

## Monitoring Resources using Shell Script

Tasks: Write a shell script to:

- Monitor server resource usage (CPU, memory, disk).
- Send an email alert if usage exceeds a threshold.

# Install the postfix and email notification.

```
root@shell:/home/azureuser# sudo postfix status
postfix/postfix-script: the Postfix mail system is running: PID: 1315
root@shell:/home/azureuser# sudo systemctl postfix
Unknown command verb 'postfix', did you mean 'start'?
root@shell:/home/azureuser# sudo systemctl status postfix
● postfix.service - Postfix Mail Transport Agent
   Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; preset: enabled)
   Active: active (exited) since Thu 2024-12-26 11:35:24 UTC; 9min ago
     Docs: man:postfix(1)
   Process: 1324 ExecStart=/bin/true (code=exited, status=0/SUCCESS)
    Main PID: 1324 (code=exited, status=0/SUCCESS)
       CPU: 2ms

Dec 26 11:35:24 shell systemd[1]: Starting postfix.service - Postfix Mail Transport Agent...
Dec 26 11:35:24 shell systemd[1]: Finished postfix.service - Postfix Mail Transport Agent.
root@shell:/home/azureuser#
```

# Configure SMTP settings with your Gmail app password.

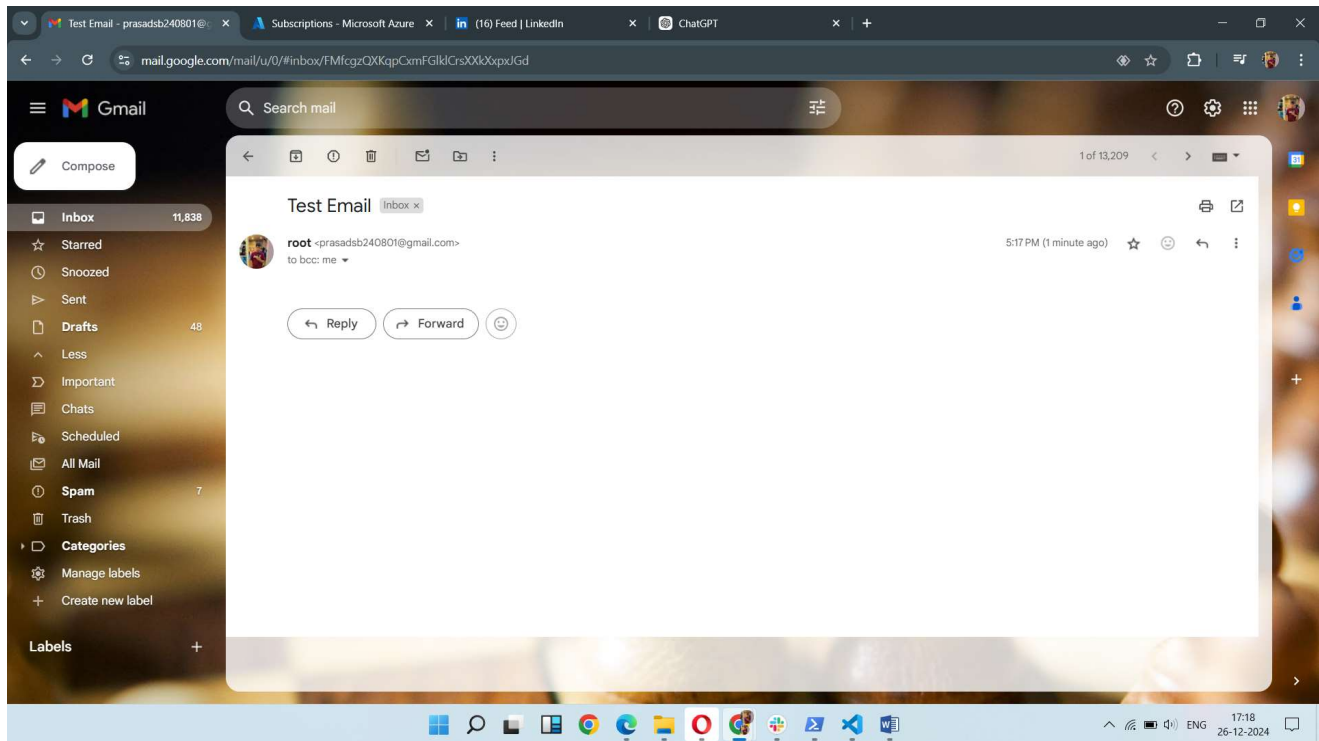
```
root@shell: ~
GNU nano 7.2 /etc/postfix/sasl/sasl_passwd
[smtp.gmail.com]:587 prasadsb240801@gmail.com:oyhv mkqb edej wmkv
```

