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Exam : **RH-202**

Title : Redhat Certified Technician
on Redhat Enterprise Linux
4 (Labs)

Version : DEMO

1. Make Successfully Resolve to server1.example.com where DNS Server is 192.168.0.254.

Answer: 1. vi /etc/resolv.conf

2. Quota is implemented on /data but not working properly. Find out the Problem and implement the quota to user1 to have a soft limit 60 inodes (files) and hard limit of 70 inodes (files).

Answer and Explanation:

Quotas are used to limit a user's or a group of users' ability to consume disk space. This prevents a small group of users from monopolizing disk capacity and potentially interfering with other users or the entire system. Disk quotas are commonly used by ISPs, by Web hosting companies, on FTP sites, and on corporate file servers to ensure continued availability of their systems.

Without quotas, one or more users can upload files on an FTP server to the point of filling a filesystem. Once the affected partition is full, other users are effectively denied upload access to the disk. This is also a reason to mount different filesystem directories on different partitions. For example, if you only had partitions for your root (/) directory and swap space, someone uploading to your computer could fill up all of the space in your root directory (/). Without at least a little free space in the root directory (/), your system could become unstable or even crash.

You have two ways to set quotas for users. You can limit users by inodes or by kilobytesized disk blocks. Every Linux file requires an inode. Therefore, you can limit users by the number of files or by absolute space. You can set up different quotas for different filesystems. For example, you can set different quotas for users on the /home and /tmp directories if they are mounted on their own partitions.

Limits on disk blocks restrict the amount of disk space available to a user on your system.

Older versions of Red Hat Linux included LinuxConf, which included a graphical tool to configure quotas. As of this writing, Red Hat no longer has a graphical quota configuration tool. Today, you can configure quotas on RHEL only through the command line interface.

1. vi /etc/fstab /dev/hda11 /data ext3 defaults,usrquota 1 2

2. Either Reboot the System or remount the partition.

Mount -o remount /dev/hda11 /data

3. touch /data/aquota.user

4. quotacheck -ufm /data

5. quotaon -u /data

6. `edquota -u user1 /data` and Specified the Soft limit and hard limit on opened file.

To verify either quota is working or not:

Soft limit specify the limit to generate warnings to users and hard limit can't cross by the user. Use the `quota` command or `repquota` command to monitor the quota information.

3. One Logical Volume named `lv1` is created under `vg0`. The Initial Size of that Logical Volume is 100MB. Now you required the size 500MB. Make successfully the size of that Logical Volume 500M without losing any data. As well as size should be increased online.

Answer and Explanation:

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 equalsized chunks known as Physical Extents (PE). As there are several other concepts associated with the LVM system, let's start with some basic definitions:

- 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. Most of the commands that you'll use apply to a specific VG.

1. Verify the size of Logical Volume: `lvdisplay /dev/vg0/lv1`

2. Verify the Size on mounted directory: `df -h` or `df -h` mounted directory name

3. Use : `lvextend -L+400M /dev/vg0/lv1`

4. `ext2online -d /dev/vg0/lv1` to bring extended size online.

5. Again Verify using `lvdisplay` and `df -h` command.

4. Create one partitions having size 100MB and mount it on `/data`.

Answer and Explanation:

1. Use `fdisk /dev/hda` To create new partition.
2. Type `n` For New partitions
3. It will ask for Logical or Primary Partitions. Press `l` for logical.
4. It will ask for the Starting Cylinder: Use the Default by pressing `Enter` Key.
5. Type the Size: `+100M` You can Specify either Last cylinder or Size here.
6. Press `P` to verify the partitions lists and remember the partitions name.
7. Press `w` to write on partitions table.
8. Either Reboot or use `partprobe` command.
9. Use `mkfs -t ext3 /dev/hda?`

Or

`mke2fs -j /dev/hda?` To create ext3 filesystem.

10. `vi /etc/fstab`

Write:

```
/dev/hda? /data ext3 defaults 1 2
```

11. Verify by mounting on current Sessions also:

```
mount /dev/hda? /data
```

5. You are new System Administrator and from now you are going to handle the system and your main task is Network monitoring, Backup and Restore. But you don't know the root password. Change the root password to `redhat` and login in default Runlevel.

Answer and Explanation:

When you Boot the System, it starts on default Runlevel specified in `/etc/inittab`: `Id:?:initdefault:`

When System Successfully boot, it will ask for username and password. But you don't know the root's password. To change the root password you need to boot the system into single user mode. You can pass the kernel arguments from the boot loader.

