

Instructions

The web development team is having trouble working with some of the services that you have previously installed on their server.

Check to make sure the following services are started and enabled on the system:

Samba (There are two services, smb and nmb)

Apache (The service name is httpd)

SSH (The service name is sshd)

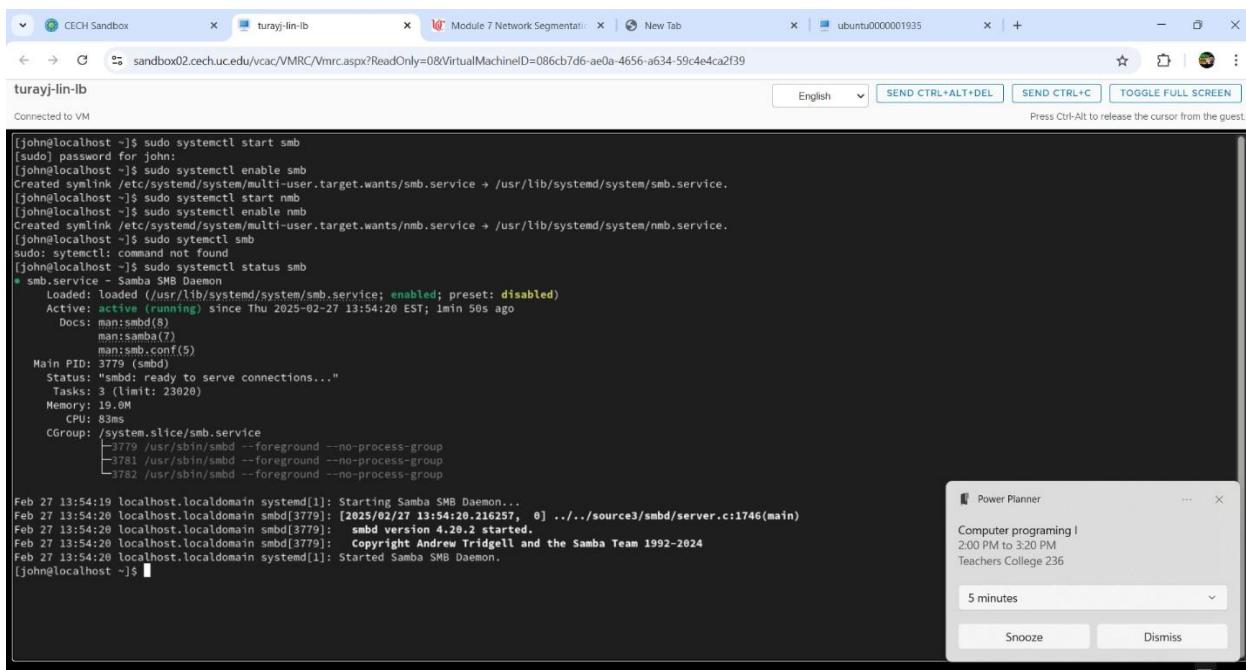
They would also like to monitor the CPU usage on the system. They request that you create a log file that displays the all running processes sorted by CPU usage. They would like this log to record this data every weekday at noon. Please be sure to include timestamps in the log file.

Screenshots

Paste the required screen shots under each description.

