

# Exam Questions XK0-005

CompTIA Linux+ Certification Exam

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**NEW QUESTION 1**

A Linux administrator intends to start using KVM on a Linux server. Which of the following commands will allow the administrator to load the KVM module as well as any related dependencies?

- A. modprobe kvm
- B. insmod kvm
- C. depmod kvm
- D. hotplug kvm

**Answer:** A

**Explanation:**

This command will load the KVM module as well as any related dependencies, such as kvm-intel or kvm-amd, depending on the processor type. The modprobe command is a Linux utility that reads the /etc/modules.conf file and adds or removes modules from the kernel. It also resolves any dependencies between modules, so that they are loaded in the correct order.

The other options are incorrect because:

\* B. insmod kvm

This command will only load the KVM module, but not any related dependencies. The insmod command is a low-level Linux utility that inserts a single module into the kernel. It does not resolve any dependencies between modules, so they have to be loaded manually.

\* C. depmod kvm

This command will not load the KVM module at all, but only create a list of module dependencies for modprobe to use. The depmod command is a Linux utility that scans the installed modules and generates a file called modules.dep that contains dependency information for each module.

\* D. hotplug kvm

This command is invalid and does not exist. The hotplug mechanism is a feature of the Linux kernel that allows devices to be added or removed while the system is running. It does not have anything to do with loading modules.

**NEW QUESTION 2**

A Linux administrator needs to remove software from the server. Which of the following RPM options should be used?

- A. rpm -s
- B. rm -d
- C. rpm -q
- D. rpm -e

**Answer:** D

**Explanation:**

The RPM option -e should be used to remove software from the server. The rpm command is a tool for managing software packages on RPM-based Linux distributions. The -e option stands for erase and removes the specified package from the system. This is the correct option to use to accomplish the task. The other options are incorrect because they either do not exist (-s or -d) or do not remove software (-q stands for query and displays information about the package).

References: CompTIA Linux+ (XK0-

005) Certification Study Guide, Chapter 16: Managing Software, page 489.

**NEW QUESTION 3**

A Linux administrator is alerted to a storage capacity issue on a server without a specific mount point or directory. Which of the following commands would be MOST helpful for troubleshooting? (Choose two.)

- A. parted
- B. df
- C. mount
- D. du
- E. fdisk
- F. dd
- G. ls

**Answer:** BD

**Explanation:**

To troubleshoot a storage capacity issue on a server without a specific mount point or directory, two commands that would be most helpful are df and du. The df command displays information about disk space usage on all mounted filesystems, including their size, used space, available space, and percentage of usage. The du command displays disk space usage by files and directories in a given path, which can help identify large files or directories that may be taking up too much space. The other commands are incorrect because they either do not show disk space usage, or they are used for other purposes such as partitioning, formatting, checking, mounting, copying, or listing files. References: CompTIA Linux+ Study Guide, Fourth Edition, page 417-419.

**NEW QUESTION 4**

A Linux administrator is troubleshooting a systemd mount unit file that is not working correctly. The file contains:

```
[root@system] # cat mydocs.mount [Unit]
```

```
Description=Mount point for My Documents drive [Mount]
```

```
What=/dev/drv/disk/by-uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34 Where=/home/user1/My Documents
```

```
Options=defaults Type=trfs
```

```
[Install]
```

```
WantedBy=multi-user.target
```

The administrator verifies the drive UUID correct, and user1 confirms the drive should be mounted as My Documents in the home directory. Which of the following can the administrator do to fix the issues with mounting the drive? (Select two).

- A. Rename the mount file to home-user1-My\x20Documents.mount.
- B. Rename the mount file to home-user1-my-documents.mount.

- C. Change the What entry to /dev/drv/disk/by-uuid/94afc9b2\ac34\ccff\88ae\ 297ab3c7ff34.
- D. Change the Where entry to Where=/home/user1/my\ documents.
- E. Change the Where entry to Where=/home/user1/My\20Documents.
- F. Add quotes to the What and Where entries, such as What="/dev/drv/disk/by- uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34" and Where="/home/user1/My Documents".

**Answer:** AE

**Explanation:**

The mount unit file name and the Where entry must be escaped to handle spaces in the path. References The mount unit file name must be named after the mount point directory, with spaces replaced by \x20. See How to escape spaces in systemd unit files? and systemd.mount. The Where entry must use \x20 to escape spaces in the path. See systemd.mount and The workaround is to use /usr/bin/env followed by the path in quotes..

**NEW QUESTION 5**

During a security scan, the password of an SSH key file appeared to be too weak and was cracked. Which of the following commands would allow a user to choose a stronger password and set it on the existing SSH key file?

- A. passwd
- B. ssh
- C. ssh-keygen
- D. pwgen

**Answer:** C

**Explanation:**

The command that would allow a user to choose a stronger password and set it on the existing SSH key file is ssh-keygen -p -f <keyfile>. This command uses the ssh-keygen tool, which is used to generate, manage, and convert authentication keys for SSH. The -p option stands for passphrase, and it allows the user to change or remove the passphrase of an existing private key file. The -f option specifies the filename of the key file. The command will prompt the user for the old passphrase, and then for the new passphrase twice.

The other options are not correct commands for changing the password of an SSH key file. The passwd command is used to change the password of a user account on a Linux system, not an SSH key file. The ssh command is used to log in to a remote system using SSH, not to change the password of an SSH key file. The pwgen command is used to generate random passwords, not to change the password of an SSH key file.

References: ssh-keygen(1) - Linux manual page; How To: Change Passphrase for SSH Private Key - Unix Tutorial

**NEW QUESTION 6**

A Linux administrator was asked to run a container with the httpd server inside. This container should be exposed at port 443 of a Linux host machine while it internally listens on port 8443. Which of the following commands will accomplish this task?

- A. podman run -d -p 443:8443 httpd
- B. podman run -d -p 8443:443 httpd
- C. podman run -d -e 443:8443 httpd
- D. podman exec -p 8443:443 httpd

**Answer:** A

**Explanation:**

The command that will accomplish the task of running a container with the httpd server inside and exposing it at port 443 of the Linux host machine while it internally listens on port 8443 is podman run -d -p 443:8443 httpd. This command uses the podman tool, which is a daemonless container engine that can run and manage containers on Linux systems. The -d option runs the container in detached mode, meaning that it runs in the background without blocking the terminal. The -p option maps a port on the host machine to a port inside the container, using the format host\_port:container\_port. In this case, port 443 on the host machine is mapped to port 8443 inside the container, allowing external access to the httpd server. The httpd argument specifies the name of the image to run as a container, which in this case is an image that contains the Apache HTTP Server software. The other options are not correct commands for accomplishing the task. Podman run -d -p 8443:443 httpd maps port 8443 on the host machine to port 443 inside the container, which does not match the requirement. Podman run -d -e 443:8443 httpd uses the -e option instead of the -p option, which sets an environment variable inside the container instead of mapping a port. Podman exec -p 8443:443 httpd uses the podman exec command instead of the podman run command, which executes a command inside an existing container instead of creating a new one. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks

**NEW QUESTION 7**

A systems administrator is tasked with setting up key-based SSH authentication. In which of the following locations should the administrator place the public keys for the server?

- A. ~/.sshd/authkeys
- B. ~/.ssh/keys
- C. ~/.ssh/authorized\_keys
- D. ~/.ssh/keyauth

**Answer:** C

**Explanation:**

The administrator should place the public keys for the server in the ~/.ssh/authorized\_keys file. The SSH (Secure Shell) protocol is a method for establishing secure and encrypted connections between remote systems. The SSH protocol supports two types of authentication: password-based and key-based. Password-based authentication requires the user to enter the password of the remote system every time they connect. Key-based authentication requires the user to generate a pair of cryptographic keys: a public key and a private key. The public key is stored on the remote system, while the private key is kept on the local system. The public key and the private key are mathematically related, but not identical. The SSH protocol uses the keys to verify the identity of the user and establish a secure connection without requiring a password. The ~/.ssh/authorized\_keys file is a file that contains the public keys of the users who are allowed to connect to the remote system using key-based authentication. The administrator should place the public keys for the server in this file, one per line, and set the appropriate permissions for the file. The administrator should also configure the SSH server to enable key-based authentication by editing the /etc/ssh/sshd\_config file and setting the option PasswordAuthentication to no. The administrator should place the public keys for the server in the ~/.ssh/authorized\_keys file. This is the correct answer to the question. The other options are incorrect because they are not the standard locations for the public keys for the server (~/.sshd/authkeys, ~/.ssh/keys, or ~/.ssh/keyauth). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: Implementing

Basic Security, page 513.

#### NEW QUESTION 8

A cloud engineer is installing packages during VM provisioning. Which of the following should the engineer use to accomplish this task?

- A. Cloud-init
- B. Bash
- C. Docker
- D. Sidecar

**Answer:** A

#### Explanation:

The cloud engineer should use cloud-init to install packages during VM provisioning. Cloud-init is a tool that allows the customization of cloud instances at boot time. Cloud-init can perform various tasks, such as setting the hostname, creating users, installing packages, configuring network, and running scripts. Cloud-init can work with different cloud platforms and Linux distributions. This is the correct tool to accomplish the task. The other options are incorrect because they are either not suitable for cloud provisioning (Bash or Docker) or not a tool but a design pattern (Sidecar). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 563.

#### NEW QUESTION 9

Rugged appliances are small appliances with ruggedized hardware and like Quantum Spark appliance they use which operating system?

- A. Centos Linux
- B. Gaia embedded
- C. Gaia
- D. Red Hat Enterprise Linux version 5

**Answer:** B

#### Explanation:

Rugged appliances are small appliances with ruggedized hardware that use Gaia embedded as their operating system. Gaia embedded is a version of Gaia that is optimized for embedded devices such as Rugged appliances and Quantum Spark appliances. Gaia embedded supports features such as VPN, firewall, identity awareness, application control, URL filtering, and anti-bot. Gaia embedded does not use Centos Linux, Gaia, or Red Hat Enterprise Linux version 5 as their operating system. References: Check Point Rugged Appliance Datasheet, page 1.

#### NEW QUESTION 10

A user generated a pair of private-public keys on a workstation. Which of the following commands will allow the user to upload the public key to a remote server and enable passwordless login?

- A. `scp ~/.ssh/id_rsa user@server:~/`
- B. `rsync ~ /.ssh/ user@server:~/`
- C. `ssh-add user server`
- D. `ssh-copy-id user@server`

**Answer:** D

#### Explanation:

The command `ssh-copy-id user@server` will allow the user to upload the public key to a remote server and enable passwordless login. The `ssh-copy-id` command is a tool for copying the public key to a remote server and appending it to the `authorized_keys` file, which is used for public key authentication. The command will also set the appropriate permissions on the remote server to ensure the security of the key. The command `ssh-copy-id user@server` will copy the public key of the user to the server and allow the user to log in without a password. This is the correct command to use for this task. The other options are incorrect because they either do not copy the public key (`scp`, `rsync`, or `ssh-add`) or do not use the correct syntax (`scp ~/.ssh/id_rsa user@server:~/` instead of `scp ~/.ssh/id_rsa.pub user@server:~/` or `rsync ~ /.ssh/ user@server:~/` instead of `rsync ~/.ssh/id_rsa.pub user@server:~/`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 410.

#### NEW QUESTION 10

A systems administrator requires that all files that are created by the user named web have read-only permissions by the owner. Which of the following commands will satisfy this requirement?

- A. `chown web:web /home/web`
- B. `chmod -R 400 /home/web`
- C. `echo "umask 377" >> /home/web/.bashrc`
- D. `setfacl read /home/web`

**Answer:** C

#### Explanation:

The command that will satisfy the requirement of having all files that are created by the user named web have read-only permissions by the owner is `echo "umask 377" >> /home/web/.bashrc`. This command will append the `umask 377` command to the end of the `.bashrc` file in the web user's home directory. The `.bashrc` file is a shell script that is executed whenever a new interactive shell session is started by the user. The `umask` command sets the file mode creation mask, which determines the default permissions for newly created files or directories by subtracting from the maximum permissions (666 for files and 777 for directories). The `umask 377` command means that the user does not want to give any permissions to the group or others (3 = 000 in binary), and only wants to give read permission to the owner (7 - 3 = 4 = 100 in binary). Therefore, any new file created by the web user will have read-only permission by the owner (400) and no permission for anyone else. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups; Umask Command in Linux | Linuxize

#### NEW QUESTION 15

A Linux administrator wants to prevent the `httpd` web service from being started both manually and automatically on a server. Which of the following should the administrator use to accomplish this task?

