the connection to the server to be encrypted by default using OpenSSH tunneling. They also want to ensure the fastest response time available by using compression and caching. Which remote desktop protocol would be BEST for them?

NX

VNC

XRDP

Spice

Correct answer: NX

The NX protocol uses encryption, compression, and caching to make fast and secure connections. They also allow multiple users to connect over a single port. NX-based products are also faster than VNC.

VNC does not support encryption by default. XRDP uses SSL encryption. Spice uses TLS for encryption.

38.

An administrator wants to quickly see information about installed SCSI block devices. What command can they run to see this?

lsblk -S

dmesg -S

fsck -S

du -S

Correct answer: lsblk -S

The lsblk gives information about block devices, such as hard drives and RAM disks. The -S option will give information about only connected SCSI drives.

The dmesg command is for interacting with the kernel ring buffer. The fsck command is for repairing filesystems. The du command is for seeing disk usage.

39.

Which Linux bootloader, created in 1999, uses a configuration file called menu.lst that is divided into two sections: global definitions and operating system boot definitions?

GRUB

GRUB2

LILO

PXELINUX

Correct answer: GRUB

GRUB was created to replace LILO, as LILO was very limited in its functionality.

GRUB2 was developed to replace GRUB and stores its configuration files in grub.cfg. PXELINUX is a special bootloader for booting from a network server.

40.

A developer is using the vi editor and is in Insert mode. They want to quickly save the file and exit the program while overriding protection. Which command sequence would they use?

Escape:wq!

:wq!

I:wq

Escape:x!

Correct answer: Escape:wq!

The developer should hit the Escape key first to exit Insert mode. Then, they can hit the colon key to get into Ex mode and use w to write, q to quit, and the exclamation point to override protections.

The I command will go into Insert mode. The other answer choices skip a step.

41.

Which command will input the file /etc/resolve.conf to the cat utility?

cat < /etc/resolv.conf

cat > /etc/resolv.conf

cat | /etc/resolv.conf

cat <> /etc/resolv.conf

Correct answer: cat < /etc/resolv.conf

The operator < can select an input device other than the terminal. In this case, it uses the file /etc/resolv.conf as input for the cat utility.

The other options will give errors.

42.

Which command finds a command's source code and manual pages?

whereis

which

locate

find

Correct answer: whereis

The whereis command can find the location of binaries, source code, and manual pages for a command.

The which command finds the path to a command. The locate command finds a file by its name. The find command searches for files in a directory.

43.

Which state of a process is in virtual memory and waiting for a signal from the kernel?

Interruptible sleep

Uninterruptible sleep

Zombie

Running

Correct answer: Interruptible sleep

A process that moves to virtual memory is considered sleeping. A process in interruptible sleep can wake up from a kernel signal.

A process in uninterruptible sleep needs some external event to occur. A zombie process is stuck in a limbo state. A running process is actively using CPU.

44.

An administrator has installed several different kernels to choose from on a system. Where can they go to see a list of each kernel's modules?

/usr/lib/modules

/etc/modprobe.d/

/proc/modules

/lib/modprobe.d

Correct answer: /usr/lib/modules

The /usr/lib/modules directory will have subdirectories for each kernel version. This may also be in the /lib/modules directory, depending on the version of Linux.

The /etc/modprobe.d directory has configuration files created during the system's installation. The /proc/modules file shows the modules in the current kernel. The /lib/modprobe.d directory has configuration files for modules.

45.

An administrator wants to look up the IP address for a web server and then pipe the output to a text file. Which of the following commands would accomplish this?

nslookup google.com | cat > lookup_result

nslookup google.com | cat < lookup_result

nslookup google.com > cat | lookup_result

nslookup google.com | cat | lookup_result

Correct answer: nslookup google.com | cat > lookup_result

After executing the nslookup command, its temporary output is piped to the cat command, which then outputs it to a text file.

The other answer options will give errors.

46.

