**RPMS:**

For normal production support work you can register with red hat server and do a yum install package name.

Please follow the below site for registration with red hat server

<https://access.redhat.com/documentation/en-US/Red_Hat_Satellite/5.6/html/Client_Configuration_Guide/sect-Red_Hat_Satellite-Client_Configuration_Guide-Configuring_Client_Applications-Registering_Clients_with_RednbspHat_SatellitenbspServer.html>

**Best approach with \***

Step 1: For all cases, get the List of RPMS

yum install php\* mysql\*

yum install php\*

yum install mysql\*

It will install dependent packages.

\*meaning is all. We give \* because we don’t want to know the exact package name. This is the best approach. If you install some extra packages you can uninstall it .Extra RPM’S wont cause any problem by the way if you forget to uninstall

Just for information nodeps option can be used in yum .not for remembering

**Approach without \* (**not required to remember, mostly correct**)**

**Example: For All cases**

**Case 1: 1 package is there mysql**

**yum install mysql**

**Case2 :3 packages are there mysql,php.vsftpd**

**yum install mysql**

**yum install php**

**yum install vsftpd**

**or you can do**

**yum install mysql php vsftpd**

The RPM installation i.e given above is correct

Suppose for ntp 3 packages are there (are dependent)

1. First yum install pkg1

Pkg1 will be installed

All the dependent packages will be installed

Read create repo when you have time not now

You need license to register with REDHAT SERVER .That Project Manager has the license.so we need to contact him user id and password, which will be used for registrationcool. Remember this much now. It will be clearer in project cool like asking manager do you have the username and password. Else how to get user id and password as in previous company our manager provides it.else tell the steps how to create use rid and password from license. But for now just remember contacting manager for user id and password.

**Remember this much now.It will be more clear in project cool**

1) In some cases the RPMS won’t be installed until the dependencies are installed.

So you have to install the RPM with the nodeps option

rpm –Uvh –nodeps rpmname.rpm

2) If all the installation RPMs are present in same directory then the rpm command can automatically install with the help of aid option.

**Kernel Tuning**

Kernel Tuning in REDHAT LINUX is through /etc/sysctl.conf

sysctl –a (to view the settings)

sysctl –p (to load the settings)

Please refer the site <http://www.cyberciti.biz/faq/linux-kernel-etcsysctl-conf-security-hardening/>

**Logical Volume Manager**

Please follow the below site for LVM.

http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch27\_:\_Expanding\_Disk\_Capacity#.V6xGpPl97IU

1. **Extending the Logical volume**

lvextend -L+200M /dev/VolGroup/VolGroupMnt

resize2fs /dev/VolGroup/VolGroupMnt

2)**Reducing the Logical volume**:

i.- Backup all data from LV in another partition

ii- Umount the LV partition $ umount /dev/VolGroup/VolGroupMnt

iii).- Check the filesystem to be reduced $ e2fsck -f /dev/VolGroup/VolGroupMnt

iv).- Reduce the filesystem on LV partition

$ resize2fs /dev/VolGroup/VolGroupMnt 200M

resize2fs 1.39 (29-May-2006)

Resizing the filesystem on /dev/VolGroup/VolGroupMnt to 204800 (1k) blocks.

The filesystem on /dev/VolGroup/VolGroupMnt is now 204800 blocks long.

Note : in this case the '200M' is the filesystem final size

v)- Reduce the LV partition $ lvreduce -L200 /dev/VolGroup/VolGroupMnt

3)**lvmdiskscan command:**

You can scan for block devices that may be used as physical volumes(to be used for lvm) with the **lvmdiskscan** command, as shown in the following example.

https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/6/html/Logical\_Volume\_Manager\_Administration/physvol\_admin.html

4) **lvmdump create lvm2 information dumps for diagnostic purposes**

lvmdump is a tool to dump various information concerning LVM2. By default, it creates a tarball suitable for submission along with a problem report.

<http://linux.die.net/man/8/lvmdump>

5) Displaying information on failed devices.

vgs It shows more information about the failed device i.e volume group.

[root@link-07 tmp]# **vgs -P -o +devices**

Partial mode. Incomplete volume groups will be activated read-only.

VG #PV #LV #SN Attr VSize VFree Devices

vg 9 2 0 rz-pn- 2.11T 2.07T unknown device(0)

vg 9 2 0 rz-pn- 2.11T 2.07T unknown device(5120),/dev/sda1(0)

lvs :it shows more information about the logical volume that have failed.

[root@link-07 tmp]# **lvs -P -a -o +devices**

Partial mode. Incomplete volume groups will be activated read-only.

LV VG Attr LSize Origin Snap% Move Log Copy% Devices

linear vg -wi-a- 20.00G unknown device(0)

stripe vg -wi-a- 20.00G unknown device(5120),/dev/sda1(0)

https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/4/html/Cluster\_Logical\_Volume\_Manager/partial\_output.html

**Swap**

Swap space is used when the amount of physical memory (RAM) is full. If the system needs more memory and no more RAM is available, inactive pages in memory are moved to the swap space. Swap should not be considered as a replacement of RAM memory because swap space is on hard drives and I/O access to hard drives is slower than I/O access memory.

**https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/3/html/System\_Administration\_Guide/s1-swap-adding.html**

**LVM SWAP**

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/5/html/Deployment_Guide/s2-swap-creating-lvm2.html>

This example assumes that the swap is already created LogVol02 with 256.Size.You need to create a logical volume for swap.Like in normal scenario we create logical volume with chunks of data from volume group.Here we are creating logical volume not from volume group,but from swap.and then create filesystem on swap or format the new swap space.(both are same.)Then activate the newly created “extended logical volume”

In swap while formatting we don’t do directory entry in /etc/fstab like we do in raid ,lvm

Because swap is additional Ram .so it is not having any mount point. Just the swap filesytem.

**Extending Swap on LVM**

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Storage_Administration_Guide/ch-swapspace.html>

Here in this example it is lvresize with + and in Lin1 it lvextend with +.Both will work .

For reducing search google if you get any requirement

**Swap files:**

[**http://tldp.org/HOWTO/Partition/setting\_up\_swap.html**](http://tldp.org/HOWTO/Partition/setting_up_swap.html)

**when you have time read it.Not mandatory for swap creation or extension.**

**Bonding in RHEL 6**

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Deployment_Guide/s2-networkscripts-interfaces-chan.html>

**Troubleshooting /Interview question**

Modes of Bonding : <http://www.cloudibee.com/network-bonding-modes/>

This mode entry has to be done in /etc/modprobe.conf as is given in the site

<http://www.cyberciti.biz/tips/linux-bond-or-team-multiple-network-interfaces-nic-into-single-interface.html>

It can be text entry or numeric entry also

As sarat told,you can load the bonding module first as given in the redhat site and also can also use the modinfo given in the redhat site first.Then after making the mode entry as given in the site <http://www.cloudibee.com/network-bonding-modes/>, you can load the bonding module again.No problem with that.cool

**Squid Configuration in RHEL 6**

Practical scenario

1. - Configure the squid proxy server on port 3128 on rhel6 server (192.168.1.10) allowing internet access to 192.168.1.0/24 but blocking msn.com site to access. Test it connecting from node01 (192.168.1.101).

**Solution**:

yum install squid

chkconfig squid on

service squid start

Make the following entries in /etc/squid/squid.conf

**Creating the Acls**

**acl localnet src 192.168.1.0/24**

**acl filterurl url\_regex msn.com**

**Giving and Denying Access**

**http\_access deny filterurl**

**http\_access allow localnet**

**http\_access allow localhost**

**http\_access deny all**

**service squid restart**

1. Open port 3128 TCP/IP on the firewall and make sure that squid service will run without any SElinux interference. **–**
2. **-A INPUT -m state --state NEW -m tcp -p tcp --dport 3128 -j ACCEPT --> /etc/sysconfig/iptables**
3. **service iptables restart**
4. **setsebool -P squid\_connect\_any 1**

**Client**

**node01> firefox**

**Edit --> Preferences --> Network --> Connection --> Settings Manual Proxy Configuration**

**Proxy HTTP 192.168.1.10 Port 3128**

\* With firefox browser try to access to www.google.com. Verify that logs on /var/log/squid register the action . node01> firefox --> www.google.com (as usual)

\* With firefox browser try to access to www.msn.com. Verify that logs on /var/log/squid register the action . node01> firefox --> www.msn.com --> '**Access Denied.**

' /var/log/squid/access.log --> '1300712175.270 3 192.168.1.2 **TCP\_DENIED/403** 4227 GET http://www.msn.com/ - NONE/- text/html'

**How To Detect Lun/SCSI Disks in Redhat Linux:**

**Whenever a disk is provisioned by storage team, no matter what storage mechanism they use, from OS if we want the disk to be detected, we run the commands given in the site.**

=====================================================================================[**http://www.unixarena.com/2013/06/how-to-scan-new-fc-luns-and-scsi-disks.html**](http://www.unixarena.com/2013/06/how-to-scan-new-fc-luns-and-scsi-disks.html)

**In the above site it is given first section as scanning FC luns in Red Hat Linux and in the 2nd section as Scanning SCSI disks in Red Hat Linux. Actually in 1st section both SCSI disks and fc luns are scanned where as in second section only scsi disks are scanned.cool**

Normal scanning is SCSI disks, but **incase fiber channel is there you can use the fcluns also for scanning.**

**The three values stand for channel, SCSI target ID, and LUN. The dashes act as wildcards meaning "rescan everything"**

The problem of a SCSI bus rescan (for bus in `ls /sys/class/scsi\_host`;do echo Scanning $bus; echo "- - -" > /sys/class/scsi\_host/$bus/scan; done )is, that it will only detect new devices. Can a existing or missing device be rescanned?