- A. systemctl mask httpd
- B. systemctl disable httpd
- C. systemctl stop httpd
- D. systemctl reload httpd

**Answer:** A

**Explanation:**

The best command to use to prevent the httpd web service from being started both manually and automatically on a server is A. systemctl mask httpd. This command will create a symbolic link from the httpd service unit file to /dev/null, which will make the service impossible to start or enable. This is different from systemctl disable httpd, which will only prevent the service from starting automatically on boot, but not manually. The other commands are either not relevant or not sufficient for this task. For example:

? C. systemctl stop httpd will only stop the service if it is currently running, but it will not prevent it from being started again.

? D. systemctl reload httpd will only reload the configuration files of the service, but it will not stop or disable it.

**NEW QUESTION 16**

Users are reporting that writes on a system configured with SSD drives have been taking longer than expected, but reads do not seem to be affected. A Linux systems administrator is investigating this issue and working on a solution. Which of the following should the administrator do to help solve the issue?

- A. Run the corresponding command to trim the SSD drives.
- B. Use fsck on the filesystem hosted on the SSD drives.
- C. Migrate to high-density SSD drives for increased performance.
- D. Reduce the amount of files on the SSD drives.

**Answer:** A

**Explanation:**

TRIM is a feature that allows the operating system to inform the SSD which blocks of data are no longer in use and can be wiped internally. This helps to maintain the SSD's performance and endurance by preventing unnecessary write operations and reducing write amplification<sup>12</sup>. Running the corresponding command to trim the SSD drives, such as fstrim or blkdiscard on Linux, can help to solve the issue of slow writes by freeing up space and optimizing the SSD's internal garbage collection<sup>34</sup>.

References: 1: What is SSD TRIM, why is it useful, and how to check whether it is turned on 2: How to Trim SSD in Windows 10 3: How to run fsck on an external drive with OS X? 4: How to Use the fsck Command on Linux

**NEW QUESTION 17**

A Linux administrator is installing a web server and needs to check whether web traffic has already been allowed through the firewall. Which of the following commands should the administrator use to accomplish this task?

- A. firewall query-service-http
- B. firewall-cmd --check-service http
- C. firewall-cmd --query-service http
- D. firewalld --check-service http

**Answer:** C

**Explanation:**

The command firewall-cmd --query-service http will accomplish the task of checking whether web traffic has already been allowed through the firewall. The firewall-cmd command is a tool for managing firewalld, which is a firewall service that provides dynamic and persistent network security on Linux systems. The firewalld uses zones and services to define the rules and policies for the network traffic. The zones are logical groups of network interfaces and sources that have the same level of trust and security. The services are predefined sets of ports and protocols that are associated with certain applications or functions. The --query-service http option queries whether a service is enabled in a zone. The http is the name of the service that the command should check.

The http service represents the web traffic that uses the port 80 and the TCP protocol. The command firewall-cmd --query-service http will check whether the http service is enabled in the default zone, which is usually the public zone. The command will return yes if the web traffic has already been allowed through the firewall, or no if the web traffic has not been allowed through the firewall. This is the correct command to use to accomplish the task.

The other options are incorrect because they either do not exist (firewalld query-service- http or firewalld --check-service http) or do not query the service (firewall-cmd --check-service http instead of firewall-cmd --query-service http). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 392.

**NEW QUESTION 20**

A Linux engineer needs to block an incoming connection from the IP address 2.2.2.2 to a secure shell server and ensure the originating IP address receives a response that a firewall is blocking the connection. Which of the following commands can be used to accomplish this task?

- A. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j DROP
- B. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j RETURN
- C. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j REJECT
- D. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j QUEUE

**Answer:** C

**Explanation:**

The REJECT target sends back an error packet to the source IP address, indicating that the connection is refused by the firewall. This is different from the DROP target, which silently discards the packet without any response. The RETURN target returns to the previous chain, which may or may not accept the connection. The QUEUE target passes the packet to a userspace application for further processing, which is not the desired outcome in this case.

References

? CompTIA Linux+ (XK0-005) Certification Study Guide, page 316

? iptables - ssh - access from specific ip only - Server Fault, answer by Eugene Ionichev

**NEW QUESTION 23**

A DevOps engineer wants to allow the same Kubernetes container configurations to be deployed in development, testing, and production environments. A key requirement is that the containers should be configured so that developers do not have to statically configure custom, environment-specific locations. Which of the following should the engineer use to meet this requirement?

- A. Custom scheduler
- B. Node affinity
- C. Overlay network
- D. Ambassador container

**Answer: D**

**Explanation:**

To allow the same Kubernetes container configurations to be deployed in different environments without statically configuring custom locations, the engineer can use an ambassador container (D). An ambassador container is a proxy container that handles communication between containers and external services. It can dynamically configure locations based on environment variables or other methods. The other options are not related to this requirement. References: ? [CompTIA Linux+ Study Guide], Chapter 11: Working with Containers, Section: Using Ambassador Containers ? [How to Use Ambassador Containers]

**NEW QUESTION 25**

A DevOps engineer needs to download a Git repository from <https://git.company.com/admin/project.git>. Which of the following commands will achieve this goal?

- A. `git clone https://git.company.com/admin/project.git`
- B. `git checkout https://git.company.com/admin/project.git`
- C. `git pull https://git.company.com/admin/project.git`
- D. `git branch https://git.company.com/admin/project.git`

**Answer: A**

**Explanation:**

The command `git clone https://git.company.com/admin/project.git` will achieve the goal of downloading a Git repository from the given URL. The `git` command is a tool for managing version control systems. The `clone` option creates a copy of an existing repository. The URL specifies the location of the repository to clone, in this case <https://git.company.com/admin/project.git>. The command `git clone https://git.company.com/admin/project.git` will download the repository and create a directory named `project` in the current working directory. This is the correct command to use to accomplish the goal. The other options are incorrect because they either do not download the repository (`git checkout`, `git pull`, or `git branch`) or do not use the correct syntax (`git checkout https://git.company.com/admin/project.git` instead of `git checkout -b project https://git.company.com/admin/project.git` or `git branch https://git.company.com/admin/project.git` instead of `git branch project https://git.company.com/admin/project.git`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 571.

**NEW QUESTION 27**

Users report that connections to a MariaDB service are being closed unexpectedly. A systems administrator troubleshoots the issue and finds the following message in `/var/log/messages`:

```
dbserver kernel: out of Memory: Killed process 1234 (mysqld).
```

Which of the following is causing the connection issue?

- A. The process `mysqld` is using too many semaphores.
- B. The server is running out of file descriptors.
- C. Something is starving the server resources.
- D. The amount of RAM allocated to the server is too high.

**Answer: B**

**Explanation:**

The message in `/var/log/messages` indicates that the server is running out of file descriptors. A file descriptor is a non-negative integer identifier for an open file in Linux. Each process has a table of open file descriptors where a new entry is appended upon opening a new file. There is a limit on how many file descriptors a process can open at a time, which depends on the system configuration and the user privileges. If a process tries to open more files than the limit, it will fail with an error message like "Too many open files". This could cause connections to be closed unexpectedly or other problems with the application. The other options are not correct causes for the connection issue. The process `mysqld` is not using too many semaphores, which are synchronization mechanisms for processes that share resources. Semaphores are not related to file descriptors or open files. Something is not starving the server resources, which could mean high CPU usage, memory pressure, disk I/O, network congestion, or other factors that affect performance. These could cause slowdowns or timeouts, but not file descriptor exhaustion. The amount of RAM allocated to the server is not too high, which could cause swapping or paging if it exceeds the physical memory available. This could also affect performance, but not file descriptor availability. References: File Descriptor Requirements (Linux Systems); Limits on the Number of Linux File Descriptors

**NEW QUESTION 29**

A Linux system fails to start and delivers the following error message:

```
Checking all file systems.  
/dev/sda1 contains a file system with errors, check forced.  
/dev/sda1: Inodes that were part of a corrupted orphan linked list found.  
/dev/sda1: UNEXPECTED INCONSISTENCY;
```

Which of the following commands can be used to address this issue?

- A. `fsck.ext4 /dev/sda1`
- B. `partprobe /dev/sda1`
- C. `fdisk /dev/sda1`
- D. `mkfs.ext4 /dev/sda1`

**Answer:** A

**Explanation:**

The command `fsck.ext4 /dev/sda1` can be used to address the issue. The issue is caused by a corrupted filesystem on the `/dev/sda1` partition. The error message shows that the filesystem type is `ext4` and the superblock is invalid. The command `fsck.ext4` is a tool for checking and repairing `ext4` filesystems. The command will scan the partition for errors and attempt to fix them. This command can resolve the issue and allow the system to start. The other options are incorrect because they either do not fix the filesystem (`partprobe` or `fdisk`) or destroy the data on the partition (`mkfs.ext4`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, page 325.

**NEW QUESTION 34**

A developer needs to launch an Nginx image container, name it `Web001`, and expose port 8080 externally while mapping to port 80 inside the container. Which of the following commands will accomplish this task?

- A. `docker exec -it -p 8080: 80 --name Web001 nginx`
- B. `docker load -it -p 8080:80 --name Web001 nginx`
- C. `docker run -it -P 8080:80 --name Web001 nginx`
- D. `docker pull -it -p 8080:80 --name Web001 nginx`

**Answer:** C

**Explanation:**

To launch an Nginx image container, name it `Web001`, and expose port 8080 externally while mapping to port 80 inside the container, the administrator can use the command `docker run -it -p 8080:80 --name Web001 nginx`. This will create and start a new container from the Nginx image, assign it a name of `Web001`, and map port 8080 on the host to port 80 on the container. The other commands are not valid or do not meet the requirements. References: ? [CompTIA Linux+ Study Guide], Chapter 11: Working with Containers, Section: Running Containers with Docker ? [How to Run Docker Containers]

**NEW QUESTION 39**

A Linux administrator needs to create an image named `sda.img` from the `sda` disk and store it in the `/tmp` directory. Which of the following commands should be used to accomplish this task?

- A. `dd of=/dev/sda if=/tmp/sda.img`
- B. `dd if=/dev/sda of=/tmp/sda.img`
- C. `dd --if=/dev/sda --of=/tmp/sda.img`
- D. `dd --of=/dev/sda --if=/tmp/sda.img`

**Answer:** B

**Explanation:**

The command `dd if=/dev/sda of=/tmp/sda.img` should be used to create an image named `sda.img` from the `sda` disk and store it in the `/tmp` directory. The `dd` command is a tool for copying and converting data on Linux systems. The `if` option specifies the input file or device, in this case `/dev/sda`, which is the disk device. The `of` option specifies the output file or device, in this case `/tmp/sda.img`, which is the image file. The command `dd if=/dev/sda of=/tmp/sda.img` will copy the entire disk data from `/dev/sda` to `/tmp/sda.img` and create an image file. This is the correct command to use to accomplish the task. The other options are incorrect because they either use the wrong options (`--if` or `--of` instead of `if` or `of`) or swap the input and output (`dd of=/dev/sda if=/tmp/sda.img` or `dd --of=/dev/sda --if=/tmp/sda.img`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, page 323.

**NEW QUESTION 40**

Users in the human resources department are trying to access files in a newly created directory. Which of the following commands will allow the users access to the files?

- A. `chattr`
- B. `chgrp`
- C. `chage`
- D. `chcon`

**Answer:** B

**Explanation:**

The `chgrp` command is used to change the group ownership of files and directories. By using this command, the administrator can assign the files in the newly created directory to the human resources group, which will allow the users in that group to access them. The other commands are not relevant for this task. For example:

? `chattr` is used to change the file attributes, such as making them immutable or append-only<sup>1</sup>.

? `chage` is used to change the password expiration information for a user account<sup>2</sup>.

? `chcon` is used to change the security context of files and directories, which is related to SELinux<sup>3</sup>.

References:

? The CompTIA Linux+ Certification Exam Objectives mention that the candidate should be able to “manage file and directory ownership and permissions” as part of the Hardware and System Configuration domain<sup>4</sup>.

? The web search result 2 explains how to use the `chgrp` command with examples.

? The web search result 3 compares the `chmod` and `chgrp` commands and their effects on file permissions.

**NEW QUESTION 45**

Which of the following tools is commonly used for creating CI/CD pipelines?

