Test Paper 2

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TR3

1. **What is suid, sgid & sticky bit permissions. Explain in brief.**

Ans.

- suid – is a special permission where when a command is executed, the process owner will not be the user but the owner of the executable file of that command
    - for example – the owner of the executable file of useradd is root, so it will be executed by the permission of the user
- sgid – is a special permission for the directories, where when a new file Is created inside the directory, its default group owner will become the group owner of the said directory
- sticky bit – is a special permission which doesn't let the other user delete a creatain file while still having the full permission

2. **(A) The permission drwxr-sr-- represented in numeric expression will be.**
   (B) What is the difference between t and T when applying the sticky bit Permission?

Ans.

(A) – the numeric value for the permission "drwxr-sr--" is "4754"

4 – sgid

7 – read, write and execute = for us

5 – read and execute = for group

4 – read = for others

(B) – The Different Between t and T is

t – is sticky bit for others with execute permission

T – is sticky bit for others without the execute permission

3. **(A) Create a directory called /tmp/techno.**
   (B) Change the group ownership of the /tmp/techno directory to the technical. Group.
   (C) Set permissions on the /tmp/techno directory. On the /tmp/techno directory, configure setgid , read/write/execute permissions for the owner/user and group, and no permissions for other users.

Ans.

```
[root@devops ~]# mkdir -p /tmp/techno
[root@devops ~]# groupadd technical
[root@devops ~]# chgrp technical /tmp/techno
[root@devops ~]# ls -ld /tmp/techno
drwxr-xr-x. 2 root technical 6 Feb  1 14:20 /tmp/techno
[root@devops ~]# chmod 770 /tmp/techno/
[root@devops ~]# ls -ld /tmp/techno
drwxrwx---. 2 root technical 6 Feb  1 14:20 /tmp/techno
[root@devops ~]#
[root@devops ~]# chmod 2770 /tmp/techno/
[root@devops ~]# ls -ld /tmp/techno
drwxrws---. 2 root technical 6 Feb  1 14:20 /tmp/techno
[root@devops ~]#
```

Changes the group of /tmp/techno to technical and also added permission of sgid and read,write and execute for both user and the group with no permission for others

4. **A user reports that they cannot delete a file in /tmp even though they have write permission. What could be the reason?**

Ans.

They may not be able to delete a file in the /tmp directory because the parent file may not have give the permission to the user to execute in the directory.

For example –

```
[root@devops ~]# cd /tmp/techno
[root@devops techno]# touch file1.txt
[root@devops techno]# ls -l
total 0
-rw-r--r--. 1 root technical 0 Feb  1 14:30 file1.txt
[root@devops techno]# su - dev1
[dev1@devops ~]$ cat /tmp/techno/file1.txt
cat: /tmp/techno/file1.txt: Permission denied
[dev1@devops ~]$
```

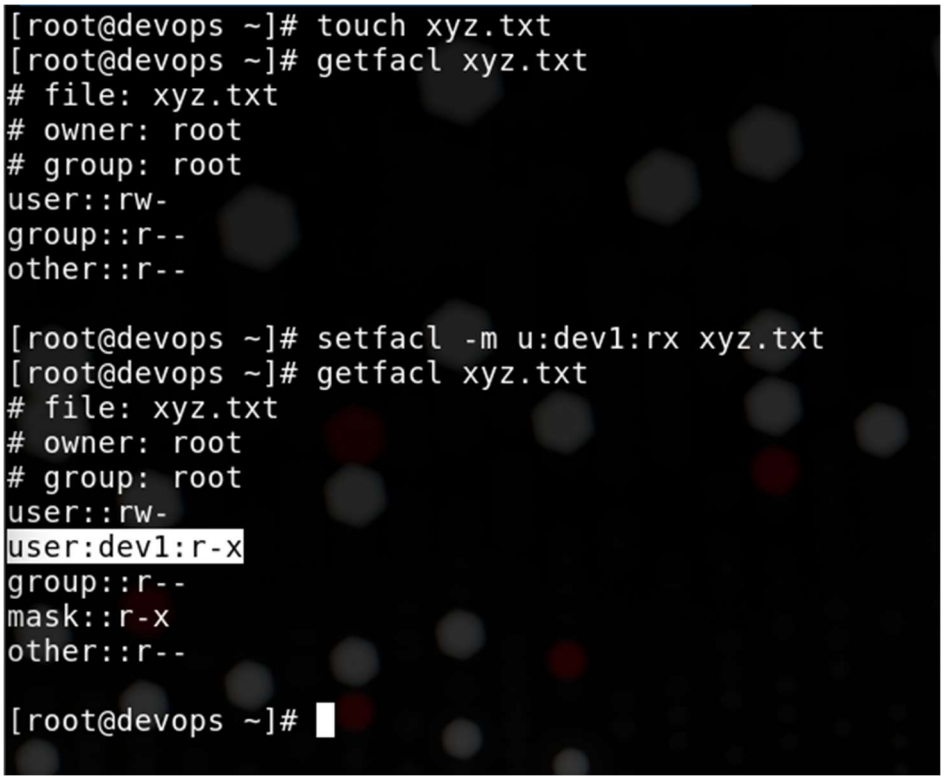
Even though the file1.txt has permission to read for others, the user dev1 is not able to do so as he doesn't have permission in the parent directory