Sure, here is it

echo 1 > /sys/block/sdau/device/rescan

so "sdd" is an example existing device (not newly added) to be rescanned

Rescan Sdd :

echo 1 > /sys/block/sdd/device/rescan

echo 1 > /sys/block/sdau/device/rescan

or

echo 1 > /sys/block/sda/device/rescan  or

echo 1 > /sys/block/sdb/device/rescan

**Imp: For existing device remember this concept. The existing device can be lun or fdisk also**

**1 is for enable, 0 is for disable**

**This 1 is not related to echo 1 given in Scanning FC-Luns in RedHat Linux section in site**

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

**Device scanning and this is for old device and missing scanning**

**=====================================================**

**Troubleshooting /Interview question**

**1)wwn number of HBA card : # when both fc luns and scsi are used or only fclun is used you can use systool-c fc\_host -v | grep "port\_name"**

**When only SCSI disks are used: systool-c scsi\_disk -v | grep "port\_name"**

**If this does not work : systool-c scsi\_host -v | grep "port\_name**

**2)If Luns will not be detected ,then**

**i)Reboot**

**ii)scanning step**

**Suppose They tell in Interview that it is a production box and cannot reboot ,then follow the below link if Jitesh does not replies.After you go to project you can also see Redhat Sites.**

**======**

[**https://library.netapp.com/ecmdocs/ECMP1654943/html/GUID-A4BCB4F4-5B17-463B-8AF2-21B9662D8C7A.html**](https://library.netapp.com/ecmdocs/ECMP1654943/html/GUID-A4BCB4F4-5B17-463B-8AF2-21B9662D8C7A.html)

**This site will work for SCSI disks .In this site ,which er generic will work,for special lun case you can serach at that time,”how to check SCSI mappings when scsi disks are not detecting in Linux”.Cool**

**3)Hardware issues**

**i)Hardware Failed (HBA Failed,HBA need to replace.)**

**ii)Locord Failed (Open Case and replace locord.)**

**Scenario:**

Storage device 1 luns, multipath not setup. How do we know the path to the lun

# cat /proc/scsi/scsi

Details in the site: http://linoxide.com/storage/show-luns-allocated-on-linux/

If multipathing is not set up ,then server connects with storage through hba card using single path. The hba card will have one single port on to which the cable will be attached .For 2 hba cards ,,we have to go for multipathing .

**Imp:**

For 2 HBA cards with single lun, multipathing is required.

For 2 HBA cards with 2 luns with 1 lun for each hbacard .this is a very ambiguous case so need to consider.

**Multipath in RedHat Linux**

If Multipathing is set up, then server connects with storage through multiple hba cards which have their own ports and each port is assigned a cable so that it can be connected to san

Suppose a Linux box is there and you have two HBA cards with each one having individual port .You need to connect to san. With individual port one cable will be attached and total 2 cables will be attached to 2 ports. This can be done if you have multipath setup. If one cable, attached to the port fails, data can go through other. Types of data ports which are special for HBA

1) Fiber Port

2) Ether

3 ) SCSI

These are not normal ports but special kinds of data ports for HBA.

Steps:

1. Install device-mapper multipath rpm

yum -y install device-mapper-multipath

1. Edit the multipath.conf file

comment out the default blacklist

change any of the existing defaults as needed

save the conf file

Basic Configuration of Linux Device Mapper Multipathing

Configuration file is /etc/multipath.conf file, take a backup of it. Edit the configuration file to ensure you have the following entries uncommented out.

defaults {

user\_friendly\_names yes

}

blacklist {

devnode “sda”

}

The blacklist includes the devices which are not to be configured in Multipathing. For example, Lets say our OS installed disk is /dev/sda. So the first entry in the blacklist will exclude them. Same for IDE drives (hd).

In multipath.conf file following are the meanings.

devices=storage devices

multipath =multipath devices details.

3 .service multipathd start

Imp: Multipath device: A multipath device is a combination of all the aggregrated paths combined together.

Case 1: Storage device 1 luns multipath setup.

In this case

[root@linux1 ~]# multipath -l

mpathb (360014051f89d2bb3300470fa7d4baa10) dm-2 LIO-ORG ,lun0

size=2.0G features='0' hwhandler='0' wp=rw

|-+- policy='service-time 0' prio=0 status=active

| `- 1:0:0:0 sdb 8:16 active active running

`-+- policy='service-time 0' prio=0 status=enabled

`- 2:0:0:0 sdc 8:32 active active running

The above output shows 1 LUN (mpathb) with 2 paths (sdb and sdc). Linux Multipathing basic configuration is done

Whatever devices are set up in multipathing all will work.That might be luns or scsi disks.

In the above case in RHEL box 2 HBA cards are there .so OS detects 2 devices /dev/sdb and /dev/sdc. Actually there is 1 lun provided by San team to the Linux box

Which is connected to the Linux box by 2 HBA cards .So due to 2 HBA cards, os detects as 2 devices .After multipath is set up, mpathb is the single lun and 2paths sdb and sdc which are connected to the storage with cable.

After the multipath is set up,it will create a single device with a unique WWID which will represent previous 2devices.

Imp: Initially hbacads have 2 wwn numbers .That is not related to the wwid as it is not given in the site (<http://www.datadisk.co.uk/html_docs/redhat/rh_multipathing.htm>) and that is for hba cards and this is for the 1 lun mpathb which has 2 paths sdb and sdc.

Case 2:

Suppose 2 luns are there and both of them are assigned to the single server by 2 hba cards each. Then check the site and find out that time( <http://www.datadisk.co.uk/html_docs/redhat/rh_multipathing.htm>)

Also see the above eample.

This will be the output

[root@linux1 ~]# multipath -l

mpathb (360014051f89d2bb3300470fa7d4baa10) dm-2 LIO-ORG ,lun0

size=2.0G features='0' hwhandler='0' wp=rw

|-+- policy='service-time 0' prio=0 status=active

| `- 1:0:0:0 sdb 8:16 active active running

`-+- policy='service-time 0' prio=0 status=enabled

`- 2:0:0:0 sdc 8:32 active active running

mpathd (360014051f89d2bb3300470fa7d4baa112) dm-2 LIO-ORG ,lun0

size=2.0G features='0' hwhandler='0' wp=rw

|-+- policy='service-time 0' prio=0 status=active

| `- 1:0:0:0 sdd 8:16 active active running

`-+- policy='service-time 0' prio=0 status=enabled

`- 2:0:0:0 sde 8:32 active active running

The above output shows 1 LUN (mpathb) with 2 paths (sdb and sdc). And another 1 LUN mpathd with 2 paths (sdd and sde).

Imp: Same Concept will work for SCSI disks

**Linux Disk Usage in Quotas**

Lin1 PDF (disk quotas) normal scenario

Soft limit: The maximum blocks user can have on a partition.

Hard Limit: The maximum blocks/inodes a quota user may have on a partition when a grace period is set

**Assume grace period is set**.

Soft limit:

===========

User will get warning for 7 days that their soft limit link has exceeded .After 7 days ,the user is barred from using additional disk space or files. Within 7 days also it should not exceed hard limit value.

Hard limit:

==========

The maximum blocks/inodes a quota user may have on a partition when a grace period is set. Users may exceed a soft limit, but they can never exceed their hard limit.

Meaning of the above line is when the grace period is set, users cannot exceed the hard limit value.

**Assume grace period is not set:**

Soft limit: The maximum blocks user can have on a partition

Hard limit will be 0 since grace period is not set.

