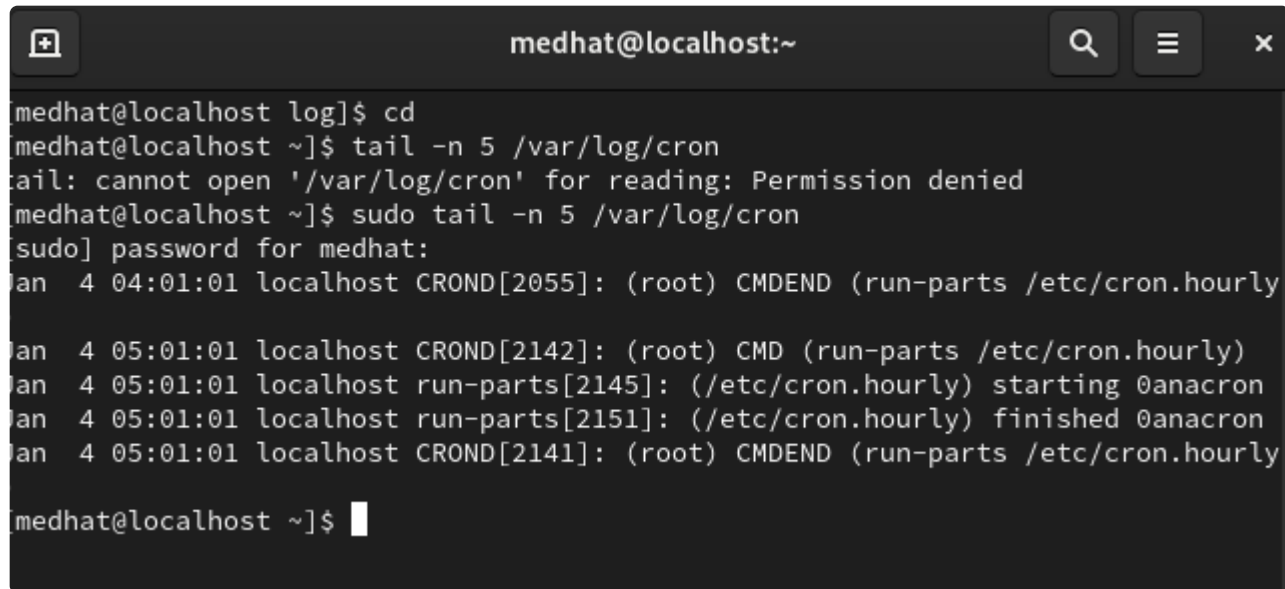


- 1) Display the last 5 lines of the log file that logs cron jobs.

A terminal window titled 'medhat@localhost:~' with search, menu, and close buttons. The user navigates to the /log directory and attempts to view the last 5 lines of /var/log/cron using the tail command. This fails with a 'Permission denied' error. The user then uses sudo tail, providing their password. The terminal displays the last five lines of the cron log, showing cron daemon activity and the execution of the anacron service.

```
medhat@localhost log]$ cd
medhat@localhost ~]$ tail -n 5 /var/log/cron
tail: cannot open '/var/log/cron' for reading: Permission denied
medhat@localhost ~]$ sudo tail -n 5 /var/log/cron
[sudo] password for medhat:
Jan  4 04:01:01 localhost CROND[2055]: (root) CMDEND (run-parts /etc/cron.hourly
Jan  4 05:01:01 localhost CROND[2142]: (root) CMD (run-parts /etc/cron.hourly)
Jan  4 05:01:01 localhost run-parts[2145]: (/etc/cron.hourly) starting 0anacron
Jan  4 05:01:01 localhost run-parts[2151]: (/etc/cron.hourly) finished 0anacron
Jan  4 05:01:01 localhost CROND[2141]: (root) CMDEND (run-parts /etc/cron.hourly

medhat@localhost ~]$
```