# Test email sending: `echo "Test" | mail -s "Test Subject" your-email@gmail.com`

```
root@shell:/home/azureuser
CPU: 2ms

Dec 26 11:35:24 shell systemd[1]: Starting postfix.service - Postfix Mail Transport Agent...
Dec 26 11:35:24 shell systemd[1]: Finished postfix.service - Postfix Mail Transport Agent.
root@shell:/home/azureuser# sudo systemctl restart postfix
root@shell:/home/azureuser# postfix -v
postfix: name_mask: all
postfix: inet_addr_local: configured 2 IPv4 addresses
postfix: inet_addr_local: configured 3 IPv6 addresses
postfix/postfix-script: fatal: unknown command: ''. Usage: postfix start (or stop, reload, abort, flush, check, status, set-permissions)
root@shell:/home/azureuser# sudo postfix check
root@shell:/home/azureuser# sudo postfix flush
root@shell:/home/azureuser# echo "Subject: Test Email" | sendmail prasadsb240801@gmail.com
root@shell:/home/azureuser# sudo postqueue -p
Mail queue is empty
root@shell:/home/azureuser# sudo tail -f /var/log/mail.log
2024-12-26T11:45:48.448868+00:00 shell postfix[2034]: name_mask: all
2024-12-26T11:45:48.449366+00:00 shell postfix[2034]: inet_addr_local: configured 2 IPv4 addresses
2024-12-26T11:45:48.449552+00:00 shell postfix[2034]: inet_addr_local: configured 3 IPv6 addresses
2024-12-26T11:45:48.467295+00:00 shell postfix/postfix-script[2039]: fatal: unknown command: ''. Usage: postfix start (or stop, reload, abort, flush, check, status, set-permissions)
2024-12-26T11:47:24.479098+00:00 shell postfix/pickup[2029]: 74D9F406AB: uid=0 from=<root>
2024-12-26T11:47:24.491910+00:00 shell postfix/cleanup[2295]: 74D9F406AB: message-id=<20241226114724.74D9F406AB@shell.dv02nb4qct3urad1p>
2024-12-26T11:47:24.495407+00:00 shell postfix/qmgr[2031]: 74D9F406AB: from=<root@shell.dv02nb4qct3urad1p34krwdfje.rx.internal.cloudapp>
2024-12-26T11:47:24.580554+00:00 shell postfix/smtp[2297]: connect to smtp.gmail.com[2404:6800:4003:c05:6d]:587: Network is unreachable
2024-12-26T11:47:27.578547+00:00 shell postfix/smtp[2297]: 74D9F406AB: to=<prasadsb240801@gmail.com>, relay=smtp.gmail.com[142.250.4.10]:587, delay=2.9s, dsn=4.0.0, status=sent (250 OK 1735213647 98e67ed59e1d1-2f454f58087sm13056894a91.11 - gsmtpt)
2024-12-26T11:47:27.578878+00:00 shell postfix/qmgr[2031]: 74D9F406AB: removed
```