**OS Hardening in RHEL6**

**Linux Server Hardening :**

**Encrypt transmitted data whenever possible with password or using keys / certificates:**

**1.Use scp, ssh, rsync, or sftp for file transfer**

**Avoid Using FTP, Telnet, And Rlogin**

**2: Minimize Software to Minimize Vulnerability**

**# yum list packageName**

**# yum remove packageName**

**#4: Keep Linux Kernel and Software Up to Date**

**# yum update**

**#5: Use Linux Security Extensions**

**SElinux, strong password, password aging,lock accounts with many failures,**

**#7: Disable root Login**

**use sudo**

**#8: Physical Server Security**

**You must protect Linux servers physical console access. Configure the BIOS and disable the booting from external devices such as DVDs / CDs / USB pen. Set BIOS and grub boot loader password to protect these settings**

**#9: Disable Unwanted Services**

**# chkconfig --list | grep '3:on'**

**To disable service, enter:**

**# service serviceName stop**

**# chkconfig serviceName off**

**#11: Configure Iptables and TCPWrappers**

**12: Linux Kernel /etc/sysctl.conf Hardening**

**#13: Separate Disk Partitions**

**/usr /home/**

**#13.1: Disk Quotas**

**#16: Use A Centralized Authentication Service**

**Above are most important but can refer below sites :** [**http://www.cyberciti.biz/tips/linux-security.html**](http://www.cyberciti.biz/tips/linux-security.html)

https://access.redhat.com/discussions/637373

**Xinetd/TCPWrappers in RHEL6**

**1) What is xinetd**

**xinetd is the basic network access daemon that runs on a Linux box and manages network related services.**

**2)How is xinetd related to tcp wrappers**

**xinetd is the base of tcpwrappers**

**Tcp wrapper is additional network security .Normal security for ssh and ftp and other is given through their configuration files. For additional network security(details given in the** [**http://www.tecmint.com/block-ssh-and-ftp-access-to-specific-ip-and-network-range/**](http://www.tecmint.com/block-ssh-and-ftp-access-to-specific-ip-and-network-range/)**) and (**[**http://www.cyberciti.biz/faq/tcp-wrappers-hosts-allow-deny-tutorial/**](http://www.cyberciti.biz/faq/tcp-wrappers-hosts-allow-deny-tutorial/)**)**

**We use tcp wrappers. It is something like firewall not exact firewall.**

**So bottom line for any requirement**

1. **check in google whether you can block through configuration files(e.g vsftpd.conf and sshd\_config)**
2. **If you don’t get the solution for example the cases which given in the site**
3. [**http://www.tecmint.com/block-ssh-and-ftp-access-to-specific-ip-and-network-range**](http://www.tecmint.com/block-ssh-and-ftp-access-to-specific-ip-and-network-range)
4. [**http://www.cyberciti.biz/faq/tcp-wrappers-hosts-allow-deny-tutorial/**](http://www.cyberciti.biz/faq/tcp-wrappers-hosts-allow-deny-tutorial/)

**We have to use tcp wrappers**

**It has got 2 files like**

**/etc/hosts.deny and /etc/host.allow files**

**https://www.centos.org/docs/5/html/Deployment\_Guide-en-US/ch-tcpwrappers.html(Read the section TCP Wrappers configuration files from the site)**

1. **xientd configuration file and directory**

**The configuration files and directory for xinetd are as follows:**

**/etc/xinetd.conf — The /etc/xinetd.conf file contains general configuration settings which effect every service under xinetd's control. It is read once when the xinetd service is started, so for configuration changes to take effect, the administrator must restart the xinetd service. Below is a sample /etc/xinetd.conf file:**

**/etc/xinetd.d/ directory — The files in the /etc/xinetd.d/ directory contains the configuration files for each service managed by xinetd and the names of the files correlate to the service.**

**For more details refer the site :https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/3/html/Reference\_Guide/s1-tcpwrappers-xinetd-config.html**

**4)tcp wrapper example**

**How to restrict IP so that rest ips dont use ftp server:**

**Add tcp\_wrapper=yes in /etc/vsftpd.conf & add suspicious ip in /etc/hosts.deny**

**Performance Tuning in RHEL6:**

[**https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/6/html-single/Performance\_Tuning\_Guide/**](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html-single/Performance_Tuning_Guide/)

**High value of swappiness: high io performance ,swaps less active processes out of physical memory**

**Low value of swappiness : Low io performance,avoid swapping less active process out of physical memory**

**Patching on source code in RHEL6**

<https://www.kernel.org/doc/Documentation/applying-patches.txt>

<http://www.cyberciti.biz/faq/appy-patch-file-using-patch-command/>

**NTP**

Lin2 pdf:Lab 1

<http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch24_:_The_NTP_Server#.V-UAcPl97IU>

<http://www.cyberciti.biz/faq/rhel-fedora-centos-configure-ntp-client-server/>

Here 2 iptables rule is there.

**NTP Client: UDP port 123 should be open (to allow incoming connections from NTP server)**

**NTP Server**: 2 firewalls rules are there for connection with NTP client and stratum server.

Then ntpq –p for stratum server synchronization.

If error is there after ntpq –p, first enable the firewall and then check according to error

Don’t mix the query concept with firewall. If a server is not able to query does not mean it won’t be able to send connections. Stratum servers are not allowed to query ntp server, but connections can happen.

**Troubleshooting**

**1)SELinux in NTP Server and Client**

**2)DNS of all NTP SERVER AND client and startum servers**

**3)UDP port in NTP Client and TCP and UDP Port in NTP Server.**

**4)ntpdate –q (in NTP client to start initial synchronization**

**5)ntpq -p(in NTP Server to check synchronization is happening properly**

**6)All the servers should be up and running(ping to test this from one server to other.else contact server owner.(ping client from server,ping server from client and ping startum server from NTP serve.)**

**7)Entry in ntp.conf in both client and server**

**Kernel Modules in RHEL6**

1) A kernel module can be plugged in and removed as needed**.**

2) It increases the system performance and decreases the boot time**.**

3) Failure to a kernel module does not lead to entire system failure.

To Know list of kernel modules installed use lsmod command.

***$ lsmod***

***Module &nbs Size Used by***

***xt\_CHECKSUM 921 1***

***...***

***ip\_tables 9541 3 iptable\_mangle,iptable\_nat,iptable\_filter***

...

To display more information about a Kernel module use 'modeinfo' command

: ***$ modinfo ip\_tables***

***filename: /lib/modules/2.6.32-71.el6.i686/kernel/net/ipv4/netfilter/ip\_tables.ko***

***description: IPv4 packet filter***

***author: Netfilter Core Team***

***license: GPL***

***srcversion: DC70E5A33C988577C75C5E0***

***depends***

***vermagic: 2.6.32-71.el6.i686 SMP mod\_unload modversions 686***

To load/unload a Kernel Module and all its dependencies use 'modprobe' command :

Loading

To load a kernel module, run the **modprobe <module\_name>** command as root

. For example, to load the **wacom**module, run:

modprobe wacom

By default, **modprobe** attempts to load the module from the **/lib/modules/<kernel\_version>/kernel/drivers/** directory. In this directory, each type of module has its own subdirectory, such as **net/** and **scsi/**, for network and SCSI interface drivers respectively.

Remember above

Details in site: https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/6/html/Deployment\_Guide/sec-Loading\_a\_Module.html

***$ modprobe -r wacom***

It unloads the wacom Kernel module

Remember above:

Details in site : <https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Deployment_Guide/sec-Unloading_a_Module.html>

Remember only for loading and unloading of module.Deletion or otherthing when you get requirement in project you can see google. not now.cool

=====================================

**Kernel Upgrade in RHEL6**

kernel upgrade:

---> rpm -ivh kernel-<kernel\_version>.<arch>.rpm

Use -i argument with the **rpm** command to keep the old kernel. Do not use the -U option, since it overwrites the currently installed kernel, which creates boot loader problems

ls /lib/modules (will show both kernels)

ls /boot/vmlinuz\* (check both linux images)

**For details refer the site :** **https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/6/html/Deployment\_Guide/ch-Manually\_Upgrading\_the\_Kernel.html**

**Setting Path in RHEL6**

I. **Particular User**

**Steps:**

**1) Log in with username**

**2) Make changes in /etc/bash\_profile**

Changes are done permanently

**2. For all users**

**Steps:**

**1)Log in as root**

**2)Make changes /etc/profile**

Changes are done permanently

**Temporary purpose:**

For temporarily purposes we can use export .In situations where you want the settings temporarily, you can use export command.

**Note**: This export path we can use for one user as well as for all users depending on how we login. If we log in as individual user we can use export for individual. If we login as root we can use export for all users

**Imp:**

From the site given above only refer to the syntax given for the concepts above, not everything in the site.

<http://computernetworkingnotes.com/command-line-tools/linux-environment-variables.html>

**Pam\_limits in RHEL6**

**Definition from lin1**

**And 2 examples given in lin1 (nproc and hard limit)**

**From PDF**

The PAM module ***pam\_limits***, activated by default for all users, sets limits on the system resources in a user/group session. These limits are configured on ***/etc/security/limits.conf*** file

The practical meaning of the above line is “You have to make changes as root and then test using individual user (john)”

**Not sure if it supports group setting .For group testing,if you get any requirement search in google and get.the answer that time.for the time remember for user.**

**Pam\_tally2 and pam\_linit comparison**

pam\_tally2 is a command in RHEL 6 which is used to reset the user count .Remember this much for now

This is the link )[https://www.quora.com/Red-Hat-Enterprise-Linux-How-can-I-unlock-a-user-using-pam\_tally-command](https://www.quora.com/Red-Hat-Enterprise-Linux-How-can-I-unlock-a-user-using-pam_tally-command" \t "_blank))

For other usage of pam\_tally2 serach in google (pam\_tall2 command in RHEL 6 .when you have time .)

PAM Limit

Because hardware resources are finite it is necessary to limit the system resources in order to provide equal quality of

services to all system users. Limits can be implemented in CPU/memory usage via pam\_limits .

HSBC question :it can be done by pam\_tally2.Refer this link (<https://setaoffice.com/2010/04/08/linux-denying-user-access->

after-reseting-password/) also it can be done using pam limits.Just remember this much

**Mail Servers Configuration and support in RHEL 6**

The most common type of Mail servers used in production support is mail will be send from Linux box to windows box via the smtp server

So For Linux box you need to remember the following

1) Install the packages

2) Domain Entry

3) sendmail,cf = SMTP server entry

4) Restart service

The windows box which will receive mail and the smtp server will be managed by windows team. They will put Linux box entry in their configuration.