1. Restart the System.
2. You will get the boot loader GRUB screen.
3. Press `a` and type `1` or `s` for single mode `ro root=LABEL=/ rhgb quiet s`
4. System will boot on Single User mode.
5. Use `passwd` command to change.

6. Press ctrl+d

6. There are more than 400 Computers in your Office. You are appointed as a System Administrator. But you don't have Router. So, you are going to use your One Linux Server as a Router. How will you enable IP packets forward?

Answer and Explanation:

1. /proc is the virtual filesystem, we use /proc to modify the kernel parameters at running time.

```
# echo "1" >/proc/sys/net/ipv4/ip_forward
```

2. /etc/sysctl.conf when System Reboot on next time, /etc/rc.d/rc.sysinit scripts reads the file /etc/sysctl.conf. To enable the IP forwarding on next reboot also you need to set the parameter.

```
net.ipv4.ip_forward=1
```

Here 0 means disable, 1 means enable.

7. You Completely Install the Redhat Enterprise Linux ES 4 on your System. While start the system, it's giving error to load X window System. How will you fix that problem and make boot successfully run X Window System.

Answer and Explanation:

Think while Problems occurred on booting System on Runlevel 5 (X Window).

1. /tmp is full or not

2. Quota is already reached

3. Video card or resolution or monitor is misconfigured.

4. xfs service is running or not.

Do These:

1. `df -h /tmp /tmp` is full remove the unnecessary file

2. `quota username` if quota is already reached remove unnecessary file from home directory.

3. Boot the System in runlevel 3. you can pass the Kernel Argument from boot loader.

4. Use command: `system-config-display` It will display a dialog to configure the monitor, Video card, resolution etc.

5. Set the Default Runlevel 5 in `/etc/inittab` `id:5:initdefault:`

6. Reboot the System you will get the GUI login Screen.

8. There are two different networks, 192.168.0.0/24 and 192.168.1.0/24. Your System is in 192.168.0.0/24 Network. One RHEL 4 Installed System is going to use as a Router. All required configuration is already done on Linux Server. Where 192.168.0.254 and 192.168.1.254 IP Address are assigned on that Server. How will make successfully ping to 192.168.1.0/24 Network's Host?

Answer:

1. vi /etc/sysconfig/network

GATEWAY=192.168.0.254

OR

vi /etc/sysconf/network-scripts/ifcfg-eth0

DEVICE=eth0

BOOTPROTO=static

ONBOOT=yes

IPADDR=192.168.0.?

NETMASK=255.255.255.0

GATEWAY=192.168.0.254

2. service network restart

Explanation: Gateway defines the way to exit the packets. According to question System working as a router for two networks have IP Address 192.168.0.254 and 192.168.1.254. To get the hosts on 192.168.1.0/24 should go through 192.168.0.254.

9. Make a swap partition having 100MB. Make Automatically Usable at System Boot Time.

Answer and Explanation:

1. Use fdisk /dev/hda To create new partition.

2. Type n For New partition

3. It will ask for Logical or Primary Partitions. Press l for logical.

4. It will ask for the Starting Cylinder: Use the Default by pressing Enter Key.

5. Type the Size: +100M You can Specify either Last cylinder or Size here.

6. Press P to verify the partitions lists and remember the partitions name.

Default System ID is 83 that means Linux Native.

7. Type t to change the System ID of partition.
8. Type Partition Number
9. Type 82 that means Linux Swap.
10. Press w to write on partitions table.
11. Either Reboot or use partprobe command.
12. mkswap /dev/hda? To create Swap File system on partition.
13. swapon /dev/hda? To enable the Swap space from partition.
14. free -m Verify Either Swap is enabled or not.
15. vi /etc/fstab /dev/hda? swap swap defaults 0 0
16. Reboot the System and verify that swap is automatically enabled or not.

10. You are a System administrator. Using Log files very easy to monitor the system. Now there are 50 servers running as Mail, Web, Proxy, DNS services etc. You want to centralize the logs from all servers into on LOG Server. How will you configure the LOG Server to accept logs from remote host ?

Answer and Explanation:

By Default system accept the logs only generated from local host. To accept the Log from other host configure:

1. vi /etc/sysconfig/syslog SYSLOGD_OPTIONS="-m 0 -r"

Where

-m 0 disables 'MARK' messages.

-r enables logging from remote machines

-x disables DNS lookups on messages recieved with -r

2. service syslog restart