5. **How would you allow a user to have read and execute permissions on a file but not modify it, without changing the group ownership?**

Ans.

To give user permission of read and execute on a file without changing the group ownership is by using ACL – Access control list

For Example –



We can set the permission of read and execute on the file by using acl

6. **You are required to configure the AlmaLinux 9 repository on your system using the following repository URLs:**

   - **AppStream: https://repo.almalinux.org/almalinux/9/AppStream/x86_64/os**
   - **BaseOS: https://repo.almalinux.org/almalinux/9/BaseOS/x86_64/os**

   Before configuring the new repositories, ensure that all existing repositories are removed from the system.

   Tasks: 1. Remove all existing repositories from the system.

   2. Create new repository configuration files for AlmaLinux 9 AppStream and BaseOS.

   3. Verify that the new repositories are properly configured and working.

Ans.

```
[root@devops ~]# ls /etc/yum.repos.d/
[root@devops ~]#
[root@devops ~]# nano /etc/yum.repos.d/techno.repo
```

```
  GNU nano 5.6.1                  /etc/yum.repos.d/techno.repo
[AppStream]
name=appstream
baseurl=https://repo.almalinux.org/almalinux/9/AppStream/x86_64/os
gpgcheck=0
enable=1

[BaseOS]
name=baseos
baseurl=https://repo.almalinux.org/almalinux/9/BaseOS/x86_64/os
gpgcheck=0
enable=1
```

```
[root@devops ~]# yum install httpd
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-ma
nager to register.

appstream                                       1.4 MB/s |  11 MB     00:07
baseos                                          858 kB/s | 9.1 MB     00:10
Last metadata expiration check: 0:00:01 ago on Saturday 01 February 2025 02:47:38 PM.
Dependencies resolved.
================================================================================
 Package                  Arch        Version                 Repository      Size
================================================================================
Installing:
 httpd                    x86_64      2.4.62-1.el9_5.2        AppStream       45 k
Installing dependencies:
 almalinux-logos-httpd    noarch      90.5.1-1.1.el9          AppStream       18 k
 apr                      x86_64      1.7.0-12.el9_3          AppStream      122 k
 apr-util                 x86_64      1.6.1-23.el9            AppStream       94 k
 apr-util-bdb             x86_64      1.6.1-23.el9            AppStream       12 k
 httpd-core               x86_64      2.4.62-1.el9_5.2        AppStream      1.4 M
 httpd-filesystem         noarch      2.4.62-1.el9_5.2        AppStream       12 k
 httpd-tools              x86_64      2.4.62-1.el9_5.2        AppStream       79 k
Installing weak dependencies:
 apr-util-openssl         x86_64      1.6.1-23.el9            AppStream       14 k
 mod_http2                x86_64      2.0.26-2.el9_4.1        AppStream      162 k
 mod_lua                  x86_64      2.4.62-1.el9_5.2        AppStream       58 k

Transaction Summary
================================================================================
Install  11 Packages

Total download size: 2.0 M
Installed size: 6.1 M
Is this ok [y/N]:
```

7. **(A) Which command lists all installed RPM packages on the system?**
   (B) Which command identifies the package that a /etc/passwd file belongs to?
   (C) Which command lists all files installed by a coreutils package?

