DevOps Shack

LINUX 100 Interview Questions

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1. What is Linux?

- **Answer:** Linux is a free, open-source operating system based on Unix. It was created by Linus Torvalds in 1991 and is widely used in servers, desktops, and embedded systems.
- **Command:** `uname -a` (displays system information)

2. What is the Linux kernel?

- **Answer:** The Linux kernel is the core part of the Linux operating system that manages hardware resources and provides essential services to other software.
- **Command:** `uname -r` (displays kernel version)

3. Explain the directory structure in Linux.

- **Answer:** The Linux directory structure follows a hierarchical format with root (/) at the base. Important directories include `/bin` (binary executables), `/etc` (configuration files), `/home` (user home directories), `/var` (variable data files), `/usr` (user programs), and `/tmp` (temporary files).
- **Command:** `ls /`

4. How do you check the current working directory?

- **Answer:** You can check the current working directory using the `pwd` (print working directory) command.
- **Command:** `pwd`

5. How do you list files in a directory?

- **Answer:** The `ls` command lists files in a directory. Adding options like `-l` provides a detailed list, and `-a` includes hidden files.
- **Command:** `ls -la`

6. How do you change file permissions?

- **Answer:** The `chmod` command changes file permissions. Use symbolic (e.g., `chmod u+x file`) or numeric (e.g., `chmod 755 file`) modes.
- **Command:** `chmod 755 filename`

7. How do you change file ownership?

- **Answer:** The `chown` command changes file ownership. The format is `chown owner:group filename`.
- **Command:** `chown user:group filename`

8. What is the purpose of the `sudo` command?

- **Answer:** The `sudo` command allows a permitted user to execute a command as the superuser or another user, as specified by the security policy.
- **Command:** `sudo command`

9. How do you view the contents of a file?

- **Answer:** You can use commands like `cat`, `more`, `less`, `head`, and `tail` to view file contents.
- **Command:** `cat filename`, `less filename`, `head filename`

10. How do you search for a file in Linux?

- **Answer:** The `find` command searches for files in a directory hierarchy.
- **Command:** `find /path -name filename`

11. What is the difference between `grep` and `egrep`?

- **Answer:** `grep` searches for patterns in files, while `egrep` (extended grep) supports extended regular expressions.
- **Command:** `grep pattern filename`, `egrep pattern filename`

12. How do you compress files in Linux?

- **Answer:** Use commands like `gzip`, `bzip2`, and `zip` to compress files.
- **Command:** `gzip filename`, `zip archive.zip filename`

13. How do you uncompress files in Linux?

- **Answer:** Use commands like `gunzip`, `bunzip2`, and `unzip` to uncompress files.
- **Command:** `gunzip filename.gz`, `unzip archive.zip`

14. What is a symbolic link?

- **Answer:** A symbolic link is a file that points to another file or directory. It's created using the `ln -s` command.
- **Command:** `ln -s target linkname`

15. How do you display disk usage?

- **Answer:** The `df` command displays disk space usage, and `du` shows disk usage of files and directories.
- **Command:** `df -h`, `du -sh directory`

16. How do you check memory usage?

- **Answer:** The `free` command displays memory usage, and `top` provides a dynamic view of system processes and memory usage.
- **Command:** `free -h`, `top`

17. What is a process in Linux?

- **Answer:** A process is an instance of a running program. Linux manages processes through process IDs (PIDs).
- **Command:** `ps`, `top`

18. How do you list running processes?

- **Answer:** The `ps` command lists running processes. Use `ps aux` for a detailed list.
- **Command:** `ps aux`

19. How do you terminate a process?

- **Answer:** Use the `kill` command followed by the process ID (PID). `kill -9 PID` forcefully terminates a process.

- **Command:** `kill PID`, `kill -9 PID`

20. How do you change the priority of a process?

- **Answer:** The `nice` command starts a process with a specified priority, and `renice` changes the priority of an existing process.
- **Command:** `nice -n priority command`, `renice priority PID`

21. What is a daemon in Linux?

- **Answer:** A daemon is a background process that runs continuously and performs specific operations, often started at boot time.
- **Example Daemon:** `sshd` (Secure Shell Daemon)

22. How do you check open ports on a system?

- **Answer:** The `netstat` and `ss` commands display network connections and listening ports.
- **Command:** `netstat -tuln`, `ss -tuln`

23. How do you set environment variables?

- **Answer:** Use the `export` command to set environment variables.
- **Command:** `export VAR=value`

24. How do you view environment variables?

- **Answer:** The `printenv` or `env` commands display environment variables.
- **Command:** `printenv`, `env`

