- Node1.example.com:

Q1: Configure TCP/IP and “Hostname” as following.

Hostname: node1.domain.example.com

IP Address: 192.168.71.240

Netmask: 255.255.255.0

Gateway: 192.168.71.2

DNS: 192.168.71.2

```
[root@node1 ~]# nmcli device status
DEVICE  TYPE      STATE                   CONNECTION
ens160  ethernet  connected               ens160
lo      loopback  connected (externally)  lo
[root@node1 ~]# nmcli connection modify ens160 \
ipv4.method manual \
ipv4.addresses 192.168.71.240/24 \
ipv4.gateway 192.168.71.2 \
ipv4.dns 192.168.71.2 \
connection.autoconnect yes
[root@node1 ~]# nmcli connection down ens160
Connection 'ens160' successfully deactivated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnect
ion/3)
[root@node1 ~]# nmcli connection up ens160
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/4)
[root@node1 ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:0c:29:f2:04:11 brd ff:ff:ff:ff:ff:ff
    altname enp3s0
    inet 192.168.71.240/24 brd 192.168.71.255 scope global noprefixroute ens160
       valid_lft forever preferred_lft forever
    inet6 fe80::20c:29ff:fef2:411/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[root@node1 ~]#
```



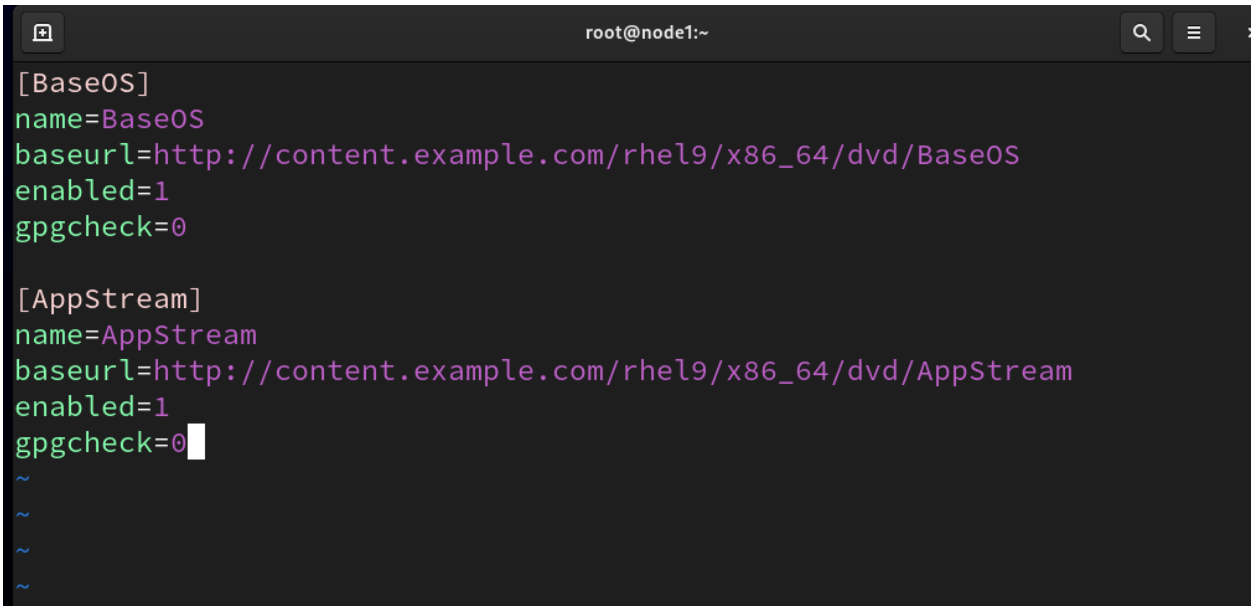
```
[root@node1 ~]# ip route
default via 192.168.71.2 dev ens160 proto static metric 100
192.168.71.0/24 dev ens160 proto kernel scope link src 192.168.71.240 metric 100
```

Q2: Configure your Red hat VM repository installed the packages distribution is

available via YUM:

1. BaseOS url= http://content.example.com/rhel9/x86_64/dvd/BaseOS

2. AppStream url=
http://content.example.com/rhel9/x86_64/dvd/AppStream



```
[root@localhost ~]# dnf install httpd -y
Updating Subscription Management repositories.

This system is registered with an entitlement server, but is not receiving updates.
You can use subscription-manager to assign subscriptions.

BaseOS                                           91 MB/s | 1.7 MB     00:00
AppStream                                       126 MB/s | 6.3 MB     00:00
Dependencies resolved.
================================================================================
 Package                 Arch        Version                   Repository      Size
================================================================================
Installing:
 httpd                   x86_64      2.4.53-11.el9_2.4         AppStream       54 k
Installing dependencies:
 apr                     x86_64      1.7.0-11.el9              AppStream      127 k
 apr-util                x86_64      1.6.1-20.el9              AppStream       98 k
 apr-util-bdb            x86_64      1.6.1-20.el9              AppStream       15 k
 httpd-core              x86_64      2.4.53-11.el9_2.4         AppStream      1.5 M
 httpd-filesystem        noarch      2.4.53-11.el9_2.4         AppStream       17 k
```

```
Installed products updated.

Installed:
  apr-1.7.0-11.el9.x86_64                    apr-util-1.6.1-20.el9.x86_64
  apr-util-bdb-1.6.1-20.el9.x86_64           apr-util-openssl-1.6.1-20.el9.x86_64
  httpd-2.4.53-11.el9_2.4.x86_64             httpd-core-2.4.53-11.el9_2.4.x86_64
  httpd-filesystem-2.4.53-11.el9_2.4.noarch  httpd-tools-2.4.53-11.el9_2.4.x86_64
  mod_http2-1.15.19-4.el9_2.4.x86_64         mod_lua-2.4.53-11.el9_2.4.x86_64
  redhat-logos-httpd-90.4-1.el9.noarch

Complete!
[root@localhost ~]#
```

Q3: Debug SELinux:

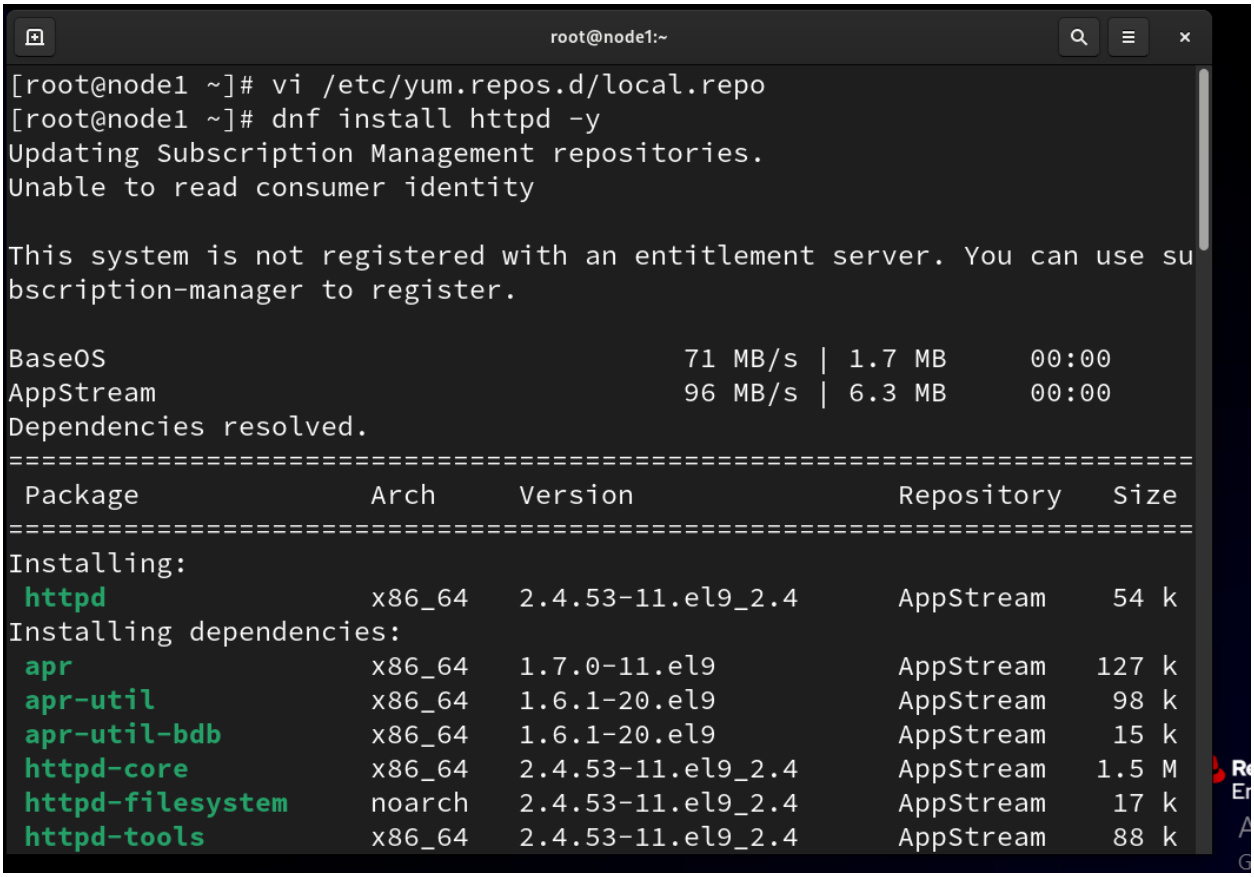
Web server running on non-standard port “82” is having issues serving content,

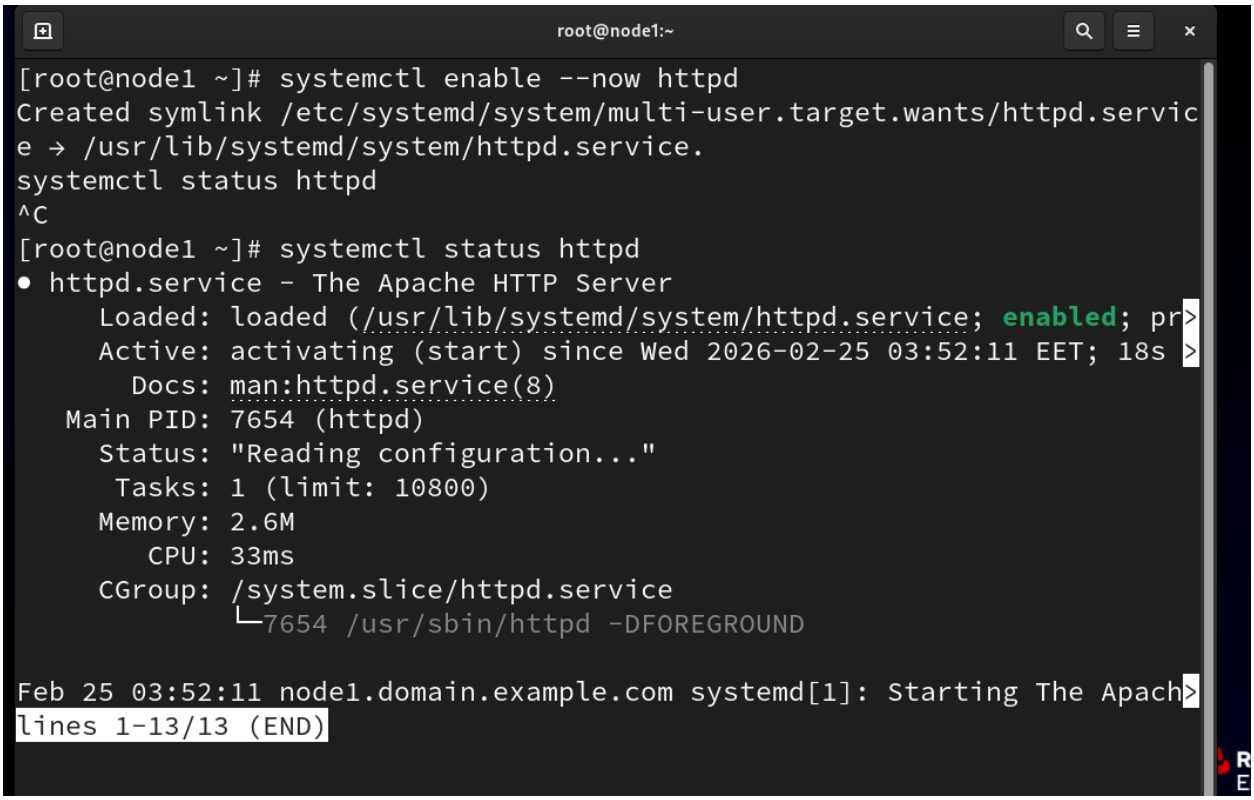
Debug and fix the issues. - -

The web server can serve all the existing HTML files from ‘/var/www/html’,

Don’t make any changes to these files.

