**Linux Interview Questions Along With Answers:**

* **What is journaling?**
* **Diff between ext3 n ext4?**
* **How to disable journaling in ext4?**

umount /opt (Unmount the file system partition whose journaling you wish to disable )

tune4fs -O ^has\_journal /dev/sda1 (Disable journaling for the file system)

e4fsck –f /dev/sda1 (e4fsck –f /dev/sda1)

* shutdown –r now
* dmesg | grep EXT4 (to check journalising is disabled)
* df -h
* **What is Umask?**
* **what is xfs?**
* **Diff between xfs & ext4?**
* **what is rpm?**
* **Diff between RPM & YUM?**
* **How to add user?**
* **Diff between useradd & adduser?**
* **what is LVM?**
* **How to extend & reduce LVM? what are the commands?**
* **How to add 2 HDD in single LVM? Tell me the commands?**
* **How to run abc.sh file every five minutes?**
* **What is kernel tuning?**
* **Suppose if there is one client and server, i want client should not access to server through ssh?**
* **Is there any way to access the server without tcp wrappers?**
* **what is static and dynamic modules?**
* **How to integrate php with apache?**
* **How to check what modules are installed in apache?**
* **what is tcpdump?**
* **what is nagios? How it works?**
* **what is iostat?**
* **what is free?**
* **what is top?**
* **what is netstat? how to use it?**
* **what is ntop?**
* **what is nrp?**

**Nginx Reverse Proxy (NRP) monitoring**

* **what is swapfile?**
* **Types of file?**
* **Why FTP is port is 20/21?**
* **Diff between Centos 6 & 7?**

**Q: –** How to increase the size of KVM IMG file ?

**Q: –** Explain page in and page out in OS memory management ?

**Q: –** How to check the performance of NFS server in Linux ?

**Q: –** How to check NFS server’s version ?

**Q: –** What is the main difference between root\_sqush and no\_root\_squash in NFS ?

**Q: –** What is rpc and its role in nfs ?

**Q: –** What is use if sar command and location sar log files.

**Q: –** What is use of vmstat and explain its output & log files?

**Q: –** What is Network bonding and how to check status of bonding ?

**Q: –** What are the steps to configure network bonding in linux ?

**Q: –** Define the role of Luci and Ricci in redhat cluster suite ?

**Q: –** What is multipathing and why is it required ?

**Q: –** what is iostat , describe its output and log files ?

**Q: –** What is the difference of 2.4 and 2.6 kernel ?

**Q: –** What are difference between ext3 and ext4

**Q: –** What server need to check first – physical memory is not fully utilized but swap is  fully utilized and  physical memory is fully utilized but swap  memory is free and why ?

**Q: –** What is chroot env in ftp and how enable chroot for ftp ?

**Q: –** How to scan luns on the server?

fdisk -l 2>/dev/null | egrep '^Disk' | egrep -v 'dm-' | wc -l

“systool -fc\_host -v”

ls /sys/class/fc\_host  
host0 host1

echo "1" > /sys/class/fc\_host/host0/issue\_lip

http://www.unixarena.com/2013/06/how-to-scan-new-fc-luns-and-scsi-disks.html

**Q: –** Difference between raid 3 & raid 5?

**Q: –** How to execute cron every 5 min from Monday to Friday?

**Q: –** How to check the machines status in vcs?

ps -ef | grep -i vcs (vcs process is running)

pkginfo |grep -i vrts (vcs Packages has installed or not.)

**Q: –** How to extend disk space in vcs?

**Q: –** Difference between -L & -l in lvcreate command ?

**Q: –** What activity will run in background if failover of one node occurs ?

**Q: –** What is “Split Brain” in cluster & is it visible in storage ?

**Q: –** What is dom0 in Xen ?

**Q: –** What is POST in Linux Booting Process ?

**Q: –** What is initrd or ramdisk and use of initrd while booting ?

**Q: –** What is soft & hard zoning ?

**Q: –** What is wwpn & wwnn ?

**Q: –** How Can we check the front & back ports on emc storage server through command line or gui   ?

**Q: –** How can emc server be accessed through CLI   ?

http://diffuse-ideas.blogspot.in/2011/09/under-construction-lvm.html

Difference Between Redhat6 & Redhat 7 Version?

Ans) 1. Redhat Enterprise release version in 6 – SANTIGO (10th Nov 2010)

Redhat Enterprise release version in 7 – MAIPO (10th June 2014)

2. Kernel Version in Redhat 6 – 2.6.32

Kernel Version in Redhat 6 – 3.0.10

3. OS Boot Time in Redhat 6 – 40 Sec

OS Boot Time in Redhat 7 – 20 Sec

4. Maximum Size of Single Partion in Redhat 6 – 50 TB (EXT4)

Maximum Size of Single Partion in Redhat 7 – 500 TB (XFS)

5.  **BOOT LOADER**

**RHEL6:  /boot/grub/**grub.conf

**RHEL7: /boot/grupb2/**grub.cfg

6. **RESIZE A FILE SYSTEMs**

**RHEL6:   #resize2fs  -p /dev/vg00/lv1**

**RHEL7:    #xfs\_growfs  /dev/vg00/lv1**

**7. DATABASE USED**

**RHEL6: Mysql**

**RHEL7: mariaDB**

**8. FILE SYSTEM CHECK**

**RHEL6:   e2fsck**

**RHEL7:   xfs\_repair**

**9. HOW TO FORMAT & REPAIR A FILE SYSTEM**

**RHEL6:      #**mkfs.ext4 **/dev/hda6 #fsck -y /dev/hda6**

**RHEL7:       #**mkfs.xfs **/dev/hda6 #xfs\_repair /dev/hda6**

10 **INTERFACE NAME**

**RHEL6: eth0**

**RHEL7: ens198(N)**

**11. START & STOP SERVICES**

RHEL6:#service sshd restart

#chkconfig sshd on

RHEL7:#systemctl restart sshd

#systemctl enable shhd

The LVM system organizes hard disks into Logical Volume (LV) groups. Essentially, physical hard disk partitions (or possibly RAID arrays) are set up in a bunch of equal sized chunks known as Physical Extents (PE). As there are several other concepts associated with the LVM system, here we will discuss only some basic definitions those require in rhce:

* **Physical Volume (PV)** is the standard partition that you add to the LVM mix. Normally, a physical volume is a standard primary or logical partition. It can also be a RAID array.
* **Physical Extent (PE)** is a chunk of disk space. Every PV is divided into a number of equal sized PEs. Every PE in a LV group is the same size. Different LV groups can have different sized PEs.
* **Logical Extent (LE)** is also a chunk of disk space. Every LE is mapped to a specific PE.
* **Logical Volume (LV)** is composed of a group of LEs. You can mount a filesystem such as /home and /var on an LV.
* **Volume Group (VG)** is composed of a group of LVs. It is the organizational group for LVM.

**1.What are LVM1 and LVM2?**  
  
LVM1 and LVM2 are the versions of LVM.   
LVM2 uses device mapper driver contained in 2.6 kernel version.  
LVM 1 was included in the 2.4 series kernels.  
  
**2.What is the maximum size of a single LV?**  
  
For 2.4 based kernels, the maximum LV size is 2TB.   
For 32-bit CPUs on 2.6 kernels, the maximum LV size is 16TB.  
For 64-bit CPUs on 2.6 kernels, the maximum LV size is 8EB.   
  
**3.List of important LVM related files and Directories?**  
  
## Directories  
/etc/lvm                - default lvm directory location  
/etc/lvm/backup         - where the automatic backups go  
/etc/lvm/cache          - persistent filter cache  
/etc/lvm/archive        - where automatic archives go after a volume group change  
/var/lock/lvm             - lock files to prevent metadata corruption  
  
# Files  
/etc/lvm/lvm.conf       - main lvm configuration file  
$HOME/.lvm              - lvm history   
  
  
**4.What is the steps to create LVM in Linux?**  
  
Create a physical volume by using pvcreate command consider the disk is local.  
#fdisk -l   
#fdisk /dev/sda

Press "n" to create new partition. And mention the size / allocate whole disk to single partition. and assign the partition number also.  
  
#press "t" to change the partition as LVM partition.   
  
#enter "8e" ( 8e - is Hex decimal code for LVM )   
  
#Enter "w" to write tghe information on Disk.  
  
#fdisk -l ( Now you will get newly created disk numbers)  
  
#pvcreate /dev/sda2  
  
Add physical volume to volume group by “vgcreate” command  
  
#vgcreate VLG0 /dev/sda2  
  
Create logical volume from volume group by “lvcreate” command.  
  
#lvcreate -L 1G -n LVM1 LVG0  
  
Now create file system on /dev/sda2 partition by “mke2fs”  or "mkfs.ext3" command.  
  
#mke2fs -j /dev/VG0/LVM1 or  #mkfs.ext3 /dev/vg0/LVM1  
  
How to mount this as file system  
  
#mkdir /test  
  
#mount /dev/VG0/LVM1 /test    
  
**5.How to extend a File system in Linux?**  
  
Check the free space on vg   
  
#vgdisplay -v VG1  
  
Now extend the FS  
  
# lvextend -L+1G /dev/VG1/lvol1  
  
# resize2fs /dev/VG1/lvol1  
  
**6.How to reduce the File system size  in Linux?**  
  
1.First we need to reduce the file system size using "resize2fs"  
2.Then reduce the lvol size using "lvreduce"  
  
#resize2fs -f /dev/VolGroup00/LogVol00 3G  
  
#lvreduce -L 5G /dev/VG1/Lvol1  
  
**7.How to add new LUN from storage to Linux server?**  
  
Step 1: Get the list of HBA and exisiting disk details.  
  
#ls /sys/class/fc\_host  
  
#fdisk -l 2>/dev/null | egrep '^Disk' | egrep -v 'dm-' | wc -l  
  
Step 2: Scan the HBA ports (Need to scan all HBA port)  
#echo "1" > /sys/class/fc\_host/host??/issue\_lip  
  
# echo "- - -" > /sys/class/scsi\_host/host??/scan  
  
Do this above steps for all HBA cards  
  
Step3 : Check the newly added Lun       
  
# cat /proc/scsi/scsi | egrep -i 'Host:' | wc -l  
  
# fdisk -l 2>/dev/null | egrep '^Disk' | egrep -v 'dm-' | wc -l  
  
  
Once found the disk then do below steps to add to VolumeGroup  
  
#pvcreate /dev/diskpath  
  
#vgextend /dev/vg1 /dev/diskpath  
  
#vgs or #vgdisplay /dev/vg1  
  
  
**8.How to resize root file system on RHEL 6?**  
  
Here is the list of steps to reduce the  root file system (lv\_root) on a RHEL 6 Linux server:  
  
Boot the system into rescue mode. Do not mount the file systems (select the option to 'Skip' in the rescue mode and start a shell)  
  
Bring the Volume Group online  
  
#lvm vgchange -a -y  
  
Run fsck on the FS  
  
#e2fsck -f /dev/vg\_myhost/lv\_root  
  
Resize the file system with new size  
  
#resize2fs -f /dev/vg00/lv\_root 20G  
  
Reduce the Logical Volume of the FS with the new size  
  
#lvreduce -L20G /dev/vg00/lv\_root  
  
Run fsck to make sure the FS is still ok  
  
#e2fsck -f /dev/vg00/lv\_root  
  
Optionally mount the file system in the rescue mode  
  
#mkdir -p /mnt/sysimage/root  
#mount -t ext4 /dev/mapper/vg00-lv\_root /mnt/sysimage/root  
#cd /mnt/sysimage/root  
  
Unmount the FS  
  
#cd  
#umount /mnt/sysimage/root  
  
Exit rescue mode and boot the system from the hard disk  
#exit  
  
Select the reboot option from the recue mode  
  
**9.How to find server is configured with LVM RAID ?**  
  
1.How to check linux LVM RAID ?  
  
 check the RAID status in /proc/mdstat  
  
 #cat /proc/mdstat   
 or  
 # mdadm --detail /dev/mdx  
  or  
 # lsraid -a /dev/mdx  
  
2.Check the Volume group disks   
  
 #vgdisplay -v vg01  
  
 In disk we will get the device names like /dev/md1 , /dev/md2 . It means LVM RAID disks are configured and its added to Volume Group.  
  