- A. Chef
- B. Puppet
- C. Jenkins
- D. Ansible

**Answer:** C

**Explanation:**

The tool that is commonly used for creating CI/CD pipelines is Jenkins. Jenkins is an open-source automation server that enables continuous integration and continuous delivery (CI/CD) of software projects. Jenkins allows developers to build, test, and deploy code changes automatically and frequently using various plugins and integrations. Jenkins also supports distributed builds, parallel execution, pipelines as code, and real-time feedback. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Source Code; Jenkins

**NEW QUESTION 47**

A junior administrator is setting up a new Linux server that is intended to be used as a router at a remote site. Which of the following parameters will accomplish this goal?

A.

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables -t nat -A PREROUTING -i eth0 -j MASQUERADE
```

A.

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables -t nat -D POSTROUTING -o eth0 -j MASQUERADE
```

B.

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE
```

C.

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables -t nat -A PREROUTING -o eth0 -j MASQUERADE
```

**Answer: C**

**Explanation:**

The parameter `net.ipv4.ip_forward=1` will accomplish the goal of setting up a new Linux server as a router. This parameter enables the IP forwarding feature, which allows the server to forward packets between different network interfaces. This is necessary for a router to route traffic between different networks. The parameter can be set in the `/etc/sysctl.conf` file or by using the `sysctl` command. This is the correct parameter to use to accomplish the goal. The other options are incorrect because they either do not exist (`net.ipv4.ip_forwarding` or `net.ipv4.ip_route`) or do not enable IP forwarding (`net.ipv4.ip_forward=0`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 382.

**NEW QUESTION 49**

A systems administrator is tasked with preventing logins from accounts other than root, while the file `/etc/nologin` exists. Which of the following PAM modules will accomplish this task?

- A. `pam_login.so`
- B. `pam_access.so`
- C. `pam_logindf.so`
- D. `pam_nologin.so`

**Answer: D**

**Explanation:**

The PAM module `pam_nologin.so` will prevent logins from accounts other than root, while the file `/etc/nologin` exists. This module checks for the existence of the file `/etc/nologin` and displays its contents to the user before denying access. The root user is exempt from this check and can still log in. This is the correct module to accomplish the task. The other options are incorrect because they are either non-existent modules (`pam_login.so` or `pam_logindf.so`) or do not perform the required function (`pam_access.so` controls access based on host, user, or time). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Users and Groups, page 471.

**NEW QUESTION 54**

An administrator needs to make some changes in the IaC declaration templates. Which of the following commands would maintain version control?

- A. `git clone https://github.com/comptia/linux+- .git git push origin`
- B. `git clone https://qithub.com/comptia/linux+- .git git fetch New-Branch`
- C. `git clone https://github.com/comptia/linux+- .git git status`
- D. `git clone https://github.com/comptia/linux+- .git git checkout -b <new-branch>`

**Answer: D**

**Explanation:**

The command that will maintain version control while making some changes in the IaC declaration templates is `git checkout -b <new-branch>`. This command uses the `git` tool, which is a distributed version control system that tracks changes in source code and enables collaboration among developers. The `checkout` option switches to a different branch in the `git` repository, where a branch is a pointer to a specific commit in the history. The `-b` option creates a new branch with

the given name, and switches to it. This way, the administrator can make changes in the new branch without affecting the main branch, and later merge them if needed.

The other options are not correct commands for maintaining version control while making some changes in the IaC declaration templates. The git clone <https://github.com/comptia/linux±.git> command will clone an existing repository from a remote URL to a local directory, but it will not create a new branch for making changes. The git push origin command will push the local changes to a remote repository named origin, but it will not create a new branch for making changes. The git fetch New-Branch command will fetch updates from a remote branch named New-Branch, but it will not create a new branch for making changes. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Source Code; Git - Basic Branching and Merging

#### NEW QUESTION 55

A Linux administrator found many containers in an exited state. Which of the following commands will allow the administrator to clean up the containers in an exited state?

- A. docker rm -- all
- B. docker rm \$(docker ps -aq)
- C. docker images prune \*
- D. docker rm -- state exited

**Answer: B**

#### Explanation:

This command will remove all containers, regardless of their state, by passing the IDs of all containers to the docker rm command. The docker ps -aq command will list the IDs of all containers, including the ones in an exited state, and the \$ ( ) syntax will substitute the output of the command as an argument for the docker rm command. This is a quick and easy way to clean up all containers, but it may also remove containers that are still needed or running.

References

? docker rm | Docker Docs - Docker Documentation, section "Remove all containers"

? Docker Remove Exited Containers | Easy methods. - Bobcares, section "For removing all exited containers"

#### NEW QUESTION 59

A development team asks an engineer to guarantee the persistency of journal log files across system reboots. Which of the following commands would accomplish this task?

- A. grep -i auto /etc/systemd/journald.conf && systemctl restart systemd-journald.service
- B. cat /etc/systemd/journald.conf | awk '(print \$1,\$3)'
- C. sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf
- D. journalctl --list-boots && systemctl restart systemd-journald.service

**Answer: C**

#### Explanation:

The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will accomplish the task of guaranteeing the persistency of journal log files across system reboots. The sed command is a tool for editing text files on Linux systems. The -i option modifies the file in place. The s command substitutes one string for another. The g flag replaces all occurrences of the string. The && operator executes the second command only if the first command succeeds. The q command quits after the first match. The /etc/systemd/journald.conf file is a configuration file for the systemd-journald service, which is responsible for collecting and storing log messages. The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf will replace the word auto with the word persistent in the file. This will change the value of the Storage option, which controls where the journal log files are stored. The value auto means that the journal log files are stored in the volatile memory and are lost after reboot, while the value persistent means that the journal log files are stored in the persistent storage and are preserved across reboots. The command sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will remove the # character at the beginning of the line that contains the word persistent. This will uncomment the Storage option and enable it. The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will guarantee the persistency of journal log files across system reboots by changing and enabling the Storage option to persistent. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not change the value of the Storage option (grep -i auto /etc/systemd/journald.conf && systemctl restart systemd-journald.service or cat /etc/systemd/journald.conf | awk '(print \$1,\$3)') or do not enable the Storage option (journalctl --list-boots && systemctl restart systemd-journald.service). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Managing Logging and Monitoring, page 489.

#### NEW QUESTION 61

An administrator is trying to diagnose a performance issue and is reviewing the following output:

```
avg-cpu:  %user  %nice  %system  %iowait  %steal   %idle
           2.00   0.00   3.00    32.00    0.00   63.00

Device            tps  kB_read/s  kB_wrtn/s   kB_read  kB_wrtn
sdb                345.00     0.02      0.04 4739073123 23849523
sdb1               345.00  32102.03  12203.01 4739073123 23849523
```

System Properties: CPU: 4 vCPU

Memory: 40GB

Disk maximum IOPS: 690

Disk maximum throughput: 44Mbps | 44000Kbps

Based on the above output, which of the following BEST describes the root cause?

- A. The system has reached its maximum IOPS, causing the system to be slow.
- B. The system has reached its maximum permitted throughput, therefore iowait is increasing.
- C. The system is mostly idle, therefore the iowait is high.
- D. The system has a partitioned disk, which causes the IOPS to be doubled.

**Answer: B**

**Explanation:**

The system has reached its maximum permitted throughput, therefore iowait is increasing. The output of `iostat -x` shows that the device `sda` has an average throughput of 44.01 MB/s, which is equal to the disk maximum throughput of 44 Mbps. The output also shows that the device `sda` has an average iowait of 99.99%, which means that the CPU is waiting for the disk to complete the I/O requests. This indicates that the disk is the bottleneck and the system is slow due to the high iowait. The other options are incorrect because they are not supported by the outputs. The system has not reached its maximum IOPS, as the device `sda` has an average IOPS of 563.50, which is lower than the disk maximum IOPS of 690. The system is not mostly idle, as the output of `top` shows that the CPU is 100% busy. The system does not have a partitioned disk, as the output of `lsblk` shows that the device `sda` has only one partition `sda1`. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: Optimizing Linux Systems, pages 513-514.

**NEW QUESTION 64**

A systems administrator needs to check if the service `systemd-resolved.service` is running without any errors. Which of the following commands will show this information?

- A. `systemctl status systemd-resolved.service`
- B. `systemctl enable systemd-resolved.service`
- C. `systemctl mask systemd-resolved.service`
- D. `systemctl show systemd-resolved.service`

**Answer:** A

**Explanation:**

The command `systemctl status systemd-resolved.service` will show the information about the service `systemd-resolved.service`. The `systemctl` command is a tool for managing system services and units. The `status` option displays the current status of a unit, such as active, inactive, or failed. The output also shows the unit description, loaded configuration, process ID, memory usage, and recent log messages. This command will show if the service `systemd-resolved.service` is running without any errors. This is the correct command to use to accomplish the task. The other options are incorrect because they either perform different actions (enable, mask, or show) or do not show the status of the service (`systemctl show systemd-resolved.service` only shows the properties of the service, not the status). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, page 427.

**NEW QUESTION 68**

An administrator would like to securely connect to a server and forward port 8080 on a local machine to port 80 on the server. Which of the following commands should the administrator use to satisfy both requirements?

- A. `ssh -L 8080:localhost:80 admin@server`
- B. `ssh -R 8080:localhost:80 admin@server`
- C. `ssh -L 80 : localhost:8080 admin@server`
- D. `ssh -R 80 : localhost:8080 admin@server`

**Answer:** A

**Explanation:**

This command will create a local port forwarding, which means that connections from the SSH client are forwarded via the SSH server, then to a destination server. In this case, the destination server is the same as the SSH server (localhost), and the destination port is 80. The SSH client will listen on port 8080 on the local machine, and any connection to that port will be forwarded to port 80 on the server. This way, the administrator can securely access the web service running on port 80 on the server by using `http://localhost:8080` on the local machine.

The other options are incorrect because:

\* B. `ssh -R 8080:localhost:80 admin@server`

This command will create a remote port forwarding, which means that connections from the SSH server are forwarded via the SSH client, then to a destination server. In this case, the destination server is the same as the SSH client (localhost), and the destination port is 80. The SSH server will listen on port 8080 on the remote machine, and any connection to that port will be forwarded to port 80 on the client. This is not what the administrator wants to do.

\* C. `ssh -L 80:localhost:8080 admin@server`

This command will also create a local port forwarding, but it will use port 80 on the local machine and port 8080 on the server. This is not what the administrator wants to do, and it may also fail if port 80 is already in use by another service on the local machine.

\* D. `ssh -R admin@server`

This command is incomplete and invalid. It does not specify any port numbers or destination addresses for the remote port forwarding. It will also fail if the SSH server does not allow remote port forwarding.

References:

? CompTIA Linux+ Certification Exam Objectives

? How to Set up SSH Tunneling (Port Forwarding)

**NEW QUESTION 72**

A Linux systems administrator is setting up a new web server and getting 404 - NOT FOUND errors while trying to access the web server pages from the browser. While working on the diagnosis of this issue, the Linux systems administrator executes the following commands:

```
# getenforce
Enforcing

# matchpathcon -V /var/www/html/*
/var/www/html/index.html has context unconfined_u:object_r:user_home_t:s0, should be system_u:object_r:httpd_sys_content_t:s0
/var/www/html/page1.html has context unconfined_u:object_r:user_home_t:s0, should be system_u:object_r:httpd_sys_content_t:s0
```

Which of the following commands will BEST resolve this issue?

- A. `sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config`
- B. `restorecon -R -v /var/www/html`
- C. `setenforce 0`
- D. `setsebool -P httpd_can_network_connect_db on`

**Answer:** B

**Explanation:**

The command `restorecon -R -v /var/www/html` will best resolve the issue. The issue is caused by the incorrect SELinux context of the web server files under the `/var/www/html` directory. The output of `ls -Z /var/www/html` shows that the files have the type `user_home_t`, which is not allowed for web content. The command `restorecon` restores the default SELinux context of files based on the policy rules. The options `-R` and `-v` are used to apply the command recursively and verbosely. This command will change the type of the files to `httpd_sys_content_t`, which is the correct type for web content. This will allow the web server to access the files and serve the pages to the browser. The other options are incorrect because they either disable SELinux entirely (`sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config` or `setenforce 0`), which is not a good security practice, or enable an unnecessary boolean (`setsebool -P httpd_can_network_connect_db on`), which is not related to the issue. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 535.

#### NEW QUESTION 77

A systems administrator is tasked with mounting a USB drive on a system. The USB drive has a single partition, and it has been mapped by the system to the device `/dev/sdb`. Which of the following commands will mount the USB to `/media/usb`?

