



Placement Empowerment Program

Cloud Computing and DevOps Centre

Day 10 – Temp File Cleanup and Disk Usage Tracker

Build a script that deletes temporary files older than a set number of days and logs disk usage before and after cleanup.

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Introduction

In a Linux environment, temporary files (/tmp, cache, or leftover log files) can pile up over time and consume valuable disk space. If not cleaned regularly, they may slow down the system or even lead to storage-related failures.

This Proof of Concept (PoC) demonstrates a bash script that:

Automatically deletes temporary files older than a specific number of days Tracks and logs disk usage before and after cleanup Helps maintain disk hygiene and improves system performance

It's a simple yet powerful solution for system maintenance, especially useful for developers, system administrators, and DevOps teams who manage disk space in shared or production environments.

Overview

This PoC involves creating a bash script that automates the cleanup of temporary files in a specified directory (e.g., /tmp) based on their age and logs system disk usage before and after the cleanup process.

Key Features:

Deletes files older than a defined number of days (e.g., 7 days)

Logs disk usage before and after the cleanup using df -h

Saves output to a log file for reference or auditing

Can be optionally scheduled using cron for automation

Tools & Commands Used:

```
bash - scripting language find - to
```

locate and delete old files df -h -

```
to report disk usage chmod – to make script executable cron (optional) – for periodic execution
```

This script helps ensure that the system runs efficiently by preventing unnecessary file buildup and keeping disk usage under control.

Objectives:

1. Automate Cleanup of Temporary Files

Automatically identify and delete files older than a defined number of days to free up system space.

2. Track Disk Usage Before and After Cleanup

Monitor how much disk space was being used and how much was reclaimed post-cleanup using df -h.

3. Generate Cleanup Logs

Maintain a detailed log file capturing timestamps, actions taken, and disk usage reports for audit and troubleshooting.

4. Promote System Efficiency

Prevent slowdowns and performance issues by removing unnecessary files and managing disk space proactively.

5. Enable Periodic Execution

Make the script reusable and schedulable using cron to ensure consistent maintenance without manual effort.

Importance:

1. Prevents Disk Space Exhaustion

Regularly removing old temporary files ensures critical disk space isn't consumed by unnecessary data.

2. Improves System Performance

A clean and optimized disk helps Linux systems run faster and more reliably, especially for multi-user or server environments.

3. Reduces Manual Work

Automating the cleanup process saves time and reduces human error in managing system storage.

4.Supports Maintenance Best Practices

Logging every cleanup cycle builds a trackable history for audits, debugging, or capacity planning.

5.Essential for DevOps & SysAdmins

Disk management and automation are core responsibilities in Linux system administration and DevOps pipelines.

Step-by-Step Overview

Step 1:Open Terminal

Launch a terminal window on your Linux system.

Step 2:Createa ShellScriptFile

Create a new shell script

sylashri@LAPTOP-DG79B52P:~\$ nano temp.sh

Step 3: Write the Monitoring Script

In the nano editor, Paste the following code:

```
GNU nano 7.2
                                                                            ter
#!/bin/bash
# Variables
TARGET_DIR="/tmp"
LOG_FILE="$HOME/temp_cleanup.log"
DAYS_OLD=7
# Logging start
echo "======= Temp File Cleanup Script ======= > "$LOG_FILE"
echo "Run Timestamp: $(date)" >> "$LOG_FILE"
# Disk usage before cleanup
echo "Disk Usage BEFORE Cleanup:" >> "$LOG_FILE"
df -h >> "$LOG_FILE"
# Cleanup old files
echo "Deleting files older than $DAYS_OLD days in $TARGET_DIR" >> "$LOG_FILE"
find "$TARGET_DIR" -type f -mtime +$DAYS_OLD -exec rm -f {} \;
# Disk usage after cleanup
echo "Disk Usage AFTER Cleanup:" >> "$LOG_FILE"
df -h >> "$LOG_FILE"
echo "====== Cleanup Completed ====== >> "$LOG_FILE"
echo "" >> "$LOG_FILE"
```

Step 4:Save and Exit

Press Ctrl $+ O \rightarrow$ Enter (to save)

Press Ctrl + X (to exit)

Step 5: Make the Script Executable

Back in the terminal:

```
sylashri@LAPTOP-DG79B52P:~$ chmod +x temp.sh
```

This gives the script permission to run as a program

Step 6: Create Dummy Files for Testing (Optional)

```
sylashri@LAPTOP-DG79B52P:~$ cd ~/temp_test
sylashri@LAPTOP-DG79B52P:~/temp_test$ touch old1.log old2.log
sylashri@LAPTOP-DG79B52P:~/temp_test$ find . -type f -exec touch -d '8 days ago' {} \;
```

