

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)

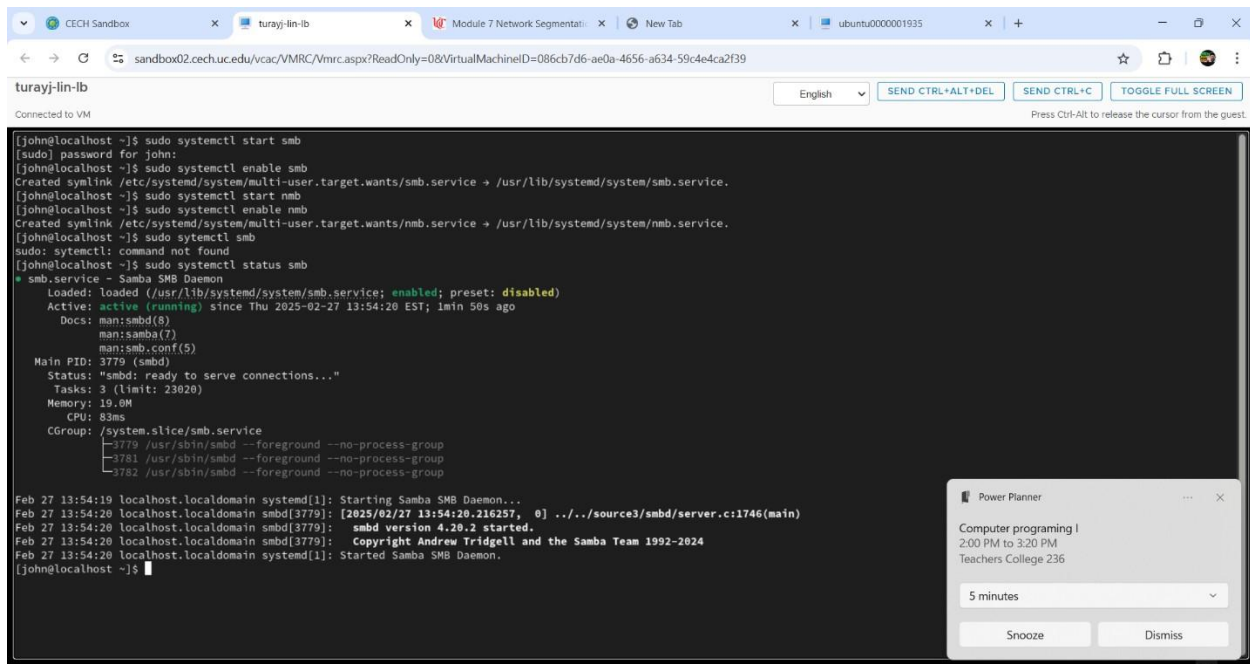
SSH (The service name is sshd)

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' connected to a VM. The terminal shows the following commands and output:

```
[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: 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 ~]$
```

- b. Nmb

CECH Sandbox turayj-lin-lb Module 7 Network Segmentation New Tab ubuntu000001935

sandbox02.cech.ucc.edu/vcac/VMRC/Vmrc.aspx?ReadOnly=0&VirtualMachineID=086cb7d6-ae0a-4656-a634-59c4e4ca2f39

turayj-lin-lb English SEND CTRL+ALT+DEL SEND CTRL+C TOGGLE FULL SCREEN

Connected to VM Press Ctrl-Alt to release the cursor from the guest.

```
man:smb.conf(5)
Main PID: 3779 (smbd)
Status: "smbd: ready to serve connections..."
Tasks: 3 (limit: 23820)
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)
   Main PID: 3833 (nmbd)
   Status: "nmbd: ready to serve connections..."
     Tasks: 1 (limit: 23820)
    Memory: 3.6M
       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 turayj-lin-lb Module 7 Network Segmentation New Tab ubuntu000001935

sandbox02.cech.ucc.edu/vcac/VMRC/Vmrc.aspx?ReadOnly=0&VirtualMachineID=086cb7d6-ae0a-4656-a634-59c4e4ca2f39

turayj-lin-lb English SEND CTRL+ALT+DEL SEND CTRL+C TOGGLE FULL SCREEN

Connected to VM Press Ctrl-Alt to release the cursor from the guest.