25. How do you schedule tasks in Linux?

- **Answer:** Use `cron` for scheduling recurring tasks and `at` for one-time tasks.
- **Command:** `crontab -e`, `at time`

26. What is the difference between `cron` and `anacron`?

- **Answer:** `cron` schedules tasks based on precise times, while `anacron` is used for periodic tasks that are not time-sensitive and can run at any time after a system is back online.
- **Command:** `crontab -e`, `anacrontab`

27. How do you display the last login information?

- **Answer:** The `last` command displays the last login information for users.
- **Command:** `last`

28. How do you find the location of an executable?

- **Answer:** Use the `which` command to find the location of an executable in the system's PATH.
- **Command:** `which executable`

29. How do you count the number of lines, words, and characters in a file?

- **Answer:** The `wc` command counts lines, words, and characters in a file.
- **Command:** `wc filename`

30. How do you display the first and last few lines of a file?

- **Answer:** Use the `head` command to display the first few lines and the `tail` command to display the last few lines of a file.
- **Command:** `head filename`, `tail filename`

31. How do you create a new user in Linux?

- **Answer:** The `useradd` command creates a new user.
- **Command:** `sudo useradd username`

32. How do you delete a user in Linux?

- **Answer:** The `userdel` command deletes a user.
- **Command:** `sudo userdel username`

33. How do you add a user to a group?

- **Answer:** The `usermod -aG` command adds a user to a group.
- **Command:** `sudo usermod -aG groupname username`

34. How do you switch users in Linux?

- **Answer:** Use the `su` command to switch users.
- **Command:** `su - username`

35. What is a shell in Linux?

- **Answer:** A shell is a command-line interpreter that provides a user interface for the Linux operating system. Examples include `bash`, `sh`, `zsh`, and `csh`.
- **Command:** `echo $SHELL`

36. How do you check the Linux version?

- **Answer:** The `uname -a` command displays system information, including the kernel version. For distribution-specific information, use `lsb_release -a`.
- **Command:** `uname -a`, `lsb_release -a

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37. What is the `/etc/passwd` file?

- **Answer:** The `/etc/passwd` file contains user account information, including usernames, encrypted passwords, user IDs (UIDs), group IDs (GIDs), user info, home directories, and default shells.
- **Command:** `cat /etc/passwd`

38. What is the `/etc/shadow` file?

- **Answer:** The `/etc/shadow` file stores encrypted user password information and other password-related settings.
- **Command:** `cat /etc/shadow`

39. How do you change your password in Linux?

- **Answer:** Use the `passwd` command to change your password.
- **Command:** `passwd`

40. What is the purpose of the `/etc/fstab` file?

- **Answer:** The `/etc/fstab` file contains information about disk drives and partitions that need to be mounted at boot time.
- **Command:** `cat /etc/fstab`

41. How do you mount a filesystem?

- **Answer:** Use the `mount` command to mount a filesystem.
- **Command:** `mount /dev/device /mnt`

42. How do you unmount a filesystem?

- **Answer:** Use the `umount` command to unmount a filesystem.
- **Command:** `umount /mnt`

43. What is the `fstab` file used for?

- **Answer:** The `fstab` file is used to define how disk partitions, various other block devices, and remote filesystems should be mounted and integrated into the filesystem.
- **Command:** `cat /etc/fstab`

44. What is `swap` space?

- **Answer:** Swap space is a portion of a hard disk used as virtual memory to supplement physical RAM. It helps in managing memory when the system runs out of RAM.
- **Command:** `swapon -s`

45. How do you create a swap file?

- **Answer:** You can create a swap file using the following commands:
    - **Command:**
    - `dd if=/dev/zero of=/swapfile bs=1M count=1024`
    - `mkswap /swapfile`
      `swapon /swapfile`

46. How do you make a swap file permanent?

- **Answer:** Add an entry to the `/etc/fstab` file.
- **Command:** `echo '/swapfile none swap sw 0 0' | sudo tee -a /etc/fstab`

47. How do you check disk space usage?

- **Answer:** The `df` command displays disk space usage.
- **Command:** `df -h`

48. How do you check disk usage of a directory?

- **Answer:** The `du` command shows disk usage of files and directories.
- **Command:** `du -sh directory`

49. What is the `tar` command used for?

- **Answer:** The `tar` command is used to archive files. It can create, extract, and list the contents of archives.
- **Command:** `tar -cvf archive.tar directory`, `tar -xvf archive.tar`

50. How do you search for a pattern in a file?

- **Answer:** The `grep` command searches for patterns within files.
- **Command:** `grep pattern filename`

