RHCSA V9 EX200

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Important Instructions, read carefully.

* You will be given by 2 VMs

-hostname: node1.domainX.example.com(172.24.10.10)

-hostname: node2.domainX.example.com(172.24.10.11)

* Total number of Questions will be around 22

* In one system root password is already set (no need to reset) but in second system password need to be recovered.

* In one system Network configuration is required but in another one networking is already done

* NTP need to be configured in only one system (not in both)

* YUM Repo need to configured in both systems.

* Firewall and SELinux both will be pre-enabled

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In practice labs we have below nodes

Node 1 ➔ servera

Node2 ➔ serverb

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Q1. Configure network and set the static parameters. (configure network in console)

IP-ADDRESS= 172.24.10.10

NETMASK= 255.255.255.0

GATEWAY= 172.24.10.254

(DNS) Nameserver= 172.24.10.254

Domain Name= domainX.example.com

hostname= node1.domainX.example.com

Solution:

nmcli connection show

nmcli connection modify "Wired connection 1" ipv4.address "172.24.10.10/24" ipv4.dns "172.24.10.254" ipv4.gateway "172.24.10.254" ipv4.method manual

nmcli connection reload

hostnamectl set-hostname node1.domainX.example.com

(or)

nmtui (nmcli or nmtui use anyone to configure network)

** Make sure these two parameters should be enabled in ssh configuration file

vim /etc/ssh/sshd_config

PermitRootLogin Yes

PasswordAuthentication Yes

:wq!

#systemctl restart sshd

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Q2. Configure YUM repos with the given link (2repos: 1st is BaseOS and 2nd is AppStream)

BaseOS http://content.example.com/rhel8.0/x86_64/dvd/BaseOS

AppSteam http://content.example.com/rhel8.0/x86_64/dvd/AppStream

Solution:

vim /etc/yum.repos.d/rhel.repo

[BaseOs]

name=BaseOs

baseurl=http://content.example.com/rhel8.0/x86_64/dvd/BaseOS/

gpgcheck=0

enabled=1

[AppStream]

name=AppStream

baseurl=http://content.example.com/rhel8.0/x86_64/dvd/AppStream/

gpgcheck=0

enabled=1

:wq!

yum repolist all

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Q3. Debug SELinux - A web server running on non standard port 82 is having issues serving content, Debug and fix the issues.

- The web server on your system can server all the existing HTML files from/var/www/html

- Web service should automatically start at boottime.

- Do not make any changes to these files

Solution:

systemctl status httpd.service

systemctl enable httpd.service

vim /etc/httpd/conf/httpd.conf

Listen 82

semanage port -l | grep "http"

http_port_t tcp 80, 81, 443, 488, 8008, 8009, 8443, 9000

semange port -a -t httpd_port_t -p tcp 82

semanage port -l | grep "http"

http_port_t tcp 82, 80, 81, 443, 488, 8008, 8009, 8443, 9000

firewall-cmd --permanent --add-port=82/tcp

firewall-cmd --reload

firewall-cmd --list-all

systemctl restart httpd

Verification:

Curl http://localhost:82

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Q4. Create User accounts with supplementry group.

-create the group a named "sysadms".

-create users as named "natasha" and "harry", will be the supplementry group "sysadms".

-cerate a user as named "sarah", should have non-interactive shell and it should be not the member of "sysadms".

-password for all users should be "trootent"

Solution:

groupadd sysadmin

useradd -G sysadmin natasha

useradd -G sysadmin harry

useradd -s /sbin/nologin sarah

echo "trootent" | passwd --stdin harry

echo "trootent" | passwd --stdin natasha

echo "trootent" | passwd --stdin sarah

id natasha (need verify harry and sarah also with same command)

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Q5. Configure a cron job that runs every 2minutes and executes: logger "EX200 in progress" as the user natasha.

Solution:

crontab -e -u natasha

*/2 * * * * logger "EX200 in progress"

:wq!

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Q6. Create a collaborative Directory.

-Create the Directory "/home/manager" with the following characteristics

-Group ownership of "/home/manager" should go to "sysadms" group

-The directory should have full permission for all members of "sysadms" group but not to the other users except "root"

-Files created in future under "/home/manager" should get the same group ownership

Solution:

mkdir /home/sysadms

chgrp sysadms /home/sysadms

ls -ld /home/sysadms

chmod 2770 /home/sysadms

ls -ld /home/sysadms

touch /home/sysadms/file.txt

ls -l /home/sysadms/

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Q7. Configure NTP

-Synchronize time of your system with the server 'utility.example.com'

Solution:

vim /etc/chrony.conf

server utility.example.com iburst

:wq!

systemctl restart chronyd.service

chronyc sources -v

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Q8. Configure AutoFS - All remoteuserX home directory is exported via NFS, which is available on utility.example.com(172.24.10.100) and your NFS-exports directory is /home/remoteuserX for remoteuserX

-remoteuserX's home directory is utility.example.com:/rhome/remoteuserX, where X is your station number and benath as /rhome/remoteuser5

-remoteuserX's home directory should be automounted autofs service.