# Success !!!

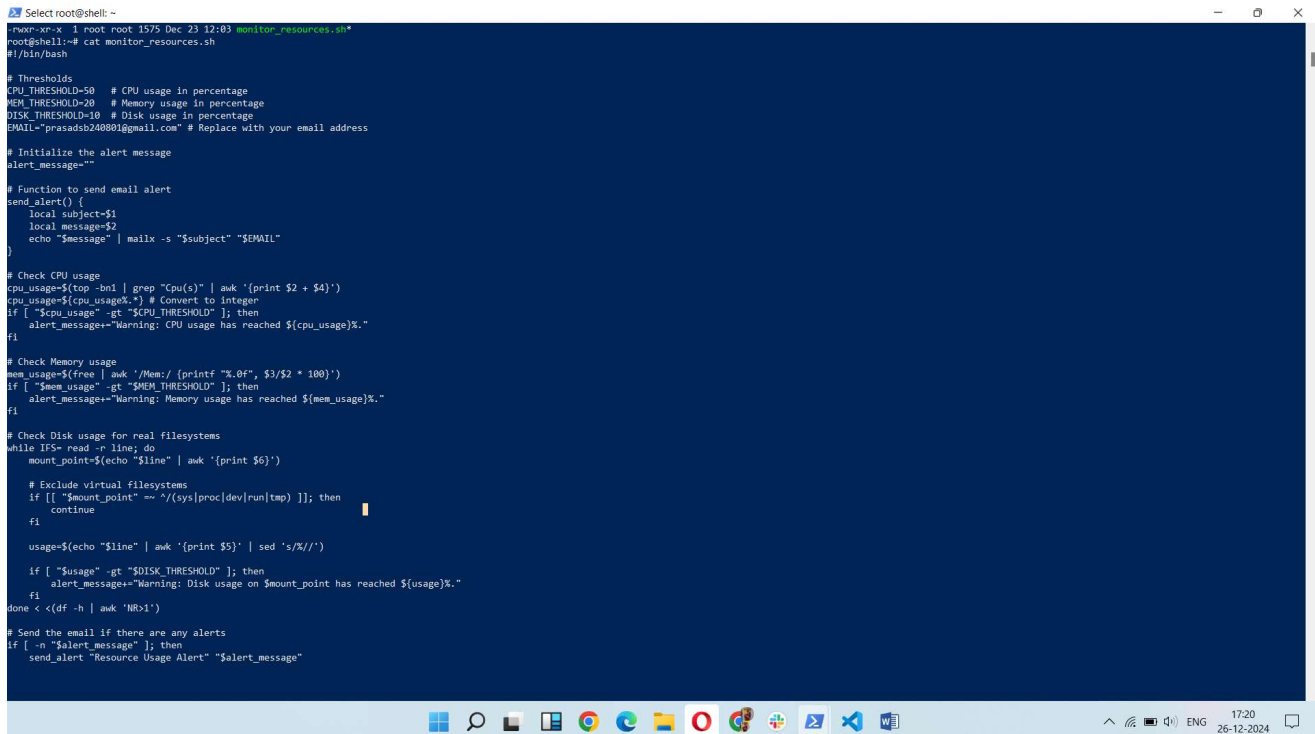


Monitors three key resources:

- CPU usage using `top` command
- Memory usage using `free` command
- Disk usage using `df` command

Configurable thresholds:

- CPU: 50%
- Memory: 20%
- Disk: 10%



# Make it executable: `chmod +x monitor.sh`

```
root@shell:~# ll
total 52
drwx----- 6 root root 4096 Dec 26 12:03 /
drwxr-xr-x 22 root root 4096 Dec 26 11:35 ../
-rw----- 1 root root 6440 Dec 26 06:46 .bash_history
-rw-r--r-- 1 root root 3106 Apr 22 2024 .bashrc
drwxr-xr-x 3 root root 4096 Dec 24 05:22 .cache/
drwx----- 3 root root 4096 Dec 23 10:25 .config/
-rw----- 1 root root 20 Dec 26 11:45 .lessshst
drwxr-xr-x 3 root root 4096 Dec 23 09:47 .local/
-rw-r--r-- 1 root root 161 Apr 22 2024 .profile
-rw-r--r-- 1 root root 66 Dec 23 10:32 .selected_editor
drwx----- 2 root root 4096 Dec 23 09:36 .ssh/
-rwxr-xr-x 1 root root 1575 Dec 26 12:02 monitor_resources.sh*
root@shell:~#
```

# Add to crontab to run every 30 minutes:

```
root@shell: /home/azureuser
GNU nano 7.2 /tmp/crontab.Tykuy7/crontab
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m. every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow command
*/30 * * * * /root/monitor_resources.sh
```

# Checking what will happen if stress is applied to the VM.

```
root@shell:~# stress-ng --cpu 2 --vm 2 --vm-bytes 30% --timeout 180s &
[2] 3403
root@shell:~# stress-ng: info: [3403] setting to a 3 mins, 0 secs run per stressor
stress-ng: info: [3403] dispatching hogs: 2 cpu, 2 vm
```

# Mail has been received successfully with the percentage.