1. Paste a screen shot showing the status of each of requested services (4 total)

- a. Smb



A screenshot of a terminal window titled "turayj-lin-lb". The window shows the command "sudo systemctl start smb" being run, followed by "sudo systemctl enable smb". The output indicates that the smb service is now active (running) and preset to start at boot. It also lists the main PID (3779) and the status message "Smbd: ready to serve connections...". Below this, it shows the tasks, memory usage, and CPU usage. The CGroup path is listed as /system.slice/smb.service. The log section shows the startup of the Samba daemon on February 27, 2025, at 13:54:19. A small Power Planner window is visible in the bottom right corner, showing a scheduled task for "Computer programming I" from 2:00 PM to 3:20 PM on Teachers College 236, set to snooze for 5 minutes.

```
[john@localhost ~]$ sudo systemctl start smb
[sudo] password for john:
[john@localhost ~]$ sudo systemctl enable smb
Created symlink /etc/systemd/system/multi-user.target.wants/smb.service → /usr/lib/systemd/system/smb.service.
[john@localhost ~]$ sudo systemctl start nmb
[john@localhost ~]$ sudo systemctl enable nmb
Created symlink /etc/systemd/system/multi-user.target.wants/nmb.service → /usr/lib/systemd/system/nmb.service.
[john@localhost ~]$ sudo systemctl smb
sudo: systemctl: command not found
[john@localhost ~]$ sudo systemctl status smb
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; preset: disabled)
     Active: active (running) since Thu 2025-02-27 13:54:20 EST; 1min 50s ago
       Docs: man:smbd(8)
             man:samba(7)
             man:smb.conf(5)
 Main PID: 3779 (smbd)
    Status: "smbd: ready to serve connections..."
      Tasks: 3 (limit: 23028)
     Memory: 19.0M
        CPU: 83ms
       CGroup: /system.slice/smb.service
           ├─3779 /usr/sbin/smbd --foreground --no-process-group
           ├─3781 /usr/sbin/smbd --foreground --no-process-group
           └─3782 /usr/sbin/smbd --foreground --no-process-group

Feb 27 13:54:19 localhost.localdomain systemd[1]: Starting Samba SMB Daemon...
Feb 27 13:54:20 localhost.localdomain smbd[3779]: [2025/02/27 13:54:20.216257,  0] ../../source3/smbd/server.c:1746(main)
Feb 27 13:54:20 localhost.localdomain smbd[3779]:      smbd version 4.20.2 started.
Feb 27 13:54:20 localhost.localdomain smbd[3779]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:54:20 localhost.localdomain systemd[1]: Started Samba SMB Daemon.
[john@localhost ~]$
```

- b. Nmb

CECH Sandbox turayi-lin-lb Module 7 Network Segmentation New Tab ubuntu0000001935

turayi-lin-lb

Connected to VM

```

man:smb.conf(5)
Main PID: 3779 (smbd)
Status: sbmd: ready to serve connections...
Tasks: 3 (limit: 23020)
Memory: 19.0M
CPU: 83ms
CGroup: /system.slice/smb.service
└─3779 /usr/sbin/smbd --foreground --no-process-group
  ├─3781 /usr/sbin/smbd --foreground --no-process-group
  └─3782 /usr/sbin/smbd --foreground --no-process-group

Feb 27 13:54:19 localhost.localdomain systemd[1]: Starting Samba SMB Daemon...
Feb 27 13:54:20 localhost.localdomain smb[3779]: [2025/02/27 13:54:20.216257,  0] .../source3/smbd/server.c:1746(main)
Feb 27 13:54:20 localhost.localdomain smb[3779]:      smb version 4.20.2 started.
Feb 27 13:54:20 localhost.localdomain smb[3779]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:54:20 localhost.localdomain systemd[1]: Started Samba SMB Daemon.
[john@localhost ~]$ sudo systemctl status nmb
● nmb.service - Samba NMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/nmb.service; enabled; preset: disabled)
     Active: active (running) since Thu 2025-02-27 13:55:14 EST; 2min 34s ago
       Docs: man:nmbd(8)
             man:samba(7)
             man:smb.conf(5)
 Main PID: 3833 (nmbd)
   Status: "nmbd: ready to serve connections..."
   Tasks: 1 (limit: 23020)
  Memory: 3.0M
    CPU: 41ms
   CGroup: /system.slice/nmb.service
         └─3833 /usr/sbin/nmbd --foreground --no-process-group

Feb 27 13:55:14 localhost.localdomain systemd[1]: Starting Samba NMB Daemon...
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: [2025/02/27 13:55:14.369383,  0] .../source3/nmbd/nmbd.c:901(main)
Feb 27 13:55:14 localhost.localdomain nmbd[3833]:      nmbd version 4.20.2 started.
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:55:14 localhost.localdomain systemd[1]: Started Samba NMB Daemon.
[john@localhost ~]$
```