- A. `mount /dev/sdb1 /media/usb`
- B. `mount /dev/sdb0 /media/usb`
- C. `mount /dev/sdb /media/usb`
- D. `mount -t usb /dev/sdb1 /media/usb`

**Answer:** A

#### Explanation:

The `mount /dev/sdb1 /media/usb` command will mount the USB drive to `/media/usb`. This command will attach the filesystem on the first partition of the USB drive (`/dev/sdb1`) to the mount point `/media/usb`, making it accessible to the system. The `mount /dev/sdb0 /media/usb` command is invalid, as there is no such device as `/dev/sdb0`. The `mount /dev/sdb /media/usb` command is incorrect, as it will try to mount the entire USB drive instead of its partition, which may cause errors or data loss. The `mount -t usb /dev/sdb1 /media/usb` command is incorrect, as `usb` is not a valid filesystem type for `mount`. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Disk Storage, page 455.

#### NEW QUESTION 78

A user created the following script file:

```
#!/bin/bash
# FILENAME: /home/user/ script . sh echo "hello world"
exit 1
```

However, when the user tried to run the script file using the command `script . sh`, an error returned indicating permission was denied. Which of the following should the user execute in order for the script to run properly?

- A. `chmod u+x /home/user/script . sh`
- B. `chmod 600 /home/user/script . sh`
- C. `chmod /home/user/script . sh`
- D. `chmod 0+r /home/user/scrip`
- E. `sh`

**Answer:** A

#### Explanation:

To run a script file, the user needs to have execute permission on the file. The command `chmod u+x /home/user/script.sh` (A) will grant execute permission to the owner of the file, which is the user who created it. The other commands will not give execute permission to the user, and therefore will not allow the script to run properly. References:

? [CompTIA Linux+ Study Guide], Chapter 3: Working with Files, Section: Changing File Permissions

? [How to Make a Bash Script Executable]

#### NEW QUESTION 81

Which of the following will prevent non-root SSH access to a Linux server?

- A. Creating the `/etc/nologin` file
- B. Creating the `/etc/nologin.allow` file containing only a single line `root`
- C. Creating the `/etc/nologin/login.deny` file containing a single line `+all`
- D. Ensuring that `/etc/pam.d/sshd` includes account sufficient `pam_nologin.so`

**Answer:** A

#### Explanation:

This file prevents any non-root user from logging in to the system, regardless of the authentication method. The contents of the file are displayed to the user before the login is terminated. This can be useful for system maintenance or security reasons<sup>12</sup>.

References: 1: Creating the `/etc/nologin` File - Oracle 2: How to Restrict Log In Capabilities of Users on Ubuntu

#### NEW QUESTION 84

An administrator attempts to connect to a remote server by running the following command:

```
$ nmap 192.168.10.36
```

```
Starting Nmap 7.60 ( https://nmap.org ) at 2022-03-29 20:20 UTC Nmap scan report for www1 (192.168.10.36)
```

```
Host is up (0.000091s latency). Not shown: 979 closed ports PORT STATE SERVICE 21/tcp open ftp 22/tcp filtered ssh 631/tcp open ipp
```

```
Nmap done: 1 IP address (1 host up) scanned in 0.06 seconds
```

Which of the following can be said about the remote server?

- A. A firewall is blocking access to the SSH server.
- B. The SSH server is not running on the remote server.
- C. The remote SSH server is using SSH protocol version 1.
- D. The SSH host key on the remote server has expired.

**Answer:** A

**Explanation:**

This is because the port 22/tcp is shown as filtered by nmap, which means that nmap cannot determine whether the port is open or closed because a firewall or other device is blocking its probes. If the SSH server was not running on the remote server, the port would be shown as closed, which means that nmap received a TCP RST packet in response to its probe. If the remote SSH server was using SSH protocol version 1, the port would be shown as open, which means that nmap received a TCP SYN/ACK packet in response to its probe. If the SSH host key on the remote server had expired, the port would also be shown as open, but the SSH client would display a warning message about the host key verification failure. Therefore, the best explanation for the filtered state of the port 22/tcp is that a firewall is preventing nmap from reaching the SSH server.

You can find more information about nmap port states and how to interpret them in the following web search results:

- ? Nmap scan what does STATE=filtered mean?
- ? How to find ports marked as filtered by nmap
- ? Technical Tip: NMAP scan shows ports as filtered

**NEW QUESTION 85**

Due to low disk space, a Linux administrator finding and removing all log files that were modified more than 180 days ago. Which of the following commands will accomplish this task?

- A. `find /var/log -type d -mtime +180 -print -exec rm {} \;`
- B. `find /var/log -type f -modified +180 -rm`
- C. `find /var/log -type f -mtime +180 -exec rm {} \`
- D. `find /var/log -type c -atime +180 -remove`

**Answer:** C

**Explanation:**

The command that will accomplish the task of finding and removing all log files that were modified more than 180 days ago is `find /var/log -type f -mtime +180 -exec rm {} ;`. This command will use find to search for files (-type f) under /var/log directory that have a modification time (-mtime) older than 180 days (+180). For each matching file, it will execute (-exec) the rm command to delete it, passing the file name as an argument ({}). The command will end with a semicolon (;), which is escaped with a backslash to prevent shell interpretation.

The other options are not correct commands for accomplishing the task. The `find /var/log -type d -mtime +180 -print -exec rm {} ;` command will search for directories (-type d) instead of files, and print their names (-print) before deleting them. This is not what the task requires. The `find /var/log -type f -modified +180 -rm` command is invalid because there is no such option as -modified or -rm for find. The correct options are -mtime and -delete, respectively. The `find /var/log -type c -atime +180 -remove` command is also invalid because there is no such option as -remove for find. Moreover, it will search for character special files (-type c) instead of regular files, and use access time (-atime) instead of modification time. References: find(1) - Linux manual page; Find and delete files older than n days in Linux

**NEW QUESTION 87**

Users are unable to create new files on the company's FTP server, and an administrator is troubleshooting the issue. The administrator runs the following commands:

```
# df -h /ftpusers/
```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/sda4	150G	40G	109G	26%	/ftpusers

```
# df -i /ftpusers/
```

Filesystem	Inodes	Iused	Ifree	Iuse%	Mounted on
/dev/sda4	34567	34567	0	100%	/ftpusers

Which of the following is the cause of the issue based on the output above?

- A. The users do not have the correct permissions to create files on the FTP server.
- B. The ftpusers filesystem does not have enough space.
- C. The inodes is at full capacity and would affect file creation for users.
- D. ftpusers is mounted as read only.

**Answer:** C

**Explanation:**

The cause of the issue based on the output above is C. The inodes is at full capacity and would affect file creation for users.

An inode is a data structure that stores information about a file or directory, such as its name, size, permissions, owner, timestamps, and location on the disk. Each file or directory has a unique inode number that identifies it. The number of inodes on a filesystem is fixed when the filesystem is created, and it determines how many files and directories can be created on that filesystem. If the inodes are exhausted, no new files or directories can be created, even if there is enough disk space available.

The output for the second command shows that the /ftpusers/ filesystem has 0% of inodes available, which means that all the inodes have been used up. This would prevent users from creating new files on the FTP server. The administrator should either delete some unused files or directories to free up some inodes, or resize the filesystem to increase the number of inodes.

The other options are incorrect because:

\* A. The users do not have the correct permissions to create files on the FTP server.

This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The permissions of the files and directories are not shown in the output, but they are not relevant to the issue of inode exhaustion.

\* B. The ftpusers filesystem does not have enough space.

This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The issue is not related to disk space, but to inode capacity.

\* D. ftpusers is mounted as read only.

This is not true, because the output for the first command does not show any indication that the /ftpusers/ filesystem is mounted as read only. If it was, it would have an (ro) flag next to the mounted on column. A read only filesystem would prevent users from creating or modifying files on the FTP server, but it would not affect the inode usage.

#### NEW QUESTION 92

An administrator deployed a Linux server that is running a web application on port 6379/tcp. SELinux is in enforcing mode based on organization policies. The port is open on the firewall. Users who are trying to connect to a local instance of the web application receive Error 13, Permission denied. The administrator ran some commands that resulted in the following output:

```
# semanage port -l | egrep '^http_port_t|6379)'
http_port_t tcp 80, 81, 443, 488, 8008, 8009, 8443, 9000

# curl http://localhost/App.php
Cannot connect to App Server.
```

Which of the following commands should be used to resolve the issue?

- A. semanage port -d -t http\_port\_t -p tcp 6379
- B. semanage port -a -t http\_port\_t -p tcp 6379
- C. semanage port -a http\_port\_t -p top 6379
- D. semanage port -l -t http\_port\_tcp 6379

**Answer: B**

#### Explanation:

The command `semanage port -a -t http_port_t -p tcp 6379` adds a new port definition to the SELinux policy and assigns the type `http_port_t` to the port 6379/tcp. This allows the web application to run on this port and accept connections from users. This is the correct way to resolve the issue. The other options are incorrect because they either delete a port definition (-d), use the wrong protocol (top instead of tcp), or list the existing port definitions (-l). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 535.

#### NEW QUESTION 96

A Linux administrator has set up a new DNS forwarder and is configuring all internal servers to use the new forwarder to look up external DNS requests. The administrator needs to modify the firewall on the server for the DNS forwarder to allow the internal servers to communicate to it and make the changes persistent between server reboots. Which of the following commands should be run on the DNS forwarder server to accomplish this task?

- A. `ufw allow out dns`
- B. `systemctl reload firewalld`
- C. `iptables -A OUTPUT -p udp -ra udp -dport 53 -j ACCEPT`
- D. `firewall-cmd --zone=public --add-port=53/udp --permanent`

**Answer: D**

#### Explanation:

The command that should be run on the DNS forwarder server to accomplish the task is `firewall-cmd --zone=public --add-port=53/udp --permanent`.

The `firewall-cmd` command is a tool for managing `firewalld`, which is a firewall service that provides dynamic and persistent network security on Linux systems. The `firewalld` uses zones and services to define the rules and policies for the network traffic. The zones are logical groups of network interfaces and sources that have the same level of trust and security. The services are predefined sets of ports and protocols that are associated with certain applications or functions. The `--zone=public` option specifies the zone name that the rule applies to. The public zone is the default zone that represents the untrusted network, such as the internet. The `--add-port=53/udp` option adds a port and protocol to the zone. The 53 is the port number that is used by the DNS service. The `udp` is the protocol that is used by the DNS service. The `--permanent` option makes the change persistent across reboots. The command `firewall-cmd --zone=public --add-port=53/udp --permanent` will modify the firewall on the server for the DNS forwarder to allow the internal servers to communicate to it and make the changes persistent between server reboots. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not modify the firewall on the server for the DNS forwarder (`ufw allow out dns` or `systemctl reload firewalld`) or do not use the correct syntax for the command (`iptables -A OUTPUT -p udp -ra udp -dport 53 -j ACCEPT` instead of `iptables -A OUTPUT -p udp -ra udp --dport 53 -j ACCEPT`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 392.

#### NEW QUESTION 100

A systems administrator wants to check for running containers. Which of the following commands can be used to show this information?

- A. `docker pull`
- B. `docker stats`
- C. `docker ps`
- D. `docker list`

**Answer: C**

#### Explanation:

The command that can be used to check for running containers is `docker ps`. The `docker ps` command can list all the containers that are currently running on the system. To show all the containers, including those that are stopped, the administrator can use `docker ps -a`

References:

? [CompTIA Linux+ Study Guide], Chapter 11: Working with Containers, Section: Managing Containers with Docker

? [Docker PS Command with Examples]

#### NEW QUESTION 101

A Linux system is failing to boot with the following error:

```
error: no such partitions
Entering rescue mode...
grub rescue>
```

Which of the following actions will resolve this issue? (Choose two.)

- A. Execute `grub-install --root-directory=/mnt` and reboot.
- B. Execute `grub-install /dev/sdX` and reboot.
- C. Interrupt the boot process in the GRUB menu and add `rescue` to the kernel line.
- D. Fix the partition modifying `/etc/default/grub` and reboot.
- E. Interrupt the boot process in the GRUB menu and add `single` to the kernel line.
- F. Boot the system on a LiveCD/ISO.

**Answer:** BF

**Explanation:**

The administrator should do the following two actions to resolve the issue:

? Boot the system on a LiveCD/ISO. This is necessary to access the system and repair the boot loader. A LiveCD/ISO is a bootable media that contains a Linux distribution that can run without installation. The administrator can boot the system from the LiveCD/ISO and mount the root partition of the system to a temporary directory, such as `/mnt`.