An administrator wants to search the /etc/passwd file to see if there is anyone named user1, user2, or user3. What command could they use for this?

egrep user[1,2,3] /etc/passwd

egrep user1{2,3} /etc/passwd

egrep user|1,2,3| /etc/passwd

egrep user1+ /etc/passwd

Correct answer: egrep user[1,2,3] /etc/passwd

The egrep command allows you to use extended regular expressions. It is deprecated now by the command grep -E.

Curly braces match a minimum of the left character and a maximum of the right character. The | character is used for OR expressions. The + character matches one or more occurrences of the character on its left.

47.

An administrator wants to bring up the GRUB2 command line during the boot process. How can they get to the command line before the bootloader loads the system?

Press the "c" key

Press the "e" key

Press the up or down arrow

Press the "b" key

Correct answer: Press the "c" key

Pressing the "c" key during GRUB's interactive mode will bring up a GRUB shell. You can use the tab button to see available commands.

The "e" key will allow for editing the current line. The up and down arrows move between lines. The "b" key will boot the system.

48.

Which directory holds the configuration files for loading and unloading modules?

/etc/modprobe.d

/usr/lib/modules/[kernelversion]

/usr/lib/modules

/boot/grub

Correct answer: /etc/modprobe.d

The /etc/modprobe.d directory holds various configuration files for individual modules that have directives for their loading and unloading. In older Linux distros, the file /etc/modprobe.conf contained settings that applied persistently to all modules loaded on the system.

The /usr/lib/modules directory houses subdirectories containing the modules of different kernel versions installed. The directory /usr/lib/modules/[kernelversion] stores the modules used for each installed kernel. The /boot/grub directory stores the menu.lst file with menu commands for GRUB (Legacy).

49.

An administrator of a Debian-based system needs to create a RAM disk for booting. They use the mkinitramfs tool to do so. What is the name of the resulting file from this operation?

initramfs

vmlinuz

grub.cfg

lilo.conf

Correct answer: initramfs

Using the mkinitramfs command on a Debian-based system will result in a file called initramfs. This contains the root filesystem used for booting. The vmlinuz file is the Linux kernel. The grub.cfg is the file for configuring the GRUB bootloader. The lilo.conf file was used for the original Linux Loader bootloader.

50.

An administrator wants to quickly add a module to the kernel without checking for dependencies. Which command should they use for this action?

insmod

lsmod

modprobe

modinfo

Correct answer: insmod

The insmod command will load a module without regard for dependencies. The command only needs an absolute directory reference to the module file and should be run as the root user.

The lsmod command only gives information about installed modules. The modprobe command will add or remove modules while checking for dependencies. The modinfo command will give information about the module specified in the command line.

51.

Which command will display detailed disk partition information on the volume at /dev/sdb?

parted -l /dev/sdb

lsblk -l /dev/sdb

mdadm -l /dev/sdb

du -l /dev/sdb

Correct answer: parted -l /dev/sdb

Both the fdisk command and parted command give information about disk partitions. Just executing the parted command by itself will open its own command prompt.

The lsblk command gives information about block devices. The mdadm command is for configuring RAID levels. The du command gives information about disk usage.

52.

What file extension denotes a file that can be used by the Red Hat Package Manager to install and manage software packages?

.rpm

.deb

.tar

.gz

Correct answer: .rpm

The .rpm file extension is for Red Hat Package Manager files. The format for these files is <package name>-<version number>-<release number>-<architecture>.rpm.

The .deb extension is for Debian-based software distributions. The .tar file extension is for archiving and distributing files on tape drives or over the internet. The .gz file extension is for a compressed archive.

53.

Which command applies a kernel source code package update to fix bugs or security vulnerabilities?

patch

ldd

curl

wget

Correct answer: patch

The patch command can apply updates to the existing kernel source code on a system. The kernel then needs to be recompiled.

The ldd command prints shared libraries needed by a program. The curl program transfers data to or from a server. The wget command downloads files from the web.