- 2) Send a log message using logger and identify where the message is written -- > log messages can be found in /var/log/messages --> sudo cd /var/log/messages

```
medhat@localhost:~  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for ledmon-libs  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for libbabeltrace  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for composefs  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for composefs-libs  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for evolution-data-server-ui  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for gstreamer1-plugins-bad-free-libs  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for libadwaita  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for libdecor  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for libva  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for passt  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for passt-selinux  
an 4 05:13:03 localhost packagekitd[1616]: Failed to get cache filename for pipewire-jack-audio-connection-kit-libs  
an 4 05:13:08 localhost systemd[2197]: Starting Virtual filesystem metadata service...  
an 4 05:13:08 localhost systemd[2197]: Started Virtual filesystem metadata service.  
an 4 05:14:44 localhost systemd[2197]: Starting Mark boot as successful...  
an 4 05:14:44 localhost systemd[2197]: Finished Mark boot as successful.  
an 4 05:17:44 localhost systemd[2197]: Created slice User Background Tasks Slice.  
an 4 05:17:44 localhost systemd[2197]: Starting Cleanup of User's Temporary Files and Directories...  
an 4 05:17:44 localhost systemd[2197]: Finished Cleanup of User's Temporary Files and Directories.  
an 4 05:17:58 localhost systemd[1]: Starting Fingerprint Authentication Daemon...  
an 4 05:17:58 localhost systemd[1]: Started Fingerprint Authentication Daemon.  
an 4 05:18:28 localhost systemd[1]: fprintd.service: Deactivated successfully.  
an 4 05:22:06 localhost medhat[3378]: This is me sending you a message!  
medhat@localhost ~]$
```

- 3) Display only error logs of the system.

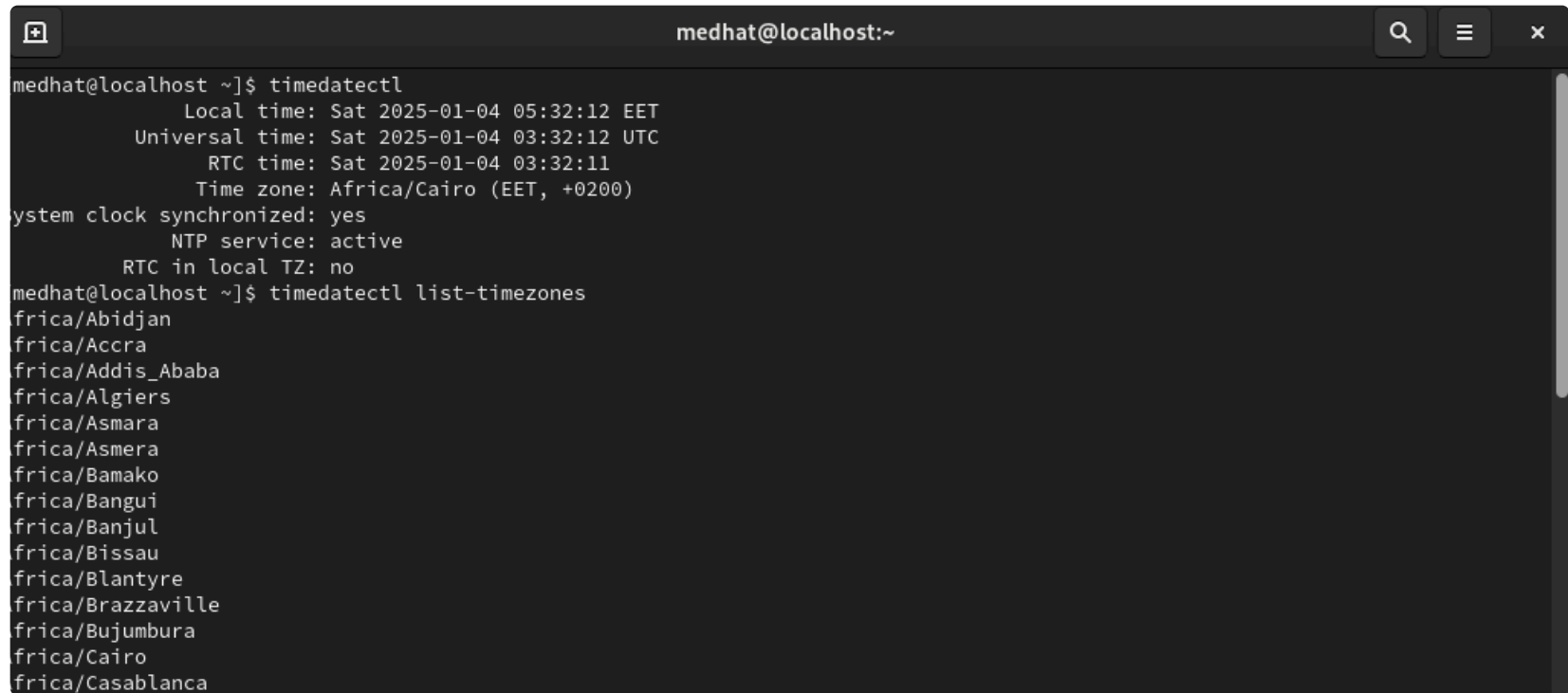
```
medhat@localhost:~ — sudo journalctl -p err  
medhat@localhost ~]$ sudo journalctl -p err  
an 04 02:39:00 localhost kernel: Warning: Unmaintained hardware is detected: e1000:100F:8086 @ 0000:02:01.0  
an 04 02:39:07 localhost kernel: piix4_smbus 0000:00:07.3: SMBus Host Controller not enabled!  
an 04 02:39:09 localhost alsactl[816]: alsa-lib main.c:1560:(snd_use_case_mgr_open) error: failed to import hw:0 use case con>  
an 04 05:12:04 localhost.localdomain gdm-password[2176]: gkr-pam: unable to locate daemon control file  
an 04 05:12:05 localhost.localdomain systemd[2197]: Failed to start Application launched by gnome-session-binary.  
an 04 05:12:09 localhost.localdomain systemd[2197]: Failed to start Application launched by gnome-session-binary.  
an 04 05:12:12 localhost.localdomain gdm-wayland-session[1299]: GLib: Source ID 2 was not found when attempting to remove it  
an 04 05:12:12 localhost.localdomain gdm-launch-environment[1097]: GLib-GObject: g_object_unref: assertion 'G_IS_OBJECT (obj>  
ines 1-8/8 (END)
```