51. How do you copy files and directories?

- **Answer:** Use the `cp` command to copy files and directories.
- **Command:** `cp source destination`, `cp -r source_directory destination_directory`

52. How do you move or rename files and directories?

- **Answer:** Use the `mv` command to move or rename files and directories.
- **Command:** `mv source destination`

53. How do you delete files and directories?

- **Answer:** Use the `rm` command to delete files and directories.
- **Command:** `rm filename`, `rm -r directory`

54. What is the `echo` command used for?

- **Answer:** The `echo` command outputs the given text or variables to the terminal.
- **Command:** `echo "Hello, World!"`

55. How do you display a file's content in reverse order?

- **Answer:** The `tac` command displays a file's content in reverse order.
- **Command:** `tac filename`

56. How do you display a file's content in hexadecimal?

- **Answer:** Use the `xxd` command to display a file's content in hexadecimal.
- **Command:** `xxd filename`

57. What is the `awk` command used for?

- **Answer:** The `awk` command is a powerful text processing utility used for pattern scanning and processing.
- **Command:** `awk '{print $1}' filename`

58. What is the `sed` command used for?

- **Answer:** The `sed` command is a stream editor used to perform basic text transformations on an input stream.
- **Command:** `sed 's/old/new/' filename`

59. How do you create an alias in Linux?

- **Answer:** Use the `alias` command to create a shortcut for a command.
- **Command:** `alias ll='ls -la'`

60. How do you remove an alias in Linux?

- **Answer:** Use the `unalias` command to remove an alias.
- **Command:** `unalias alias_name`

61. How do you create a symbolic link?

- **Answer:** Use the `ln -s` command to create a symbolic link.
- **Command:** `ln -s target linkname`

62. How do you create a hard link?

- **Answer:** Use the `ln` command to create a hard link.
- **Command:** `ln target linkname`

63. What is the `nohup` command used for?

- **Answer:** The `nohup` command allows a process to continue running in the background after the user has logged out.
- **Command:** `nohup command &`

64. How do you display the manual of a command?

- **Answer:** Use the `man` command to display the manual of a command.
- **Command:** `man command`

65. How do you display the help information of a command?

- **Answer:** Use the `--help` option with the command to display its help information.
- **Command:** `command --help`

66. What is a package manager?

- **Answer:** A package manager is a tool that automates the process of installing, upgrading, configuring, and removing software packages. Examples include `apt`, `yum`, and `dnf`.
- **Command:** `apt-get install package`, `yum install package`

67. How do you update a package list in Debian-based systems?

- **Answer:** Use the `apt-get update` command to update the package list.
- **Command:** `sudo apt-get update`

68. How do you upgrade all packages in Debian-based systems?

- **Answer:** Use the `apt-get upgrade` command to upgrade all packages.
- **Command:** `sudo apt-get upgrade`

69. How do you install a package in Debian-based systems?

- **Answer:** Use the `apt-get install` command to install a package.
- **Command:** `sudo apt-get install package_name`

70. How do you remove a package in Debian-based systems?

- **Answer:** Use the `apt-get remove` command to remove a package.
- **Command:** `sudo apt-get remove package_name`

71. How do you install a package in Red Hat-based systems?

- **Answer:** Use the `yum install` or `dnf install` command to install a package.
- **Command:** `sudo yum install package_name`, `sudo dnf install package_name`

72. How do you remove a package in Red Hat-based systems?

- **Answer:** Use the `yum remove` or `dnf remove` command to remove a package.
- **Command:** `sudo yum remove package_name`, `sudo dnf remove package_name`

73. How do you list installed packages?

- **Answer:** Use the `dpkg -l` command in Debian-based systems and `rpm -qa` in Red Hat-based systems.
- **Command:** `dpkg -l`, `rpm -qa`

74. How do you check the dependencies of a package?

- **Answer:** Use the `apt-cache depends` command in Debian-based systems and `yum deplist` in Red Hat-based systems.
- **Command:** `apt-cache depends package_name`, `yum deplist package_name`

75. How do you clean up unused packages?

- **Answer:** Use the `apt-get autoremove` command in Debian-based systems and `yum autoremove` in Red Hat-based systems to remove unused packages and dependencies.
- **Command:** `sudo apt-get autoremove`, `sudo yum autoremove`

76. What is the purpose of the `/etc/hosts` file?

- **Answer:** The `/etc/hosts` file maps hostnames to IP addresses locally, allowing for hostname resolution without querying DNS servers.
- **Command:** `cat /etc/hosts`

77. How do you configure a network interface?

- **Answer:** Use commands like `ifconfig` (older systems) or `ip` (newer systems) to configure network interfaces.
- **Command:** `ifconfig eth0 192.168.1.100 netmask 255.255.255.0`, `ip addr add 192.168.1.100/24 dev eth0`