**Troubleshooting Mail Issues:**

1) Incomplete RPM installation

2) Both the Linux box and the windows box and the SMTP server should be up and running

3) DNS of both servers and SMTP server should be configured.

4) Windows team informs that the SMTP server is down.Enter the new server detail in sendmail.cf and restart service.

5) telnet mailserver from RHELbox with port 25 .

If problem then need to enable firewall on tcp and udp port

6)Some users will not be able to send mail.contact messaging team.

DNS,and up and running of Windows server and smtp server will be taken care by windows team.

No need to worry about that

7) SELinux for RHEL Box is not required as this is the client. It is required for SMTP server.

Not sure whether it is required for windows client or not.You can tell to them to check the selinux settings at their end i.e both for SMTP server and windows client .cool.If it requires for both,they will check for both.If it requires for only smtp server then,they check for only smtp server.That is their responsibility>no need to think about that

======

In the top it is written as “They will put Linux box entry in their configuration”.that is windows responsibility. No need to worry about that. All the windows related are to be taken care by windows team. Remember this much. Depending on situation or error you can contact them .cool. Domain entry in windows box will also be taken care by windows team since it is their box .cool.Domain entry for windows box and putting Linux box entry to act as server from which mails will come are 2 different concepts. cool. dont mix them

.========

Normal case: telnet servername portnumber from client(ftp,ssh,)

Accept connections in server by iptables.

Ntp is a special case since 3 things are there.

Mail is also a exception

**ACLS in RHEL6**

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Storage_Administration_Guide/ch-acls.html>

**Linux logs server in RHEL6**

**Lin1 everything and /etc/logrotate.conf example from** [**http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch05\_:\_Troubleshooting\_Linux\_with\_syslog#.V-jPCfl97IU**](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch05_:_Troubleshooting_Linux_with_syslog#.V-jPCfl97IU)

**Veritas Cluster in RHEL6**

**If you install Veritas Storage Foundation you get VXVN(Veritas Volume Manager )1 server minimum.**

**If you install Verita Storage Foundation HA,then you get VEritas Cluster and Veritas Volume Manger (2 servers minimum)**

**Most Important veritas topics:** [**http://thegeekdiary.com/the-ultimate-veritas-cluster-server-vcs-interview-questions/**](http://thegeekdiary.com/the-ultimate-veritas-cluster-server-vcs-interview-questions/)**.The above site has got the best.so read it**

**For production support if you face any issue and not able to resolve,then in google do a Veritas cluster cheat sheet Linux and still not then do individual search of issue**

**Veritas cluster cheat sheet site Linux** <http://www.datadisk.co.uk/html_docs/veritas/veritas_cluster_cs.htm>

**For now rember the questions site and the other individual details which are covered mostly in questions site also and also the introduction part given aove regarding installation of Verita storage foundation and veritas storage foundation ha**

Individual details: (these you can read but mostly will be covered in above site)

==================================

**Resource in veritas cluster**: <http://www.unixarena.com/2012/07/veritas-cluster-concepts.html>

**Seeding in veritas cluster:**

To protect your cluster from a pre-existing network partition, VCS employs the concept of a seed. Nodes can be seeded automatically or manually. Only those nodes that have been seeded can run VCS.

=====

Nodes are seeded automatically in one of the following ways:

* When an unseeded node communicates with a seeded node
* When all the nodes in the cluster are unseeded but able to communicate with each other

**To manually seed a cluster**

* Run the following command from only one of the operational nodes:

gabconfig -x

This command seeds all the nodes that communicate with the node on which you run this command.

Details given in the site : <https://sort.veritas.com/public/documents/sfha/6.1/windows/productguides/html/vcs_admin/ch20s02s06.htm>

Remember the above only.

For any doubt do a goodle search like “what is a node in veritas cluster “ .This is a example.replace node by your doubt.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Bring resources online and take them offline | **hares -online resource\_name -sys system\_name**  **hares -offline resource\_name -sys system\_name** |

**how to freeze the cluster service group in vcs:**

[**https://sort.veritas.com/public/documents/vcs/5.1/solaris/productguides/html/vcs\_admin/ch\_admin\_vcs\_from\_cli58.html**](https://sort.veritas.com/public/documents/vcs/5.1/solaris/productguides/html/vcs_admin/ch_admin_vcs_from_cli58.html)

How to flush a service group and when its required ?

Flushing of a service group is required when, agents for the resources in the service group seems suspended waiting for resources to be taken online/offline. Flushing a service group clears any internal wait states and stops VCS from attempting to bring resources online.

To flush the service group **SG** on the cluster node, node01 :

# hagrp -flush [SG] -sys node01

How to bring service group online/offline ?

To online/offline the service group on a particular node :

# hagrp -online [service-group] -sys [node] (Online the SG on a particular node)

# hagrp -offline [service-group] -sys [node] (Offline the SG on particular node)

**Here SG in flush and service-group is same concept that is service group.**

**Bundle of resources us called service group.**

**==========================================**

**Veritas volume manager**

Question:How to create new file system in veritas volume manager

<http://thegeekdiary.com/vxvm-tutorials-creating-volume-and-file-system/>

**Important Veritas volume Manager Concepts:**

[**http://www.unixarena.com/2013/05/veritas-volume-manager-interview.html?bcsi\_scan\_ac85d4f4ee253e53=PTKBIBlu8qWBY5UgjF+OCszTGcMjAAAABpSH5g==&bcsi\_scan\_filename=veritas-volume-manager-interview.html**](http://www.unixarena.com/2013/05/veritas-volume-manager-interview.html?bcsi_scan_ac85d4f4ee253e53=PTKBIBlu8qWBY5UgjF+OCszTGcMjAAAABpSH5g==&bcsi_scan_filename=veritas-volume-manager-interview.html)

**For production support if you face any issue and not able to resolve,then in google do a Veritas volume managerr cheat sheet Linux and still not then do individual search of issue**

**Veritas Volume manager cheat sheet Linux :http://www.datadisk.co.uk/html\_docs/veritas/veritas\_lvm\_cs.htm**

**For now remember the important vxvm concepts and question site in veritas volume manager**

**Samba Configuration in RHEL6**

**1)Definition and Concept from Lin2**

**2)Lab 1 and Lab 2 from Lin2**

**In Lab2 smbclient is not given but understanding is smbclient you can give there also.It is just logging in with the user you created and you trying loggin with the coomand and it will show details of the user like given in the example.check example for details .No need to relate between home.global and directory with this,since it is only for a user.what you have learnt is correct.cool.so you can give smbclient ther also .cool as package is installed in client.For multiple users also you can run smbclient if they are created in server but no need to remember that now.**

**3)<http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html> (windows file share and rpms and anything if you need cool)**

### **The [ homes] Section**

If a client attempts to connect to a share that doesn't appear in the *smb.conf* file, Samba will search for a [homes] share in the configuration file. If a [homes] share exists, the unresolved share name is assumed to be a Unix username. If that username appears in the password database on the Samba server, Samba assumes the client is a Unix user trying to connect to her home directory on the server.

For example, assume a client system is connecting to the Samba server toltec for the first time and tries to connect to a share named [alice]. There is no [alice] share defined in the *smb.conf* file, but there is a [homes], so Samba searches the password database file and finds an alice user account is present on the system. Samba then checks the password provided by the client against user alice's Unix password—either with the password database file if it's using nonencrypted passwords or with Samba's *smbpasswd* file if encrypted passwords are in use. If the passwords match, Samba knows it has guessed right: the user alice is trying to connect to her home directory. Samba will then create a share called [alice] for her, with the share's path set to alice's home directory.

### **The [printers] Section**

The third special section is called [printers] and is similar to [homes]. If a client attempts to connect to a share that isn't in the smb.conf file and its name can't be found in the password file, Samba will check to see if it is a printer share. Samba does this by reading the printer capabilities file (usually /etc/printcap) to see if the share name appears there.[[1]](https://www.samba.org/samba/docs/using_samba/ch06.html" \l "FOOTNOTE-1) If it does, Samba creates a share named after the printer.

This means that as with [homes], you don't have to maintain a share for each system printer in the smb.conf file. Instead, Samba honors the Unix printer registry if you ask it to, and it provides the registered printers to the client systems. However, there is a potential difficulty: if you have an account named fred and a printer named fred, Samba will always find the user account first, even if the client really needed to connect to the printer.

**For any other directory like storage directory in example**

[tmp]

comment = Temporary file space

path = /tmp

read only = no

public = yes

### The [ global] Section

The [global] section appears in virtually every Samba configuration file, even though it is not mandatory. There are two purposes for the [global] section. Server-wide settings are defined here, and any options that apply to shares will be used as a default in all share definitions, unless overridden within the share definition.

See lab1 and lab2 example.

Read 3 things .They are global, homes and any other directory. Rest you can do while requirement comes. Neglect others.

https://www.samba.org/samba/docs/using\_samba/ch06.html

search by samba configuration file in Linux cool

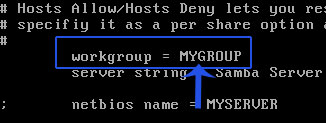
**Details in site (http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html)**

The smb.conf file includes two types of comment lines.