Power Planner

Computer programming I
2:00 PM to 3:20 PM
Teachers College 236

5 minutes

Snooze Dismiss

c. Httpd

CECH Sandbox turayi-lin-lb Module 7 Network Segmentation New Tab ubuntu0000001935

turayi-lin-lb

Connected to VM

```

Tasks: 1 (limit: 23020)
Memory: 3.0M
CPU: 41ms
CGroup: /system.slice/nmb.service
└─3833 /usr/sbin/nmbd --foreground --no-process-group

Feb 27 13:55:14 localhost.localdomain systemd[1]: Starting Samba NMB Daemon...
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: [2025/02/27 13:55:14.369383,  0] .../source3/nmbd/nmbd.c:901(main)
Feb 27 13:55:14 localhost.localdomain nmbd[3833]:      nmbd version 4.20.2 started.
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:55:14 localhost.localdomain systemd[1]: Started Samba NMB Daemon.
[john@localhost ~]$ sudo systemctl status httpd
sudo: systemctl: command not found
[john@localhost ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
   Drop-In: /usr/lib/systemd/system/httpd.service.d
     └─php-fpm.conf
     Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
       Docs: man:httpd.service(8)
 Main PID: 1670 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
   Tasks: 177 (limit: 23020)
  Memory: 27.0M
    CPU: 701ms
   CGroup: /system.slice/httpd.service
         ├─1670 /usr/sbin/httpd -DFOREGROUND
         ├─1799 /usr/sbin/httpd -DFOREGROUND
         ├─1791 /usr/sbin/httpd -DFOREGROUND
         ├─1792 /usr/sbin/httpd -DFOREGROUND
         └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[lines 1-22/22 (END)]
```

Power Planner

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2:00 PM to 3:20 PM
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5 minutes

Snooze Dismiss

d. Sshd

```
Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
Docs: man:httpd.service(8)
Main PID: 1670 (httpd)
Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
Tasks: 177 (limit: 23020)
Memory: 27.8M
CPU: 70ms
CGroup: /system.slice/httpd.service
    └─1670 /usr/sbin/httpd -DFOREGROUND
      ├─1790 /usr/sbin/httpd -DFOREGROUND
      ├─1791 /usr/sbin/httpd -DFOREGROUND
      ├─1792 /usr/sbin/httpd -DFOREGROUND
      └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' directive if you wish to specify one.
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[john@localhost ~]$ sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-02-27 13:43:14 EST; 15min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 1371 (sshd)
   Tasks: 1 (limit: 23020)
  Memory: 2.7M
    CPU: 15ms
   CGroup: /system.slice/sshd.service
           └─1371 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 27 13:43:14 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[john@localhost ~]$ 
[john@localhost ~]$
```

2. Paste a screen shot of the script you created to run the log file

```
[1] b1n/bash
echo "Log Time: $(date)" >> /var/log/cpu_usage.log
ps -eo pid,ppid,cmd,%mem,%cpu --sort=-%cpu | head >> /var/log/cpu_usage.log
echo "------" >> /var/log/cpu_usage.log
```

3. Paste a screen shot of the crontab file showing the schedule for the script to run

```

Default operation is replace, per 1003.2
[john@localhost ~]$ crontab -l
0 12 * * 1-5 john /home/john/cpu_log.sh

[john@localhost ~]$ cat /var/log/cpu_usage.log
cat: /var/log/cpu_usage.log: No such file or directory
[john@localhost ~]$ ./cpu_log.sh
./cpu_log.sh: line 2: /var/log/cpu_usage.log: Permission denied
./cpu_log.sh: line 3: /var/log/cpu_usage.log: Permission denied
error: unknown AIX Field descriptor

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <s|l|o|t|m|a>'
for additional help text.

For more details see ps(1).
./cpu_log.sh: line 4: /var/log/cpu_usage.log: Permission denied
[john@localhost ~]$ sudo ./cpu_log.sh
[sudo] password for john:
error: unknown AIX field descriptor

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <s|l|o|t|m|a>'
for additional help text.

For more details see ps(1).
[john@localhost ~]$ crontab -l
0 12 * * 1-5 john /home/john/cpu_log.sh

[john@localhost ~]$ 

```

Documentation

Record and explain all the steps you took to complete the task. Include any commands used, screen shots showing GUI interfaces, or any other information that would help you recreate the task.