54.

Which command will change the localization for the current session to en_GB.UTF-8?

export LC_ALL=en_GB.UTF-8

export LC_IDENTIFICATION=en_GB.UTF-8

export LOCALE=en_GB.UTF-8

export LOCALECTL=en_GB.UTF-8

Correct answer: export LC_ALL=en_GB.UTF-8

The LC_ALL environment variable can be used to override all local category settings. It also overrides the LANG variable.

LC_IDENTIFICATION is only one environment variable. Locale and localectl are commands, not environment variables.

55.

On a Red Hat Linux system, which file is a symbolic link to grub.cfg?

/etc/grub2.cfg

/var/grub2.cfg

/local/grub2.cfg

/dev/grub2.cfg

Correct answer: /etc/grub2.cfg

Red Hat makes a symbolic link to /boot/grub/grub.cfg in the /etc directory to find it easily. Using a different configuration file name makes it easier to have both GRUB and GRUB2 installed on the system.

The other directories do not contain the symbolic link.

56.

Which character encoding type can transform long Unicode values into 1-byte or 2-byte simplified codes?

UTF

YAML

PXE

ASCII

Correct answer: UTF

Unicode is an international character set standard that uses a 3-byte code. The Unicode Transformation Format (UTF) can transform long Unicode values into either 1-byte (UTC-80) or 2-byte (UTC-16) simplified codes. UTF-8 is considered the standard in English-speaking countries.

ASCII uses 7 bits to store characters found in the English language. YAML is a markup language. PXE is a boot standard that defines how systems can load from a central network server.

57.

Which command will print pi to five decimal places?

printf "%.5f\n" 3.14159265359

printf "%.5s\n" 3.14159265359

printf "%.5d\n" 3.14159265359

printf "%.5c\n" 3.14159265359

Correct answer: printf "%.5f\n" 3.14159265359

The printf command is used to format text. The %f format will display a floating point number.

The %s format displays a character string. The %d format displays a decimal integer. The %c format displays the first character.

58.

An administrator has a Linux system with two network interfaces. They want to configure it so that one interface will take over in case the other fails. Which bonding type should they use?

Active/passive

Aggregation

Load balancing

Multipath

Correct answer: Active/passive

Active/passive bonding has one active interface, while the other remains idle for backup. Once the bonding module has been added to the kernel, the ip utility can be used to configure the bonds.

Aggregation is a type of bonding where both interfaces appear as one to increase throughput. Load balancing shares the traffic between participating interfaces. Multipath is between a server and a client.

59.

What is referred to FIRST when resolving a hostname to an IP address by default?

/etc/hosts

DNS

/etc/resolv.conf

/etc/nsswitch.conf

Correct answer: /etc/hosts

The /etc/hosts file is checked first when resolving a hostname. Each host record is on one line of this file.

DNS is used if a host is not found in this file. The /etc/resolv.conf file holds information about DNS servers to use. The /etc/nsswitch file has the search order of network databases.

60.

Which option for the rsync command will backup recursively as well as keep properties like file permissions, ownership, and modification times?

a

z

P

e

Correct answer: a

The a option is for archiving. It is the same as using -rlptgoD for options.

The z option is for compressing. The P option shows partial progress. The e option specifies the shell.

61.

An administrator needs to securely transfer small files to a remote system. They do not need to worry about whether the files get interrupted and need to restart from where they left off. Which command would be BEST in this situation?

scp

rsync

sftp

ftp

Correct answer: scp

The scp command securely copies files. It has low overhead and cannot recover from failed transfers.

The sync and sftp commands are useful for large files that can stop and start transfers. The ftp command is not encrypted.

62.