- 4. Display system logs since last week.

```
medhat@localhost:~ — sudo journalctl --since=1 week ago

[medhat@localhost ~]$ sudo journalctl --since="1 week ago"
Jan 04 02:38:58 localhost kernel: Linux version 5.14.0-373.el9.x86_64 (mockbuild@x86-05.stream.rdu2.redhat.com) (gcc (GCC) 11.>
Jan 04 02:38:58 localhost kernel: The list of certified hardware and cloud instances for Red Hat Enterprise Linux 9 can be vie>
Jan 04 02:38:58 localhost kernel: Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-373.el9.x86_64 root=UUID=d3808db4-739e->
Jan 04 02:38:58 localhost kernel: Disabled fast string operations
Jan 04 02:38:58 localhost kernel: x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
Jan 04 02:38:58 localhost kernel: x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
Jan 04 02:38:58 localhost kernel: x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
Jan 04 02:38:58 localhost kernel: x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
Jan 04 02:38:58 localhost kernel: x86/fpu: Enabled xstate features 0x7, context size is 832 bytes, using 'compacted' format.
Jan 04 02:38:58 localhost kernel: signal: max sigframe size: 1776
Jan 04 02:38:58 localhost kernel: BIOS-provided physical RAM map:
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x0000000000000000-0x00000000000009e7ff] usable
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x00000000000009e800-0x00000000000009ffff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x0000000000000dc000-0x0000000000000fffff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x00000000000100000-0x000000000000bfecffff] usable
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000bfed0000-0x000000000bfefeffff] ACPI data
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000bfeff000-0x000000000bfeffffff] ACPI NVS
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000bff00000-0x000000000bfffffff] usable
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000f0000000-0x000000000f7fffffff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000fec00000-0x000000000fec0ffff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000fee00000-0x000000000fee00fff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x000000000fffe0000-0x000000000ffffffff] reserved
Jan 04 02:38:58 localhost kernel: BIOS-e820: [mem 0x00000000100000000-0x00000000101fffffff] usable
```