  
**10.How to check Linux server is configured with power path disks?**  
  
1.Check power path is installed on server?  
  
#rpm -qa |grep -i emc  
  
2.Check the power path status on server?  
  
#/etc/init.d/PowerPath status  
  
#chkconfig --list PowerPath  
  
# lsmod |grep -i emc  
  
3.Check the Volume group disks   
  
 #vgdisplay -v vg01  
  
 In disk we will get the device names like /dev/emcpowera , /dev/emcpowerb . It means powerpath disks are configured and its added to Volume Group.  
  
4.Check the power path disk status using below command  
  
 #powermt display dev=all  
  
**11.How to check server is configured with Multipath disks??**  
  
# ls -lrt /dev/mapper  //To View the Mapper disk paths and Lvols  
  
#dmsetup table  #dmsetup ls  #dmsetup status  
  
2.Using Multipathd Command ( Daemon )   
  
#echo 'show paths' |multipathd -k  
  
#echo 'show maps' |multipathd -k  
  
3.Check multipath Daemon is running or not   
  
#ps -eaf |grep -i multipathd  
  
4.check the VG disk paths  
  
#vgs or vgdisplay -v vg01   
  
If multipath disks are added and configured with VG then we will get disk paths like /dev/mpath0 , /dev/mpath1.  
  
5.If you want to check the disk path status u can use below command also  
  
#multipathd -k  
  
#multipathd> show multipaths status  
  
#multipathd> show topology  
  
#multipathd> show paths

**Q:1 Why LVM is required ?**  
Ans: LVM stands for Logical Volume Manager , to resize filesystem’s size online we required LVM partition in Linux. Size of LVM partition can be extended and reduced using the lvextend & lvreduce commands respectively.

**Q:2 How To check Memory stats and CPU stats ?**

Ans:  Using ‘free’ & ‘vmstat’ command we can display the physical and virtual memory statistics respectively.With the help of ‘sar’ command we see the CPU utilization & other stats.

**Q:3 What does Sar provides and at which location Sar logs are stored ?**  
Ans: Sar Collect, report, or save system activity information. The default version of the sar command (CPU utilization report) might be one of the first facilities the  user  runs  to  begin system  activity investigation, because it monitors major system resources. If CPU utilization is near 100 percent (user + nice + system), the workload sampled is CPU-bound.

By  default log files of Sar command  is located at  /var/log/sa/sadd file, where the dd parameter indicates the current day.

**Q:4 How to increase the size of LVM partition ?**  
Ans: Below are the Logical Steps :  
– Use the lvextend command (lvextend -L +100M /dev/<Name of the LVM Partition> , in this example we are extending the size by 100MB.  
– resize2fs /dev/<Name of the LVM Partition>  
– check the size of partition using ‘df -h’ command

**Q:5 How to reduce or shrink the size of LVM partition ?**  
Ans: Below are the logical Steps to reduce size of LVM partition :  
-Umount the filesystem using umount command,  
-use resize2fs command , e.g resiz2fs /dev/mapper/myvg-mylv 10G  
-Now use the lvreduce command , e.g lvreduce -L 10G /dev/mapper/myvg-mylv

Above Command will shrink the size & will make the filesystem size 10GB.

**Q:7 Where the kernel modules are located ?**  
Ans: The ‘/lib/modules/kernel-version/’ directory stores all kernel modules or compiled drivers in Linux operating system. Also with ‘lsmod’ command we can see all the installed kernel modules.

**Q:8 What is umask ?**  
Ans: umask stands for ‘User file creation mask’, which determines the settings of a mask that controls which file permissions are set for files and directories when they are created.

**Q:9 How to set the umask permanently for a user?**  
Ans: To set this value permanently for a user, it has to be put in the appropriate profile file which depends on the default shell of the user.

**Q:10 How to change the default run level in linux ?**  
Ans: To change the run level we have to edit the file “/etc/inittab” and change initdefault entry ( id:5:initdefault:). Using ‘init’ command we change the run level temporary like ‘init 3′ , this command will move the system in runlevl 3.

**Q:11 How to share a directory using nfs ?**  
Ans: To share a directory using nfs , first edit the configuration file ‘/etc/exportfs’ , add a entry like  
‘/<directory-name>  <ip or Network>(Options)’ and then restart the nfs service.

**Q:12 How to check and mount nfs share ?**  
Ans: Using ‘showmount’ command we can see what directories are shared via nfs e.g ‘showmount -e <ip address of nfs server>’.Using mount command we can mount the nfs share on linux machine.

**Q:14 What is Network Bonding ?**  
Ans: Network bonding is the aggregation of multiple Lan cards into a single bonded interface to provide fault tolerance and high performance. Network bonding is also known as NIC Teaming.