? Execute `grub-install /dev/sdX` and reboot. This will reinstall the GRUB boot loader to the disk device, where `sdX` is the device name of the disk, such as `sda` or `sdb`. The GRUB boot loader is a program that runs when the system is powered on and allows the user to choose which operating system or kernel to boot. The issue is caused by a corrupted or missing GRUB boot loader, which prevents the system from booting. The command `grub-install` will restore the GRUB boot loader and fix the issue.

The other options are incorrect because they either do not fix the boot loader (interrupt the boot process in the GRUB menu or fix the partition modifying `/etc/default/grub`) or do not use the correct syntax (`grub-install --root-directory=/mnt` instead of `grub-install /dev/sdX` or `rescue` or `single` instead of `recovery` in the GRUB

menu). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing the Linux Boot Process, pages 265-266.

**NEW QUESTION 102**

A Linux administrator is troubleshooting an issue in which an application service failed to start on a Linux server. The administrator runs a few commands and gets the following outputs:

Output 1:

```
Dec 23 23:14:15 root systemd[1] logsearch.service: Failed to start Logsearch.
```

Output 2:

```
logsearch.service - Log Search
Loaded: loaded (/etc/systemd/system/logsearch.service; enabled; vendor preset:enabled)
Active: failed (Result: timeout)
Process: 3267 ExecStart=/usr/share/logsearch/bin/logger ...
Main PID: 3267 (code=killed, signal=KILL)
```

Based on the above outputs, which of the following is the MOST likely action the administrator should take to resolve this issue?

- A. Enable the `logsearch.service` and restart the service.
- B. Increase the `TimeoutStartUSec` configuration for the `logsearch.service`.
- C. Update the `OnCalendar` configuration to schedule the start of the `logsearch.service`.
- D. Update the `KillSignal` configuration for the `logsearch.service` to use `TERM`.

**Answer:** B

**Explanation:**

The administrator should increase the `TimeoutStartUSec` configuration for the `logsearch.service` to resolve the issue. The output of `systemctl status logsearch.service` shows that the service failed to start due to a timeout. The output of `cat /etc/systemd/system/logsearch.service` shows that the service has a `TimeoutStartUSec` configuration of 10 seconds, which might be too short for the service to start. The administrator should increase this value to a higher number, such as 30 seconds or 1 minute, and then restart the service. The other options are incorrect because they are not related to the issue. The service is already enabled, as shown by the output of `systemctl is-enabled logsearch.service`. The service does not use an `OnCalendar` configuration, as it is not a timer unit. The service does not use a `KillSignal` configuration, as it is not being killed by a signal. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, pages 434-435.

**NEW QUESTION 103**

A Linux administrator reviews a set of log output files and needs to identify files that contain any occurrence of the word `denied`. All log files containing entries in uppercase or lowercase letters should be included in the list. Which of the following commands should the administrator use to accomplish this task?

- A. `find . -type f -print | xargs grep -ln denied`
- B. `find . -type f -print | xargs grep -nv denied`
- C. `find . -type f -print | xargs grep -wL denied`
- D. `find . -type f -print | xargs grep -li denied`

**Answer:** D

**Explanation:**

The command `find . -type f -print | xargs grep -li denied` will accomplish the task of identifying files that contain any occurrence of the word `denied`. The `find`

command is a tool for searching for files and directories on Linux systems. The . is the starting point of the search, which means the current directory. The -type f option specifies the type of the file, which means regular file. The -print option prints the full file name on the standard output. The | is a pipe symbol that redirects the output of one command to the input of another command. The xargs command is a tool for building and executing commands from standard input. The grep command is a tool for searching for patterns in files or input.

The -li option specifies the flags that the grep command should apply. The -l flag shows only the file names that match the pattern, instead of the matching lines. The -i flag ignores the case of the pattern, which means it matches both uppercase and lowercase letters.

The denied is the pattern that the grep command should search for. The command `find . -type f -print | xargs grep -li denied` will find all the regular files in the current directory and its subdirectories, and then search for any occurrence of the word denied in those files, ignoring the case, and print only the file names that match the pattern. This will allow the administrator to identify files that contain any occurrence of the word denied. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not ignore the case of the pattern (`find . -type f -print | xargs grep -ln denied` or `find . -type f -print | xargs grep -wL denied`) or do not show the file names that match the pattern (`find . -type f -print | xargs grep -nv denied`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Managing Logging and Monitoring, page 489.

#### NEW QUESTION 107

A Linux system is having issues. Given the following outputs:

```
# dig @192.168.2.2 mycomptiahost
; << >> DiG 9.9.4-RedHat-9.9.4-74.el7_6.1 << >> @192.168.2.2 mycomptiahost
; (1 server found)
;; global options: +cmd
;; connection timed out; no servers could be reached
# nc -v 192.168.2.2 53
Ncat: Version 7.70 ( https://nmap.org/ncat ) Ncat: Connection timed out.
# ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=117 time=4.94 ms 64 bytes from 192.168.2.2: icmp_seq=2 ttl=117 time=10.5 ms
```

Which of the following best describes this issue?

- A. The DNS host is down.
- B. The name mycomptiahost does not exist in the DNS.
- C. The Linux engineer is using the wrong DNS port.
- D. The DNS service is currently not available or the corresponding port is blocked.

**Answer: D**

#### Explanation:

The ping command shows that the Linux system can reach the DNS server at 192.168.2.2, so the DNS host is not down. The dig and nc commands show that the Linux system cannot connect to the DNS server on port 53, which is the standard port for DNS queries. This means that either the DNS service is not running on the DNS server, or there is a firewall or network device blocking the port 53 traffic. Therefore, the DNS service is currently not available or the corresponding port is blocked. References: 1: How To Troubleshoot DNS Client Issues in Linux - RootUsers 2: 6 Best Tools to Troubleshoot DNS Issues in Linux - Tecmint 3: How To Troubleshoot DNS in Linux - OrcaCore 4: Fixing DNS Issues in Ubuntu 20.04 | DeviceTests

#### NEW QUESTION 109

Users have reported that the interactive sessions were lost on a Linux server. A Linux administrator verifies the server was switched to rescue.target mode for maintenance. Which of the following commands will restore the server to its usual target?

- A. telinit 0
- B. systemctl reboot
- C. systemctl get-default
- D. systemctl emergency

**Answer: B**

#### Explanation:

The systemctl reboot command will restore the server to its usual target by rebooting it. This will cause the server to load the default target specified in /etc/systemd/system.conf or /etc/systemd/system/default.target files. The telinit 0 command would shut down the server, not restore it to its usual target. The systemctl get-default command would display the default target, not change it. The systemctl emergency command would switch the server to emergency.target mode, which is even more restrictive than rescue.target mode. References: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 17: System Maintenance and Operation, page 516.

#### NEW QUESTION 111

A junior systems administrator has just generated public and private authentication keys for passwordless login. Which of the following files will be moved to the remote servers?

- A. id\_dsa.pem
- B. id\_rsa
- C. id\_ecdsa
- D. id\_rsa.pub

**Answer: D**

#### Explanation:

The file id\_rsa.pub will be moved to the remote servers for passwordless login. The id\_rsa.pub file is the public authentication key that is generated by the ssh-keygen command. The public key can be copied to the remote servers by using the ssh-copy-id command or manually. The remote servers will use the public key to authenticate the user who has the corresponding private key (id\_rsa). This will allow the user to log in without entering a password. The other options are incorrect because they are either private keys (id\_rsa, id\_dsa.pem, or id\_ecdsa) or non-existent files (id\_dsa.pem or id\_ecdsa). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 410.

#### NEW QUESTION 115

A systems administrator is installing various software packages using a pack-age manager. Which of the following commands would the administrator use on the Linux server to install the package?

- A. winget
- B. softwareupdate
- C. yum-config
- D. apt

**Answer: D**

#### NEW QUESTION 117

A Linux administrator needs to create a new cloud.cpio archive containing all the files from the current directory. Which of the following commands can help to accomplish this task?

- A. ls | cpio -iv > cloud.epio
- B. ls | cpio -iv < cloud.epio
- C. ls | cpio -ov > cloud.cpio
- D. ls cpio -ov < cloud.cpio

**Answer: C**

#### Explanation:

The command `ls | cpio -ov > cloud.cpio` can help to create a new cloud.cpio archive containing all the files from the current directory. The `ls` command lists the files in the current directory and outputs them to the standard output. The `|` operator pipes the output to the next command. The `cpio` command is a tool for creating and extracting compressed archives. The `-o` option creates a new archive and the `-v` option shows the verbose output. The `>` operator redirects the output to the cloud.cpio file. This command will create a new cloud.cpio archive with all the files from the current directory. The other options are incorrect because they either use the wrong options (`-i` instead of `-o`), the wrong arguments (cloud.epio instead of cloud.cpio), or the wrong syntax (`<` instead of `>` or missing `|`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, page 351.

#### NEW QUESTION 122

Employees in the finance department are having trouble accessing the file `/opt/work/file`. All IT employees can read and write the file. Systems administrator reviews the following output:

```
admin@server:/opt/work$ ls -al file
-rw-rw----+ 1 root it 4 Sep 5 17:29 file
```

Which of the following commands would permanently fix the access issue while limiting access to IT and finance department employees?

- A. `chattr +i file`
- B. `chown it:finance file`
- C. `chmod 666 file`
- D. `setfacl -m g:finance:rw file`

**Answer: D**

#### Explanation:

The command `setfacl -m g:finance:rw file` will permanently fix the access issue while limiting access to IT and finance department employees. The `setfacl` command is a tool for modifying the access control lists (ACLs) of files and directories on Linux systems. The ACLs are a mechanism that allows more fine-grained control over the permissions of files and directories than the traditional owner-group-others model. The `-m` option specifies the modification to the ACL. The `g:finance:rw` means that the group named finance will have read and write permissions on the file. The file is the name of the file to modify, in this case `/opt/work/file`. The command `setfacl -m g:finance:rw file` will add an entry to the ACL of the file that will grant read and write access to the finance group. This will fix the access issue and allow the finance employees to access the file. The command will also preserve the existing permissions of the file, which means that the IT employees will still have read and write access to the file. This will limit the access to IT and finance department employees and prevent unauthorized access from other users.

This is the correct command to use to accomplish the task. The other options are incorrect because they either do not fix the access issue (`chattr +i file` or `chown it:finance file`) or do not limit the access to IT and finance department employees (`chmod 666 file`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing File Permissions and Ownership, page 352.

#### NEW QUESTION 123

Which of the following technologies provides load balancing, encryption, and observability in containerized environments?

- A. Virtual private network
- B. Sidecar pod
- C. Overlay network
- D. Service mesh

**Answer: D**

#### Explanation:

"A service mesh controls the delivery of service requests in an application. Common features provided by a service mesh include service discovery, load balancing, encryption and failure recovery."

The technology that provides load balancing, encryption, and observability in containerized environments is service mesh. A service mesh is a dedicated infrastructure layer that manages the communication and security between microservices in a distributed system. A service mesh consists of two components: a data plane and a control plane. The data plane is composed of proxies that are deployed alongside the microservices as sidecar pods. The proxies handle the network traffic between the microservices and provide features such as load balancing, encryption, authentication, authorization, routing, and observability. The control plane is responsible for configuring and managing the data plane and providing a unified interface for the administrators and developers. A service mesh can help improve the performance, reliability, and security of containerized applications and simplify the development and deployment process. A service mesh is

the technology that provides load balancing, encryption, and observability in containerized environments. This is the correct answer to the question. The other options are incorrect because they either do not provide all the features of a service mesh (virtual private network or overlay network) or are not a technology but a component of a service mesh (sidecar pod). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 574. <https://www.techtarget.com/searchitoperations/definition/service-mesh>

#### NEW QUESTION 125

An administrator started a long-running process in the foreground that needs to continue without interruption. Which of the following keystrokes should the administrator use to continue running the process in the background?

- A. <Ctrl+z> bg
- B. <Ctrl+d> bg
- C. <Ctrl+b> jobs -1
- D. <Ctrl+h> bg &

**Answer:** A

#### Explanation:

A long-running process is a program that takes a long time to complete or runs indefinitely on a Linux system. A foreground process is a process that runs in the current terminal and receives input from the keyboard and output to the screen. A background process is a process that runs in the background and does not interact with the terminal. A background process can continue running even if the terminal is closed or disconnected.

To start a long-running process in the background, the user can append an ampersand (&)

to the command, such as `someapp &`. This will run `someapp` in the background and return control to the terminal immediately.