- 5. Change your system's time zone to Africa/Kampala.



```
medhat@localhost:~  
medhat@localhost ~]$ timedatectl  
    Local time: Sat 2025-01-04 05:32:12 EET  
    Universal time: Sat 2025-01-04 03:32:12 UTC  
        RTC time: Sat 2025-01-04 03:32:11  
    Time zone: Africa/Cairo (EET, +0200)  
system clock synchronized: yes  
        NTP service: active  
    RTC in local TZ: no  
medhat@localhost ~]$ timedatectl list-timezones  
Africa/Abidjan  
Africa/Accra  
Africa/Addis_Ababa  
Africa/Algiers  
Africa/Asmara  
Africa/Asmera  
Africa/Bamako  
Africa/Bangui  
Africa/Banjul  
Africa/Bissau  
Africa/Blantyre  
Africa/Brazzaville  
Africa/Bujumbura  
Africa/Cairo  
Africa/Casablanca
```

```
medhat@localhost:~  
Africa/Bujumbura  
Africa/Cairo  
Africa/Casablanca  
Africa/Ceuta  
Africa/Conakry  
Africa/Dakar  
Africa/Dar_es_Salaam  
Africa/Djibouti  
Africa/Douala  
Africa/El_Aaiun  
Africa/Freetown  
  
[medhat@localhost ~]$ timedatectl list-timezones | grep Africa/Kampala  
Africa/Kampala  
[medhat@localhost ~]$ sudo timedatectl set-timezone Africa/Kampala  
[medhat@localhost ~]$ timedatectl  
          Local time: Sat 2025-01-04 06:34:21 EAT  
          Universal time: Sat 2025-01-04 03:34:21 UTC  
            RTC time: Sat 2025-01-04 03:34:21  
            Time zone: Africa/Kampala (EAT, +0300)  
System clock synchronized: yes  
          NTP service: active  
        RTC in local TZ: no  
[medhat@localhost ~]$ s
```

- 6. Create a network connection with the following configuration: IPv4 192.168.1.24, DNS 8.8.8.8, gateway 192.168.1.1, name con1 for the Ethernet interface.

- 7) Display the information of a connection on your system.

```
medhat@localhost:~ — nmcli con show con1
medhat@localhost ~]$ nmcli con add con-name con1 ifname eth0 type ethernet ip4 192.168.1.24/24 gw4 192.168.1.1
Connection 'con1' (9c245884-35f4-4d31-b298-974b5067c7f7) successfully added.
medhat@localhost ~]$ nmcli con mod con1 ipv4.dns "8.8.8.8"
medhat@localhost ~]$ nmcli con up con1
Error: Connection activation failed: No suitable device found for this connection (device ens33 not available because it is not managed by NetworkManager).
medhat@localhost ~]$ nmcli con show con1
connection.id: con1
connection.uuid: 9c245884-35f4-4d31-b298-974b5067c7f7
connection.stable-id: --
connection.type: 802-3-ethernet
connection.interface-name: eth0
connection.autoconnect: yes
connection.autoconnect-priority: 0
connection.autoconnect-retries: -1 (default)
connection.multi-connect: 0 (default)
connection.auth-retries: -1
connection.timestamp: 0
connection.permissions: --
connection.zone: --
connection.master: --
connection.slave-type: --
connection.autoconnect-slaves: -1 (default)
connection.secondaries: --
connection.gateway-ping-timeout: 0
connection.metered: unknown
connection.lldp: default
connection.mdns: -1 (default)
connection.llmnr: -1 (default)
connection.dns-over-tls: -1 (default)
lines 1-23...skipping...
connection.id: con1
```

- 8. Reload the configuration of a connection.

```
medhat@localhost:~  
medhat@localhost ~]$ sudo nmcli con up  
onl      ens33      filename help      id      lo      path      uuid  
medhat@localhost ~]$ sudo nmcli con up ens33  
sudo] password for medhat:  
connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/3)  
medhat@localhost ~]$ nmcli con show --active  
NAME      UUID                                  TYPE      DEVICE  
ens33     32c008b4-b28f-3db7-bd77-fa916cdcb8d6 ethernet ens33  
lo        62daa71a-12b5-4692-8826-c70526346ae2 loopback  lo  
medhat@localhost ~]$
```

- 9. Get the IP address of the Linux server.

```
[medhat@localhost ~]$ hostname -I  
192.168.134.128
```

- 10. Check the status of the sshd service.

```
[medhat@localhost ~]$ sudo systemctl status sshd
[sudo] password for medhat:
• sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-01-04 02:39:12 EET; 14h ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 980 (sshd)
     Tasks: 1 (limit: 16912)
    Memory: 2.4M
       CPU: 63ms
    CGroup: /system.slice/sshd.service
            └─980 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Jan 04 02:39:11 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Jan 04 02:39:12 localhost.localdomain sshd[980]: Server listening on 0.0.0.0 port 22.
Jan 04 02:39:12 localhost.localdomain sshd[980]: Server listening on :: port 22.
Jan 04 02:39:12 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[medhat@localhost ~]$
```

- 11. Disable the sshd service

```
[medhat@localhost ~]$ sudo systemctl disable sshd
Removed "/etc/systemd/system/multi-user.target.wants/sshd.service".
[medhat@localhost ~]$
```