Step 7: Run the Script

```
sylashri@LAPTOP-DG79852P:~/temp_test$ cd ~
sylashri@LAPTOP-DG79852P:~$ ./temp.sh
find: '/tmp/systemd-private-4292f9a1420142f282423908d7b58f6e-systemd-timesyncd.service-loouSN': Permission denied
find: '/tmp/systemd-private-4292f9a1420142f282423908d7b58f6e-wsl-pro.service-a43PnU': Permission denied
find: '/tmp/systemd-private-tmp': Permission denied
find: '/tmp/systemd-private-4292f9a1420142f282423908d7b58f6e-systemd-logind.service-8eZTzN': Permission denied
find: '/tmp/systemd-private-4292f9a1420142f282423908d7b58f6e-systemd-resolved.service-KMvvYq': Permission denied
```

Step 8: View the Cleanup Log

```
sylashri@LAPTOP-DG79B52P:~$ cat temp_cleanup.log
======== Temp File Cleanup Script ======
Run Timestamp: Mon Jul 7 15:21:45 UTC 2025
Disk Usage BEFORE Cleanup:
Filesystem
                Size
                      Used Avail Use% Mounted on
                                    0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2 1% /mnt/wsl
none
                3.9G
                         0
                            3.9G
                       4.0K
                             3.9G
none
                3.9G
                475G
                                   22% /usr/lib/wsl/drivers
                             374G
drivers
                       102G
                                    1% /
                       2.9G
                             953G
               1007G
/dev/sdc
                                    1% /mnt/wslg
0% /usr/lib/wsl/lib
none
                3.9G
                        76K
                             3.9G
                3.9G
                             3.9G
none
                         0
rootfs
                3.9G
                       2.4M
                             3.9G
                                    1% /init
                3.9G
                      508K
                             3.9G
                                    1% /run
none
                 3.9G
                             3.9G
                                    0% /run/lock
                3.9G
                          0
                             3.9G
                                    0% /run/shm
none
tmpfs
                4.0M
                          0
                             4.0M
                                    0% /sys/fs/cgroup
                3.9G
                        76K
                             3.9G
                                    1% /mnt/wslg/versions.txt
none
                             3.9G
none
                 3.9G
                        76K
                                    1% /mnt/wslg/doc
                475G
                             374G
                       102G
                                   22% /mnt/c
C:\
tmpfs
                781M
                       16K 781M
                                    1% /run/user/1000
Deleting files older than 7 days in /tmp
Disk Usage AFTER Cleanup:
Filesystem
                Size
                       Used Avail Use% Mounted on
                           3.9G
                                    0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
                3.9G
                         0
none
                                   1% /mnt/wsl
22% /usr/lib/wsl/drivers
none
                3.9G
                       4.0K
                             3.9G
                475G
                             374G
drivers
                       102G
/dev/sdc
               1007G
                       2.9G
                             953G
                        76K
                                    1% /mnt/wslg
                             3.9G
none
                3.9G
                             3.9G
                                    0% /usr/lib/wsl/lib
                 3.9G
                         0
none
rootfs
                3.9G
                       2.4M
                             3.9G
                                    1% /init
                3.9G
                       508K
                             3.9G
                                    1% /run
none
                3.9G
                         0
                             3.9G
                                    0% /run/lock
none
                             3.9G
none
                 3.9G
                          0
                                    0% /run/shm
                                    0% /sys/fs/cgroup
tmpfs
                4.0M
                         0
                             4.0M
                             3.9G
none
                3.9G
                        76K
                                    1% /mnt/wslg/versions.txt
                                   1% /mnt/wslg/doc
22% /mnt/c
                             3.9G
                3.9G
                        76K
none
                             374G
C:\
                475G
                       102G
tmpfs
                       16K 781M
                                   1% /run/user/1000
                781M
======= Cleanup Completed ========
====== Temp File Cleanup Script ========
```

```
Run Timestamp: Mon Jul 7 15:29:35 UTC 2025
Disk Usage BEFORE Cleanup:
                Size Used Avail Use% Mounted on
Filesystem
                                   0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
                3.9G
none
                         0
                           3.9G
                3.9G
                      4.0K
                                   1% /mnt/wsl
none
                           3.9G
                475G
                      102G
                            374G
                                  22% /usr/lib/wsl/drivers
drivers
                                   1% /
               1007G
                      2.9G
/dev/sdc
                            953G
                3.9G
                            3.9G
                                   1% /mnt/wslg
none
                       76K
                                   0% /usr/lib/wsl/lib
                3.9G
                        0
                            3.9G
none
                3.9G
                      2.4M
                                   1% /init
rootfs
                            3.9G
                           3.9G
                3.9G
                      508K
                                   1% /run
none
                                   0% /run/lock
                            3.9G
none
                3.9G
                         0
                3.9G
                                   0% /run/shm
                         0
                            3.9G
none
tmpfs
                4.0M
                         0
                           4.0M
                                   0% /sys/fs/cgroup
                      76K 3.9G
76K 3.9G
102G 374G
                3.9G
3.9G
                                   1% /mnt/wslg/versions.txt
none
                                  1% /mnt/wslg/doc
22% /mnt/c
none
                475G
C:\
                       16K 781M
tmpfs
                781M
                                   1% /run/user/1000