Web service should automatically start at boot time.


root@node1:~
[root@node1 ~]# vi /etc/yum.repos.d/local.repo
[root@node1 ~]# dnf install httpd -y
Updating Subscription Management repositories.
Unable to read consumer identity
This system is not registered with an entitlement server. You can use su
bscription-manager to register.
BaseOS 71 MB/s | 1.7 MB 00:00
AppStream 96 MB/s | 6.3 MB 00:00
Dependencies resolved.
Package Arch Version Repository Size
Installing:
httpd x86_64 2.4.53-11.el9_2.4 AppStream 54 k
Installing dependencies:
apr x86_64 1.7.0-11.el9 AppStream 127 k
apr-util x86_64 1.6.1-20.el9 AppStream 98 k
apr-util-bdb x86_64 1.6.1-20.el9 AppStream 15 k
httpd-core x86_64 2.4.53-11.el9_2.4 AppStream 1.5 M
httpd-filesystem noarch 2.4.53-11.el9_2.4 AppStream 17 k
httpd-tools x86_64 2.4.53-11.el9_2.4 AppStream 88 k


root@node1:~
[root@node1 ~]# systemctl enable --now httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.servic
e → /usr/lib/systemd/system/httpd.service.
systemctl status httpd
^C
[root@node1 ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; pr>
Active: activating (start) since Wed 2026-02-25 03:52:11 EET; 18s >
Docs: man:httpd.service(8)
Main PID: 7654 (httpd)
Status: "Reading configuration..."
Tasks: 1 (limit: 10800)
Memory: 2.6M
CPU: 33ms
CGroup: /system.slice/httpd.service
└─7654 /usr/sbin/httpd -DFOREGROUND
Feb 25 03:52:11 node1.domain.example.com systemd[1]: Starting The Apach>
lines 1-13/13 (END)

```
Feb 25 03:52:11 node1.domain.example.com systemd[1]: Starting The Apach>
[root@node1 ~]# vi /etc/httpd/conf/httpd.conf
[root@node1 ~]# grep -R "Listen" /etc/httpd/
/etc/httpd/conf/httpd.conf:# Listen: Allows you to bind Apache to specif
ic IP addresses and/or
/etc/httpd/conf/httpd.conf:# Change this to Listen on a specific IP addr
ess, but note that if
/etc/httpd/conf/httpd.conf:#Listen 12.34.56.78:80
/etc/httpd/conf/httpd.conf:Listen 80
grep: /etc/httpd/modules/mod_heartmonitor.so: binary file matches
grep: /etc/httpd/modules/mod_mpm_event.so: binary file matches
grep: /etc/httpd/modules/mod_mpm_prefork.so: binary file matches
grep: /etc/httpd/modules/mod_mpm_worker.so: binary file matches
grep: /etc/httpd/run/cgisock.7654: No such device or address
[root@node1 ~]#
```

```
# Change this to Listen on a specific IP address, but note that if
# httpd.service is enabled to run at boot time, the address may not be
# available when the service starts.  See the httpd.service(8) man
# page for more information.
#
#Listen 12.34.56.78:80
Listen 82

#
```

```
[root@node1 ~]# curl http://localhost:82
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN" "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd
">

<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en">
        <head>
                <title>Test Page for the HTTP Server on Red Hat Enterprise Linux</title>
                <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
                <style type="text/css">
                        /*<![CDATA[*/
                        body {
                                background-color: #fff;
                                color: #000;
                                font-size: 1.1em;
                                font-family: "Red Hat Text", Helvetica, Tahoma, sans-serif;
```


Q4: Create the following users, groups, and group membership: - - - - -

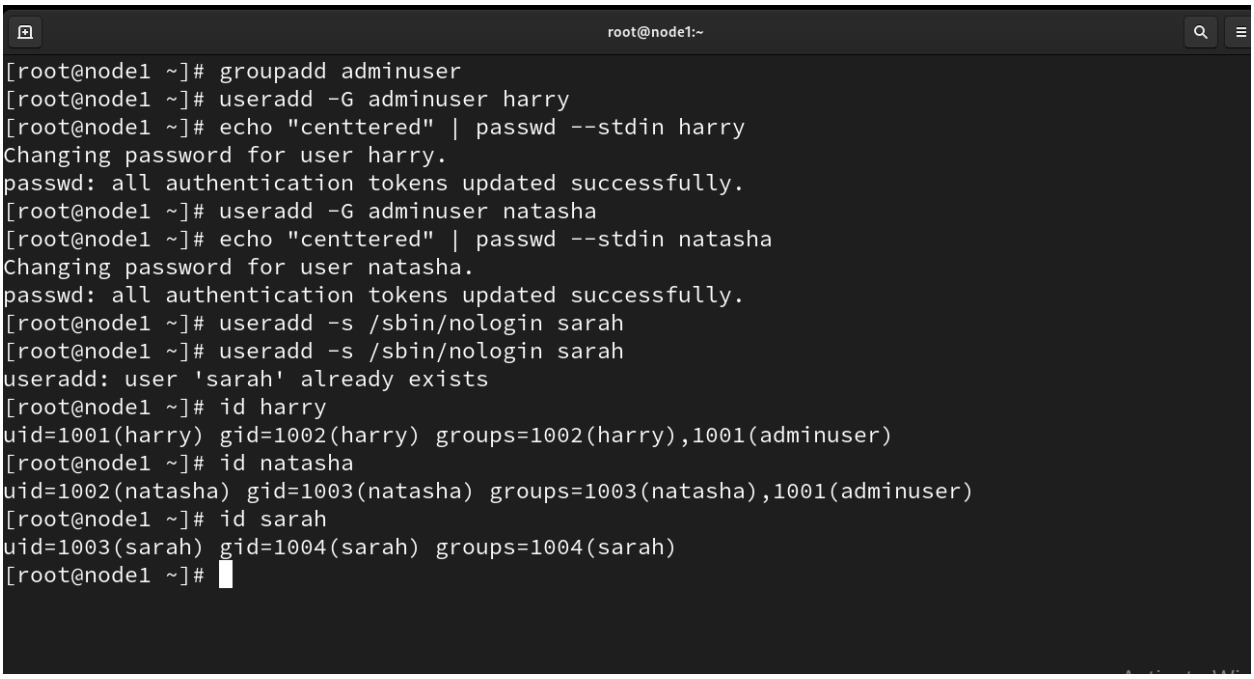
A group named adminuser

A user “harry” who belongs to adminuser as a secondary group.

A user “natasha” who belongs to adminuser as a secondary group.

A user “sarah” who doesn’t have access to an interactive shell and who is not a member of adminuser group.

All users should have the pass



word of “centtered”.

Q5: Cron job - -

Configure a cron job for the user “natasha” that runs daily every 14:23 minute local time executes “Ex200 is processing” with logger.

Configure a cron job for the user “natasha” that runs daily every 1-minute local time executes “Ex200 is processing” with logger.

```
23 14 * * * logger 'Ex200 is processing'
* * * * * logger 'Ex200 is processing'
~
~
~
```