Ans.

(A) Rpm -qa

```
[root@devops ~]# rpm -qa
libgcc-11.2.1-9.4.el9.x86_64
fonts-filesystem-2.0.5-7.el9.1.noarch
linux-firmware-whence-20220209-126.el9_0.noarch
crypto-policies-20220223-1.git5203b41.el9_0.1.noarch
hwdata-0.348-9.3.el9.noarch
liberation-fonts-common-2.1.3-4.el9.noarch
xkeyboard-config-2.33-2.el9.noarch
tzdata-2022a-1.el9_0.noarch
hyperv-daemons-license-0-0.39.20190303git.el9.noarch
gnome-control-center-filesystem-40.0-23.el9_0.1.noarch
```

(B) Rpm -qf /etc/passwd

```
[root@devops ~]# rpm -qf /etc/passwd
setup-2.13.7-6.el9.noarch
[root@devops ~]#
[root@devops ~]#
```

(C) rpm -ql setup-2.13.7-6.el9.noarch

```
[root@devops ~]# rpm -ql setup-2.13.7-6.el9.noarch
/etc/aliases
/etc/bashrc
/etc/csh.cshrc
/etc/csh.login
/etc/environment
/etc/ethertypes
/etc/exports
/etc/filesystems
/etc/fstab
/etc/group
/etc/gshadow
/etc/host.conf
/etc/hosts
/etc/inputrc
/etc/motd
/etc/motd.d
/etc/networks
/etc/passwd
/etc/printcap
/etc/profile
/etc/profile.d
```

8. (A) Install httpd packages using yum.
(B) Start & Enable it's service. (httpd.service)

Ans. **yum install httpd**

```
[root@devops ~]# yum install httpd
Updating Subscription Management repositories.
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This system is not registered with an entitlement server. You can use subscription-ma
nager to register.

appstream                                       1.4 MB/s |  11 MB     00:07
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Transaction Summary
================================================================================
Install  11 Packages

Total download size: 2.0 M
Installed size: 6.1 M
Is this ok [y/N]:
```