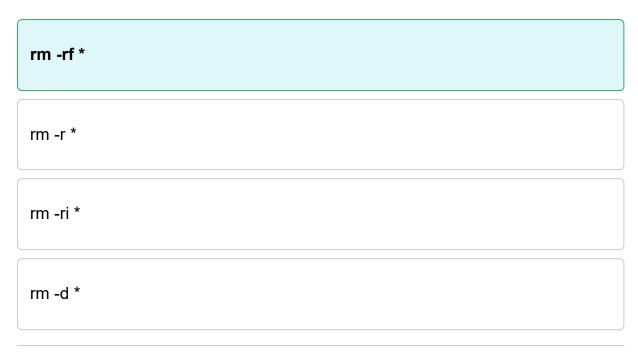Which service synchronizes clocks across a network?

NTP

DHCP

DNS

NIS

Correct answer: NTP

The Network Time Protocol (NTP) allows clients to synchronize their clocks with a central server. The ntpd program accomplishes this by synchronizing a server with remote NTP servers on the internet.

The DHCP service allows for dynamic IP address allocation. The DNS service resolves domain names to IP addresses. The NIS service is a directory service that can be a repository for such things as user accounts and hostnames.

63.

An administrator wants to delete all files and folders in their current directory without being asked for confirmation of each deletion. Which command would accomplish this?

rm -rf *

rm -r *

rm -ri *

rm -d *

Correct answer: rm -rf *

The rm command removes files and directories. The -r option is recursive and the -f option forces deletion without confirmation.

The -i option makes the process interactive to confirm deletions. The -d option deletes empty directories.

64.

In a SysV init system, which directory holds the executable initialization scripts for services?

/etc/init.d

/etc/systemd/system

/etc/rc.d

/usr/lib/systemd/system

Correct answer: /etc/init.d

For the SysV init system, /etc/init/d directory has scripts that are used when putting the system into different runlevels. The scripts can be passed commands such as start and stop to control the services.

The /etc/systemd/system folder holds configuration files for systemd initialization. The /etc/rc.d directory has subdirectories based on runlevels with symbolic links to scripts in /etc/init.d. The /usr/lib/systemd/system has configuration files for service units.

65.

Which command will end process 8276 gracefully by ending child processes before ending the parent process?

kill -15 8276

kill -9 8276

kill -2 8276

kill -1 8276

Correct answer: kill -15 8276

The kill command is used to end processes by their ID number, which can be found with the ps command. Signal 15, referred to as SIGTERM, is the default and will try to end child processes before the parent process.

Signal 9, referred to as SIGKILL, will force kill the parent process but not child processes. Signal 2, referred to as SIGINT, will send a CTRL-C key sequence to the process to cancel it. Signal 1, referred to as SIGHUP, will try to restart the process.

66.

An administrator needs to know which library files are required by an application. Which command will give them this information?

ldd

make

dpkg

dnf

Correct answer: ldd

The ldd command lists the required libraries of the program stated after the command. Using shared libraries makes it easier to write and distribute applications.

The make command is for compiling source code. The dpkg command is for managing packages on Debian-based systems. The dnf command is an updated version of the yum package management utility.

67.

Which key sequence will pause a process?

CTRL-Z

CTRL-C

CTRL-D

CTRL-S

Correct answer: CTRL-Z

The CTRL-Z key sequence will pause a process and put it in the background. It can be restarted from the point it was paused with the fg command.

You can use CTRL-C to interrupt a process. You can use CTRL-D to show that there is an end of input. The CTRL-S key sequence will lock up a terminal window.

68.

Which directory has the default unit files?

/usr/lib/systemd/system

/etc/systemd/system

/run/systemd/system

/var/run/systemd/system

Correct answer: /usr/lib/systemd/system

The default unit files are stored in /usr/lib/systemd/system. Unit files define how systemd manages the unit. Although the default files are stored in /usr/lib/systemd/system, the configurations are modified in /etc/systemd/system.

Any unit files in /etc/systemd/system override settings in any other directory. Runtime units are in /run/systemd/system. There are no units in /var/run/systemd/system.

69.

An administrator has a Linux system with multiple network interface cards. They want the network traffic to be equally distributed across each interface. Which type of bonding should they use with the interfaces?