To move a long-running process from the foreground to the background, the user can use two keystrokes: `Ctrl+Z` and `bg`. The `Ctrl+Z` keystroke will suspend (pause) the foreground process and return control to the terminal. The `bg` keystroke will resume (continue) the suspended process in the background and detach it from the terminal. The statement B is correct.

The statements A, C, and D are incorrect because they do not perform the desired task. The `bg` keystroke alone will not work unless there is a suspended process to resume. The `Ctrl+B` keystroke will not suspend the foreground process, but rather move one character backward in some applications. The `jobs` keystroke will list all processes associated with the current terminal. The `bg &` keystroke will cause an error because `bg` does not take any arguments. References: [How to Run Linux Processes in Background]

#### NEW QUESTION 128

A DevOps engineer needs to allow incoming traffic to ports in the range of 4000 to 5000 on a Linux server. Which of the following commands will enforce this rule?

- A. `iptables -f filter -I INPUT -p tcp --dport 4000:5000 -A ACCEPT`
- B. `iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT`
- C. `iptables filter -A INPUT -p tcp --dport 4000:5000 -D ACCEPT`
- D. `iptables filter -S INPUT -p tcp --dport 4000:5000 -A ACCEPT`

**Answer:** B

#### Explanation:

The command `iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT` will enforce the rule of allowing incoming traffic to ports in the range of 4000 to 5000 on a Linux server. The `iptables` command is a tool for managing firewall rules on Linux systems. The `-t` option specifies the table to operate on, in this case `filter`, which is the default table that contains the rules for filtering packets. The `-A` option appends a new rule to the end of a chain, in this case `INPUT`, which is the chain that processes the packets that are destined for the local system. The `-p` option specifies the protocol to match, in this case `tcp`, which is the transmission control protocol. The `--dport` option specifies the destination port or port range to match, in this case `4000:5000`, which is the range of ports from 4000 to 5000. The `-j` option specifies the target to jump to if the rule matches, in this case `ACCEPT`, which is the target that allows the packet to pass through.

The command `iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT` will add a new rule to the end of the `INPUT` chain that will accept the incoming TCP packets that have a destination port between 4000 and 5000. This command will enforce the rule and allow the traffic to the specified ports. This is the correct command to use to accomplish the task. The other options are incorrect because they either use the wrong options (`-f` instead of `-t` or `-D` instead of `-A`) or do not exist (`iptables filter -A INPUT -p tcp --dport 4000:5000 -D ACCEPT` or `iptables filter -S INPUT -p tcp --dport 4000:5000 -A ACCEPT`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 543.

#### NEW QUESTION 130

A Linux administrator is trying to start the database service on a Linux server but is not able to run it. The administrator executes a few commands and receives the following output:

```
#systemctl status mariadb
mariadb.service
   Loaded: masked (Reason: Unit mariadb.service is masked)
   Active: inactive (dead)

#systemctl enable mariadb
Failed to enable unit: ...

#systemctl start mariadb
Failed to start mariadb.service ...
```

Which of the following should the administrator run to resolve this issue? (Select two).

- A. `systemctl unmask mariadb`
- B. `journalctl -g mariadb`
- C. `dnf reinstall mariadb`
- D. `systemctl start mariadb`
- E. `chkconfig mariadb on`
- F. `service mariadb reload`

**Answer:** AD

**Explanation:**

These commands will unmask the mariadb service, which is currently prevented from starting, and then start it normally. The other commands are either not relevant, not valid, or not sufficient for this task. For more information on how to manage masked services with systemctl, you can refer to the web search result 1.

**NEW QUESTION 134**

A Linux administrator has been tasked with installing the most recent versions of packages on a RPM-based OS. Which of the following commands will accomplish this task?

- A. apt-get upgrade
- B. rpm -a
- C. yum updateinfo
- D. dnf update
- E. yum check-update

**Answer:** D

**Explanation:**

The dnf update command will accomplish the task of installing the most recent versions of packages on a RPM-based OS. This command will check for available updates from the enabled repositories and apply them to the system. The apt-get upgrade command is used to install updates on a Debian-based OS, not a RPM-based OS. The rpm -a command is invalid, as -a is not a valid option for rpm. The yum updateinfo command will display information about available updates, but it will not install them. The yum check-update command will check for available updates, but it will not install them. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Packages and Software, page 559.

**NEW QUESTION 135**

A Linux administrator is configuring a two-node cluster and needs to be able to connect the nodes to each other using SSH keys from the root account. Which of the following commands will accomplish this task?

- A. [root@nodea ssh -i ~/.ssh/id\_rsa root@nodeb
- B. [root@nodea scp -i .ssh/id\_rsa root@nodeb
- C. [root@nodea ssh-copy-id -i .ssh/id\_rsa root@nodeb
- D. [root@nodea # ssh add -c ~/.ssh/id\_rsa root@nodeb
- E. [root@nodea # ssh add -c ~/.ssh/id\_rsa root@nodeb

**Answer:** C

**Explanation:**

The ssh-copy-id command is used to copy a public SSH key from a local machine to a remote server and add it to the authorized\_keys file, which allows passwordless authentication between the machines. The administrator can use this command to copy the root user's public key from nodea to nodeb, and vice versa, to enable SSH access between the nodes without entering a password every time. For example: [root@nodea ssh-copy-id -i ~/.ssh/id\_rsa root@nodeb]. The ssh command is used to initiate an SSH connection to a remote server, but it does not copy any keys. The scp command is used to copy files securely between machines using SSH, but it does not add any keys to the authorized\_keys file. The ssh-add command is used to add private keys to the SSH agent, which manages them for SSH authentication, but it does not copy any keys to a remote server.

**NEW QUESTION 139**

A systems administrator is checking the system logs. The administrator wants to look at the last 20 lines of a log. Which of the following will execute the command?

- A. tail -v 20
- B. tail -n 20
- C. tail -c 20
- D. tail -l 20

**Answer:** B

**Explanation:**

The command tail -n 20 will display the last 20 lines of a file. The -n option specifies the number of lines to show. This is the correct command to execute the task. The other options are incorrect because they either use the wrong options (-v, -c, or -l) or have the wrong arguments (20 instead of 20 filename). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, page 352.

**NEW QUESTION 143**

Which of the following technologies can be used as a central repository of Linux users and groups?

- A. LDAP
- B. MFA
- C. SSO
- D. PAM

**Answer:** A

**Explanation:**

LDAP stands for Lightweight Directory Access Protocol, which is a protocol for accessing and managing a central directory of users and groups. LDAP can be used as a central repository of Linux users and groups, allowing for centralized authentication and authorization across multiple Linux systems. MFA, SSO, and PAM are not technologies that can be used as a central repository of Linux users and groups. MFA stands for Multi-Factor Authentication, which is a method of verifying a user's identity using more than one factor, such as a password, a token, or a biometric. SSO stands for Single Sign-On, which is a feature that allows a user to log in once and access multiple applications or systems without having to re-enter credentials. PAM stands for Pluggable Authentication Modules, which is a framework that allows Linux to use different authentication methods, such as passwords, tokens, or biometrics. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups

#### NEW QUESTION 146

A Linux administrator is creating a new sudo profile for the accounting user. Which of the following should be added by the administrator to the sudo configuration file so that the accounting user can run /opt/acc/report as root?

- A. accounting localhost=/opt/acc/report
- B. accounting ALL=/opt/acc/report
- C. %accounting ALL=(ALL) NOPASSWD: /opt/acc/report
- D. accounting /opt/acc/report= (ALL) NOPASSWD: ALL

**Answer: C**

#### Explanation:

This answer allows the accounting user to run the /opt/acc/report command as root on any host without entering a password. The % sign indicates that accounting is a group name, not a user name. The ALL keyword means any host, any user, and any command, depending on the context. The NOPASSWD tag overrides the default behavior of sudo, which is to ask for the user's password.

The other answers are incorrect for the following reasons:

- ? A. accounting localhost=/opt/acc/report
- ? B. accounting ALL=/opt/acc/report
- ? D. accounting /opt/acc/report= (ALL) NOPASSWD: ALL

#### NEW QUESTION 149

A systems administrator needs to verify whether the built container has the app.go file in its root directory. Which of the following can the administrator use to verify the root directory has this file?

- A. docker image inspect
- B. docker container inspect
- C. docker exec <container\_name> ls
- D. docker ps <container\_name>

**Answer: C**

#### Explanation:

The docker exec <container\_name> ls command can be used to verify whether the built container has the app.go file in its root directory. This command will run the ls command inside the specified container and list the files and directories in its root directory. If the app.go file is present, it will be displayed in the output. The docker image inspect command will display information about an image, not a container, and it will not list the files inside the image. The docker container inspect command will display information about a container, not its files. The docker ps <container\_name> command is invalid, as ps does not accept a container name as an argument. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Virtualization and Cloud Technologies, page 499.

#### NEW QUESTION 154

A Linux administrator rebooted a server. Users then reported some of their files were missing. After doing some troubleshooting, the administrator found one of the filesystems was missing. The filesystem was not listed in /etc/fstab and might have been mounted manually by someone prior to reboot. Which of the following would prevent this issue from reoccurring in the future?

- A. Sync the mount units.
- B. Mount the filesystem manually.
- C. Create a mount unit and enable it to be started at boot.
- D. Remount all the missing filesystems

**Answer: C**

#### Explanation:

The best way to prevent this issue from reoccurring in the future is to create a mount unit and enable it to be started at boot. A mount unit is a systemd unit that defines how and where a filesystem should be mounted. By creating a mount unit for the missing filesystem and enabling it with systemctl enable, the administrator can ensure that the filesystem will be automatically mounted at boot time, regardless of whether it is listed in /etc/fstab or not. Syncing the mount units will not prevent the issue, as it will only synchronize the state of existing mount units with /etc/fstab, not create new ones. Mounting the filesystem manually will not prevent the issue, as it will only mount the filesystem temporarily, not permanently. Remounting all the missing filesystems will not prevent the issue, as it will only mount the filesystems until the next reboot, not after. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Disk Storage, page 457.

#### NEW QUESTION 159

A systems administrator has been tasked with disabling the nginx service from the environment to prevent it from being automatically and manually started. Which of the following commands will accomplish this task?

- A. systemctl cancel nginx
- B. systemctl disable nginx
- C. systemctl mask nginx
- D. systemctl stop nginx

**Answer: C**

#### Explanation:

The command systemctl mask nginx disables the nginx service from the environment and prevents it from being automatically and manually started. This command creates a symbolic link from the service unit file to /dev/null, which makes the service impossible to start. This is the correct way to accomplish the task. The other options are incorrect because they either do not exist (systemctl cancel nginx), do not prevent manual start (systemctl disable nginx), or do not prevent automatic start (systemctl stop nginx). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, page 429.

#### NEW QUESTION 160

A systems administrator configured firewall rules using firewalld. However, after the system is rebooted, the firewall rules are not present:

```
Chain INPUT (policy ACCEPT)
target     prot opt source      destination
Chain FORWARD (policy ACCEPT)
target     prot opt source      destination
Chain OUTPUT (policy ACCEPT)
target     prot opt source      destination
```

The systems administrator makes additional checks:

```
- dynamic firewall daemon
  Loaded: loaded (/usr/lib/systemd/system/firewalld.service: disabled; vendor preset: enabled)
  Active: inactive (dead)
  Docs: man: firewalld (1)

firewalld is not running
```

Which of the following is the reason the firewall rules are not active?

- A. iptables is conflicting with firewalld.
- B. The wrong system target is activated.
- C. FIREWALL\_ARGS has no value assigned.
- D. The firewalld service is not enabled.

**Answer: D**

**Explanation:**

The reason the firewall rules are not active is that the firewalld service is not enabled. This means that the service will not start automatically at boot time or after a system reload. To enable the firewalld service, the systems administrator needs to use the command `sudo systemctl enable firewalld`. This will create a symbolic link from the firewalld service file to the appropriate systemd target, such as `multi-user.target`. Enabling the service does not start it immediately, so the systems administrator also needs to use the command `sudo systemctl start firewalld` or `sudo systemctl reload firewalld` to activate the firewall rules.