Note: You will be allowed to use this documentation to help you complete future assignments.

So first I started by checking the status of all four services :

```

[john@localhost ~]$ sudo systemctl start smb
[sudo] password for john:
[john@localhost ~]$ sudo systemctl enable smb
Created symlink /etc/systemd/system/multi-user.target.wants/smb.service → /usr/lib/systemd/system/smb.service.
[john@localhost ~]$ sudo systemctl enable nmb
Created symlink /etc/systemd/system/multi-user.target.wants/nmb.service → /usr/lib/systemd/system/nmb.service.
[john@localhost ~]$ sudo systemctl enable smbd
sudo: systemctl: command not found
[john@localhost ~]$ sudo systemctl status smb
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; preset: disabled)
   Active: active (running) since Thu 2025-02-27 13:54:20 EST; 1min 56s ago
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
   Main PID: 3779 (smbd)
     Status: "smbd: ready to serve connections..."
      Tasks: 3 (limit: 23020)
     Memory: 19.0M
        CPU: 83ms
       CGroup: /system.slice/smb.service
               ├─3779 /usr/sbin/smbd --foreground --no-process-group
               ├─3781 /usr/sbin/smbd --foreground --no-process-group
               └─3782 /usr/sbin/smbd --foreground --no-process-group

Feb 27 13:54:19 localhost.localdomain systemd[1]: Starting Samba SMB Daemon...
Feb 27 13:54:20 localhost.localdomain smbd[3779]: [2025/02/27 13:54:20.216257, 0] .../source3/smbd/server.c:1746(main)
Feb 27 13:54:20 localhost.localdomain smbd[3779]: smbd version 4.20.2 started.
Feb 27 13:54:20 localhost.localdomain smbd[3779]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:54:20 localhost.localdomain systemd[1]: Started Samba SMB Daemon.

[john@localhost ~]$ 

```

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5 minutes

Snooze Dismiss

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turayi-lin-lb

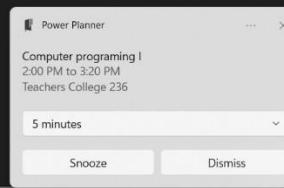
Connected to VM

```

man:smb.conf(5)
Main PID: 3779 (smbd)
Status: "smbd: ready to serve connections..."
Tasks: 3 (limit: 23020)
Memory: 19.8M
CPU: 83ms
CGroup: /system.slice/smb.service
└─3779 /usr/sbin/smbd --foreground --no-process-group
   ├─3781 /usr/sbin/smbd --foreground --no-process-group
   └─3782 /usr/sbin/smbd --foreground --no-process-group

Feb 27 13:54:19 localhost.localdomain systemd[1]: Starting Samba SMB Daemon...
Feb 27 13:54:20 localhost.localdomain smbd[3779]: [2025/02/27 13:54:20.216257,  0] ../../source3/smbd/server.c:1746(main)
Feb 27 13:54:20 localhost.localdomain smbd[3779]:        smbd version 4.20.2 started.
Feb 27 13:54:20 localhost.localdomain smbd[3779]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:54:20 localhost.localdomain systemd[1]: Started Samba SMB Daemon.
[john@localhost ~]$ sudo systemctl status nmb
● nmb.service - Samba NMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/nmb.service; enabled; preset: disabled)
     Active: active (running) since Thu 2025-02-27 13:55:14 EST; 2min 34s ago
       Docs: man:nmbd(8)
             man:samba(7)
             man:smb.conf(5)
   Main PID: 3833 (nmbd)
     Status: "nmbd: ready to serve connections..."
     Tasks: 1 (limit: 23020)
    Memory: 3.0M
      CPU: 41ms
     CGroup: /system.slice/nmb.service
             └─3833 /usr/sbin/nmbd --foreground --no-process-group

Feb 27 13:55:14 localhost.localdomain systemd[1]: Starting Samba NMB Daemon...
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: [2025/02/27 13:55:14.369383,  0] ../../source3/nmbd/nmbd.c:901(main)
Feb 27 13:55:14 localhost.localdomain nmbd[3833]:        nmbd version 4.20.2 started.
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:55:14 localhost.localdomain systemd[1]: Started Samba NMB Daemon.
[john@localhost ~]$
```