Load balancing

Active/passive

Aggregation

Broadcast

Correct answer: Load balancing

Load balancing will share the traffic equally among participating interfaces. This is considered Mode 0 when defining bonds with the ip command.

Active/passive is for having one interface active while the other is idle in case it is needed as a backup. Aggregation increases throughput by having both interfaces use one connection. Broadcast is a mode that transmits all packets on each interface.

70.

An administrator is troubleshooting an issue that occurred after updating an application on a Debian-based system. They want to check if the problem is being caused by a broken dependency. Which of these commands can they use to check this?

apt-get check

rpm -aV

patch

gcc

Correct answer: apt-get check

The apt-get check command will check for dependencies on a Debian-based system.

The rpm command is used on Red Hat-based systems. The patch command adds patch files to source code. The gcc command is for compiling source code.

71.

An administrator wants to increase the network bandwidth available to a system. What type of bonding should they implement on the network interfaces?

Aggregation

Active/passive

Broadcast

Load balancing

Correct answer: Aggregation

With aggregation, two or more network interfaces can appear as one interface to increase bandwidth. Bonding should first be initialized by adding the module with a command like "modprobe bonding."

With active/passive, one interface is working while the other is staying idle as a backup. Broadcast is a mode that transmits packets on all interfaces. Load balancing shares the traffic between the network interfaces for redundancy.

72.

In GRUB2, where can the scripts used to build GRUB's configuration variables be found?

/etc/grub.d

/etc/default/grub

grub.cfg

/boot/grub/grub.lst

Correct answer: /etc/grub.d

In GRUB2, the directory /etc/grub.d contains GRUB scripts that are processed in order of the names.

GRUB variables such as GRUB_TIMEOUT, GRUB_DEFAULT, and GRUB_DISTRIBUTOR are stored in /etc/default/grub. Grub.cfg is used with some versions of GRUB (Legacy) to configure the GRUB menu. The /boot/grub/grub.lst is a fictitious file.

73.

An administrator wants to be able to dynamically change the size of partitions on a filesystem. What should they use to accomplish this?

LVM

APT

EXT

mdadm

Correct answer: LVM

Logical Volume Management (LVM) allows for creating dynamic volumes instead of partitions. It is useful for creating systems that will have little downtime.

The Advanced Package Tool (APT) is the front-end manager of the dpkg system. EXT is a type of filesystem in Linux that supports large file sizes. The mdadm tool is for managing RAID devices.

74.

Which folder has the highest-priority rules.d file that udev will use to recognize plugged-in devices?

/etc/udev

/lib/udev

/usr/lib/udev

/proc/sys

Correct answer: /etc/udev

The /etc/udev/rules.d file has the highest priority. Rules are searched in dictionary order, with later rules overriding earlier rules.

System default rules are in /lib/udev or /usr/lib/udev. The /proc/sys folder is virtual and gives information on the kernel.

75.

An administrator wants to add a default route of 192.168.1.1 to the primary Ethernet interface. Which command will accomplish this?

route add default gw 192.168.1.1 eth0

route del default gw 192.168.1.1 eth0

route add -net 192.168.1.1

route -n

Correct answer: route add default gw 192.168.1.1 eth0

You can add a route with the add option to the route command and then, specify that it is the default gateway, insert the gateway address, and specify the network interface.

The del option will delete a route. The command route add -net 192.168.1.1 is missing a gateway address. The command route -n will verify routes.

76.

An administrator needs to convert text-based source code into a binary executable file. Which tool can be used to accomplish this?

make

tar

curl

apt-get

Correct answer: make

The make command uses a compiler to generate an executable file. This command can be run at the root level of the untarred source code provided that all the necessary information is in the Makefile file at that level.

The tar command is for creating an archive file. The curl command is for downloading files. The apt-get utility is for working with packages.

77.

An administrator recently started using a new kernel without making any changes to the system's modules or libraries. Now, the system is continually crashing. Which term describes the issue that is occurring?