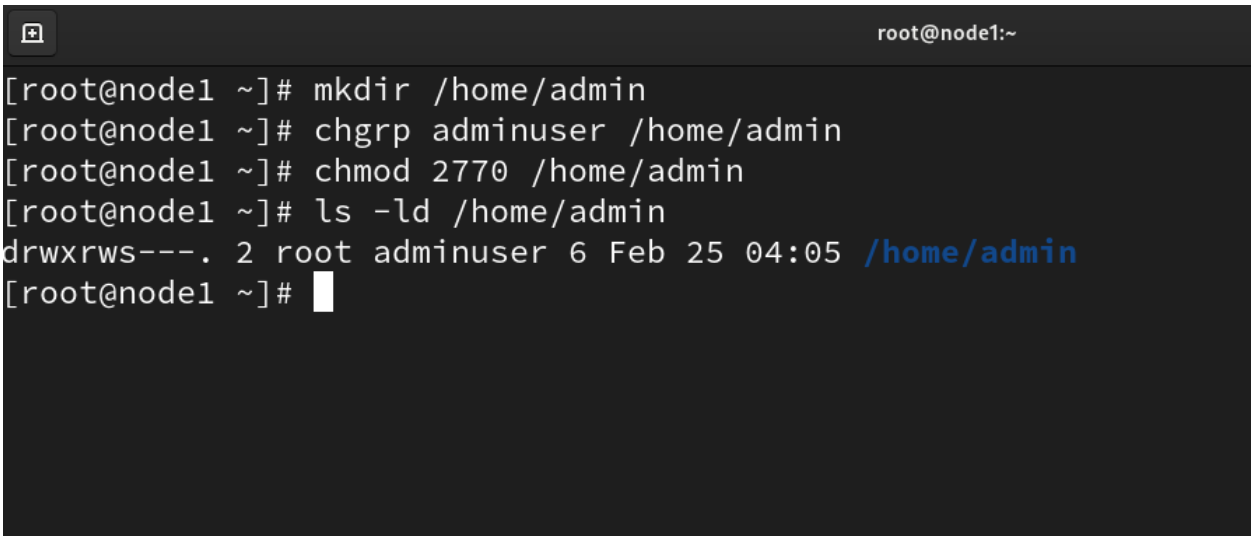
Q6: Create a collaborative directory. - - - -

Create a directory /home/admin with the following characteristics.

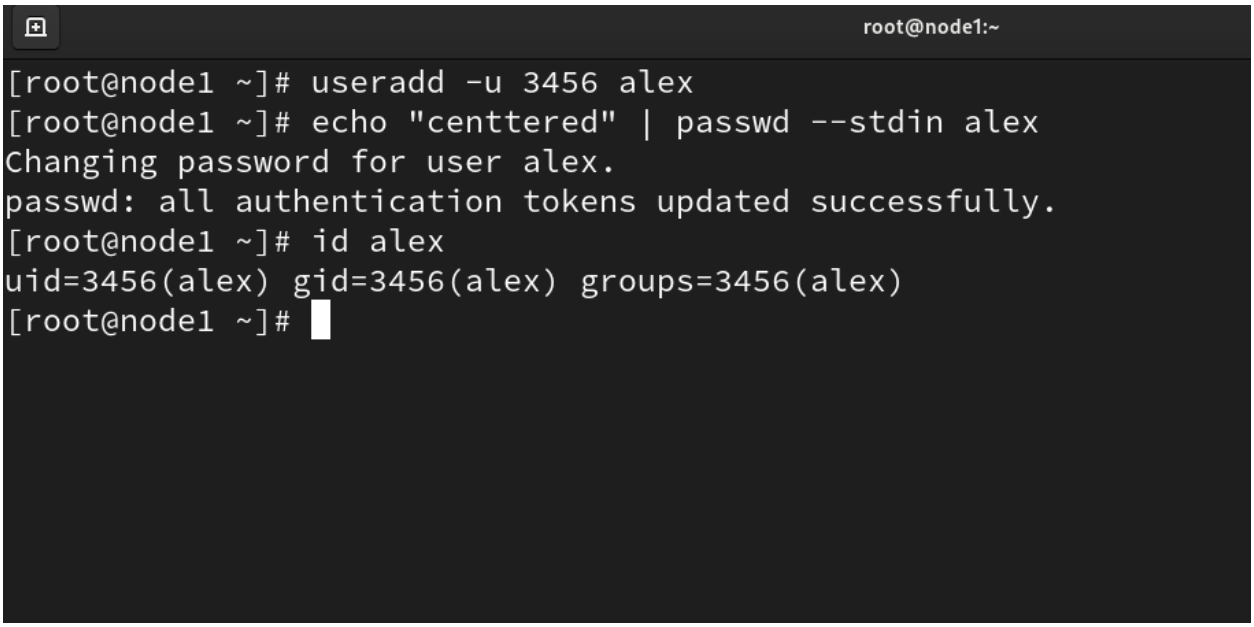
Group ownership of /home/admin is adminuser.

The directory should be readable, writable, and accessible to member of adminuser, but not any other user.

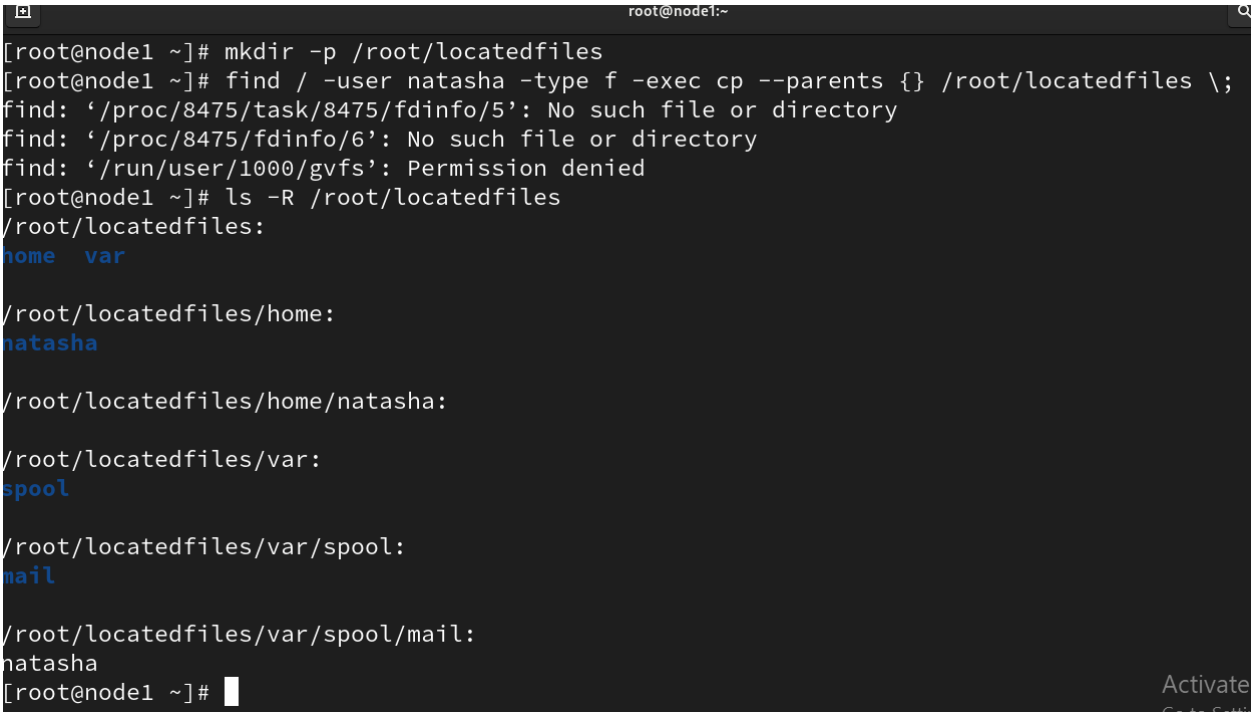
Files created in /home/admin automatically have group ownership set to the adminuser group.