78. How do you check network configuration?

- **Answer:** Use the `ifconfig` or `ip addr` command to check network configurations.
- **Command:** `ifconfig`, `ip addr`

79. How do you check active network connections?

- **Answer:** Use the `netstat` or `ss` command to check active network connections.
- **Command:** `netstat -tuln`, `ss -tuln`

80. How do you restart a network service?

- **Answer:** Use service management commands like `systemctl` or `service` to restart network services.
- **Command:** `sudo systemctl restart network.service`, `sudo service network restart`

81. What is the `iptables` command used for?

- **Answer:** The `iptables` command is used to set up, maintain, and inspect the tables of IP packet filter rules in the Linux kernel.
- **Command:** `sudo iptables -L`

82. How do you enable packet forwarding?

- **Answer:** Modify the `/proc/sys/net/ipv4/ip_forward` file to enable packet forwarding.
- **Command:** `echo 1 | sudo tee /proc/sys/net/ipv4/ip_forward`

83. What is a firewall in Linux?

- **Answer:** A firewall in Linux is a system that controls incoming and outgoing network traffic based on predetermined security rules. `iptables` and `firewalld` are common firewall tools.
- **Command:** `sudo iptables -L`, `sudo firewall-cmd --state`

84. How do you set up a simple firewall rule to block an IP address?

- **Answer:** Use `iptables` to add a rule that blocks an IP address.
- **Command:** `sudo iptables -A INPUT -s 192.168.1.100 -j DROP`

85. What is SELinux?

- **Answer:** SELinux (Security-Enhanced Linux) is a Linux kernel security module that provides a mechanism for supporting access control security policies.
- **Command:** `getenforce` (to check the status), `setenforce` (to change the mode)

86. How do you disable SELinux temporarily?

- **Answer:** Use the `setenforce` command to change SELinux to permissive mode.
- **Command:** `sudo setenforce 0`

87. What is the purpose of the `/etc/resolv.conf` file?

- **Answer:** The `/etc/resolv.conf` file specifies the DNS servers that the system should use for hostname resolution.
- **Command:** `cat /etc/resolv.conf`

88. How do you configure DNS settings?

- **Answer:** Edit the `/etc/resolv.conf` file to configure DNS settings.
- **Command:** `sudo nano /etc/resolv.conf` and add nameserver entries.

89. What is the `hostname` command used for?

- **Answer:** The `hostname` command is used to display or set the system's hostname.
- **Command:** `hostname`, `sudo hostname newhostname`

90. How do you find your system's IP address?

- **Answer:** Use the `ifconfig` or `ip addr` command to find the system's IP address.
- **Command:** `ifconfig`, `ip addr`

91. What is the `scp` command used for?

- **Answer:** The `scp` (secure copy) command is used to securely copy files between hosts over a network.
- **Command:** `scp file user@remote_host:/path/to/destination`

92. How do you create an SSH key pair?

- **Answer:** Use the `ssh-keygen` command to create an SSH key pair.
- **Command:** `ssh-keygen -t rsa -b 2048`

93. How do you add your SSH key to the SSH agent?

- **Answer:** Use the `ssh-add` command to add your SSH key to the SSH agent.
- **Command:** `ssh-add ~/.ssh/id_rsa`

94. What is the `rsync` command used for?

- **Answer:** The `rsync` command is used for fast, flexible, remote (and local) file copying and synchronization.
- **Command:** `rsync -avz source destination`

95. How do you check the status of a service?

- **Answer:** Use the `systemctl` or `service` command to check the status of a service.
- **Command:** `sudo systemctl status servicename`, `sudo service servicename status`

96. How do you start and stop services?

- **Answer:** Use the `systemctl` or `service` command to start and stop services.
- **Command:** `sudo systemctl start servicename`, `sudo systemctl stop servicename`

97. What is a runlevel in Linux?

- **Answer:** A runlevel is a mode of operation in Unix and Unix-like operating systems that defines what system services are operating.
- **Command:** `runlevel`

98. How do you change the runlevel?

- **Answer:** Use the `init` or `telinit` command to change the runlevel.
- **Command:** `sudo init 3`

99. What is the `journalctl` command used for?

- **Answer:** The `journalctl` command is used to query and display messages from the journal, which is the systemd logging service.
- **Command:** `journalctl`

100. How do you enable and disable services at boot?

- **Answer:** Use the `systemctl` command to enable or disable services at boot.
- **Command:** `sudo systemctl enable servicename`, `sudo systemctl disable servicename`