Kernel panic

Bootloading

Kernel buffering

System shutdown

Correct answer: Kernel panic

A kernel panic is when the kernel detects an unrecoverable error. It happens to prevent data loss or corruption.

Bootloading is the process of loading up an operating system. Kernel buffering can refer to the kernel ring buffer that displays the kernel boot messages. A system shutdown is an ordered process that is not the result of an error.

78.

Which Linux feature uses the /dev/mapper device and allows for fault tolerance in getting from a Linux system to a network storage device?
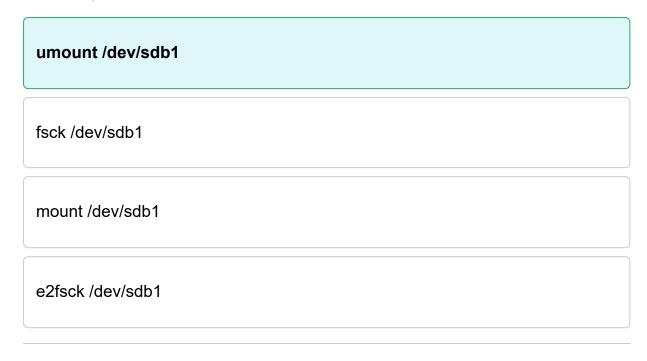
Multipath

Virtual directory

mdadm

GPT

Correct answer: Multipath

Device Mapper Multipathing (DM-multipathing) allows for the configuration of multiple paths between a Linux system and a network storage device. Partitions can be created on the device just as with normal drives.

Virtual directories refer to the directory structure that allows multiple drives under the root filesystem. The mdadm command is for setting up RAID devices. GPT is a method for managing partitions.

79.

An administrator wants to run an integrity check on the first partition of the second hard drive. The drive is still mounted. What command should the administrator run FIRST to perform the check?

umount /dev/sdb1

fsck /dev/sdb1

mount /dev/sdb1

e2fsck /dev/sdb1

Correct answer: umount /dev/sdb1

Before running a filesystem check, the drive should be unmounted. The umount command will unmount the drive specified in the argument to the command.

The fsck command will perform an integrity check after the drive has been unmounted. The mount command will mount a drive. The e2fsck command will be run from the fsck command if that is the filesystem type.

80.

How does Linux put physical devices into its virtual directory?

Mount points

Symbolic link

Relative path

Bonding

Correct answer: Mount points

Mount points are folders that point to a physical device. They can be located at any location in the file system.

Symbolic links are files or folders that point to another file or folder. Relative path refers to pointing to another directory without giving its absolute path. Bonding refers to ways to associate network interface cards together.

81.

Which command will show new kernel messages whenever a new device is added?

dmesg

lsdev

lpr

udevadmin

Correct answer: dmesg

The dmesg command will show the kernel's ring buffer, which is a file that gets its messages overwritten as the buffer fills up. This can be used in conjunction with the grep command to extract relevant information.

The lsdev command gets information about hardware from the /proc directory. The lpr command is for submitting print jobs. The udevadmin command is for managing and getting information about system devices.

82.

A process is in a state where it is waiting for a signal from the kernel. What state is it in?

Interruptible sleep

Uninterruptible sleep

Zombie

Traced

Correct answer: Interruptible sleep

A process that is in the interruptible sleep state is waiting for a signal from the processor.

A process in the uninterruptible sleep state will wake up from an external event like hardware becoming available. A process in the zombie state has not been acknowledged by its parent process as being killed. A process in the traced, or stopped, state will not have the kernel perform any actions until it is resumed.

83.

An administrator wants to view all the devices that are currently mounted. Which file holds this information?

/etc/mtab

/etc/fstab

/etc/crypttab

/etc/hosts

Correct answer: /etc/mtab

The /etc/mtab has a list of currently mounted devices and is created automatically by the system. A device's entry in this file can be copied to the /etc/fstab file to be auto-mounted upon booting.

