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Linux Experts

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Linux Interview Questions

Basic Linux Interview Questions :

What is Linux and why is it so popular?

Answer - Linux is an operating system that uses UNIX like Operating system.....

Unix interview questions with answers?

Answer -Discuss the mount and unmount system calls, What are the process states in Unix?, What is use of sed command?, What is "inode",What are the Unix system calls for I/O?, How are devices represented in UNIX?, Brief about the directory representation in UNIX

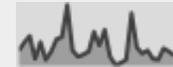
What is LILO?

Answer - LILO is Linux Loader is a boot loader for Linux. It is used to load Linux into the memory and start the Operating system.....

What is the difference between home directory and working directory?

Answer - Home directory is the default working directory when a user logs in. On the other hand, working

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directory is the user's current directory.....

What is the difference between internal and external commands?

Answer - Internal commands are commands that are already loaded in the system. They can be executed any time and are independent.....

Explain the difference between a static library and a dynamic library.

Answer - Static libraries are loaded when the program is compiled and dynamically-linked libraries are loaded in while.....

What is LD_LIBRARY_PATH?

Answer - LD_LIBRARY_PATH is an environment variable. It is used for debugging a new library or a non standard library.....

What is the file server in Linux server?

Answer - File server is used for file sharing. It enables the processes required for sharing.....

What is NFS? What is its purpose?

Answer - NFS is Network File system. It is a file system used for sharing of files over a network.....

How do I send email with linux?

Answer - Email can be sent in Linux using the mail command.

Explain RPM (Red Hat Package Manager) features.

Answer - RPM is a package managing system (collection of tools to manage software packages).....

What is Kernel? Explain the task it performs.

Answer - Kernel is used in UNIX like systems and is considered to be the heart of the operating system.....

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What is Linux Shell? What is Shell Script?

Answer - Linux shell is a user interface used for executing the commands. Shell is a program the user.....

What are Pipes? Explain use of pipes.

Answer - A pipe is a chain of processes so that output of one process (stdout) is fed an input (stdin) to another.....

Explain trap command; shift Command, getopts command of linux.

Answer - Trap command: controls the action to be taken by the shell when a signal is received.

What Stateless Linux server? What feature it offers?

Answer - A stateless Linux server is a centralized server in which no state exists on the single workstations.

What does nslookup do? Explain its two modes.

Answer - Nslookup is used to find details related to a Domain name server. Details like IP addresses of a machine, MX records,.....

What is Bash Shell?

Answer - Bash is a free shell for UNIX. It is the default shell for most UNIX systems. It has a combination of the C and Korn shell features.

Explain some Network-Monitoring Tools in Linux: ping, traceroute, tcpdump, ntop

Answer - Network monitoring tools are used to monitor the network, systems present on the network, traffic etc.....

How does the linux file system work?

Answer - Linux file structure is a tree like structure. It starts from the root directory, represented by '/', and then expands into sub-directories.....

What are the process states in Linux?

Answer - Process states in Linux.....

What is a zombie?

Answer - Zombie is a process state when the child dies before the parent process. In this case the structural information of the process is still in the process table.....

Explain each system calls used for process management in linux.

Answer - System calls used for Process management.....

Which command is used to check the number of files and disk space used and the each user's defined quota?

repquota command is used to check the status of the user's quota along with the disk space and number of files used. This command gives a summary of the user's quota that how much space and files are left for the user. Every user has a defined quota in Linux. This is done mainly for the security, as some users have only limited access to files. This provides a security to the files from unwanted access. The quota can be given to a single user or to a group of users.

What is the name and path of the main system log?

By default the main system log is /var/log/messages. This file contains all the messages and the script written by the user. By default all scripts are saved in this file. This is the standard system log file, which contains messages from all system software, non-kernel boot issues, and messages that go to 'dmesg'. dmesg is a system file that is written upon system boot.

How secured is Linux? Explain.

Security is the most important aspect of an operating system. Due to its unique authentication module, Linux is considered as more secured than other operating systems. Linux consists of PAM. PAM is Pluggable Authentication Modules. It provides a layer between applications and actual authentication mechanism. It is a library of loadable modules which are called by the application for authentication. It also allows the administrator to control when a user can log in. All PAM applications are configured in the directory "/etc/pam.d" or in a file "/etc/pam.conf". PAM is controlled using the configuration file or the configuration directory.

Can Linux computer be made a router so that several machines may share a single Internet connection? How?

Yes a Linux machine can be made a router. This is called "IP Masquerade." IP Masquerade is a networking function in Linux similar to the one-to-many (1: Many) NAT (Network Address Translation) servers found in many commercial firewalls and network routers. The IP Masquerade feature allows other "internal" computers connected to this Linux box (via PPP, Ethernet, etc.) to also reach the Internet as well. Linux IP Masquerading allows this functionality even if the internal computers do not have IP addresses.