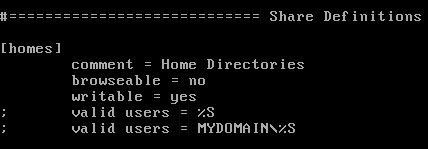
* The hash symbol (#) is used describes a feature
* The semicolon (;), used to comment out feature (Add ; to disable the feature, remove ; to enable the feature)

Note down the value of workgroup directory

This is the global section



It would be same on network for seamless connectivity

Now navigate to **Share Definitions** section By default Samba automatically share the home directory of the logged-in user which is define in the first four lines of this section.   
**browseable = no** limit user to his own home directory. Samba reads home directory information from**/etc/passwd** file so you need not to specify the home directories path.  


**2)==================================================**

**In Lab 1 and Lab 2 in Lin2 the detailed rpms list is not given for server and client .The detailed rpms list for server and client is given in the site (**[**http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html)check**](http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html)check) **it .RPM installation through yum what you know is correct The computer network sites also has Linux and Linux and some other important concepts.you can refer for any queries. For now you can remember Lin1 and Lin2.In the site in the heading RPM required for Samba Server there are lot of RPMS. Detailed rpm for each case is given individual case cool. For other things search at that time.**

**In computernetworking site it is given as valid users ( 2 times).no need to dig deep in to that just remember what you understand from lab 1and Lab2.cool.Only the RPM parts you can see from here.Mostly it will be same only as the valid user is the home directory will be cool.better just remember the rpm part from computernetworking and remaining from Lab1 and Lab2 but mostly these valid users will be same concept.from computernetworking refer also windows/Linux fileshare cool.remaining different scenarios given in computernetworking(I mean for various cases ,not for single case installing RPM that you see when you get the requirement not now.cool)**

1. **Also refer the bellow site which has details of windows file share .**

[**http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html**](http://www.computernetworkingnotes.com/network-administration/how-to-configure-samba-on-rhel-6.html)

**If any changes are required change according to Lin2 pdf**

1. **Regarding printers ,go through concept in Lin2 and the 1st conceptual example which has little bit of printers and try to do a google search on how to share printers from Linux to windows using samba or Linux to Linux using samba and modify according to Sayeed pdf.That is not reqd now as not much given in any sites and pdf.cool**

**Search in google like**

**sharing printer from linux to windows using samba:Good site is** [**http://www.tldp.org/HOWTO/SMB-HOWTO-9.html.This**](http://www.tldp.org/HOWTO/SMB-HOWTO-9.html.This) **is the best site now.try with this,if it does not work then see at that time not now as this is not erquirred much now as not given in any sites or pdf .**

**Sharing printer from Linux to Linux using samba:it is not coming any good site.so serach when requirement comes not now as not given in any sites or pdf or google serach**

**Troubleshooting**

**1)DNS of both the servers must be configured .**

**2)Iptables should be enabled**

**3)Selinux should be done**

**4)Correct entry in smb.conf file**

**NAS Configuration in Linux**

[**http://www.cyberciti.biz/faq/access-nas-server-using-nfs-protocol-under-linux-or-unix/**](http://www.cyberciti.biz/faq/access-nas-server-using-nfs-protocol-under-linux-or-unix/)

[**http://www.cyberciti.biz/tips/connecting-linux-unix-system-network-attached-storage-device.html#samnetdiag**](http://www.cyberciti.biz/tips/connecting-linux-unix-system-network-attached-storage-device.html#samnetdiag)

**In NAS,Application specifc ports will be there .we do telnet and then do a iptables as given in the 2nd site.**

**Troubleshooting :**

1)showmount –e (for troubleshooting)

2)Ping (not pinging then please contact the nas team)

3)NAS exported directory hung

4) Manual unmounts,remount

**Configuring Linux VPN servers**

[**http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch35\_:\_Configuring\_Linux\_VPNs#.V-j6R\_l97IU**](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch35_:_Configuring_Linux_VPNs#.V-j6R_l97IU)

**For Summary remember the following:**

**1)Install Openswann package(ipsec only)**

**2)** chkconfig ipsec on

**3)** [root@bigboy tmp]# service ipsec start

[root@bigboy tmp]# service ipsec stop

[root@bigboy tmp]# service ipsec restart

**4)Enable ip forwading**

#

# File: /etc/sysctl.conf

#

#---------------------------------------------------------------

# Enable routing (IP forwarding)

#---------------------------------------------------------------

net/ipv4/ip\_forward = 1

**sysctl –p**

**5)Create your own keys**

root@vpn2 tmp]# ipsec rsasigkey --verbose 2048 > keys.tmp

[root@vpn2 tmp]#

### 6)Get The Left Public Key

On the left VPN server, issue this command to export the left public key to a file named /tmp/left.pub.

[root@vpn1 tmp]# ipsec showhostkey --left > /tmp/left.pub

[root@vpn1 tmp]#

### 7) Get The Left Public Key

On the left VPN server, issue this command to export the left public key to a file named /tmp/left.pub.

[root@vpn1 tmp]# ipsec showhostkey --left > /tmp/left.pub

[root@vpn1 tmp]#

8) Make entries in ipsec.conf

9) service ipsec restart

10) ipsec auto --up net-to-net(initialisze the tunnel)

**Troubleshooting**

**Refer the site**

**Linux sudo concept:**

[**http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch09\_:\_Linux\_Users\_and\_Sudo#.V-uBkPl97IU**](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch09_:_Linux_Users_and_Sudo#.V-uBkPl97IU)

**Here consider the commands given in the example and not about**  User Private Group Scheme in the User creation Part.

You can search in Goofle about User Private Group Scheme when you get the requirement

Regarding sudoers file consider the example 1st ,3rd and 5th for remembering.others you can understand

The ALL parameter for servers , given in the sudoers file means that if the sudoers file is being used by one server then it will work for one server,else if the sudoers file is being used by different servers like (like they asked in ca interview)it will be used by all server.cool

Regarding log checking you can refer rsyslog configuration to see where the messaged will go.Mostly it will be /var/log/messages set in rsyslog.conf file

**MySQL Configuration in RHEL:**

All the below scenarios are correct .but scenario 1 is required for production support work**.**

**Scenario 1: (most commonly used scenario in production support work)**

In Linux server you install the Mysql server rpm.

In Windows or Linux you can install mysql client (it can be rpm or exe but it has to be GUI) and fetch data from the server.and you give the username ,password (generated in the server) to the client to log in.

**Scenario 2**

Sometimes in windows when you install mysql server,client automatically gets installed.

**Scenario 3**

In case of Application(perl application you need to inform your application of the database name, the IP address of the database server, and the username and password of the application's special MySQL user that will be accessing the data .Client will be there differently

for sample access.)Perl application and mysql server can be on the same server as well as different server

In both cases my sql client and my sql server can be on the same linux or different depending on requirement.

**===================================================================================**

[**http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch34\_:\_Basic\_MySQL\_Configuration#.V-uP4Pl97IU**](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch34_:_Basic_MySQL_Configuration#.V-uP4Pl97IU)

**Remember the mysql admin command to create root account and mysql command to create username and password (most important)**

**Troubleshooting: will work for scenario 1 and 3**

mysqladmin -u root password new-password.

After that if you get the error as Error NO 1045

Folllow the below steps

======

[root@puppetmaster1 ~]# /usr/bin/mysql\_secure\_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MySQL

      SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!

In order to log into MySQL to secure it, we'll need the current

password for the root user.  If you've just installed MySQL, and

you haven't set the root password yet, the password will be blank,

so you should just press enter here.

Enter current password for root (enter for none):

OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MySQL

root user without the proper authorisation.

You already have a root password set, so you can safely answer 'n'.

Change the root password? [Y/n] Y

New password:

Re-enter new password:

Password updated successfully!

Reloading privilege tables..

... Success!

By default, a MySQL installation has an anonymous user, allowing anyone

to log into MySQL without having to have a user account created for

them.  This is intended only for testing, and to make the installation

go a bit smoother.  You should remove them before moving into a

production environment.

Remove anonymous users? [Y/n] n

... skipping.

Normally, root should only be allowed to connect from 'localhost'.  This

ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] n

... skipping.

By default, MySQL comes with a database named 'test' that anyone can

access.  This is also intended only for testing, and should be removed

before moving into a production environment.

Remove test database and access to it? [Y/n] n

... skipping.

Reloading the privilege tables will ensure that all changes made so far

will take effect immediately.

Reload privilege tables now? [Y/n] Y

... Success!

Cleaning up...

All done!  If you've completed all of the above steps, your MySQL

Installation should now be secure.

Thanks for using MySQL!

**Issue 2:port issue**

**Issue 3:service restart**

Refer lhn site for further troubleshooting

**Ports configuration in RHEL**

**Scenario 1 :Most used in production support**

**Apache default port is 80 (for apache and http).for testing and troubleshooting.**

**But we can also use https://443 for secure connections of apache and applications.**

**Remember**

**Apache is always port 80.**

**2)If the port is customiszed for apache/application**

**http://localhost/cp**

**https://localhost /customiszed port**

**This port customiszation we do while installing and configuring apache.**

**For application same concept goes as application is hosted on apache**

**Scenario 2 (Not reqd for production support work)**

**Not sure whether below steps are correct or not.Mostly they are correct but not required in prod support work**

**For mysql and other cases where only http port is there**

**http://localhost://portname**

**If you customisze while installing mysql**

**http://localhost://customiszed portportnumber**

**Every service will have and efault port(mysql,etc) else it can use the http port of 80 and https port of 443.**

**=============**

**When both http and https port is there ,for that case**

**http://localhost://portname**

**https://localhost://portname**

**If you customisze the port while installing and configuring**

**http://localhost://customiszed portportnumber**

**https://localhost://customiszed portportnumber**

**Kickstart in RHEL**

**Kickstart is done by build team .so we don’t need to know indepth of kickstart**

**Fundamental questions on Kickstart**

**1)What is the relation between kickstart and satellite kickstart**

Satellite kickstart is where from RHEL satellite server we do a kick start installation.