The /etc/fstab file has devices that will be automatically mounted. The /etc/crypttab file allows for automatically mounting encrypted devices. The /etc/hosts file is for resolving hostnames to IP addresses.

84.

Which interface is ideal for working with devices like lights, sensors, and motors, such as for use with a small utility system like a Raspberry Pi?

GPIO

PCI

USB

HBA

Correct answer: GPIO

The General Purpose Input/Output (GPIO) interface is popular for automation projects. It is ideal for working with devices like lights, sensors, and motors, such as for use with a small utility system like a Raspberry Pi. It has multiple digital input and output lines that can be controlled down to a single bit.

Peripheral Component Interconnect (PCI) boards are used for devices like hard drives, NICs, and video cards. Universal Serial Bus (USB) interfaces are popular for devices like external drives, cameras, keyboards, and printers. Host Bus Adaptors (HBA) are used for IDE, SCSI, and SATA controllers.

85.

An administrator is NOT seeing the latest versions of packages in the repository. What command should they run to address this situation?

apt-get update

apt-get upgrade

apt-get clean

apt-get source

Correct answer: apt-get update

The update action to the apt-get command will retrieve updated package information from the repository. It doesn't actually update packages on the system, though.

The upgrade action will upgrade all installed packages to the latest version. The clean action will clean up the database and temporarily downloaded files. The source action will retrieve the source code for a specified package.

86.

Which compression utility is able to operate on multiple files?

zip

xz

gzip

bzip2

Correct answer: zip

The zip utility is able to operate on multiple files by packing them into a single file.

The other utilities only work on single files.

87.

An administrator wants to be able to boot an operating system remotely. What feature should the system's network card support to allow this?

PXE

ISO

MEMDISK

GRUB2

Correct answer: PXE

Preboot Execution Environment (PXE) allows for a client with a PXE-enabled network card and PXE boot device in flash memory to be able to be booted remotely. The client can receive its network configuration from a DHCP server and a boot image from a TFTP server.

An ISO image is a file that has the complete contents of a drive on it. MEMDISK is a utility to boot DOS from SYSLINUX bootloaders. GRUB2 is a Linux bootloader used when booting locally.

88.

An administrator wants to know the authorative name server for a host. Which command gives that information?

dig

host

nc

traceroute

Correct answer: dig

The dig command gives detailed DNS information, including the IP address and authoritative name server.

The host command does not provide detailed information. The nc command is for testing a connection to another host. The traceroute command is for tracing the network route between hosts.

89.

An administrator wants to completely discard error messages. Where should they send stderr messages to accomplish this?

/dev/null

/dev/tty0

/dev/pts/0

/dev/console

Correct answer: /dev/null

The /dev/null device is a zero-byte character that permanently removes anything sent to it. It is sometimes referred to as a sinkhole.

The /dev/tty0 devices are virtual text terminals. The /dev/pts/0 devices are pseudo terminals that can be used for network logins or GUI environments. The /dev/console device is usually the primary physical monitor.

90.

An administrator wants to see which hidden files are in a user's directory. Which command will allow them to view this?

ls -a

ls -l

ls -i

ls -d

Correct answer: ls -a

The ls command lists file information in a folder. The -a option shows hidden files like Bash shell configuration files.

The -l option displays a lot of metadata about each file. The -i option also displays the file or folder's index number. The -d option shows the directory's metadata rather than the files and folders inside it.

91.

Which option will compress a .tar file using bzip2?

-j

-z

-u

-v

Correct answer: -j

The tar utility is a popular tool for creating data backups. The -j option will compress a tar archive file into a tarball using bzip2. You can also use the long command --bzip2.

The -z option will compress with gzip. The -u option appends files to an archive. The -v option makes the operation verbose, so each file is displayed.

92.

An administrator wants to deploy a Type I hypervisor that allows for management from a guest OS. Which hypervisor package would be an ideal choice?