CECH Sandbox turayi-lin-lb Module 7 Network Segmentation New Tab ubuntu0000001935

turayi-lin-lb

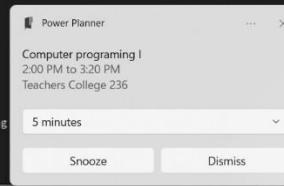
Connected to VM

```

Tasks: 1 (limit: 23020)
Memory: 3.0M
CPU: 41ms
CGroup: /system.slice/nmb.service
└─3833 /usr/sbin/nmbd --foreground --no-process-group

Feb 27 13:55:14 localhost.localdomain systemd[1]: Starting Samba NMB Daemon...
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: [2025/02/27 13:55:14.369383,  0] ../../source3/nmbd/nmbd.c:901(main)
Feb 27 13:55:14 localhost.localdomain nmbd[3833]:        nmbd version 4.20.2 started.
Feb 27 13:55:14 localhost.localdomain nmbd[3833]: Copyright Andrew Tridgell and the Samba Team 1992-2024
Feb 27 13:55:14 localhost.localdomain systemd[1]: Started Samba NMB Daemon.
[john@localhost ~]$ sudo systemctl status httpd
sudo: systemctl: command not found
[john@localhost ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Drop-In: /usr/lib/systemd/system/httpd.service.d
       └─php-fpm.conf
     Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
       Docs: man:httpd.service(8)
   Main PID: 1670 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
     Tasks: 177 (limit: 23020)
    Memory: 27.0M
      CPU: 701ms
     CGroup: /system.slice/httpd.service
             ├─1670 /usr/sbin/httpd -DFOREGROUND
             ├─1799 /usr/sbin/httpd -DFOREGROUND
             ├─1791 /usr/sbin/httpd -DFOREGROUND
             ├─1792 /usr/sbin/httpd -DFOREGROUND
             └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: httpd: Could not reliably determine the server's fully qualified domain name, using
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[lines 1-22/22 (END)]
```



```

turayi-lin-lb
Connected to VM
Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
  Docs: man:httpd.service(8)
 Main PID: 1670 (httpd)
 Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
 Tasks: 177 (limit: 23020)
 Memory: 27.8M
 CPU: 70ms
 CGroup: /system.slice/httpd.service
         └─1670 /usr/sbin/httpd -DFOREGROUND
             ├─1790 /usr/sbin/httpd -DFOREGROUND
             ├─1791 /usr/sbin/httpd -DFOREGROUND
             ├─1792 /usr/sbin/httpd -DFOREGROUND
             └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' or 'ServerAlias' directive.
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[john@localhost ~]$ sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 1371 (sshd)
   Tasks: 1 (limit: 23020)
    Memory: 2.7M
      CPU: 15ms
     CGroup: /system.slice/sshd.service
             └─1371 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 27 13:43:14 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[john@localhost ~]$ 
[john@localhost ~]$ 
```