**Q:15 What  are the different modes of Network bonding in Linux ?**  
Ans: Below are list of modes used in Network Bonding :

* balance-rr or 0 – round-robin mode for fault tolerance and load balancing.
* active-backup or 1 – Sets active-backup mode for fault tolerance.
* balance-xor or 2 – Sets an XOR (exclusive-or) mode for fault tolerance and load balancing.
* broadcast or 3 – Sets a broadcast mode for fault tolerance. All transmissions are sent on all slave interfaces.
* 802.3ad or 4  – Sets an IEEE 802.3ad dynamic link aggregation mode. Creates aggregation groups that share the same speed & duplex settings.
* balance-tlb or 5 –  Sets a Transmit Load Balancing (TLB) mode for fault tolerance & load balancing.
* balance-alb or 6 –  Sets an Active Load Balancing (ALB) mode for fault tolerance & load balancing.

**Q:16 How to check and verify the status the bond interface.**

Ans: Using the command ‘cat /proc/net/bonding/bond0′ , we can check which mode is enabled and what lan cards are used in this bond. In this example we have one only one bond interface but we can have multiple bond interface like bond1,bond2 and so on.

**Q:17 How to check default route and routing table ?**  
Ans: Using the Commands ‘netstat -nr’ and ‘route -n’ we can see the default route and routing tables.

**Q:18 How to check which ports are listening in my Linux Server ?**  
Asn:  Use the Command ‘netstat –listen’ and ‘lsof -i’

**Q:19 List the services that are enabled at a particular run level in linux server ?**  
Ans: With the help of command ‘chkconfig –list | grep 5:on’ we can list all the service that are enabled in run level5. For other run levels just replace 5 with the respective run level.

**Q:20 How to enable a service at a particular run level ?**  
Ans: We can enable a service using the Command ‘chkconfig <Service-Name> on –level 3′

**Q:21 How to upgrade Kernel in Linux ?**  
Ans: We should never upgrade Linux Kernel , always install the new New kernel using rpm command because upgrading a kenel can make your linux box in a unbootable state.

**Q:22 How To scan newly asssigned luns on linux box without rebooting ?**  
Ans: There are two ways to scan newly assigned luns :  
Method:1 if sg3 rpm is installed , then run the command ‘rescan-scsi-bus.sh’  
Method:2 Run the Command ,  echo ” – – – ” > /sys/class/scsi\_host/hostX/scan

**Q:23 How  to find WWN numbers of HBA cards in Linux Server ?**  
Ans: We can find the WWN numbers of HBA cards using the command ‘systool -c fc\_host -v | grep port\_name’

**Q:24 How to add & change the Kernel parameters ?**  
Ans: To Set the kernel parameters in linux , first edit the file ‘/etc/sysctl.conf’ after making the changes save the file and run the command ‘sysctl -p’ , this command will make the changes permanently without rebooting the machine.

**Q:25 What is Puppet Server ?**  
Ans: Puppet is an open-source & enterprise software for configuration management toll in UNIX like  operating system.  Puppet is a  IT automation software used to push configuration to its clients (puppet agents) using code. Puppet code can do a variety of tasks from installing new software, to check file permissions, or updating user accounts & lots of other tasks.

**Q:26 What are manifests in Puppet ?**  
Ans: Manifests, in Puppet, are the files in which the client configuration is specified.

**Q:27 Which Command is used to sign requested certificates in Puppet Server ?**  
Ans: ‘puppetca  –sign hostname-of-agent’ in (2.X)  & ‘puppet ca  sign hostname-of-agent’ in  (3.X)

**Q:28  At which location  Puppet Master Stores Certificates ?**  
Ans:  /var/lib/puppet/ssl/ca/signed

**Q:29 How to find all the regular files in a directory  ?**  
Ans: using the command ‘find /<directory -type f’.

**Q:30 What is load average in a linux ?**  
Ans: Load  Average is defined as the average sum of the number of process waiting in the run queue and number of process currently executing over the period of 1,5 and 15  minutes. Using the ‘top’ and ‘uptime’ command we find the load average of a linux sever.

1) What is GRUB  
Ans GNU GRUB is a Multiboot boot loader. It was derived from GRUB, the GRand Unified Bootloader, which was originally designed and implemented by Erich Stefan Boleyn.  
Briefly, a boot loader is the first software program that runs when a computer starts. It is  
responsible for loading and transferring control to the operating system kernel software  
(such as the Hurd or Linux). The kernel, in turn, initializes the rest of the operating  
system (e.g. GNU)

2) Explain Linux Boot Process  
Ans <http://www.thegeekstuff.com/2011/02/linux-boot-process/>

3) Which files are called for user profile by default when a user gets login  
Ans $HOME/.bash\_profile, $HOME/.bash\_bashrc

4) Which file needs to update if srequired to change default runlevel 5 to 3  
Ans File is /etc/inittab and required to change below lines:  
id:5:initdefault: to id:3:initdefault:

5) What command used for showing user info like Login Name, Canonical Name, Home Directory,Shell etc..  
Ans FINGER command can be used i.g; finger username

How To scan newly asssigned luns on linux box without rebooting ?

Ans echo ” – – – ” > /sys/class/scsi\_host/hostX/scan

& run #dmesg

Run the Command

6) What is inode number  
Ans An inode is a data structure on a traditional Unix-style file system such as UFS or ext3. An inode stores basic information about a regular file, directory, or other file system object  
iNode number also called as index number, it consists following attributes:  
File type (executable, block special etc)  
Permissions (read, write etc)  
Owner  
Group  
File Size  
File access, change and modification time (remember UNIX or Linux never stores file creation time, this is favorite question asked in UNIX/Linux sys admin job interview)  
File deletion time  
Number of links (soft/hard)  
Extended attribute such as append only or no one can delete file including root user  
(immutability)  
Access Control List (ACLs)  
Following command will be used to show inodes of file and folders:  
ls -i  
Following command will show complete info about any file or folders with inode number  
stat file/folder  
Files/Folders can also be deleted using inode numbers with following command:  
find out the inode number using 'ls -il' command then run below command  
find . -inum inode\_number -exec rm -i {} \;  
7) How can we increase disk read performance in single command  
Ans blockdev command  
This is sample output - yours may be different.  
# Before test  
$ blockdev --getra /dev/sdb  
256  
$ time dd if=/tmp/disk.iso of=/dev/null bs=256k  
2549+1 records in  
2549+1 records out  
668360704 bytes (668 MB) copied, 6,84256 seconds, 97,7 MB/s  
real 0m6.845s  
user 0m0.004s  
sys 0m0.865s  
# After test  
$ blockdev --setra 1024 /dev/sdb  
$ time dd if=/tmp/disk.iso of=/dev/null bs=256k  
2435+1 records in  
2435+1 records out  
638390272 bytes (638 MB) copied, 0,364251 seconds, 1,8 GB/s  
real 0m0.370s  
user 0m0.001s  
sys 0m0.370s