XEN

KVM

Hosted

QEMU

Correct answer: XEN

A XEN hypervisor is a Type I hypervisor that can work on a variety of platforms, including Arm CPUs. It has an API stack that allows for management from a guest OS.

The Linux Kernel-based Virtual Machine (KVM) is a Type I hypervisor but does not have the same APIs available. Hosted and QEMU are Type II hypervisors.

93.

What is the command syntax for adding a repository in zypper?

> **zypper addrepo <repository url alias>**

zypper ref <repository url alias>

zypper rr <repository url alias>

zypper repos -d <repository url alias>

Correct answer: zypper addrepo <repository url alias>

The ar, or addrepo, option will add the repository in the url field.

The ref action will download package metadata. The rr action will remove a repository. The repos -d option will show repository configuration information.

94.

Which command gives a brief description of the status of each installed module on a system?

lsmod

insmod

modprobe

rmmod

Correct answer: lsmod

The lsmod command gives brief information about installed modules. You can pipe it with the grep command to search for a particular module, for example, using lsmod | grep -i joydev.

The insmod command is used to insert a module into a kernel. The modprobe command is used to add or remove modules. The rmmod command will remove a module from the kernel.

95.

An administrator wants to limit the resources that users can use. In particular, they want to limit the number of processes a single user can use simultaneously. Which option of the ulimit command will let them limit this?

-u

-t

-f

-P

Correct answer: -u

The -u option to the ulimit command sets the maximum number of processes a user can run at the same time.

The -t command limits the maximum amount of CPU time that can be used. The -f option sets a limit on the maximum file size that can be created. The -P command sets the maximum number of pseudo-terminals they can log into.

96.

A system is running low on free disk space, and the administrator would like to see who is using the most space from their quotas. Which command will let them see how much each user and group is using on ALL filesystems?

repquota -a

quotaon -a

edquota -a

grpquota

Correct answer: repquota -a

The repquota command will create a report on quota usage. The -a flag will show information on all filesystems.

The quotaon command turns quotas on for the specified filesystems. The edquota command creates quotas for specific users. The grpquota option is used to enable group quotas in the etc/fstab file.

97.

A developer wants to edit files more quickly in the nano editor by moving the cursor ahead one word at a time rather than one space at a time. Which key sequence accomplishes this?

Ctrl + Spacebar

Ctrl + E

Ctrl + G

Ctrl + K

Correct answer: Ctrl + Spacebar

Using the Control key plus Spacebar will jump ahead word by word.

The Control key plus E will move to the end of the line. The Control key plus G will open the help screen. The Control key plus K will cut the text.

98.

After running the systemctl status command on a unit, the output shows that it is disabled. What does this mean for the unit?

It will not start on boot

It must be started by another service

It is listening for a request

It is loaded into memory

Correct answer: It will not start on boot

The disabled status means it will not start when the system boots.

The static status means it must be started by another service. The active waiting status means it is listening for a request. The loaded status means it is currently in memory.

99.

Where does Debian keep a list of repository locations?

/etc/apt/sources.list

/etc/yum.repos.d

/bin/apt-cache

/etc/resolv.conf

Correct answer: /etc/apt/sources.list

The apt suite of tools for Debian uses the /etc/apt/sources.list file to keep the locations of repositories. The apt-get command uses this when managing packages.

The /etc/yum.repos.d folder is for a Red Hat repository. The apt-cache tool gives information about the package database. The /etc/resolv.conf file is used to configure domain name servers.

100.

An administrator is configuring global settings for GRUB. In which section would they specify the parameters for vmlinuz?

Kernel

Root

Initrd

Default

Correct answer: Kernel

In the kernel section, a kernel such as vmlinuz can be specified to load along with its options. This can include options such as a quiet boot, which suppresses boot messages.

The root section specifies GRUB's root directory for the operating system. The initrd section specifies the filesystem with the executables and drivers. The default section determines the default operating system to load.