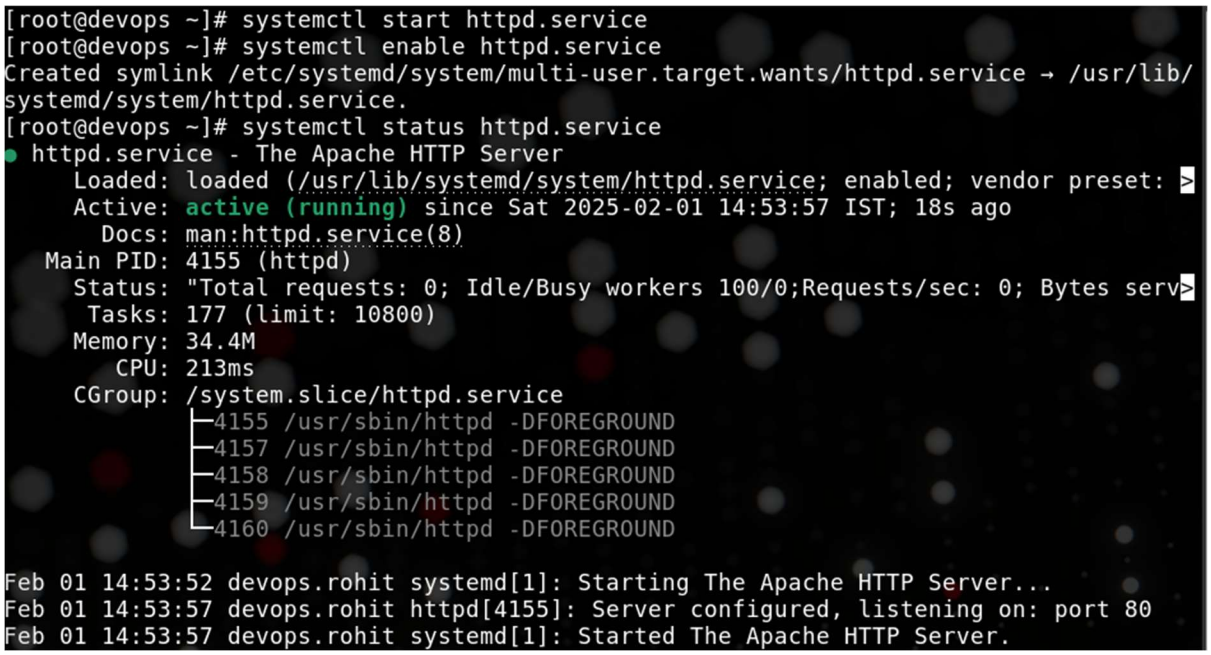

9. What is the difference between dnf, yum, and rpm package management tools in RHEL- based systems?

Ans.

Rpm – is used to install, delete and update any package but can only do for the .rpm files present in the system and cannot resolve dependences

Yum – is a package manager which is used to install, update and remove any package from the system and can also resolve dependencies

Dnf – is a advance version of the yum. Has extra features than yum

10. (A) How to list all enabled service on your machine.

(B) How mask firewalld.service.

Ans.

(A) - systemctl list-unit-files | grep "enabled"

```
[root@devops ~]# systemctl list-unit-files | grep "enabled"
run-vmblock\x2dfuse.mount                  enabled         disabled
cups.path                                  enabled         enabled
accounts-daemon.service                    enabled         enabled
atd.service                                enabled         enabled
auditd.service                             enabled         enabled
avahi-daemon.service                       enabled         enabled
bluetooth.service                          enabled         enabled
chronyd.service                            enabled         enabled
crond.service                              enabled         enabled
cups.service                               enabled         enabled
dbus-broker.service                        enabled         enabled
firewalld.service                          enabled         enabled
gdm.service                                enabled         enabled
getty@.service                             enabled         enabled
httpd.service                              enabled         disabled
insights-client-boot.service               enabled         enabled
irqbalance.service                         enabled         enabled
iscsi-onboot.service                       enabled         enabled
```

Mask the firewalld.service

```
[root@devops ~]# systemctl mask firewalld.service
Created symlink /etc/systemd/system/firewalld.service → /dev/null.
[root@devops ~]#
```

11. (A) How to display load average.

(B) How to filter out processes by CPU utilization.

Ans.

(A) Uptime

```
[root@devops ~]# uptime
 15:39:23 up  2:27,  1 user,  load average: 0.07, 0.05, 0.00
[root@devops ~]#
```

(B) ps -eo %c

```
[root@devops ~]# ps -eo %c
COMMAND
systemd
kthreadd
rcu_gp
rcu_par_gp
kworker/0:0H-events_highpri
mm_percpu_wq
rcu_tasks_kthre
rcu_tasks_rude_
rcu_tasks_trace
ksoftirqd/0
rcu_preempt
```

12. **Define various process states in os.**

Ans.

There are many type of process in linux

(A) User Process
(B) System Process
(C) Deameon Process

The varios state the process are in

- **Killable State**
- **Ready State**
- **Running State**
- **Waiting State**

13. **(A) What is the default signal to terminate a process.**
(B) What is the signal to continue a process.

Ans.

(A) - The default signal is 15 – SIGTERM which gracefully terminates the process
(B) - The signal to continue a process is

14. **(A) How to get back jobs from background to foreground .**

(B) How to change priority of a running process

Ans.

(A) – we can use the fg command with the job id to bring job from the background to the foreground

15. **(A) What is zombie process.**
(B) How to kill all process running by a particular user .
(C) How to kill all process running in a particular terminal .

Ans.

(A) A zombie process is a process which is supposed to be completed but is still present in the process table.

We can find the zombile process by " ps aux | grep "zombie"

(B) We can kill all the process of a particular user by using the pkill command

Pkill -u <user>

(C) We can kill all the process of a particular terminal by using the pkill command

Pkill -t pts/1