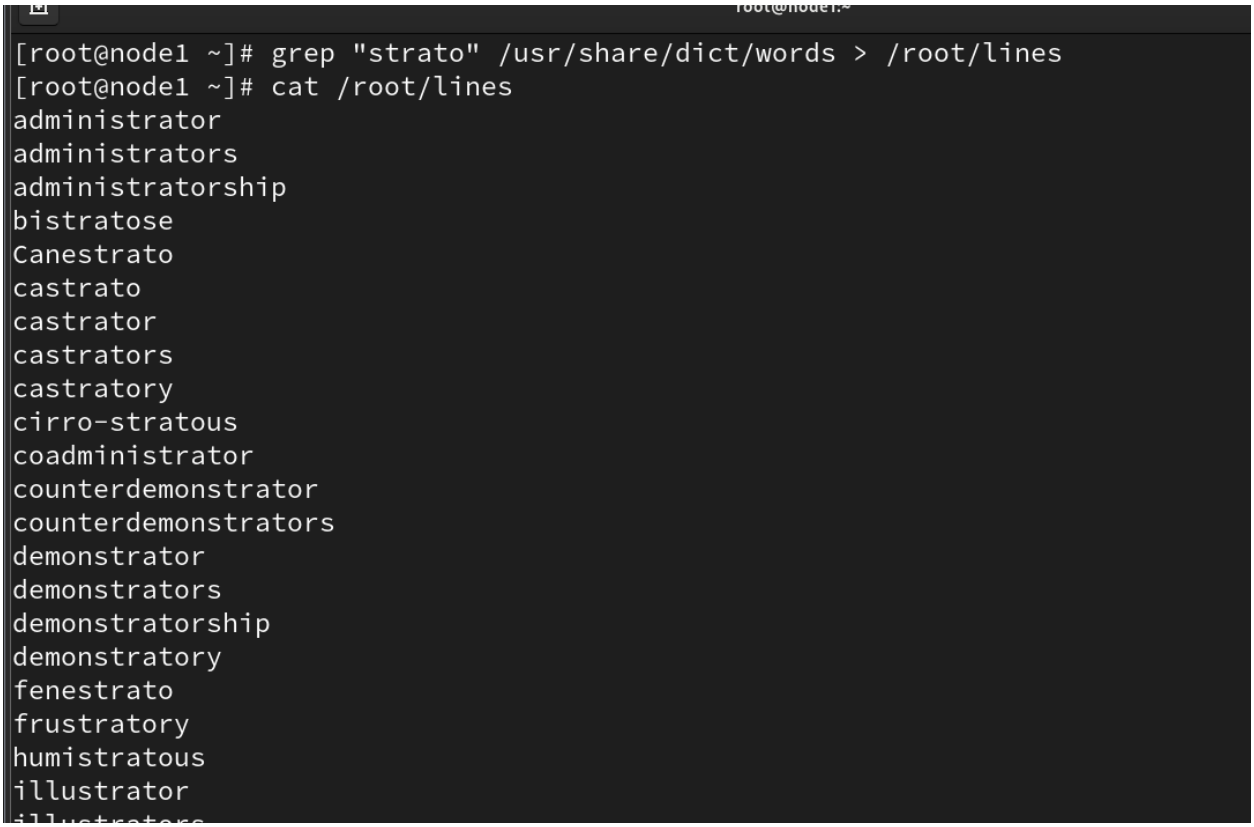
Q7: Create user ‘alex’ with 3456 uid and set password to “centtered”.



Q8: Locate all the files owned by user “natasha” and copy them under /root/locatedfiles.



Q9: Find a string ‘strato’ from /usr/share/dict/words and put it into /root/lines file.



```
[root@node1 ~]# grep "strato" /usr/share/dict/words > /root/lines
[root@node1 ~]# cat /root/lines
administrator
administrators
administratorship
bistratose
Canestrato
castrato
castrator
castrators
castratory
cirro-stratous
coadministrator
counterdemonstrator
counterdemonstrators
demonstrator
demonstrators
demonstratorship
demonstratory
fenestrato
frustratory
humistratous
illustrator
```

Q10: Configure AutoFS

Configure autofs to automount the home directories of remote users. NFS export

/home on your system. In system have preconfigured for remoteuser20

Note: the following requirements automount remoteuser20 home directory: -

remoteuser20 is exported on

classroom.example.com(192.168.71.254):/home/remoteuser20 - -

remoteuser20 home directory should be automounted locally beneath

/home as /home/remoteuser20.

home directories must be writable by their users.

```
[root@node1 ~]# dnf install autofs -y
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to r
egister.

Last metadata expiration check: 0:19:10 ago on Wed 25 Feb 2026 03:50:32 AM EET.
Package autofs-1:5.1.7-36.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@node1 ~]# vi /etc/auto.remoteuser
[root@node1 ~]# vi /etc/auto.master
[root@node1 ~]# systemctl enable --now autofs
Created symlink /etc/systemd/system/multi-user.target.wants/autofs.service → /usr/lib/systemd/s
ystem/autofs.service.
[root@node1 ~]# ls /home/remoteuser20
```

Q11: Create an archive.

a. Create an archive '/root/backup.tar.bz2' of /usr/local directory and compress it with

```
[root@node1 ~]# tar -cjf /root/backup.tar.bz2 /usr/local
tar: Removing leading `/' from member names
[root@node1 ~]# ls -lh /root/backup.tar.bz2
-rw-r--r--. 1 root root 489 Feb 25 04:12 /root/backup.tar.bz2
[root@node1 ~]#
```

bzip2.