8) .... command to change user password expiration time  
Ans CHAGE

9) Command used to lock user password  
Ans usermod -L username

10) How many default number of Shells available and what are their names?  
Ans SH, BASH, CSH, TCSH, NOLOGIN, KSH

11) Which file defines the attributes like UID, PASSWORD expiry, HOME Dir create or not while adding user  
Ans /etc/login.defs

12) ...... command used for changing authentication of linux system to LDAP/NIS/SMB/KERBOS  
Ans authconfig

13) ...... command used for changing the attributes of any file  
Ans chattr

14) What is the path of network (ethX) configuration files  
Ans /etc/sysconfig/network-scripts/ethX

15) How can we change speed and make full duplex settings for eth0  
Ans We can do this with below given 2 methods:  
ethtool -s eth0 speed 100 duplex full  
ethtool -s eth0 speed 10 duplex half  
OR  
mii-tool -F 100baseTx-HD  
mii-tool -F 10baseT-HD

16) File which stores the DNS configuration  
Ans /etc/resolve.conf  
17) Main configuration file and command used for NFS enabling exported directories and deamons  
Ans /etc/exports and exportfs -av , deamons are quotad, portmapper, mountd, nfsd and nlockmgr/status  
18) What is command to check ports running/used over local machine  
Ans netstat -antp  
19) What is the command to check open ports at remote machine  
Ans nmap  
20) What is the difference between soft and hard links  
Ans Soft Links => 1) Soft link files will have different inode numbers then source file  
2) If original file deleted then soft link file be of no use  
3) Soft links are not updated  
4) Can create links between directories  
5) Can cross file system boundaries  
Hard Links => 1) Hard links will have the same inode number as source file  
2) Hard links can not link directories  
3) Can not cross file system boundaries  
4) Hard links always refers to the source, even if moved or removed

21) How to setup never expired user password  
Ans chage -E never username  
22) Restricting insertion into file if full permission are assigned to all  
Ans chattr +i filename  
23) Display or Kill all processes which are accessing any folder/file  
Ans Display User who are using file/folder : fuser -u file/folder  
Kill All Processes which are using file/folder: fuser -k file/folder  
24) Kill any user's all processes  
Ans killall -u username  
25) How can we have system analysis and reports over mail  
Ans Use logwatch

0 Most Frequently Used UNIX / Linux Commands (With Examples)  
1. tar command examples

Create a new tar archive.

$ tar cvf archive\_name.tar dirname/  
Extract from an existing tar archive.

$ tar xvf archive\_name.tar  
View an existing tar archive.

$ tar tvf archive\_name.tar  
More tar examples: The Ultimate Tar Command Tutorial with 10 Practical Examples

2. grep command examples

Search for a given string in a file (case in-sensitive search).

$ grep -i "the" demo\_file  
Print the matched line, along with the 3 lines after it.

$ grep -A 3 -i "example" demo\_text  
Search for a given string in all files recursively

$ grep -r "ramesh" \*  
More grep examples: Get a Grip on the Grep! – 15 Practical Grep Command Examples

3. find command examples

Find files using file-name ( case in-sensitve find)

# find -iname "MyCProgram.c"  
Execute commands on files found by the find command

$ find -iname "MyCProgram.c" -exec md5sum {} \;  
Find all empty files in home directory

# find ~ -empty  
More find examples: Mommy, I found it! — 15 Practical Linux Find Command Examples

4. ssh command examples

Login to remote host

ssh -l jsmith [remotehost.example.com](http://remotehost.example.com/)  
Debug ssh client

ssh -v -l jsmith [remotehost.example.com](http://l.facebook.com/l.php?u=http%3A%2F%2Fremotehost.example.com%2F&h=ZAQGoUuRq&enc=AZO-JK5OIsQfravFHTxwYHuMc0JaKeBsh9dvcFkBLC6SLBAUeDYfbaS7pOvi4dlSn6lZZ-D5gqFwQ3jwkuWjOPqzBhIwhuAIpTW1CIhcecl7qVpg2knxJG-d15dum_aFWz8LzQmZJEH5fEijFNzcyxk-zuONVJz21_R4ZG_AtGv0lw&s=1)  
Display ssh client version

$ ssh -V  
OpenSSH\_3.9p1, OpenSSL 0.9.7a Feb 19 2003  
More ssh examples: 5 Basic Linux SSH Client Commands

5. sed command examples

When you copy a DOS file to Unix, you could find \r\n in the end of each line. This example converts the DOS file format to Unix file format using sed command.

$sed 's/.$//' filename  
Print file content in reverse order

$ sed -n '1!G;h;$p' thegeekstuff.txt  
Add line number for all non-empty-lines in a file

$ sed '/./=' thegeekstuff.txt | sed 'N; s/\n/ /'  
More sed examples: Advanced Sed Substitution Examples

6. awk command examples

Remove duplicate lines using awk

$ awk '!($0 in array) { array[$0]; print }' temp  
Print all lines from /etc/passwd that has the same uid and gid

$awk -F ':' '$3==$4' passwd.txt  
Print only specific field from a file.