Satellite kickstart details:

<https://access.redhat.com/documentation/en-US/Red_Hat_Network_Satellite/5.3/html/Deployment_Guide/s1-provisioning-kickstarting.html>

No need to go through the above site as it is very vast

You can remember the below important points

1)Cobler Configuration

2)DHCP

3)xinetd

4)tftp

5)iptables

2)What is the difference between kickstart and pxe kickstart

Both are same.

3)What is pxeboot and it srelation with general kickstart and satellite kickstart

Ans :pxeboot is the 1st step before every kickstart installation.

pxeboot: preboot execution environment.

PXEBOOT site:

<https://access.redhat.com/documentation/en-S/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/sn-booting-from-pxe-x86.html>

No need to go to depth of pxeboot site. Mostly not required in production support work.When the requirement comes go through the site

Kickstart in rhel

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/5/html/Installation_Guide/ch-kickstart2.html>

**in the above site lot of methods are given .You can consider only nfs method and making kickstart available over the network as you know that.**

**Below are summary**

**Steps 1: Create the kickstart file ks.cfg .**

**Make entry of server details ,command,packages,preinstallation scripts and post installation scriptds in the file .**

**Step 2:Make the kickstart file available over the network:**

**In the dhcpd.conf file make entry of kickstart file and nfs server details,**

filename "/usr/new-machine/kickstart/"; next-server blarg.redhat.com;

Note that you should replace the value after filename with the name of the kickstart file (or the directory in which the kickstart file resides) and the value after next-server with the NFS server name

Without complete path it will serach ipaddress.filename

**Step 3:Making the installation tree available**

**Move the iso image to the NFS exported directory**

For DVD:

mv */location/of/disk/space/*RHEL5.iso */publicly/available/directory/*

**Step 4:starting kickstart installation**

To begin a kickstart installation, you must boot the system from boot media you have made .special boot command at prompt and then

**ks=nfs:*<server>*:/*<path>***

The installation program looks for the kickstart file on the NFS server *<server>*, as file *<path>*. The installation program uses DHCP to configure the Ethernet card. For example, if your NFS server is server.example.com and the kickstart file is in the NFS share /mydir/ks.cfg, the correct boot command would be ks=nfs:server.example.com:/mydir/ks.cfg.

**ks=http://*<server>*/*<path>***

***The above steps are the summary. Detail is much not required as kickstart is done by build team s.But in any case you need detail***

***Refer the sites***

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/5/html/Installation_Guide/ch-kickstart2.html>

***and***

[***http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch25\_:\_Network-Based\_Linux\_Installation#.V-vNWPl97IU***](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch25_:_Network-Based_Linux_Installation#.V-vNWPl97IU)

***and*** <https://www.youtube.com/watch?v=UT2cGYkHJXc> (Jitesh iste)

**Kerberos in RHEL Summary**

***1) It is acentraliszed authentication.Ldap works on Kerberos***

***2) It manages authentication between client and server and server and server .***

***3) Allows client and server to communicate over the network.By using password encryption it provides authentication.***

***(key pair will be generated .***

***4)It uses ticket getting Ticket protocol***

***5)Key distribution Center stores the password.***

**KVM Virtualiszation in RHEL6**

**Site :** <https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/5/html/Virtualization/sect-Virtualization-Installing_the_virtualization_packages-Installing_KVM_packages_on_an_existing_Red_Hat_Enterprise_Linux_system.html>

Concept:From RHEL6 no xen and para virtualiszation.only kvm and full virtualiszation.This is final.No more confusions

Summary of the site:

**Case1**

**From CD ROM using virt-install**

1)Install the packages

2) virt-install --name fedora11 --ram 512 --file=/var/lib/libvirt/images/fedora11.img \

--file-size=3 --vnc --cdrom=/var/lib/libvirt/images/fedora11.iso

Here cdrom can be cdrom device or can be path to iso-image

file=file to be created.

**From CD ROM using virt-manager**

1)Install the packages

2)virt-manger from cd rom

**Case 2**

**From PXE using virt-install**

**1)Install the packages**

**2)Create the bridge(As per example given in the site(DEVICE=installation).its a normal bridge**

**3)Add interface(As per the example given in the site (DEVICE=eth1)is computername**

**4)iptables**

**5)virt-install with the bridge name**

A DHCP request is sent and if a valid PXE server is found the guest installation processes will start.

**From PXE using virt-manager**:

Step 1-4 remain the same. In the last step replace virt-install by virt –manager

A DHCP request is sent and if a valid PXE server is found the guest installation processes will start.

To configure a valid pxe server search google at that time

Imp :

For configuring pxe server,will mostly be not required in production support work.so when requirement comes search google how to configure valid pxeserver and do.No need to know the relation between kickstart pxeboot environment and setting up pxe server here.

They might be same or different. When the requirement comes you can do and know theya re same or different

**Troubleshooting KVM in RHEL6**

**1)CD might be corrupt**

**2)Insufficent disk space**

**3)Hardware does not support virtualiszation**

**KVM Operations in RHEL6:** http://www.techotopia.com/index.php/Managing\_KVM\_on\_RHEL\_6\_using\_the\_virsh\_Command-line\_Tool

**Nagios in RHEL**

Architecture:   <http://nagios.sourceforge.net/docs/nrpe/NRPE.pdf> -> Design overview

The NRPE addon consists of two pieces: – The check\_nrpe plugin, which resides on the local monitoring machine – The NRPE daemon, which runs on the remote Linux/Unix machine

**How to monitor remote host:**

<http://www.thegeekstuff.com/2008/06/how-to-monitor-remote-linux-host-using-nagios-30/>

From the above site remember below points

1)In the local server you define remotehost.cfg where we give host and service definition xample

2)In the remote server nrpe.cfg file you give the exact commands.

Log in to the site and check.Login password you will get while installing NAgios in linux

**How to install Nagios in Local box (Not reqd to remember)**

<http://www.thegeekstuff.com/2008/05/nagios-30-jumpstart-guide-for-red-hat-overview-installation-and-configuration/>

here some concept about plugins is there. That is mentioned in architecture as Nagios is installed in Local box this come in to terms.This is for understanding.You can remember the architecture only .cool

Nagios troubleshooting:

[**http://linux-library.blogspot.in/2014/05/nagios-troubleshooting.html**](http://linux-library.blogspot.in/2014/05/nagios-troubleshooting.html)

See 1st 2 examples

Or

[**https://assets.nagios.com/downloads/nagiosxi/docs/NRPE-Troubleshooting-and-Common-Solutions.pdf**](https://assets.nagios.com/downloads/nagiosxi/docs/NRPE-Troubleshooting-and-Common-Solutions.pdf)

**Both sites 1st 2 examples are same**

When comes to troubleshooting you can login to remote and the change/check. Monitoring you can monitor through the process given in the link .

Summary of troubleshooting

1)copy the plugins to libexec folder.

2)Make sure correct syntax in nrpe.cfg , or plugins are already present

For the second tbs given in the site,it is assumed that host,cfg entry exists,else you can check also no problem.

3)give permissions to plugins

**Imp:**

The plugins in remote troubleshooting are the plugins are those which you install Nagios plugin in remote.

command[check\_users]=/usr/local/nagios/libexec/check\_users -w 5 -c 10

command[check\_load]=/usr/local/nagios/libexec/check\_load -w 15,10,5 -c 30,25,20

After libexec is the plugin name

check\_users,check\_load

Query whether you can add your new own plugin or not

Answer :Yes new plugins you can create and install in this folder /usr/local/nagios/libexec by using the instruction on how plugin was installed previously given in the site.As old plugins will come by default in 1st installation. Make entry in remotehost.cfg and nrpe.cfg for the new plugin. This much is enough.no more confusion. remaining else think at that time not now by searching google at that time and architecture pdf at that time not now. Any other queries you have or get check at that time.

In Local you install plugin which is given in the site(<http://www.thegeekstuff.com/2008/05/nagios-30-jumpstart-guide-for-red-hat-overview-installation-and-configuration/)but> they are not mentioned.This is from reading from site.so final

**Imp Question:**

**Building Linux servers :** [**http://woodel.com/page1.html(page**](http://woodel.com/page1.html(page) **1 is enough)**

**Imp from above site.**

Disable any useless BIOS options, such as com ports, integrated sound cards, etc…

Disable any Keyboard or Mouse warnings

Disable any power management features

If your BIOS has an OS option, choose “Other”

Remove all hard drives except the one you’re planning on being the OS drive.

This will ensure you do not format the wrong drive, and help make this how-to a little

smaller and easier to follow.