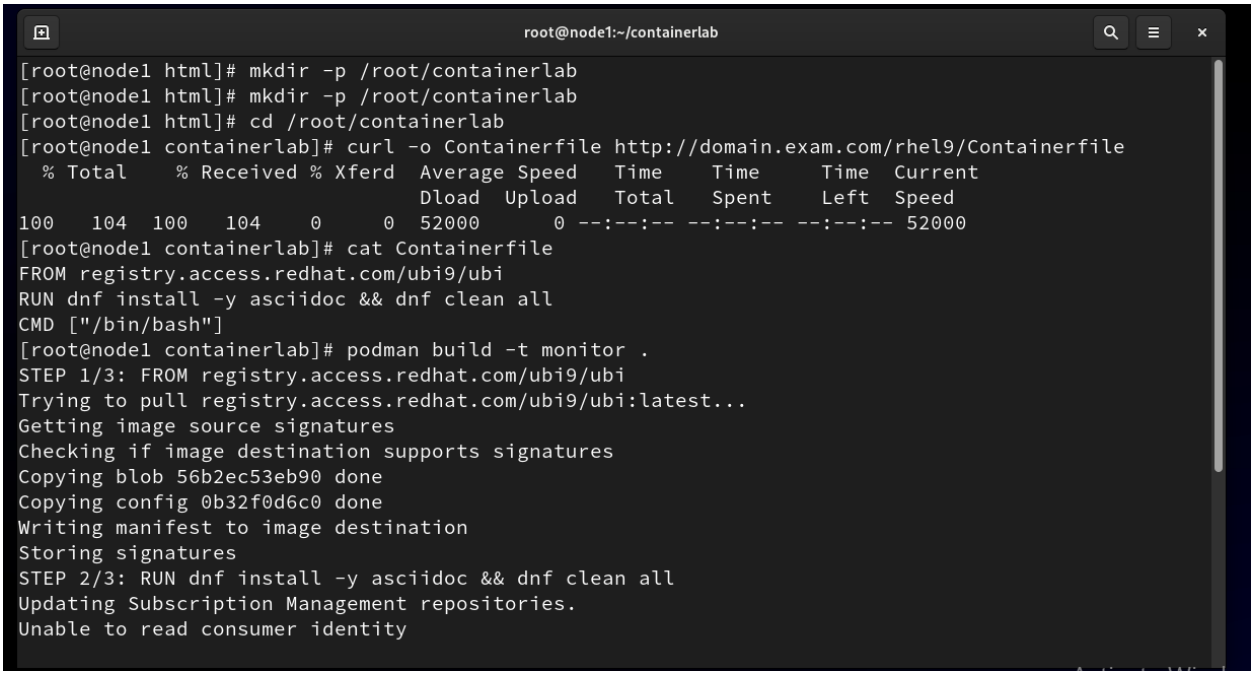
Q12: Create a container for alth user

- **Use this link: http://domain.exam.com/rhel9/Containerfile build image named monitor.**
- **Don't change anything in Container file.**

```
[root@node1 containerlab]# podman build -t monitor .
STEP 1/3: FROM registry.access.redhat.com/ubi9/ubi
Trying to pull registry.access.redhat.com/ubi9/ubi:latest...
Getting image source signatures
Checking if image destination supports signatures
Copying blob 56b2ec53eb90 done
Copying config 0b32f0d6c0 done
Writing manifest to image destination
Storing signatures
STEP 2/3: RUN dnf install -y asciidoc && dnf clean all
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to regi
ster.

Red Hat Universal Base Image 9 (RPMs) - BaseOS   40 kB/s | 533 kB     00:13
Red Hat Universal Base Image 9 (RPMs) - AppStre 138 kB/s | 2.6 MB     00:19
Red Hat Universal Base Image 9 (RPMs) - CodeRea  23 kB/s | 288 kB     00:12
No match for argument: asciidoc
Error: Unable to find a match: asciidoc
```



Q13: Create a rootless container.

- **Create a container name asciipdf**
- **Use monitor image for asciipdf which you previously created.**
- **Create a system service named container-asciipdf for alth user only.**
- **Servie will automatically started across reboot.**

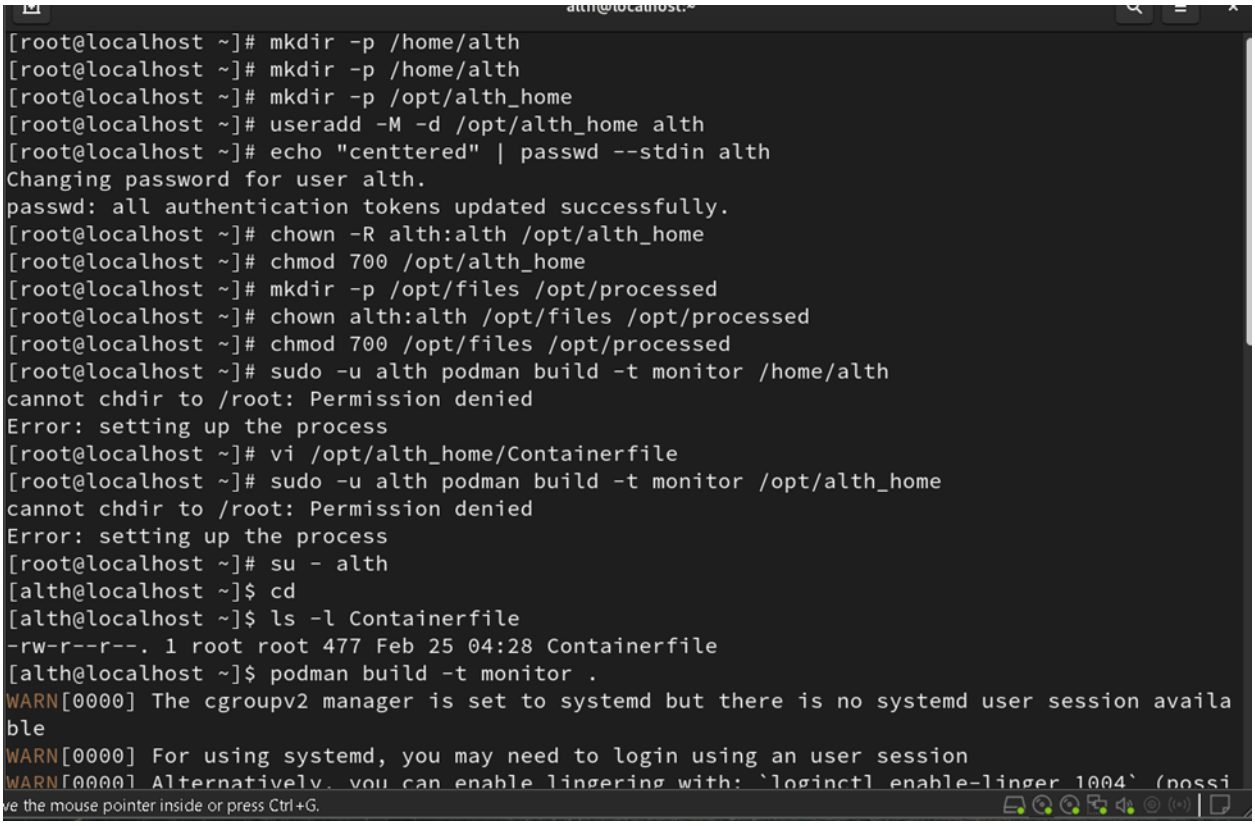
• Local directory /opt/files attached to container directory /opt/incoming.

• Local directory /opt/processed attached to container directory

/opt/outgoing.

• If the service work properly, when you place any plain text file in /opt/file,

then this file automatically converted into pdf and also placed under /opt/processed.