Deleting files older than 7 days in /tmp
Disk Usage AFTER Cleanup:
                     Used Avail Use% Mounted on
Filesystem
                Size
                3.9G
                         0 3.9G
                                   0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
none
                3.9G
                      4.0K 3.9G
                                   1% /mnt/wsl
none
                                  22% /usr/lib/wsl/drivers
drivers
                475G
                      102G
                            374G
                      2.9G
/dev/sdc
                            953G
               1007G
                                   1% /
                3.9G
                       76K
                            3.9G
                                   1% /mnt/wslg
none
none
                3.9G
                         0
                            3.9G
                                   0% /usr/lib/wsl/lib
                           3.9G
rootfs
                3.9G
                      2.4M
                                   1% /init
                                   1% /run
0% /run/lock
                            3.9G
none
                3.9G
                      508K
                3.9G
                         0
                           3.9G
none
                3.9G
                         0
                           3.9G
                                   0% /run/shm
none
                                   0% /sys/fs/cgroup
1% /mnt/wslg/versions.txt
1% /mnt/wslg/doc
tmpfs
                4.0M
                         0 4.0M
none
                3.9G
                       76K
                            3.9G
                       76K 3.9G
                3.9G
none
                475G
                      102G 374G
                                  22% /mnt/c
C:\
                       16K 781M
                                  1% /run/user/1000
tmpfs
                781M
======= Cleanup Completed ========
```

```
Run Timestamp: Mon Jul 7 15:43:26 UTC 2025
Disk Usage BEFORE Cleanup:
Filesystem
               Size
                      Used Avail Use% Mounted on
                            3.9G
                                   0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
none
                3.9G
                         0
                3.9G
                      4.0K
                            3.9G
none
                                   1% /mnt/wsl
                                  22% /usr/lib/wsl/drivers
               475G
                      102G
                            374G
drivers
                                   1% /
/dev/sdc
               1007G
                      2.9G
                            953G
                                   1% /mnt/wslg
0% /usr/lib/wsl/lib
                3.9G
                       76K
                            3.9G
none
                3.9G
                            3.9G
none
                         0
                      2.4M
rootfs
                3.9G
                            3.9G
                                   1% /init
                            3.9G
3.9G
                                   1% /run
0% /run/lock
                3.9G
                      508K
none
                3.9G
none
                         0
                                   0% /run/shm
                3.9G
                            3.9G
                         0
none
                4.0M
tmpfs
                        0
                            4.0M
                                   0% /sys/fs/cgroup
                       76K
                            3.9G
                3.9G
                                   1% /mnt/wslg/versions.txt
none
                3.9G
                            3.9G
                                  1% /mnt/wslg/doc
                       76K
none
                475G
                            374G
                      102G
                                  22% /mnt/c
C:\
tmpfs
                781M
                       16K
                            781M
                                   1% /run/user/1000
Deleting files older than 7 days in /tmp
Disk Usage AFTER Cleanup:
                Size
Filesystem
                     Used Avail Use% Mounted on
                           3.9G
                3.9G
                                   0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
none
                         0
                      4.0K
                3.9G
                            3.9G
                                   1% /mnt/wsl
none
                475G
                      102G
                            374G 22% /usr/lib/wsl/drivers
drivers
                      2.9G
                                   1% /
/dev/sdc
                            953G
               1007G
                3.9G
                       76K
                            3.9G
                                   1% /mnt/wslg
none
                                   0% /usr/lib/wsl/lib
1% /init
                            3.9G
3.9G
                3.9G
                        0
none
                      2.4M
                3.9G
rootfs
                                   1% /run
                3.9G
                            3.9G
none
                      508K
                            3.9G
3.9G
                3.9G
                                   0% /run/lock
                         0
none
                3.9G
none
                         0
                                   0% /run/shm
                       0
                                   0% /sys/fs/cgroup
tmpfs
                4.0M
                            4.0M
none
                3.9G
                       76K
                            3.9G
                                   1% /mnt/wslg/versions.txt
                3.9G
                            3.9G
                                   1% /mnt/wslg/doc
                       76K
none
                            374G
                475G
                      102G
                                  22% /mnt/c
C:\
tmpfs
                            781M
                                  1% /run/user/1000
                781M
                       16K
```

Outcomes:

1.Successfully Deleted Old Temporary Files

All files older than 7 days in the target directory (e.g., /tmp) are automatically removed.

2.Disk Space Reclaimed

The script helps free up storage space by clearing out unnecessary files.

3. Disk Usage Logged Before and After Cleanup

Disk usage statistics are captured and stored in a log file (temp_cleanup.log), showing how much space was recovered.

4.Automated Cleanup Process Established

The script can be reused or scheduled via cron for regular, hands-free execution.

5. Improved System Health and Maintainability

Regular cleanup improves performance, prevents storage-related issues, and supports good system hygiene.

6.Learned and Applied Shell Scripting Skills

Reinforced knowledge of bash, find, df -h, logging, permission handling, and automation with cron.