$ awk '{print $2,$5;}' employee.txt  
More awk examples: 8 Powerful Awk Built-in Variables – FS, OFS, RS, ORS, NR, NF, FILENAME, FNR

7. vim command examples

Go to the 143rd line of file

$ vim +143 filename.txt  
Go to the first match of the specified

$ vim +/search-term filename.txt  
Open the file in read only mode.

$ vim -R /etc/passwd  
More vim examples: How To Record and Play in Vim Editor

8. diff command examples

Ignore white space while comparing.

# diff -w name\_list.txt name\_list\_new.txt

2c2,3  
< John Doe --- > John M Doe  
> Jason Bourne  
More diff examples: Top 4 File Difference Tools on UNIX / Linux – Diff, Colordiff, Wdiff, Vimdiff

9. sort command examples

Sort a file in ascending order

$ sort names.txt  
Sort a file in descending order

$ sort -r names.txt  
Sort passwd file by 3rd field.

$ sort -t: -k 3n /etc/passwd | more  
10. export command examples

To view oracle related environment variables.

$ export | grep ORACLE  
declare -x ORACLE\_BASE="/u01/app/oracle"  
declare -x ORACLE\_HOME="/u01/app/oracle/product/10.2.0"  
declare -x ORACLE\_SID="med"  
declare -x ORACLE\_TERM="xterm"  
To export an environment variable:

$ export ORACLE\_HOME=/u01/app/oracle/product/10.2.0  
11. xargs command examples

Copy all images to external hard-drive

# ls \*.jpg | xargs -n1 -i cp {} /external-hard-drive/directory  
Search all jpg images in the system and archive it.

# find / -name \*.jpg -type f -print | xargs tar -cvzf images.tar.gz  
Download all the URLs mentioned in the url-list.txt file

# cat url-list.txt | xargs wget –c  
12. ls command examples

Display filesize in human readable format (e.g. KB, MB etc.,)

$ ls -lh  
-rw-r----- 1 ramesh team-dev 8.9M Jun 12 15:27 arch-linux.txt.gz  
Order Files Based on Last Modified Time (In Reverse Order) Using ls -ltr

$ ls -ltr  
Visual Classification of Files With Special Characters Using ls -F

$ ls -F  
More ls examples: Unix LS Command: 15 Practical Examples

13. pwd command

pwd is Print working directory. What else can be said about the good old pwd who has been printing the current directory name for ages.

14. cd command examples

Use “cd -” to toggle between the last two directories

Use “shopt -s cdspell” to automatically correct mistyped directory names on cd

More cd examples: 6 Awesome Linux cd command Hacks

15. gzip command examples

To create a \*.gz compressed file:

$ gzip test.txt  
To uncompress a \*.gz file:

$ gzip -d test.txt.gz  
Display compression ratio of the compressed file using gzip -l

$ gzip -l \*.gz  
compressed uncompressed ratio uncompressed\_name  
23709 97975 75.8% asp-patch-rpms.txt  
16. bzip2 command examples

To create a \*.bz2 compressed file:

$ bzip2 test.txt  
To uncompress a \*.bz2 file:

bzip2 -d test.txt.bz2  
More bzip2 examples: BZ is Eazy! bzip2, bzgrep, bzcmp, bzdiff, bzcat, bzless, bzmore examples

17. unzip command examples

To extract a \*.zip compressed file:

$ unzip test.zip  
View the contents of \*.zip file (Without unzipping it):

$ unzip -l jasper.zip  
Archive: jasper.zip  
Length Date Time Name  
-------- ---- ---- ----  
40995 11-30-98 23:50 META-INF/MANIFEST.MF  
32169 08-25-98 21:07 classes\_  
15964 08-25-98 21:07 classes\_names  
10542 08-25-98 21:07 classes\_ncomp  
18. shutdown command examples

Shutdown the system and turn the power off immediately.

# shutdown -h now  
Shutdown the system after 10 minutes.

# shutdown -h +10  
Reboot the system using shutdown command.

# shutdown -r now  
Force the file system check during reboot.

# shutdown -Fr now  
19. ftp command examples

Both ftp and secure ftp (sftp) has similar commands. To connect to a remote server and download multiple files, do the following.

$ ftp IP/hostname  
ftp> mget \*.html  
To view the file names located on the remote server before downloading, mls ftp command as shown below.

ftp> mls \*.html -  
/ftptest/features.html  
/ftptest/index.html  
/ftptest/othertools.html  
/ftptest/samplereport.html  
/ftptest/usage.html  
More ftp examples: FTP and SFTP Beginners Guide with 10 Examples

20. crontab command examples

View crontab entry for a specific user

# crontab -u john -l  
Schedule a cron job every 10 minutes.

\*/10 \* \* \* \* /home/ramesh/check-disk-space  
More crontab examples: Linux Crontab: 15 Awesome Cron Job Examples

21. service command examples

Service command is used to run the system V init scripts. i.e Instead of calling the scripts located in the /etc/init.d/ directory with their full path, you can use the service command.

Check the status of a service:

# service ssh status  
Check the status of all the services.

service --status-all  
Restart a service.

# service ssh restart  
22. ps command examples

ps command is used to display information about the processes that are running in the system.

While there are lot of arguments that could be passed to a ps command, following are some of the common ones.

To view current running processes.

$ ps -ef | more  
To view current running processes in a tree structure. H option stands for process hierarchy.

$ ps -efH | more  
23. free command examples

This command is used to display the free, used, swap memory available in the system.

Typical free command output. The output is displayed in bytes.

$ free  
total used free shared buffers cached  
Mem: 3566408 1580220 1986188 0 203988 902960  
-/+ buffers/cache: 473272 3093136  
Swap: 4000176 0 4000176  
If you want to quickly check how many GB of RAM your system has use the -g option. -b option displays in bytes, -k in kilo bytes, -m in mega bytes.