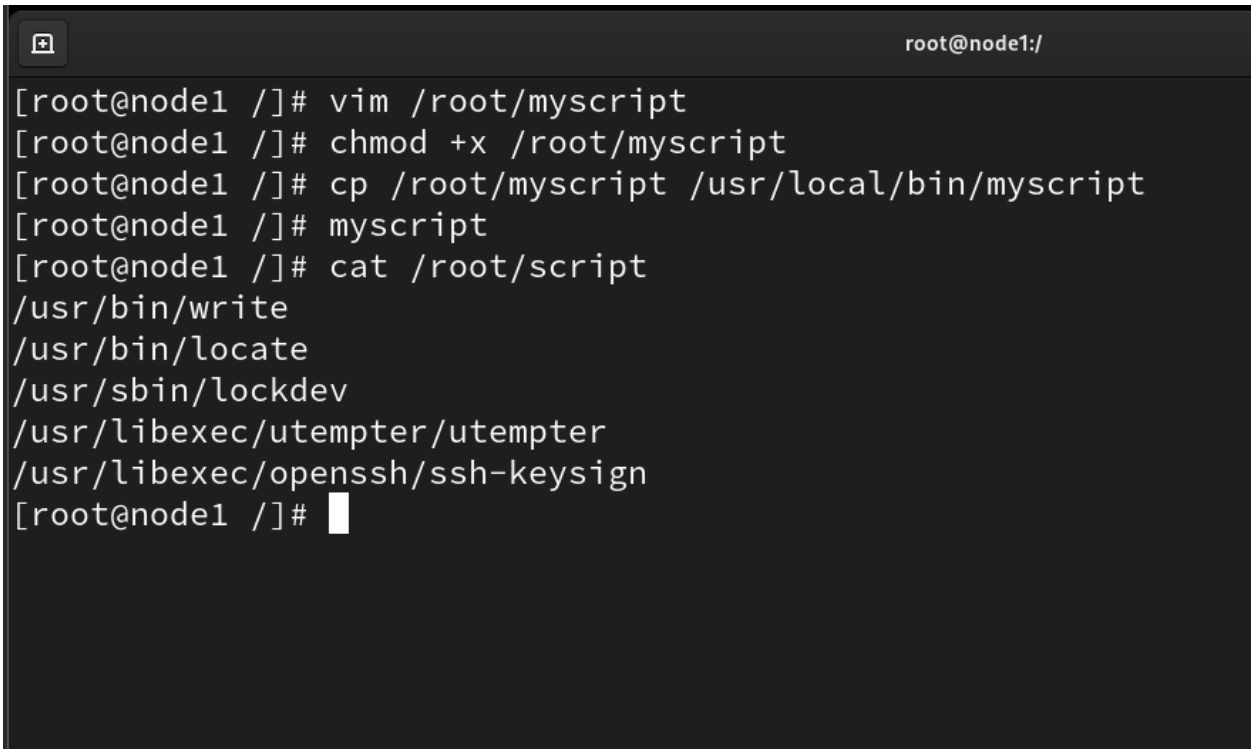
Q14: Make a simple script. <To be Checked> - - - -

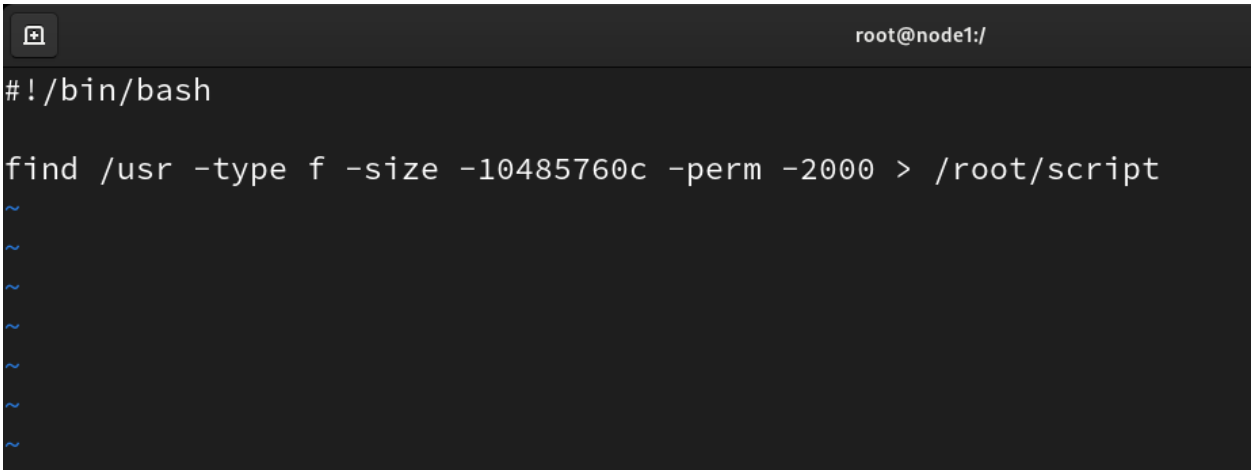
Create myscript file to locate all files under /usr/ of less than 10MB with permissions user identifier (SGID).

Save all these files in list /root/script.

Copy script file in /usr/local/bin.

Make sure that the script run at any location.





Q15: Set the permissions:

a. All the new creating files for user “natasha” as -r-- --- --- as default permission.

b. All the new creating directories for user “natasha” as dr-x --- --- as default

permission.

c. Set the password expire date: The password for all new users in 1st server

should expires after 20 days.

d. Assign sudo Privilege: Assign the sudo Privilege for Group “adminuser” and

Group members can administrate without any password.

```
[root@node1 ~]# setfacl -R -m u:natasha:r-- /home/natasha
[root@node1 ~]# setfacl -R -d -m u:natasha:r-- /home/natasha
```

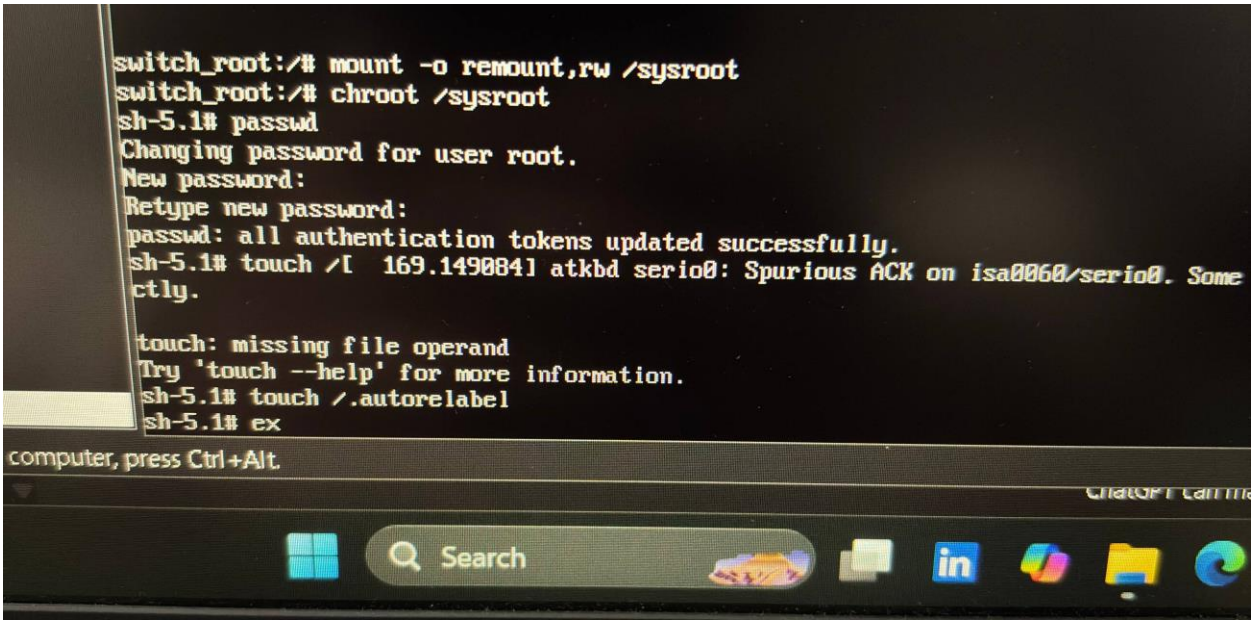
```
[root@node1 ~]# setfacl -m u:natasha:r-x /home/natasha
[root@node1 ~]# setfacl -d -m u:natasha:r-x /home/natasha
```

```
## Allow root to run any commands anywhere
root    ALL=(ALL)       ALL
samy    ALL=(ALL)       ALL
it1     ALL=(ALL)       ALL
Joel    ALL=(ALL)       ALL
%adminuser ALL=(ALL) NOPASSWD: ALL
```