The other options are not correct reasons for the firewall rules not being active. iptables is not conflicting with firewalld, because firewalld uses iptables as its backend by default. The wrong system target is not activated, because firewalld is independent of the system target and can be enabled for any target. FIREWALL\_ARGS has no value assigned, but this is not a problem, because FIREWALL\_ARGS is an optional environment variable that can be used to pass additional arguments to the firewalld daemon, such as `--debug` or `--nofork`. If FIREWALL\_ARGS is empty or not defined, firewalld will use its default arguments. References: `firewalld.service(8)` - Linux manual page; `firewall-cmd(1)` - Linux manual page; `systemctl(1)` - Linux manual page

**NEW QUESTION 161**

A systems administrator is configuring a Linux system so the network traffic from the internal network 172.17.0.0/16 going out through the eth0 interface would appear as if it was sent directly from this interface. Which of the following commands will accomplish this task?

- A. `iptables -A POSTROUTING -s 172.17.0.0/16 -o eth0 -j MASQUERADE`
- B. `firewalld -A OUTPUT -s 172.17.0.0/16 -o eth0 -j DIRECT`
- C. `nmcli masq-traffic eth0 -s 172.17.0.0/16 -j MASQUERADE`
- D. `ifconfig -- nat eth0 -s 172.17.0.0/16 -j DIRECT`

**Answer: A**

**Explanation:**

This command will use the iptables tool to append a rule to the POSTROUTING chain of the nat table, which will match any packet with a source address of 172.17.0.0/16 and an output interface of eth0, and apply the MASQUERADE target to it. This means that the packet will have its source address changed to the address of the eth0 interface, effectively hiding the internal network behind a NAT12.

References: 1: Iptables NAT and Masquerade rules - what do they do? 2: Routing from docker containers using a different physical network interface and default gateway

**NEW QUESTION 165**

A Linux engineer receives reports that files created within a certain group are being modified by users who are not group members. The engineer wants to reconfigure the server so that only file owners and group members can modify new files by default. Which of the following commands would accomplish this task?

- A. `chmod 775`
- B. `umas`
- C. `002`
- D. `chattr -Rv`
- E. `chown -cf`

**Answer: B**

**Explanation:**

The command `umask 002` will accomplish the task of reconfiguring the server so that only file owners and group members can modify new files by default. The `umask` command is a tool for setting the default permissions for new files and directories on Linux systems. The `umask` value is a four-digit octal number that represents the permissions that are subtracted from the default permissions. The default permissions for files are 666, which means read and write for owner, group, and others. The default permissions for directories are 777, which means read, write, and execute for owner, group, and others. The `umask` value consists of four digits: the first digit is for special permissions, such as `setuid`, `setgid`, and sticky bit; the second digit is for the owner permissions; the third digit is for the group permissions; and the fourth digit is for the others permissions. The `umask` value can be calculated by subtracting the desired permissions from the default permissions. For example, if the desired permissions for files are 664, which means read and write for owner and group, and read for others, then the `umask` value is 002, which is `666 - 664`. The command `umask 002` will set the `umask` value to 002, which will ensure that only file owners and group members can modify new files by default. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not set the default permissions for new files (`chmod 775` or `chown -cf`) or do not exist (`chattr -Rv`). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing File

**NEW QUESTION 170**

A Linux administrator modified the SSH configuration file. Which of the following commands should be used to apply the configuration changes?

- A. `systemctl stop sshd`
- B. `systemctl mask sshd`
- C. `systemctl reload sshd`
- D. `systemctl start sshd`

**Answer: C**

**Explanation:**

The `systemctl reload sshd` command can be used to apply the configuration changes of the SSH server daemon without restarting it. This is useful to avoid interrupting existing connections. The `systemctl stop sshd` command would stop the SSH server daemon, not apply the changes. The `systemctl mask sshd` command would prevent the SSH server daemon from being started, not apply the changes. The `systemctl start sshd` command would start the SSH server daemon if it is not running, but it would not apply the changes if it is already running. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Secure Shell (SSH), page 415.

**NEW QUESTION 173**

Several users reported that they were unable to write data to the `/oracle1` directory. The following output has been provided:

Filesystem	Size	Used	Available	Use%	Mounted on
<code>/dev/sdb1</code>	100G	50G	50G	50%	<code>/oracle1</code>

Which of the following commands should the administrator use to diagnose the issue?

- A. `df -i /oracle1`
- B. `fdisk -l /dev/sdb1`
- C. `lsblk /dev/sdb1`
- D. `du -sh /oracle1`

**Answer: A**

**Explanation:**

The administrator should use the command `df -i /oracle1` to diagnose the issue of users being unable to write data to the `/oracle1` directory. This command will show the inode usage of the `/oracle1` filesystem, which indicates how many files and directories can be created on it. If the inode usage is 100%, it means that no more files or directories can be added, even if there is still free space on the disk. The administrator can then delete some unnecessary files or directories, or increase the inode limit of the filesystem, to resolve the issue.

The other options are not correct commands for diagnosing this issue. The `fdisk -l /dev/sdb1` command will show the partition table of `/dev/sdb1`, which is not relevant to the inode usage. The `lsblk /dev/sdb1` command will show information about `/dev/sdb1` as a block device, such as its size, mount point, and type, but not its inode usage. The `du -sh /oracle1` command will show the disk usage of `/oracle1` in human-readable format, but not its inode usage. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 7: Managing Disk Storage; How to Check Inode Usage in Linux - Fedingo

**NEW QUESTION 175**

A cloud engineer needs to remove all dangling images and delete all the images that do not have an associated container. Which of the following commands will help to accomplish this task?

- A. `docker images prune -a`
- B. `docker push images -a`
- C. `docker rmi -a images`
- D. `docker images rmi --all`

**Answer: A**

**Explanation:**

The command `docker images prune -a` will help to remove all dangling images and delete all the images that do not have an associated container.

The `docker` command is a tool for managing Docker containers and images.

The `images` subcommand operates on images. The `prune` option removes unused images.

The `-a` option removes all images, not just dangling ones. A dangling image is an image that is not tagged and is not referenced by any container. This command will accomplish the task of cleaning up the unused images. The other options are incorrect because they either do not exist (`docker push images -a` or `docker images rmi --all`) or do not remove images (`docker rmi -a images` only removes images that match the name or ID of "images"). References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 567.

**NEW QUESTION 177**

A Linux administrator is scheduling a system job that runs a script to check available disk space every hour. The Linux administrator does not want users to be able to start the job. Given the following:

```
[Unit]
Description=Check available disk space
RefuseManualStart=yes
RefuseManualStop=yes

[Timer]
Persistent=true
OnCalendar=*-*-*-*:00:00
Unit=checkdiskspace.service

[Install]
WantedBy=timers.target
```

The Linux administrator attempts to start the timer service but receives the following error message:

```
Failed to start checkdiskspace.timer: Operation refused ...
```

Which of the following is MOST likely the reason the timer will not start?

- A. The checkdiskspace.timer unit should be enabled via systemctl.
- B. The timers.target should be reloaded to get the new configuration.
- C. The checkdiskspace.timer should be configured to allow manual starts.
- D. The checkdiskspace.timer should be started using the sudo command.

**Answer: C**

**Explanation:**

The most likely reason the timer will not start is that the checkdiskspace.timer should be configured to allow manual starts. By default, systemd timers do not allow manual activation via systemctl start, unless they have RefuseManualStart=no in their [Unit] section. This option prevents users from accidentally starting timers that are meant to be controlled by other mechanisms, such as calendar events or dependencies. To enable manual starts for checkdiskspace.timer, the administrator should add RefuseManualStart=no to its [Unit] section and reload systemd. The other options are not correct reasons for the timer not starting. The checkdiskspace.timer unit does not need to be enabled via systemctl enable, because enabling a timer only makes it start automatically at boot time or after a system reload, but does not affect manual activation. The timers.target does not need to be reloaded to get the new configuration, because reloading a target only affects units that have a dependency on it, but does not affect manual activation. The checkdiskspace.timer does not need to be started using the sudo command, because the administrator is already running systemctl as root, as indicated by the # prompt. References: systemd.timer(5) - Linux manual page; systemctl(1) - Linux manual page

**NEW QUESTION 179**

A cloud engineer wants to delete all unused networks that are not referenced by any container. Which of the following commands will achieve this goal?

- A. docker network erase
- B. docker network clear
- C. docker network prune
- D. docker network rm

**Answer: C**

**Explanation:**

The docker command is used to manage Docker containers, images, networks, volumes, and other resources on a Linux system. Docker is a platform that allows users to run applications in isolated environments called containers. Docker also provides networking features that allow users to create and manage networks for containers.

To delete all unused networks that are not referenced by any container, the cloud engineer can use the docker network prune command. This command will remove all networks that have no containers connected to them. The statement C is correct.

The statements A, B, and D are incorrect because they do not delete all unused networks.

The docker network erase and docker network clear commands do not exist. The docker network rm command deletes a specific network by name or ID, but not all unused networks. References: [How to Manage Docker Networks]

**NEW QUESTION 181**

Users are experiencing high latency when accessing a web application served by a Linux machine. A systems administrator checks the network interface counters and sees the following:

```
# ip -s link list dev enp0s25

2: enp0s25: <BROADCAST,MULTICAST,LOWER_UP,UP> mtu 1500 qdisc fq_codel state DOWN mode DEFAULT group default qlen 1000 link/ether
ac:12:34:56:78:cd brd ff:ff:ff:ff:ff:ff

RX: bytes  packets  errors  dropped  missed  mcast
2011664755 3579033 2394390 508      0        0

TX: bytes  packets  errors  dropped  carrier  collans
309541780 1705408 0       0       12340    0
```

Which of the following is the most probable cause of the observed latency?

- A. The network interface is disconnected.
- B. A connection problem exists on the network interface.

- C. No IP address is assigned to the interface.
- D. The gateway is unreachable.

**Answer:** B

**Explanation:**

The high number of errors and dropped packets in the output of the network interface counters indicate a connection problem on the network interface.

References:

? CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Networking, Section: Troubleshooting Network Issues, Page 359.

? Linux+ (Plus) Certification, Exam Objectives: 4.3 Given a scenario, troubleshoot and resolve basic network configuration and connectivity issues.

**NEW QUESTION 183**

A developer is trying to install an application remotely that requires a graphical interface for installation. The developer requested assistance to set up the necessary environment variables along with X11 forwarding in SSH. Which of the following environment variables must be set in remote shell in order to launch the graphical interface?

- A. \$RHOST
- B. SETENV
- C. \$SHELL
- D. \$DISPLAY

**Answer:** D

**Explanation:**

The environment variable that must be set in remote shell in order to launch the graphical interface is \$DISPLAY. This variable tells X11 applications where to display their windows on screen. It usually has the form hostname:displaynumber.screennumber, where hostname is the name of the computer running the X server, displaynumber is a unique identifier for an X display on that computer, and screennumber is an optional identifier for a screen within an X display. For example, localhost:0.0 means display number 0 on the local host. If the hostname is omitted, it defaults to the local host.

The other options are not correct environment variables for launching the graphical interface. \$RHOST is a variable that stores the name of the remote host, but it is not used by X11 applications. SETENV is a command that sets environment variables in some shells, but it is not an environment variable itself. \$SHELL is a variable that stores the name of the current shell, but it is not related to X11 forwarding. References: How to enable or disable X11 forwarding in an SSH server; How to Configure X11 Forwarding Using SSH In Linux

**NEW QUESTION 185**

**SIMULATION**

Junior system administrator had trouble installing and running an Apache web server on a Linux server. You have been tasked with installing the Apache web server on the Linux server and resolving the issue that prevented the junior administrator from running Apache.

**INSTRUCTIONS**

Install Apache and start the service. Verify that the Apache service is running with the defaults.

Typing "help" in the terminal will show a list of relevant event commands.

If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

**CentOS Command Prompt**

```
[root@centos7]#
```

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

```
yum install httpd
```

```
systemctl --now enable httpd systemctl status httpd netstat -tunlp | grep 80
```

```
pskill <processname> systemctl restart httpd systemctl status httpd
```

**NEW QUESTION 188**

A systems administrator made some unapproved changes prior to leaving the company. The newly hired administrator has been tasked with revealing the system to a compliant state. Which of the following commands will list and remove the correspondent packages?

- A. dnf list and dnf remove last
- B. dnf remove and dnf check
- C. dnf info and dnf upgrade
- D. dnf history and dnf history undo last

**Answer:** D

**Explanation:**

The commands that will list and remove the corresponding packages are dnf history and dnf history undo last. The dnf history command will display a list of all transactions performed by dnf, such as installing, updating, or removing packages. Each transaction has a unique ID, a date and time, an action, and a number of altered packages. The dnf history undo last command will undo the last transaction performed by dnf, meaning that it will reverse all package changes made by that transaction. For example, if the last transaction installed some packages, dnf history undo last will remove them.

