

## **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 -x` 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 → 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-DG79B52P:~/temp_test$ cd ~
sylashri@LAPTOP-DG79B52P:~$ ./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/snap-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                                          |
|------------|-------|------|-------|------|-----------------------------------------------------|
| none       | 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                                            |
| drivers    | 475G  | 102G | 374G  | 22%  | /usr/lib/wsl/drivers                                |
| /dev/sdc   | 1007G | 2.9G | 953G  | 1%   | /                                                   |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg                                           |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /usr/lib/wsl/lib                                    |
| rootfs     | 3.9G  | 2.4M | 3.9G  | 1%   | /init                                               |
| none       | 3.9G  | 508K | 3.9G  | 1%   | /run                                                |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /run/lock                                           |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /run/shm                                            |
| tmpfs      | 4.0M  | 0    | 4.0M  | 0%   | /sys/fs/cgroup                                      |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg/versions.txt                              |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg/doc                                       |
| C:\        | 475G  | 102G | 374G  | 22%  | /mnt/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                                          |
|------------|-------|------|-------|------|-----------------------------------------------------|
| none       | 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                                            |
| drivers    | 475G  | 102G | 374G  | 22%  | /usr/lib/wsl/drivers                                |
| /dev/sdc   | 1007G | 2.9G | 953G  | 1%   | /                                                   |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg                                           |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /usr/lib/wsl/lib                                    |
| rootfs     | 3.9G  | 2.4M | 3.9G  | 1%   | /init                                               |
| none       | 3.9G  | 508K | 3.9G  | 1%   | /run                                                |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /run/lock                                           |
| none       | 3.9G  | 0    | 3.9G  | 0%   | /run/shm                                            |
| tmpfs      | 4.0M  | 0    | 4.0M  | 0%   | /sys/fs/cgroup                                      |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg/versions.txt                              |
| none       | 3.9G  | 76K  | 3.9G  | 1%   | /mnt/wslg/doc                                       |
| C:\        | 475G  | 102G | 374G  | 22%  | /mnt/c                                              |
| tmpfs      | 781M  | 16K  | 781M  | 1%   | /run/user/1000                                      |


===== Cleanup Completed =====

===== Temp File Cleanup Script =====
```

Run Timestamp: Mon Jul 7 15:29:35 UTC 2025

Disk Usage BEFORE Cleanup:

Filesystem	Size	Used	Avail	Use%	Mounted on
none	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
drivers	475G	102G	374G	22%	/usr/lib/wsl/drivers
/dev/sdc	1007G	2.9G	953G	1%	/
none	3.9G	76K	3.9G	1%	/mnt/wslg
none	3.9G	0	3.9G	0%	/usr/lib/wsl/lib
rootfs	3.9G	2.4M	3.9G	1%	/init
none	3.9G	508K	3.9G	1%	/run
none	3.9G	0	3.9G	0%	/run/lock
none	3.9G	0	3.9G	0%	/run/shm
tmpfs	4.0M	0	4.0M	0%	/sys/fs/cgroup
none	3.9G	76K	3.9G	1%	/mnt/wslg/versions.txt
none	3.9G	76K	3.9G	1%	/mnt/wslg/doc
C:\	475G	102G	374G	22%	/mnt/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
none	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
drivers	475G	102G	374G	22%	/usr/lib/wsl/drivers
/dev/sdc	1007G	2.9G	953G	1%	/
none	3.9G	76K	3.9G	1%	/mnt/wslg
none	3.9G	0	3.9G	0%	/usr/lib/wsl/lib
rootfs	3.9G	2.4M	3.9G	1%	/init
none	3.9G	508K	3.9G	1%	/run
none	3.9G	0	3.9G	0%	/run/lock
none	3.9G	0	3.9G	0%	/run/shm
tmpfs	4.0M	0	4.0M	0%	/sys/fs/cgroup
none	3.9G	76K	3.9G	1%	/mnt/wslg/versions.txt
none	3.9G	76K	3.9G	1%	/mnt/wslg/doc
C:\	475G	102G	374G	22%	/mnt/c
tmpfs	781M	16K	781M	1%	/run/user/1000

=====  
Cleanup Completed  
=====

=====  
Temp File Cleanup Script  
=====

```

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

```

## 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.