The IP masquerading can be done by the following steps:

1. The Linux PC must have an internet connection and a connection to LAN. Typically, the Linux PC has two network interfaces-an Ethernet card for the LAN and a dial-up PPP connection to the Internet (through an ISP).
2. All other systems on your LAN use the Linux PC as the default gateway for TCP/IP networking. Use the same ISP-provided DNS addresses on all systems.
3. Enable IP forwarding in the kernel. By default the IP forwarding is not enabled. To ensure that IP forwarding is enabled when you reboot your system, place this command in the `/etc/rc.d/rc.local` file.
4. Run `/sbin/iptables`-the IP packet filter administration program-to set up the rules that enable the Linux PC to masquerade for your LAN.

What is the minimum number of partitions you need to install Linux?

Minimum 2 partitions are needed for installing Linux. The one is `/` or root which contains all the files and the other is swap. Linux file system is function specific which means that files and folders are organized according to their functionality. For example, all executables are in one folder, all devices in another, all libraries in another and so on. `/` or 'root' is the base of this file system. All the other folders are under this one. `/` can be consider as C: .Swap is a partition that will be used as virtual memory. If there is no more available RAM a Linux computer will use an area of the hard disk, called swap, to temporarily store data. In other words it is a way of expanding your computers RAM.

Which command is used to review boot messages?

`dmesg` command is used to review boot messages. This command will display system messages contained in the kernel ring buffer. We can use this command immediately after booting to see boot messages. A ring buffer is a buffer of fixed size for which any new data added to it overwrites the oldest data in it. Its basic syntax is

```
dmesg [options]
```

Invoking `dmesg` without any of its options causes it to write all the kernel messages to standard output. This usually produces far too many lines to fit into the display screen all at once, and thus only the final messages are visible. However, the output can be redirected to the `less` command through the use of a pipe, thereby allowing the startup messages to be viewed on one screen at a time

```
dmesg | less
```

Which utility is used to make automate rotation of a log?

`logrotate` command is used to make automate rotation of log.

Syntax of the command is:

```
logrotate [-dV] [-f] [-s] config_file+
```

It allows automatic rotation, compression, removal, and mailing of log files. This command is mainly used for rotating and compressing log files. This job is done every day when a log file becomes too large. This command can also be run by giving on command line. We can done force rotation by giving `-f` option with this command in command line. This command is also used for mailing. We can give `-m` option for mailing with this command. This option takes two arguments one is subject and other is recipient name.

What are the partitions created on the mail server hard drive?

The main partitions are done firstly which are root, swap and boot partition. But for the mail server three different partitions are also done which are as follows:

1. `/var/spool`- This is done so that if something goes wrong with the mail server or spool than the output cannot overrun the file system.
2. `/tmp`- putting this on its own partition prevents any user item or software from overrunning the system files.
3. `/home`- putting this on its own is useful for system upgrades or reinstalls. It allow not to wipe off the `/home` hierarchy along with other areas.

What are the fields in the `/etc/passwd` file?

It contains all the information of the users who log into the system. It contains a list of the system's accounts, giving for each account some useful information like user ID, group ID, home directory, shell, etc. It should have general read permission as many utilities, like `ls` use it to map user IDs to user names, but write access only for the superuser (root). The main fields of `/etc/passwd` file are:

1. Username: It is used when user logs in. It should be between 1 and 32 characters in length.
2. Password: An `x` character indicates that encrypted password is stored in `/etc/shadow` file.
3. User ID (UID): Each user must be assigned a user ID (UID). UID 0 (zero) is reserved for root and UIDs 1-99 are reserved for other predefined accounts. Further UID 100-999 are reserved by system for administrative and system accounts/groups.
4. Group ID (GID): The primary group ID (stored in `/etc/group` file)
5. User ID Info: The comment field. It allow you to add extra information about the users such as user's full name, phone number etc. This field use by `finger` command.
6. Home directory: The absolute path to the directory the user will be in when they log in. If this directory does not exists then users directory becomes `/`
7. Command/shell: The absolute path of a command or shell (`/bin/bash`). Typically, this is a shell.

Which commands are used to set a processor-intensive job to use less CPU time?

`nice` command is used for changing priority of the jobs.

Syntax: `nice [OPTION] [COMMAND [ARG]...]`

Range of priority goes from -20 (highest priority) to 19 (lowest). Priority is given to a job so that the most important job is executed first by the kernel and then the other least important jobs. This takes less CPU times as the jobs are scheduled and are given priorities so the CPU executes fast. The priority is given by numbers like -20 describe the highest priority and 19 describe the least priority.

How to change window manager by editing your home directory?

`/.xinitrc` file allows changing the window manager we want to use when logging into X from that account. The dot in the file name shows you that the file is a hidden file and doesn't show when you do a normal directory listing. For setting a window manager we have to save a command in this file. The syntax of command is: `exec windowmanager`. After this, save the file. Next time when you run a `startx` a new window manager will open and become default. The commands for starting some popular window managers and desktop environments are:

- KDE = `startkde`
- Gnome = `gnome-session`
- Blackbox = `blackbox`
- FVWM = `fvwm`
- Window Maker = `wmaker`
- IceWM = `icewm`

How documentation of an application is stored?