The other options are not correct commands for listing and removing corresponding packages. The dnf list command will display a list of available packages in enabled repositories, but not the packages installed by dnf transactions. The dnf remove command will remove specified packages from the system, but not all packages from a specific transaction. The dnf info command will display detailed information about specified packages, but not about dnf transactions. The dnf upgrade command will upgrade all installed packages to their latest versions, but not undo any package changes. References: Handling package management history; dnf(8) - Linux manual page

**NEW QUESTION 192**

A systems administrator is notified that the mysqld process stopped unexpectedly. The systems administrator issues the following command: `sudo grep -i -r 'out of memory' /var/log`

The output of the command shows the following:

kernel: Out of memory: Kill process 9112 (mysqld) score 511 or sacrifice child.

Which of the following commands should the systems administrator execute NEXT to troubleshoot this issue? (Select two).

- A. free -h
- B. nc -v 127.0.0.1 3306
- C. renice -15 \$( pidof mysql )
- D. lsblk
- E. killall -15
- F. vmstat -a 1 4

**Answer:** AF

**Explanation:**

The free -h command can be used to check the amount of free and used memory in the system in a human-readable format. This can help to troubleshoot the issue of mysqld being killed due to out of memory. The vmstat -a 1 4 command can be used to monitor the system's virtual memory statistics, such as swap usage, paging activity, and memory faults, every one second for four times. This can help to identify any memory pressure or performance issues that may cause out of memory errors. The nc -v 127.0.0.1 3306 command would attempt to connect to the MySQL server on port 3306 and display any diagnostic messages, but this would not help to troubleshoot the memory issue. The renice -15 \$( pidof mysql ) command would change the priority of the mysql process to -15, but this would not prevent it from being killed due to out of memory. The lsblk command would display information about block devices, not memory usage. The killall -15 command would send a SIGTERM signal to all processes with a matching name, but this would not help to troubleshoot the memory issue. References: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 15: Managing Memory and Process Execution, pages 468-469.

**NEW QUESTION 195**

A Linux administrator created a new file system. Which of the following files must be updated to ensure the filesystem mounts at boot time?

- A. /etc/sysctl
- B. /etc/filesystems
- C. /etc/fstab
- D. /etc/nfsmount.conf

**Answer:** C

**Explanation:**

The file that must be updated to ensure the filesystem mounts at boot time is /etc/fstab. This file contains information about the filesystems that are mounted automatically by the mount -a command, which is usually invoked during the system startup. The /etc/fstab file has six fields for each filesystem: device name, mount point, filesystem type, mount options, dump frequency, and pass number. To add a new filesystem to the /etc/fstab file, you need to specify these fields correctly and make sure the mount point directory exists.

The other options are not correct files for controlling persistent mount points of filesystems. The /etc/sysctl file is used to configure kernel parameters at runtime. The /etc/filesystems file is used to specify the order of filesystem types used by mount when no filesystem type is given. The /etc/nfsmount.conf file is used to set options for mounting NFS

filesystems. References: Persistently mounting file systems; fstab(5) - Linux manual page

**NEW QUESTION 200**

When trying to log in remotely to a server, a user receives the following message:

```
Password:
Last failed login: Wed Sep 15 17:23:45 CEST 2021 from 10.0.4.3 on ssh:notty
There were 3 failed login attempts since the last successful login.
Connection to localhost closed.
```

The server administrator is investigating the issue on the server and receives the following outputs:

Output 1:

```
user:xr1001:7374::/home/user:/bin/false
```

Output 2:

```
drwxr-xr-x. 2 user 62 Sep 15 17:17 /home/user
```

Output 3:

```
Sep 12 14:14:05 server sshd[22958] Failed password for user from 10.0.2.8
Sep 15 17:24:03 server sshd[8460]: Accepted keyboard-interactive/pam for user from 10.0.6.5 port 50928 ssh2
Sep 15 17:24:03 server sshd[8460]: pam_unix(sshd:session): session opened for user testuser
Sep 15 17:24:03 server sshd[8460]: pam_unix(sshd:session): session closed for user testuser
```

Which of the following is causing the issue?

- A. The wrong permissions are on the user's home directory.
- B. The account was locked out due to three failed logins.
- C. The user entered the wrong password.
- D. The user has the wrong shell assigned to the account.

**Answer:** D

**Explanation:**

The user has the wrong shell assigned to the account, which is causing the issue. The output 1 shows that the user's shell is set to `/bin/false`, which is not a valid shell and will prevent the user from logging in. The output 2 shows that the user's home directory has the correct permissions (`drwxr-xr-x`), and the output 3 shows that the user entered the correct password and was accepted by the SSH daemon, but the session was closed immediately due to the invalid shell. The other options are incorrect because they are not supported by the outputs. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 413.

**NEW QUESTION 205**

A Linux administrator is reviewing changes to a configuration file that includes the following section:

```
tls:
  certificates:
    - certFile: /etc/ssl/cert.cer
      keyFile: /etc/ssl/cert.key
      stores: default
    - certFile: /etc/ssl/expired.cer
      keyFile: /etc/ssl/expired.key
      stores: expired
```

The Linux administrator is trying to select the appropriate syntax formatter to correct any issues with the configuration file. Which of the following should the syntax formatter support to meet this goal?

- A. Markdown
- B. XML
- C. YAML
- D. JSON

**Answer:** C

**Explanation:**

The configuration file shown in the image is written in YAML format, so the syntax formatter should support YAML to correct any issues with the file. YAML stands for YAML Ain't Markup Language, and it is a human-readable data serialization language that uses indentation and colons to define key-value pairs. YAML supports various data types, such as scalars, sequences, mappings, anchors, aliases, and tags. The configuration file follows the rules and syntax of YAML, while the other options do not. Markdown is a lightweight markup language that uses plain text formatting to create rich text documents. XML is a markup language that uses tags to enclose elements and attributes. JSON is a data interchange format that uses curly braces to enclose objects and square brackets to enclose arrays. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 21: Automating Tasks with Ansible, page 591.

**NEW QUESTION 210**

A Linux systems administrator needs to persistently enable IPv4 forwarding in one of the Linux systems. Which of the following commands can be used together to accomplish this task? (Choose two.)

- A. `sysctl net.ipv4.ip_forward`
- B. `sysctl -w net.ipv4.ip_forward=1`
- C. `echo "net.ipv4.ip_forward=1" >> /etc/sysctl.conf`
- D. `echo 1 > /proc/sys/net/ipv4/ip_forward`
- E. `sysctl -p`
- F. `echo "net.ipv6.conf.all.forwarding=1" >> /etc/sysctl.conf`

**Answer:** BE

**Explanation:**

The commands that can be used together to persistently enable IPv4 forwarding in one of the Linux systems are `sysctl -w net.ipv4.ip_forward=1` and `sysctl -p`. The first command will use `sysctl` to write a new value (1) to the `net.ipv4.ip_forward` kernel parameter, which controls whether IP forwarding is enabled or disabled

for IPv4. This will enable IP forwarding immediately without rebooting. However, this change is temporary and will be lost after a reboot or a system reload. To make it permanent, we need to use the second command `sysctl -p`, which will load kernel parameters from `/etc/sysctl.conf` file. This file contains key-value pairs of kernel parameters and their values. To make sure that `net.ipv4.ip_forward` is set to 1 in this file, we can either edit it manually or append it using `echo "net.ipv4.ip_forward=1" >> /etc/sysctl.conf`.

The other options are not correct commands for persistently enabling IPv4 forwarding. The `sysctl net.ipv4.ip_forward` command will only display the current value of `net.ipv4.ip_forward` parameter, but not change it. The `echo 1 > /proc/sys/net/ipv4/ip_forward` command will write 1 to `/proc/sys/net/ipv4/ip_forward` file, which is another way to change `net.ipv4.ip_forward` parameter. However, this change is also temporary and will not survive a reboot or a system reload. The `echo "net.ipv6.conf.all.forwarding=1" >> /etc/sysctl.conf` command will append a line to `/etc/sysctl.conf` file that sets `net.ipv6.conf.all.forwarding` parameter to 1. However, this parameter controls whether IP forwarding is enabled or disabled for IPv6, not IPv4. References: `sysctl(8)` - Linux manual page; Configure Linux as a Router (IP Forwarding)

#### NEW QUESTION 211

A Linux administrator generated a list of users who have root-level command-line access to the Linux server to meet an audit requirement. The administrator analyzes the following `/etc/passwd` and `/etc/sudoers` files:

```
$ cat /etc/passwd
root:x:0:0:/:home/root:/bin/bash lee:x:500:500:/:home/lee:/bin/tcsh
mallory:x:501:501:/:root:/bin/bash
eve:x:502:502:/:home/eve:/bin/nologin carl:x:0:503:/:home/carl:/bin/sh
bob:x:504:504:/:home/bob:/bin/ksh
alice:x:505:505:/:home/alice:/bin/rsh
$ cat /etc/sudoers
Cmnd_Alias SHELLS = /bin/tcsh, /bin/sh, /bin/bash Cmnd_Alias SYSADMIN = /usr/sbin/tcpdump
ALL = (ALL) ALL
ALL = NOPASSWD: SYSADMIN
```

Which of the following users, in addition to the root user, should be listed in the audit report as having root-level command-line access? (Select two).

- A. Carl
- B. Lee
- C. Mallory
- D. Eve
- E. Bob
- F. Alice

**Answer:** AC

#### Explanation:

The users who have root-level command-line access are those who have either the same user ID (UID) as root, which is 0, or the ability to run commands as root using `sudo`. Based on the `/etc/passwd` and `/etc/sudoers` files, the users who meet these criteria are:

? Carl: Carl has the same UID as root, which is 0, as shown in the `/etc/passwd` file.

This means that Carl can log in as root and execute any command with root privileges1

? Mallory: Mallory has the ability to run commands as root using `sudo`, as shown in the `/etc/sudoers` file. The line `ALL = (ALL) ALL` means that any user can run any command as any other user, including root, by using `sudo`. Mallory can also use the root shell `/bin/bash` as her login shell, as shown in the `/etc/passwd` file2

Therefore, the correct answer is A and C. Lee, Eve, Bob, and Alice do not have root-level command-line access because they have different UIDs from root and they cannot use `sudo` to run commands as root. Lee can only use `sudo` to run the commands listed in the `Cmnd_Alias SHELLS`, which are `/bin/tcsh`, `/bin/sh`, and `/bin/bash`. Eve cannot log in at all because her login shell is `/bin/nologin`. Bob and Alice can only use `sudo` to run the command `/usr/sbin/tcpdump` without a password, as specified by the `Cmnd_Alias SYSADMIN` and the line `ALL = NOPASSWD: SYSADMIN`2

#### NEW QUESTION 213

A developer reported an incident involving the application configuration file `/etc/httpd/conf/httpd.conf` that is missing from the server. Which of the following identifies the RPM package that installed the configuration file?

- A. `rpm -qf /etc/httpd/conf/httpd.conf`
- B. `rpm -ql /etc/httpd/conf/httpd.conf`
- C. `rpm --query /etc/httpd/conf/httpd.conf`
- D. `rpm -q /etc/httpd/conf/httpd.conf`

**Answer:** A

#### Explanation:

The `rpm -qf /etc/httpd/conf/httpd.conf` command will identify the RPM package that installed the configuration file. This command will query the database of installed packages and display the name of the package that owns the specified file. The `rpm -ql /etc/httpd/conf/httpd.conf` command is invalid, as `-ql` is not a valid option for `rpm`. The `rpm --query /etc/httpd/conf/httpd.conf` command is incorrect, as `--query` requires a package name, not a file name. The `rpm -q /etc/httpd/conf/httpd.conf` command is incorrect,

as `-q` requires a package name, not a file name. References: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Packages and Software, page 560.

#### NEW QUESTION 215

An administrator accidentally installed the `httpd` RPM package along with several dependencies. Which of the following options is the best way for the administrator to revert the package installation?

- A. `dnf clean all`
- B. `rpm -e httpd`
- C. `apt-get clean`
- D. `yum history undo last`

**Answer:** D

#### Explanation:

The yum history undo last command will undo the last transaction, which in this case is the installation of the httpd RPM package and its dependencies. This will remove the packages that were installed and restore the previous state of the system. See How to undo or redo yum transactions and yum history. References1: <https://www.redhat.com/sysadmin/undo-redo-yum-transactions2>: <https://man7.org/linux/man-pages/man8/yum.8.html#HISTORY>

**NEW QUESTION 216**

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