- Node2.example.com:

Q1: Reset root password and make it “centtered”. <You should take care to

enter the GRUB mode of the Rescue part and not from the default part>



Q2: Configure your Red hat VM repository installed the packages distribution is

available via YUM:

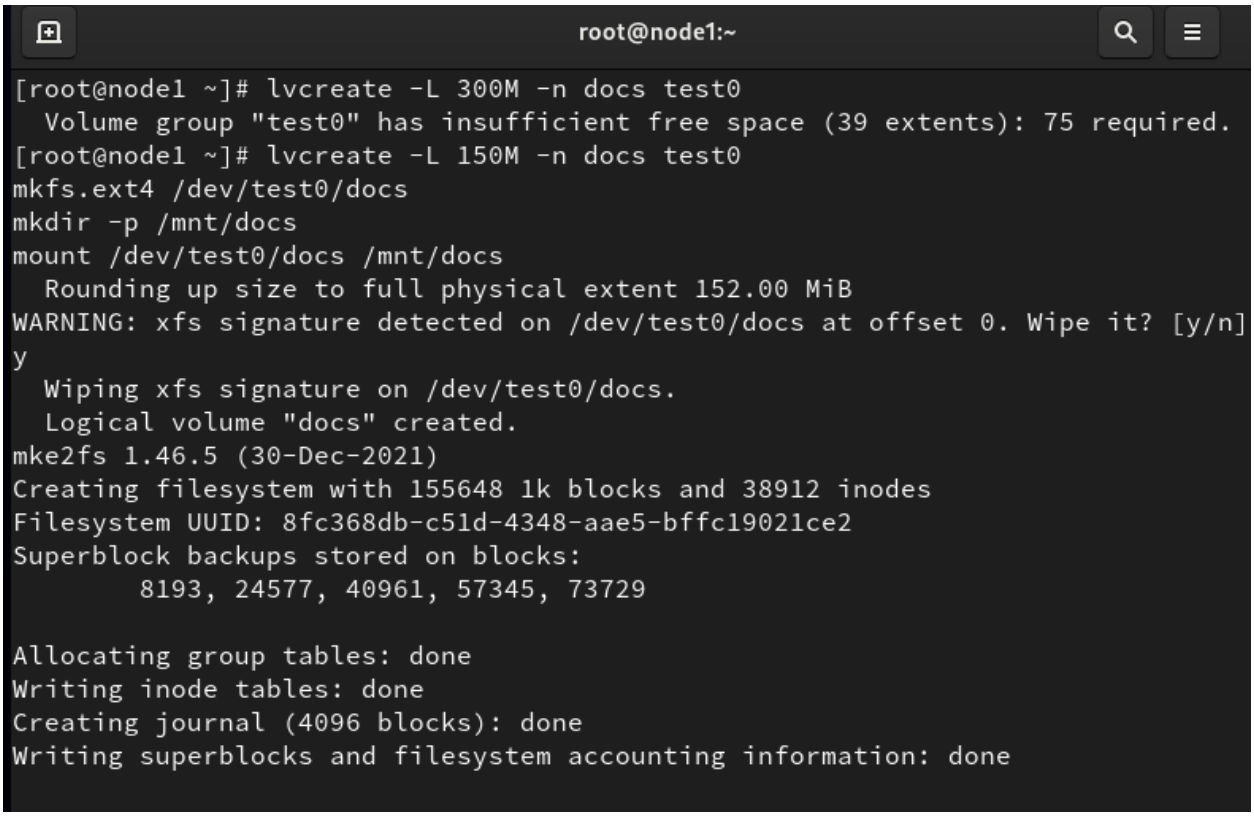
1. BaseOS url= http://domain10.example.com/rhel9/x86_64/dvd/BaseOS

2. AppStream url= http://domain10.example.com/rhel9/x86_64/dvd/AppStream

Q3: Resize the logical volume name lv to 300 MB. Make sure in lv volume have

some data, data should not be affected by resizing. Do not remove or modify

/etc/fstab



```
mount: /mnt/docs: /dev/mapper/test0-docs already mounted
[root@node1 ~]# cat /etc/fstab

#
# /etc/fstab
# Created by anaconda on Fri Feb 20 09:52:02 2026
#
# Accessible filesystems, by reference, are maintained u
# See man pages fstab(5), findfs(8), mount(8) and/or blk
#
# After editing this file, run 'systemctl daemon-reload'
# units generated from this file.
#
/dev/mapper/rhel-root   /                       xfs
UUID=1fc57959-1b58-443e-bee3-c4392edaffb2 /boot
ts         0 0
UUID=EBF0-9359          /boot/efi               vfat
nt 0 2
/dev/mapper/rhel-swap   none                    swap
LABEL=data   /data   ext4   defaults   0 0
/swapfile   swap   swap   defaults   0 0
/dev/test0/data   /mnt/data   xfs   defaults   0 0
/dev/test0/docs   /mnt/docs   ext4   defaults   0 0
[root@node1 ~]#
```

Q4: Add a swap partition of 715MB and mount it permanently.

```
root@node1:~
[root@node1 ~]# lvcreate -L 4M -n swap test0
  Logical volume "swap" created.
[root@node1 ~]# mkswap /dev/test0/swap
Setting up swapspace version 1, size = 4 MiB (4190208 bytes)
no label, UUID=d80a09ec-5967-429f-956c-279442024e95
[root@node1 ~]# swapon /dev/test0/swap
[root@node1 ~]#
```

Q5: Create a Logical Volume - - -

Create a logical volume “database” by using 50 PEs from the volume group

“datastore”.

Consider that each PE size of volume group as “16MB”.

Format with ext3 filesystem and mount permanently under /mnt/database

Q6: Configure recommended tuned profile.