-home directories must be writable by their users

Solution:

yum install autofs -y

systemctl enable autofs.service

systemctl start autofs.service

vim /etc/auto.master

/rhome /etc/auto.misc

:wq!

vim /etc/auto.misc

remoteuser5 -rw,soft,sync utility.example.com:/rhome/remoteuserX

:wq!

systemctl restart autofs.service

verify

su - remoteuserX

pwd

/rhome/remoteuserX

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Q9. Create a container image from the provided link.

- create a container image from "http://utility.example.com/container/Containerfile" name it as 'monitor' with user athena

-login to 'registry.lab.example.com' through "admin" and "redhat321" ->find it out credentials from

Instructions page

Solution:

id athena

ssh athena@localhost

$ podman login registry.lab.example.com

Username: admin

Password: redhat321

$ wget http://utility.example.com/container/Containerfile

$ podman build -t monitor -f .

$ podman images

localhost/monitor

$ exit

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Q10. Create rootless container and do volume mapping which they asked you in the question and run container as a service from normal user account, the service must be enable so it could start automatically after reboot

a. Create a container named as 'ascii2pdf' using the previously created container image from previous question 'monitor'
b. Map the '/opt/processed' to container '/opt/outgoing
c. Map the '/opt/files' to container '/opt/incoming'
d. Create systemd service as container-ascii2pdf.service

e. Make service active after all server reboots.

Solution:

mkdir /opt/files

chown -R athena:athena /opt/files

mkdir /opt/processed

chown -R athena:athena /opt/processed

ssh athen@localhost

$ podman run -d --name ascii2pdf -v /opt/files:/opt/incoming:Z -v /opt/processed:/opt/outgoing:Z localhost/monitor

$ podman ps $ mkdir /home/athena/.config/systemd/user/

$ cd /home/william/.config/systemd/user/

$ podman generate systemd --name ascii2pdf --files --new

$ ls -l

$ systemctl --user daemon-reload

$ systemctl --user enable container-ascii2pdf.service

$ systemctl --user start container-ascii2pdf.service

$ loginctl enable-linger athena

$ loginctl show-user athena

$ systemctl - -user restart container-ascii2pdf.service

$ podman ps

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Q11. Create user 'alex' with 3456 uid and set the password 'trootent'

Solution:

useradd -u 3456 alex

echo "trootent" | passwd --stdin alex

id alex

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Q12. Locate all files owned by user "harry" and copy it under /root/harry-files

Solution:

mkdir /root/harry-file

find / -user harry -exec cp -rvfp {} /root/harry-files \;

ls -a /root/harry-files

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Q13. Find a string 'ich' from "/usr/share/dict/words" and put it into /root/lines file.

Solution:

grep "ich" /usr/lib/mem/ex200/samplefile.txt >/root/lines

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Q14. create an archive '/root/backup.tar.bz2' of /usr/local directory and compress it with bzip2

Solution:

yum install bzip2 -y

tar -cvjf /root/backup.tar.bz2 /usr/local

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Q15. script. Store the search result of all files in the /usr/share directory that is greater than 30k and less than 50k in the /mnt/freespace/search.txt file

Solution:

vim test.sh

#!/bin/bash/

find /usr/share/ -uid 0 -size +30k -size -50k >/mnt/freespace/search.txt

:wq!

chmod +x test.sh

bash test.sh

cat /mnt/freespace/search.txt

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Node 2 ---- serverb Instructions

Total they'll give you 2 disks with GPT Partioning scheme (swap : 19 , LVM : 31 codes in GPT)

/dev/vda (don't make any changes on /dev/vda)

/dev/vdb (for swap and LVM)

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Q15. Reset root user password and make it 'trootent' (users should answer in console only)

Solution:

Press -- >send key on top left corner

Select ctrl+alt+del , then system starts booting , in between booting intrupt system with up and down navigation keys

Select 2nd kerenel line (rescue kernel)

Press 'e'

come to line which start with linux and press ctrl+e , then it's comes to line end, then

rd.break console=tty0

press ctrl+x

press 'enter key' – to enter into maintenance mode , after user following commands

sh5.1# mount -o remount,rw /sysroot/

sh5.1# chroot /sysroot/

sh5.1# passwd –stdin root

trootent (password) and press ctrl+d

sh5.1# touch /.autorelabel

sh5.1# exit

sh5.1# exit

** Make sure these two parameters should be enabled in ssh configuration file

vim /etc/ssh/sshd_config

PermitRootLogin Yes

PasswordAuthentication Yes

:wq!

