

Experiment: [Daily System Logger Script]

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AIM:

- To create a shell script that logs current system information, rotates old logs, and schedules itself to run daily.

Requirements:

- Any Linux Distro(mint)
- Any text editor (VS Code, Vim, Nano, etc.)
- Cron service for scheduling

Theory:

In system administration, automated logging is crucial for monitoring system performance, diagnosing issues, and maintaining records.

This experiment involves:

1. Logging details like username, date, processes, and disk usage.
2. Archiving old logs automatically.
3. Scheduling the script to run daily using `cron`.

Procedure & Observations

Exercise 1: Creating the Daily Log Script

Task Statement:

Write a shell script that logs system info and handles automatic rotation of old logs.

Explanation:

This script:

- Identifies the current user.
- Creates a directory for storing logs.

- Saves daily logs with timestamps.
- Archives logs older than 7 days.
- Can be scheduled using a cron job.

Command(s):

```
#!/bin/bash
SYS_D="$HOME/daily_logs"
ARCHIVE_DIR="$SYS_D/archive"
mkdir -p "$ARCHIVE_DIR"
LOG_FILE="$SYS_D/log_$(date +%Y-%m-%d).txt"
{
    echo "====="
    echo "System Log for: $(date)"
    echo "User: $(whoami)"
    echo "====="
    echo
    echo "Uptime:"
    uptime
    echo
    echo "Top 5 CPU-consuming processes:"
    ps -eo pid,comm,%mem,%cpu --sort=-%cpu | head -n 6
    echo
    echo "Disk Usage:"
    df -h
} > "$LOG_FILE"
find "$SYS_D" -name "log_*.txt" -mtime +7 -exec mv {} "$ARCHIVE_DIR" \;

if [ "$(date +%u)" -eq 7 ]; then
    tar -czf "$ARCHIVE_DIR/weeklylogs_$(date +%Y-%m-%d).tar.gz" -C "$ARCHIVE_DIR" .
fi
```

Output Example:

```

friday@friday-VirtualBox: ~/midterm
GNU nano 7.2 /home/friday/daily_logs/log/2025-11-24.txt
=====
System Log for: Monday 24 November 2025 10:33:13 PM IST
User: friday
=====

Uptime:
22:33:13 up 11 min,  1 user,  load average: 0.65, 1.07, 0.92

Top 5 CPU-consuming processes:
PID COMMAND           %MEM %CPU
2628 ps                 0.2 66.6
1733 firefox-bin        21.5 13.0
2030 Isolated Web Co 16.6 10.9
1349 cinnamon          9.4  8.5
859 Xorg                7.0  1.7

Disk Usage:
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           197M  1.2M  196M   1% /run
/dev/sda3       24G   11G   12G  49% /
tmpfs           985M   0 985M   0% /dev/shm
tmpfs           5.0M  8.0K  5.0M   1% /run/lock
/dev/sda2       512M  6.2M  506M   2% /boot/efi
tmpfs           197M  184K  197M   1% /run/user/1000

```

Exercise 2: Scheduling the Script

Task Statement:

Schedule the above script to run daily using cron.

Explanation:

Use crontab to automate the script execution at a fixed time every day.

Command(s):

bash

crontab -l

Use date +%Y-%m-%d for file naming.

Use find . -name "log_*.txt" -mtime +7 to identify old files.

Check system storage with df -h.

For archiving, use tar -czf weeklylogs_\$(date +%Y-%m-%d).tar.gz.

Store archives in ~/daily_logs/archive.

Scheduling(cron job)

Using crontab -e to schedule the script to run everyday at a fixed time.

eg.

Result:

The script successfully logs daily system information, archives logs older than 7 days, and schedules itself to run daily using a cron job.