Next I created the script to run the log file:

```

turayi-lin-lb
Connected to VM
Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
  Docs: man:httpd.service(8)
 Main PID: 1670 (httpd)
 Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
 Tasks: 177 (limit: 23020)
 Memory: 27.8M
 CPU: 70ms
 CGroup: /system.slice/httpd.service
         └─1670 /usr/sbin/httpd -DFOREGROUND
             ├─1790 /usr/sbin/httpd -DFOREGROUND
             ├─1791 /usr/sbin/httpd -DFOREGROUND
             ├─1792 /usr/sbin/httpd -DFOREGROUND
             └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' or 'ServerAlias' directive.
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[john@localhost ~]$ sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 1371 (sshd)
   Tasks: 1 (limit: 23020)
    Memory: 2.7M
      CPU: 15ms
     CGroup: /system.slice/sshd.service
             └─1371 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 27 13:43:14 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[john@localhost ~]$ 
[john@localhost ~]$ vi cpu_log.sh
[john@localhost ~]$ sudo vi cpu_log.sh 
```

```
#!/bin/bash
echo "Log Time: $(date)" >> /var/log/cpu_usage.log
ps -eo pid,ppid,cmd,%mem,%cpu --sort=-%cpu | head > /var/log/cpu_usage.log
echo "" >> /var/log/cpu_usage.log
```

Then I made the file executable:

```
Tasks: 177 (limit: 23020)
Memory: 27.0M
CPU: 70ms
CGroup: /system.slice/httpd.service
└─1870 /usr/sbin/httpd -DFOREGROUND
   ├─1790 /usr/sbin/httpd -DFOREGROUND
   ├─1791 /usr/sbin/httpd -DFOREGROUND
   ├─1792 /usr/sbin/httpd -DFOREGROUND
   └─1793 /usr/sbin/httpd -DFOREGROUND

Feb 27 13:43:15 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Feb 27 13:43:15 localhost.localdomain httpd[1670]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' directive or the command-line option -S.
Feb 27 13:43:15 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Feb 27 13:43:15 localhost.localdomain httpd[1670]: Server configured, listening on: port 80
[john@localhost ~]$ sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Active: active (running) since Thu 2025-02-27 13:43:14 EST; 15min ago
       Docs: man:sshd(8)
         main: /etc/ssh/sshd_config(5)
      Main PID: 1371 (sshd)
        Tasks: 1 (limit: 23020)
      Memory: 2.7M
         CPU: 15ms
        CGroup: /system.slice/sshd.service
           └─1371 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 27 13:43:14 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[john@localhost ~]$ 
[john@localhost ~]$ vi cpu_log.sh
[john@localhost ~]$ sudo vi cpu_log.sh
[sudo] password for john:
[john@localhost ~]$ chmod 755 cpu_log.sh
[john@localhost ~]$
```

Then I created the crontab file:

```

Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[john@localhost ~]$ 
[john@localhost ~]$ vi cpu_log.sh
[john@localhost ~]$ sudo vi cpu_log.sh
[sudo] password for john:
[john@localhost ~]$ chmod 755 cpu_log.sh
[john@localhost ~]$ crontab -e
no crontab for john - using an empty one
crontab: installing new crontab

```

```

12 * * 1-5 john /home/john/cpu_log.sh

```

Then I verified the file by showing the output of the schedule:

```

Default operation is replace, per 1003.
[john@localhost ~]$ crontab -l
0 12 * * 1-5 john /home/john/cpu_log.sh

[john@localhost ~]$ cat /var/log/cpu_usage.log
cat: /var/log/cpu_usage.log: No such file or directory
[john@localhost ~]$ ./cpu_log.sh
./cpu_log.sh: line 2: /var/log/cpu_usage.log: Permission denied
./cpu_log.sh: line 3: /var/log/cpu_usage.log: Permission denied
error: unknown AIX field descriptor

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <[l|o|t|m]>'
for additional help text.

For more details see ps().
./cpu_log.sh: line 4: /var/log/cpu_usage.log: Permission denied
[john@localhost ~]$ sudo ./cpu_log.sh
[sudo] password for john:
error: unknown AIX field descriptor

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <[l|o|t|m]>'
for additional help text.

For more details see ps(1).
[john@localhost ~]$ crontab -l
0 12 * * 1-5 john /home/john/cpu_log.sh

[john@localhost ~]$ 

```