#systemctl restart sshd

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Q16. Configure YUM Repos

BaseOS http://content.example.com/rhel8.0/x86_64/dvd/BaseOS

AppSteam http://content.example.com/rhel8.0/x86_64/dvd/AppStream

Solution:

vim /etc/yum.repos.d/rhel.repo

[BaseOs]

name=BaseOs

baseurl=http://content.example.com/rhel8.0/x86_64/dvd/BaseOS/

gpgcheck=0

enabled=1

[AppStream]

name=AppStream

baseurl=http://content.example.com/rhel8.0/x86_64/dvd/AppStream/

gpgcheck=0

enabled=1

:wq!

yum repolist all

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Q17. Resize a logical Volume -Resize the logical volume "mylv" so that after reboot size should be in between 290MB to 330MB

Solution:

df -Th

lvextend -L 310M /dev/myvg/mylv

resize2fs /dev/mapper/myvg-mylv

df -Th

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Q18. Add a swap partition of 512MB and mount it permanently

Solution:

fdisk /dev/vdb

Welcome to fdisk (util-linux 2.32.1).

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command

Command (m for help): n

Partition number (2-128, default 2):

First sector (2048-10485726, default 2048):

Last sector, +sectors or +size{K,M,G,T,P} (2048-10485726, default 10485726): +512M

Created a new partition 1 of type 'Linux filesystem' and of size 512 MiB.

Command (m for help): p

Disk /dev/vdb: 5 GiB, 5368709120 bytes, 10485760 sectors

Units: sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disklabel type: gpt

Disk identifier: 15DB11B7-4148-B44E-8BEF-147228E1FBF4

Device Start End Sectors Size Type

/dev/vdb1 2048 1050623 1048576 512M Linux filesystem

Command (m for help): t

Selected partition 2

Partition type (type L to list all types): 19

Changed type of partition 'Linux filesystem' to 'Linux swap'

Command (m for help): p

Disk /dev/vdb: 5 GiB, 5368709120 bytes, 10485760 sectors

Units: sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disklabel type: gpt

Disk identifier: 15DB11B7-4148-B44E-8BEF-147228E1FBF4

Device Start End Sectors Size Type

/dev/vdb1 2048 1050623 1048576 512M Linux swap

Command (m for help): w

The partition table has been altered.

Calling ioctl() to re-read partition table.

Syncing disks.

partprobe

mkswap /dev/vdb2

swapon /dev/vdb2

free -m

lsblk -fp /dev/vdb

vim /etc/fstab

UUID= swap swap defaults 0 0

:wq!

systemctl daemon-reload

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Q19. Create logical volume and mount it permanently

- Create a logical volume of name "wshare" from a volume group name "wgroup" physical extents of 16M and logical volume should have size of 50extents

- Mount logical volume with /mnt/wshare and format with ext3 filesystem

Solution:

fdisk /dev/vdb

Welcome to fdisk (util-linux 2.32.1).

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help): n

Partition number (3-128, default 3):

First sector (1050624-10485726, default 1050624):

Last sector, +sectors or +size{K,M,G,T,P} (1050624-10485726, default 10485726): +1G

Created a new partition 2 of type 'Linux filesystem' and of size 1 GiB.

Command (m for help): t

Partition number (1,2,3 default 3):

Partition type (type L to list all types): 31

Changed type of partition 'Linux filesystem' to 'Linux LVM'.

Command (m for help): p

Disk /dev/vdb: 5 GiB, 5368709120 bytes, 10485760 sectors

Units: sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disklabel type: gpt

Disk identifier: 15DB11B7-4148-B44E-8BEF-147228E1FBF4

Device Start End Sectors Size Type

/dev/vdb1 2048 1050623 1048576 512M Linux swap

/dev/vdb2 1050624 3147775 2097152 1G Linux LVM

Command (m for help): w

The partition table has been altered.

Calling ioctl() to re-read partition table

Syncing disks

pvcreate /dev/vdb3

pvs

vgcreate -s 16 wgroup /dev/vdb3

lvcreate -n newlv -l 50 wshare

lvs

mkfs.ext3 /dev/wgroup/wshare

mkdir /mnt/wshare

mount /dev/wgroup/wshare /mnt/wshare

lsblk -fp /dev/vdb

vim /etc/fstab

UUID= /mnt/wshare ext3   defaults 0 0

:wq!

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Q20. Configure System Tuning:

-Choose the recommended 'tuned' profile for your system and set it as the default

Solution:

tuned-adm active

Current active profile: balanced

tuned-adm recommended

virtual-guest

tuned-adm virtual-guest

tuned-adm active

- Sai Kumar Vicharapu