Then make configurations by selecting

**Linux server reboot automatically troubleshoot**

<http://serverfault.com/questions/386985/how-to-investigate-unexpected-linux-server-shut-down>

**Kdump in RHEL 6**

[**http://thegeekdiary.com/centos-rhel-6-how-to-configure-kdump/**](http://thegeekdiary.com/centos-rhel-6-how-to-configure-kdump/)

**In the above site it is automatically crashing the server .**

**If kdump is set up it can be used for Linux server reboot automatically troubleshooting**

**REDHAT ISSUES:**

**Sometimes while searching for the solutions in REDHAT you are asked to enter user id and password. That Project Manager has the license.so we need to contact him user id and password, which will be used for registration cool. Remember this much now. It will be clearer in project cool like asking** **manager do you have the username and password. Else how to get user id and password as in previous company our manager provides it.else tell the steps how to create use rid and password from license. But for now just remember contacting manager for user id and password.**

**Luks encryption in RHEL6:** **http://www.computernetworkingnotes.com/file-system-administration/how-to-secure-data-with-luks.html**

**Sarath discussions regarding versions,domain nd firewall and ping command**

1)I have read all rhel by searching nfs configurations in rhel 6.(docs,[redhat.com](http://redhat.com))

so my understanding is it will work for all versions of rhel 6 like rhel6.1,rhel6.2,rhel 6.3 etc

Ans: It is correct

please confirm or do i need to separate search for nfs configuration in rhel 6.1 or 6.2 depending on project  requirement

Ans No

2)After you go to a project suppose you get issue like server rebooting continously

And server version is 6.2

i)First search by server rebooting continously in rhel 6.2

f you dont get any specific you can do  server rebooting continously in rhel 6

please confirm.

Ans correct

 3)This domain entry you told in mail servers will be there in all rhel concepts like nfs,nis,ldap and all rhel concepts entry will be there.

Ans Domain is like a member of house.ALL RHEL boxes and windows boxes(wherever entry is required) will have domain entry .RHEL And Windows box can have same domain entry also.Who will do the domain entry will be clear while going to the project While configuring nfs,mail, and others in servers we have to give domain entry after checking with the correct domain.cool

4)This network level (internal and external network firewall )which will be taken care by teams, 5)This network level firewall is required only for this telnet concept or for all.other concepts of rhel.please confirm

Ans it is required for all concepts of ports of RHEL6 boxex,That means everywhere firewall concept is there.

6)ping server from client when you want to see server is up or not and ping client from server when you want to see client  is up or not .please confirm.When servers to be pinged ,both domain entry should be there.

Ans Ping checks availability but that is not 100%.If You block ICMP request then pings wont come and you thing server might be down but server is up .so you have to check whether the ping service is enabled or not.Yes ping from server to client and client to server.The 100% correct way to know whether server is available or not is by knowing logging through putty and checking .cool

**SELINUX:**

Question:

what is setsebool command.please explain alittle bit.Anything i need to know excepting setsebool

in for selinux in rhel6.It is requirred in client or server

setsebool is a command for selinux in RHEL6 .

Details in site :https://access.redhat.com/documentation/en-US/Red\_Hat\_Enterprise\_Linux/6/html/Security-Enhanced\_Linux/sect-Security-Enhanced\_Linux-Booleans-Configuring\_Booleans.html

setsebool booleanname on/off.

All the booleans name given in the sayeed pdf are enough .If it does not work after setting check google and search error.not now.

DNS and Ping are requirred in all cases.(client and server ).

iptables and selinux only for server cool .

Internal and External firewall that will be taken care by teams.Remember this much.No need to think whether it is for server and client **.**

**List of RPMS for each application**

Regarding the list of RPMS which are requirred for everything (dont go for \* thing),see individual thing using yum install pkgname and then rpm -qa command

as is given in the doc.regarding the list of rpms you will come to know from redhat site or computerhomenetworking site or sayeed pdf cool.While going through the sayeed pdf and

computerhomenetworking sites nd redhat site ,you will come to know all rpms.So That will solve.Then no worries it will be done.If by mitsake you install extra rpm

Also it will be no problem.so cool.you can uninstall it later if you find it is not requirred .cooldont think about that now.Cool

Computernetworking sites is for backuo ,it cannot be used for configuration as you already know from Sayeed pdf and others and reading more will confuse you and it has not got all Linux topics.It can be used as a backup like for rpms list and for others when it is required.Think about that when requirement comes not now.cool.So original remains the same for 3 sites .lhn,sayeed pdf and docs.redhat.com and this is a backup

===============================================================================

Centos docs(RHEL Issue/configuration)

1)I have read all rhel by searching nfs configurations in rhel 6.(docs,[redhat.com](http://redhat.com))

so my understanding is it will work for all versions of rhel 6 like rhel6.1,rhel6.2,rhel 6.3 etc

Ans: It is correct

Whenever you get anything for rhel6+centos 6 also it will work fine

2)please confirm or do i need to separate search for nfs configuration in rhel 6.1 or 6.2 depending on project  requirement

Ans No

3)After you go to a project suppose you get issue like server rebooting continously

And server version is 6.2

i)First search by server rebooting continously in rhel 6.2

If you dont get any specific you can do  server rebooting continously in rhel 6

please confirm.

Ans Yes.

If You also get for RHEL/CENTOS 6.2 its fine,else if you get RHEL /CENTOS 6 then also it is fine

==========================

CENTOSDOCS: This will not be required mostly .But if you get a situation to go for only CENTOSDOCS for a RHEL Issue/Configuration then do a comparison between rhel version and centos version and compare and do,But this will not be required mostly

=====================================

Remaining else commonsense cool.leave it

Detailed version what sarath told will hold good for the above 2 points .. leave it.

Sumiatbaha das UNIX and centos links

<https://books.google.co.in/books?id=qX3CCAnjSPwC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false>

<http://pdf.th7.cn/down/files/1312/centos_bible.pdf>

Performance tuning what you know is enough and which you don’t know can be known while going in to project depending on requirement and project scenario If somebody asks you regarding memory,io all these things in performance tuning then tell that I did not do these things in performance tuning but I know these things regarding io,memory(what you learnt in oracle).cool

Ssh6 and nfsv4

[‎11/‎1/‎2016 3:31 PM] Rajatranjan Mohapatra:

I saw somewhere written as ssh6 .Just wanted to confirm that we have to remember as RHEL 6 and the sub tings we donot need to know like it could be nfsv4 and ssh6

Is it correct

[‎11/‎1/‎2016 3:32 PM] Sarat Sitaramabalaji Duddu:

yes

 ========================

Difference between dsa and rsa keys in ssh keygen in rhel6

<http://stackoverflow.com/questions/2841094/what-is-the-difference-between-dsa-and-rsa>

DSA is faster in signing, but slower in verifying. A DSA key of the same strength as RSA (1024 bits) generates a smaller signature. An RSA 512 bit key has been cracked, but only a 280 DSA key.

Also note that DSA can only be used for signing/verification, whereas RSA can be used for encryption/decrypt as well.

=========================================================

How to calculate load average in Linux

<https://support.rackspace.com/how-to/checking-system-load-on-linux/>

check the summary also

<https://www.tummy.com/articles/isolating-heavy-load/(Read> vmstat command surely and others when situation arises in real scenario.others not reqd now.)

In load average both vmstat components can be used.But summary which is given for 1st site will hold good.cool

=============================================================

Load Average vs cpu usage:(Just read it once.Not reqd to remember0.70 is ok on a single processor sytem on uptime output)

<http://blog.scoutapp.com/articles/2009/07/31/understanding-load-averages>

How to check memory usage in Linux:

<http://www.binarytides.com/linux-command-check-memory-usage/>

which process is causing high disk io in Linux

<http://bencane.com/2012/08/06/troubleshooting-high-io-wait-in-linux/>

Read only iotop

Iostat command in Linux

<http://bencane.com/2012/08/06/troubleshooting-high-io-wait-in-linux/(read> only iostat part)

Vmstat command in Linux:

<http://www.lazysystemadmin.com/2011/04/understanding-vmstat-output-explained.html> ( id and wa columns most important from CPU field)This site see and do

<https://www.tummy.com/articles/isolating-heavy-load/(check> the vmstat command only) ( id and wa columns most important from CPU field)This site you have remembed.vmstat both cases in the site can be used for performance tuning I.e increasing server space for swap and killiking process and reconfiguring process for user process and iptables and mail spool for system.

Rest performance tuning on condition you can decide.cool

top command in Linux

<http://tecadmin.net/understanding-linux-top-command-results-uses/>

sticky bit,suid,sgid : <http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>

=====================================================================================

Example from site:

Sticky bit

For directory:

The sticky bit is used to indicate special permissions for files and directories. If a directory with sticky bit enabled, will restricts deletion of file inside it. It can be removed by root, owner of file or who have write permission on it. This is useful for publically accessible directories like /tmp.

Here who have write permission means write permission on the file.