$ free -g  
total used free shared buffers cached  
Mem: 3 1 1 0 0 0  
-/+ buffers/cache: 0 2  
Swap: 3 0 3  
If you want to see a total memory ( including the swap), use the -t switch, which will display a total line as shown below.

ramesh@ramesh-laptop:~$ free -t  
total used free shared buffers cached  
Mem: 3566408 1592148 1974260 0 204260 912556  
-/+ buffers/cache: 475332 3091076  
Swap: 4000176 0 4000176  
Total: 7566584 1592148 5974436  
24. top command examples

top command displays the top processes in the system ( by default sorted by cpu usage ). To sort top output by any column, Press O (upper-case O) , which will display all the possible columns that you can sort by as shown below.

Current Sort Field: P for window 1:Def  
Select sort field via field letter, type any other key to return

a: PID = Process Id v: nDRT = Dirty Pages count  
d: UID = User Id y: WCHAN = Sleeping in Function  
e: USER = User Name z: Flags = Task Flags  
........  
To displays only the processes that belong to a particular user use -u option. The following will show only the top processes that belongs to oracle user.

$ top -u oracle  
More top examples: Can You Top This? 15 Practical Linux Top Command Examples

25. df command examples

Displays the file system disk space usage. By default df -k displays output in bytes.

$ df -k  
Filesystem 1K-blocks Used Available Use% Mounted on  
/dev/sda1 29530400 3233104 24797232 12% /  
/dev/sda2 120367992 50171596 64082060 44% /home  
df -h displays output in human readable form. i.e size will be displayed in GB’s.

ramesh@ramesh-laptop:~$ df -h  
Filesystem Size Used Avail Use% Mounted on  
/dev/sda1 29G 3.1G 24G 12% /  
/dev/sda2 115G 48G 62G 44% /home  
Use -T option to display what type of file system.

ramesh@ramesh-laptop:~$ df -T  
Filesystem Type 1K-blocks Used Available Use% Mounted on  
/dev/sda1 ext4 29530400 3233120 24797216 12% /  
/dev/sda2 ext4 120367992 50171596 64082060 44% /home  
26. kill command examples

Use kill command to terminate a process. First get the process id using ps -ef command, then use kill -9 to kill the running Linux process as shown below. You can also use killall, pkill, xkill to terminate a unix process.

$ ps -ef | grep vim  
ramesh 7243 7222 9 22:43 pts/2 00:00:00 vim

$ kill -9 7243  
More kill examples: 4 Ways to Kill a Process – kill, killall, pkill, xkill

27. rm command examples

Get confirmation before removing the file.

$ rm -i filename.txt  
It is very useful while giving shell metacharacters in the file name argument.

Print the filename and get confirmation before removing the file.

$ rm -i file\*  
Following example recursively removes all files and directories under the example directory. This also removes the example directory itself.

$ rm -r example  
28. cp command examples

Copy file1 to file2 preserving the mode, ownership and timestamp.

$ cp -p file1 file2  
Copy file1 to file2. if file2 exists prompt for confirmation before overwritting it.

$ cp -i file1 file2  
29. mv command examples

Rename file1 to file2. if file2 exists prompt for confirmation before overwritting it.

$ mv -i file1 file2  
Note: mv -f is just the opposite, which will overwrite file2 without prompting.

mv -v will print what is happening during file rename, which is useful while specifying shell metacharacters in the file name argument.

$ mv -v file1 file2  
30. cat command examples

You can view multiple files at the same time. Following example prints the content of file1 followed by file2 to stdout.

$ cat file1 file2  
While displaying the file, following cat -n command will prepend the line number to each line of the output.

$ cat -n /etc/logrotate.conf  
1 /var/log/btmp {  
2 missingok  
3 monthly  
4 create 0660 root utmp  
5 rotate 1  
6 }  
31. mount command examples

To mount a file system, you should first create a directory and mount it as shown below.

# mkdir /u01

# mount /dev/sdb1 /u01  
You can also add this to the fstab for automatic mounting. i.e Anytime system is restarted, the filesystem will be mounted.

/dev/sdb1 /u01 ext2 defaults 0 2  
32. chmod command examples

chmod command is used to change the permissions for a file or directory.

Give full access to user and group (i.e read, write and execute ) on a specific file.

$ chmod ug+rwx file.txt  
Revoke all access for the group (i.e read, write and execute ) on a specific file.

$ chmod g-rwx file.txt  
Apply the file permissions recursively to all the files in the sub-directories.

$ chmod -R ug+rwx file.txt  
More chmod examples: 7 Chmod Command Examples for Beginners

33. chown command examples

chown command is used to change the owner and group of a file. \

To change owner to oracle and group to db on a file. i.e Change both owner and group at the same time.

$ chown oracle:dba dbora.sh  
Use -R to change the ownership recursively.

$ chown -R oracle:dba /home/oracle  
34. passwd command examples

Change your password from command line using passwd. This will prompt for the old password followed by the new password.

$ passwd  
Super user can use passwd command to reset others password. This will not prompt for current password of the user.

# passwd USERNAME  
Remove password for a specific user. Root user can disable password for a specific user. Once the password is disabled, the user can login without entering the password.

# passwd -d USERNAME  
35. mkdir command examples

Following example creates a directory called temp under your home directory.

$ mkdir ~/temp  
Create nested directories using one mkdir command. If any of these directories exist already, it will not display any error. If any of these directories doesn’t exist, it will create them.

$ mkdir -p dir1/dir2/dir3/dir4/  
36. ifconfig command examples

Use ifconfig command to view or configure a network interface on the Linux system.

View all the interfaces along with status.

$ ifconfig -a  
Start or stop a specific interface using up and down command as shown below.

$ ifconfig eth0 up

$ ifconfig eth0 down  
More ifconfig examples: Ifconfig: 7 Examples To Configure Network Interface

37. uname command examples

Uname command displays important information about the system such as — Kernel name, Host name, Kernel release number,  
Processor type, etc.,

Sample uname output from a Ubuntu laptop is shown below.