When a new application is installed its documentation is also installed. This documentation is stored under the directory named for application. For example if my application name is App1 then the path of the documentation will be `/user/doc/App1`. It contains all the information about the application. It contains date of creating application, name of application and other important module of the application. We can get the basic information of application from the documentation.

How shadow passwords are given?

`pwconv` command is used for giving shadow passwords. Shadow passwords are given for better system security. The `pwconv` command creates the file `/etc/shadow` and changes all passwords to 'x' in the `/etc/passwd` file. First, entries in the shadowed file which don't exist in the main file are removed. Then, shadowed entries which don't have 'x' as the password in the main file are updated. Any missing shadowed entries are added. Finally, passwords in the main file are replaced with 'x'. These programs can be used for initial conversion as well to update the shadowed file if the main file is edited by hand.

How do you create a new user account?

`useradd` command is used for creating a new user account. When invoked without the `-D` option, the `useradd` command creates a new user account using the values specified on the command line and the default values from the system. The new user account will be entered into the system files as needed, and initial files copied, depending on the command line options. This command uses the system default as home directory. If `-m` option is given then the home directory is made.

Which password package is installed for the security of central password?

Shadow password packages are used for security of central passwords. Security is the most important aspect of every operating system. When this package is not installed the user information including passwords is stored in the `/etc/passwd` file. The password is stored in an encoded format. These encoded forms can be easily identified by the System crackers by randomly encoding the passwords from dictionaries. The Shadow Package solves the problem by relocating the passwords to another file (usually `/etc/shadow`). The `/etc/shadow` file is set so that it cannot be read by just anyone. Only root will be able to read and write to the `/etc/shadow` file.

Which shell do you assign to a POP3 mail-only account?

POP3 mail only account is assigned to the `/bin/false` shell. However, assigning bash shell to a POP3 mail only

gives user login access, which is avoided. `/bin/nologin` can also be used. This shell is provided to the user when we don't want to give shell access to the user. The user cannot access the shell and it rejects shell login on the server like on telnet. It is mainly for the security of the shells. POP3 is basically used for downloading mail to mail program. So for illegal downloading of emails on the shell this account is assigned to the `/bin/false` shell or `/bin/nologin`. These both shells are same they both do the same work of rejecting the user login to the shell. The main difference between these two shells is that false shell shows the incorrect code and any unusual coding when user login with it. But the nologin shell simply tells that no such account is available. So nologin shell is used mostly in Linux.

Which daemon is responsible for tracking events on Linux system?

syslogd is responsible for tracking system information and save it to the desired log files. It provides two system utilities which provide system logging and kernel message trapping. Internet and UNIX domain sockets support enable this utility package to support both local and remote logging. Every logged message contains at least a time and a hostname field, normally a program name field, too. So to track these information this daemon is used. syslogd mainly reacts to the set of signals given by the user. These are the signals given to syslogd: SIGHUP: This lets syslogd perform a re-initialization. All open files are closed, the configuration file (default is `/etc/syslog.conf`) will be reread and the syslog facility is started again. SIGTERM: The syslogd will die. SIGINT, SIGQUIT: If debugging is enabled these are ignored, otherwise syslogd will die. SIGUSR1: Switch debugging on/off. This option can only be used if syslogd is started with the `-d` debug option. SIGCHLD: Wait for Childs if some were born, because of waiting messages.

Which daemon is used for scheduling of the commands?

The crontab command is used for scheduling of the commands to run at a later time. SYNTAX

```
crontab [-u user] file
crontab [-u user] {-l | -r | -e }
```

Options

`-l` List - display the current crontab entries.

`-r` Remove the current crontab.

`-e` Edit the current crontab using the editor specified by the VISUAL or EDITOR environment variables.

When user exits from the editor, the modified crontab will be installed automatically. Each user can have their own crontab, and though these are files in `/var`, they are not intended to be edited directly. If the `-u` option is given than the crontab gives the name of the user whose crontab is to be tweaked. If it is given without this then it will display the crontab of the user who is executing the command.

How environment variable is set so that the file permission can be automatically set to the newly created files?

umask command is used to set file permission on newly created files automatically.

Syntax

umask [-p] [-S] [mode]

It is represented in octal numbers. We can simply use this command without arguments to see the current file permissions. To change the permissions, mode is given in the arguments. The default umask used for normal user is 0002. The default umask for the root user is 0022. For calculating the original values, the values shown by the umask must be subtracted by the default values. It is mainly used for masking of the file and directory permission. The /etc/profile script is where the umask command is usually set for all users. The -S option can be used to see the current default permissions displayed in the alpha symbolic format.

For example, umask 022 ensures that new files will have at most 755 permissions (777 NAND 022).

The permissions can be calculated by taking the NAND of original value with the default values of files and directories.

Posted by [Linux Don](#) at 1:40 AM



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