For file:

Just see the example given in the above site (<http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>) when requirement come you can dig deep

SUID:

Directly from site example (<http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>)

SGID:

Directly from site example:( <http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>)

**Important Info:**

All 3 has to be done as root user **.**For production support work request comes for setting of suid, sgid **and sticky bit**

================================

**Sticky Bit example for file(from the site** <http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>)

**=========================**

**it can be +t or 1777**

**1 is for sticky bit and mandatory**

**t is also for sticky bit**

**t is mandatory**

**=============================**

**SUID EXAMPLE FOR FILE(From the site** <http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>)

**========================**

**chmod u+s techadmin.txt**

**u+s is mandatory as it is user**

**chmod 4655 techadmin.txt**

**4 is for suid and 4 is mandatory**

**===================**

**SGID example for file(Not given in the site**<http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>**)**

**===================**

chmod 2555 [path\_to\_file]

2 for sgid is mandatory

**chmod g+s filename**

**g+s for sgid is mandory**

**================================**

**In sgid example for directory**

chmod g+s [path\_to\_directory]

g+s is mandatory

no numeric

Rememember only the site(<http://tecadmin.net/understanding-sticky-bit-suid-and-sgid-in-linux/>**) from above cases.**

rest conditions when it comes check the below 2 site and decide.cool

<http://linuxg.net/how-to-set-the-setuid-and-setgid-bit-for-files-in-linux-and-unix/>

http://thegeekdiary.com/what-is-suid-sgid-and-sticky-bit/

**Imp Questions:**

**1)Why most Linux things like mail ,apache, are run as root.**

**Ans : Because all the configuration files,that mostly root has access .But apache is a exception .you can run apache as a normal user.**

1. **Are directory permissions same as file permission like owner,group and other.Please explain a bit**

**Ans: directory permission are same as file permission as owner,group and other .**

**Only 1 thing to note is that for directory there is no execute permission.It means going in to the directory with excute permission**

1. **ldconfig command :**

[**http://linux.101hacks.com/unix/ldconfig/**](http://linux.101hacks.com/unix/ldconfig/)

**First 2 examples are enough.**

**1st example it print the libraries and directories present(No Need to remember the order.)**

**2nd example it print the directories,libraries and symbolic links((No Need to remember the order.)**

**Also for 2nd example Left hand side is soft link.some softlink and the target name is same.**

2) How to increase shared memory in rhel without sysctl.conf file. ?

Ans ->echo 2147483648 > /proc/sys/kernel/shmmax

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/5/html/Tuning_and_Optimizing_Red_Hat_Enterprise_Linux_for_Oracle_9i_and_10g_Databases/chap-Oracle_9i_and_10g_Tuning_Guide-Setting_Shared_Memory.html>

3)how to check which service is running on which port in linux

lsof -i TCP:8453

fuser 8453/tcp

4)Root password forgotten in RHEL 6

<https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/4/html/Step_by_Step_Guide/s1-q-and-a-root-passwd.html>

5)Samba Databse directory :/var/lib/samba

<https://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/tdb.html>

1. Suppose a website is not opening properly and user reports to you as a Linux admin

Ans : Then from Linux box traceroute –I [www.google.com](http://www.google.com)

**Using traceroute on Apple Mac OS X and Linux**

To use the traceroute program on Mac OS X and Linux, follow these steps:

1. Open a terminal window. The procedure to do this depends on your operating system and desktop environment:
   * On Mac OS X, click Applications, click Utilities, and then click Terminal.
   * On Linux, open a terminal window.
2. At the command prompt, type the following command. Replace example.com with the domain that you want to test:
3. *traceroute example.com*
4. Interpret the output from traceroute:
   * Traceroute displays each hop, indicated by a number in the left column. It also displays the domain and IP address at each hop, as well as the time spent. For example, the following output shows the path to an A2 Hosting server:
   * [[email protected]](https://wpmatic.io/cdn-cgi/l/email-protection)/\* \*/:~$ traceroute a2s78.a2hosting.com
   * 1 Linksys (192.168.0.1) 0.315 ms  0.452 ms  0.472 ms
   * [Lines omitted for brevity]
   * 8  pos-1-6-0-0-pe01.350ecermak.il.ibone.comcast.net (68.86.87.130)  39.010 ms  38.054 ms  38.092 ms
   * 9  cr-1.sfld-mi.123.net (66.208.233.62)  45.056 ms  44.335 ms  44.974 ms
   * 10  gateway1.a2hosting.com (216.234.104.254)  45.274 ms  46.650 ms  46.089 ms

11  a2s78.a2hosting.com (216.119.143.98)  44.654 ms  46.028 ms  43.852 ms

You can examine the times between each hop to look for places where the connection “hangs”. In some cases, traceroute may also time out, which is indicated by an asterisk (**\***).

https://wpmatic.io/services/check-the-network-connectivity-of-your-server-to-outside-web/

7)Difference between /etc/fstab and /etc/mtab in Linux

|  |  |
| --- | --- |
| Ans : up vote5down voteaccepted | /etc/fstab is list of filesystems to be mounted at boot time. If you want your Windows or file-storage partition mounted once your computer boots , you put appropriate entry into /etc/fstab.  /etc/mtab is list of *currently* mounted filesystems. If you have a disk connected but not mounted, it won't show up in the /etc/mtab file. Once you mount it, it will show up there. |

* /etc/fstab is a created by the user. It contains list of volumes to be mounted by mount.
* /etc/mtab is a created by the system. It contains a list of currently mounted devices.

The file /etc/fstab, may contain lines describing what devices are usually mounted where, using which options.

The programs mount and umount maintain a list of currently mounted filesystems in the file /etc/mtab.

<http://askubuntu.com/questions/754091/what-is-the-difference-between-etc-fstab-and-etc-mtab>

small explanation(No Need to remember)

/etc/fstab is not only for nfs and /etc/mtab is not related to nfs.

/etc/mtab list all the mounted filesystems.so it will show all file systems mounted while nfs.But it is not required for nfs configuration.

8)Ext3 vs Ext4

Ext4 performance ,Reliabilty and turn the journaling feature off .

Site to explore : <http://www.golinuxhub.com/2014/03/what-is-difference-between-ext3-and.html>

9)File system is full but df –h shows space is there.

http://www.linuxnix.com/find-disk-size-details-in-linuxunix/ (Example 12)

10)what is esxi on Linux?

Ans: Important points

i)You can use some commands as in Linux like as (ps,grep,df etc) in ESXI

ii)It uses /etc/inittab file and /etc/init.d scripts

iii) ESXi even uses the same binary format for executables ([ELF](https://en.wikipedia.org/wiki/Executable_and_Linkable_Format)) than Linux does.

For details refer the site <https://www.v-front.de/2013/08/a-myth-busted-and-faq-esxi-is-not-based.html>.

10)How to change the priority of a process in Linux:

<http://www.thegeekstuff.com/2013/08/nice-renice-command-examples/?utm_source=tuicool>

Example 2 and example 5 from the site are important.

How to make apache run as a non root user in Linux :

Step 1: In the home directory of non root user we have to install apache packages.

Step 2: Give the proper ownership of non root user directories for apache.

Step 3: In httpd.conf modify the user parameter accordingly.

Step 4: For non root user you have to choose a specific port and enable firewalls accordingly.

Port see this site and do. Remaining 3 steps you can get in real time. cool

**Site details**:

<http://stackoverflow.com/questions/525672/is-there-a-way-to-start-restart-stop-apache-server-on-linux-as-non-root-user>

Difference between Zombie process and orphan process:

A Zombie is created when a parent process does not use the wait system call after a child dies to read its exit status, and an orphan is child process that is reclaimed by init when the original parent process terminates before the child.

Details in below site

<http://stackoverflow.com/questions/20688982/zombie-process-vs-orphan-process>

What is initrd image in Linux ?

In computing, **initrd** (*initial*[*ramdisk*](https://en.wikipedia.org/wiki/Ramdisk)) is a scheme for loading a temporary root [file system](https://en.wikipedia.org/wiki/File_system) into [memory](https://en.wikipedia.org/wiki/Computer_memory), which may be used as part of the [Linux startup process](https://en.wikipedia.org/wiki/Linux_startup_process). initrd and [initramfs](https://en.wikipedia.org/wiki/Initramfs) refer to two different methods of achieving this. Both are commonly used to make preparations before the real [root](https://en.wikipedia.org/wiki/Root_directory) file system can be [mounted](https://en.wikipedia.org/wiki/Mount_(Unix)).

Details given in below site : <https://en.wikipedia.org/wiki/Initrd>

Kernel panic in Linux?

Ans :

<http://unixadminschool.com/blog/2013/09/redhat-enterprise-linux-6-kernel-panic-and-system-crash-troubleshooting-quick-reference/>

<http://unixadminschool.com/blog/2013/09/redhat-enterprise-linux-6-kernel-panic-and-system-crash-troubleshooting-quick-reference/>

First site has only issues,2nd site has complete resolution.so read 1st site once.if you don’t correlate with anything or not understand, go to 2nd site directly cool.

For short remembrance you can remember the crash and kdump for troubleshooting the reason and rescue cd and single user mode for fixing the issue or inform hardware persons for hardware issues. This is short. details in the above 2 site

==================================================================================

=====Confirm with Venu====

1 red hat site for a specific case that swap device was deleted when it was in use

<https://access.redhat.com/solutions/1450043>

how the current issue was resolved. I mean next time donot delete the swap system when in use,but how the current error went away

Answer: You do a search in google how to resolve when kernel panic in Linux,when swap partion in use is deleted and you get.so the best 2 (unix admin)sites are above .cool

Also note in RED Hat sites, the installation of crash and other things are not given, which is given extensively in unixadmin sites

=======