$ uname -a  
Linux john-laptop 2.6.32-24-generic #41-Ubuntu SMP Thu Aug 19 01:12:52 UTC 2010 i686 GNU/Linux  
38. whereis command examples

When you want to find out where a specific Unix command exists (for example, where does ls command exists?), you can execute the following command.

$ whereis ls  
ls: /bin/ls /usr/share/man/man1/ls.1.gz /usr/share/man/man1p/ls.1p.gz  
When you want to search an executable from a path other than the whereis default path, you can use -B option and give path as argument to it. This searches for the executable lsmk in the /tmp directory, and displays it, if it is available.

$ whereis -u -B /tmp -f lsmk  
lsmk: /tmp/lsmk  
39. whatis command examples

Whatis command displays a single line description about a command.

$ whatis ls  
ls (1) - list directory contents

$ whatis ifconfig  
ifconfig (8) - configure a network interface  
40. locate command examples

Using locate command you can quickly search for the location of a specific file (or group of files). Locate command uses the database created by updatedb.

The example below shows all files in the system that contains the word crontab in it.

$ locate crontab  
/etc/anacrontab  
/etc/crontab  
/usr/bin/crontab  
/usr/share/doc/cron/examples/crontab2english.pl.gz  
/usr/share/man/man1/crontab.1.gz  
/usr/share/man/man5/anacrontab.5.gz  
/usr/share/man/man5/crontab.5.gz  
/usr/share/vim/vim72/syntax/crontab.vim  
41. man command examples

Display the man page of a specific command.

$ man crontab  
When a man page for a command is located under more than one section, you can view the man page for that command from a specific section as shown below.

$ man SECTION-NUMBER commandname  
Following 8 sections are available in the man page.

General commands  
System calls  
C library functions  
Special files (usually devices, those found in /dev) and drivers  
File formats and conventions  
Games and screensavers  
Miscellaneous  
System administration commands and daemons  
For example, when you do whatis crontab, you’ll notice that crontab has two man pages (section 1 and section 5). To view section 5 of crontab man page, do the following.

$ whatis crontab  
crontab (1) - maintain crontab files for individual users (V3)  
crontab (5) - tables for driving cron

$ man 5 crontab  
42. tail command examples

Print the last 10 lines of a file by default.

$ tail filename.txt  
Print N number of lines from the file named filename.txt

$ tail -n N filename.txt  
View the content of the file in real time using tail -f. This is useful to view the log files, that keeps growing. The command can be terminated using CTRL-C.

$ tail -f log-file  
More tail examples: 3 Methods To View tail -f output of Multiple Log Files in One Terminal

43. less command examples

less is very efficient while viewing huge log files, as it doesn’t need to load the full file while opening.

$ less huge-log-file.log  
One you open a file using less command, following two keys are very helpful.

CTRL+F – forward one window  
CTRL+B – backward one window  
More less examples: Unix Less Command: 10 Tips for Effective Navigation

44. su command examples

Switch to a different user account using su command. Super user can switch to any other user without entering their password.

$ su - USERNAME  
Execute a single command from a different account name. In the following example, john can execute the ls command as raj username. Once the command is executed, it will come back to john’s account.

[john@dev-server]$ su - raj -c 'ls'

[john@dev-server]$  
Login to a specified user account, and execute the specified shell instead of the default shell.

$ su -s 'SHELLNAME' USERNAME  
45. mysql command examples

mysql is probably the most widely used open source database on Linux. Even if you don’t run a mysql database on your server, you might end-up using the mysql command ( client ) to connect to a mysql database running on the remote server.

To connect to a remote mysql database. This will prompt for a password.

$ mysql -u root -p -h 192.168.1.2  
To connect to a local mysql database.

$ mysql -u root -p  
If you want to specify the mysql root password in the command line itself, enter it immediately after -p (without any space).

46. yum command examples

To install apache using yum.

$ yum install httpd  
To upgrade apache using yum.

$ yum update httpd  
To uninstall/remove apache using yum.

$ yum remove httpd  
47. rpm command examples

To install apache using rpm.

# rpm -ivh httpd-2.2.3-22.0.1.el5.i386.rpm  
To upgrade apache using rpm.

# rpm -uvh httpd-2.2.3-22.0.1.el5.i386.rpm  
To uninstall/remove apache using rpm.

# rpm -ev httpd  
More rpm examples: RPM Command: 15 Examples to Install, Uninstall, Upgrade, Query RPM Packages

48. ping command examples

Ping a remote host by sending only 5 packets.

$ ping -c 5 [gmail.com](http://l.facebook.com/l.php?u=http%3A%2F%2Fgmail.com%2F&h=gAQFGGADa&enc=AZNdqH2U9YPFXmHTy_UkY3mXYObN-hNDNbQj_s4HIvS2DDpGtn2Cdd7YlLptCXvJpqMh_sK_NG0ScO_j0A8Ljb5dej9zdbgEhe5tvaZ0PJ_yYfqgief2Hr9OhYad8AKJFG3u3i2zJllQM5Wxym8AX0r7sYUNbZ7RAUdN8ayRim3dzw&s=1)  
More ping examples: Ping Tutorial: 15 Effective Ping Command Examples

49. date command examples

Set the system date:

# date -s "01/31/2010 23:59:53"  
Once you’ve changed the system date, you should syncronize the hardware clock with the system date as shown below.

# hwclock –systohc

# hwclock --systohc –utc  
50. wget command examples

The quick and effective method to download software, music, video from internet is using wget command.

$ wget [http://prdownloads.sourceforge.net/…/na…/nagios-3.2.1.tar.gz](http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-3.2.1.tar.gz)  
Download and store it with a different name.

$ wget -O taglist.zip <http://www.vim.org/scripts/download_script.php?src_id=7701>