```
Tasks: 1 (limit: 23820)
Memory: 3.6M
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: 23820)
    Memory: 27.8M
       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
Computer programming I
2:00 PM to 3:20 PM
Teachers College 236
5 minutes
Snooze Dismiss

d. Sshd

The screenshot shows a terminal window titled 'turayj-lin-lb' connected to a VM. The terminal output displays the status of the 'httpd.service' and 'sshd.service'.

```
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
├─1700 /usr/sbin/httpd -DFOREGROUND
├─1701 /usr/sbin/httpd -DFOREGROUND
├─1702 /usr/sbin/httpd -DFOREGROUND
└─1703 /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'
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/ssh.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 ~]$
```

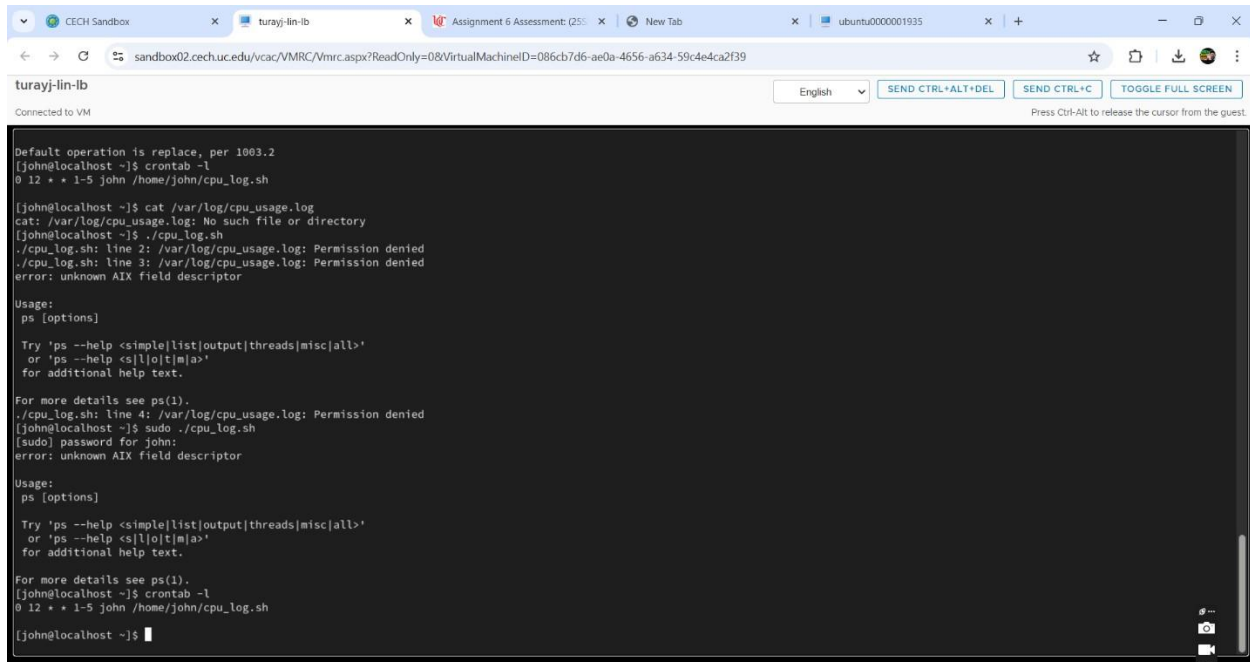
2. Paste a screen shot of the script you created to run the log file

The screenshot shows a terminal window titled 'turayj-lin-lb' connected to a VM. The terminal output displays a script to log CPU usage.

```
#!/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

-- INSERT --
```

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



The screenshot shows a terminal window titled 'turayj-lin-lb' connected to a VM. The user 'john' is at the prompt. The terminal shows the following commands and output:

```
[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

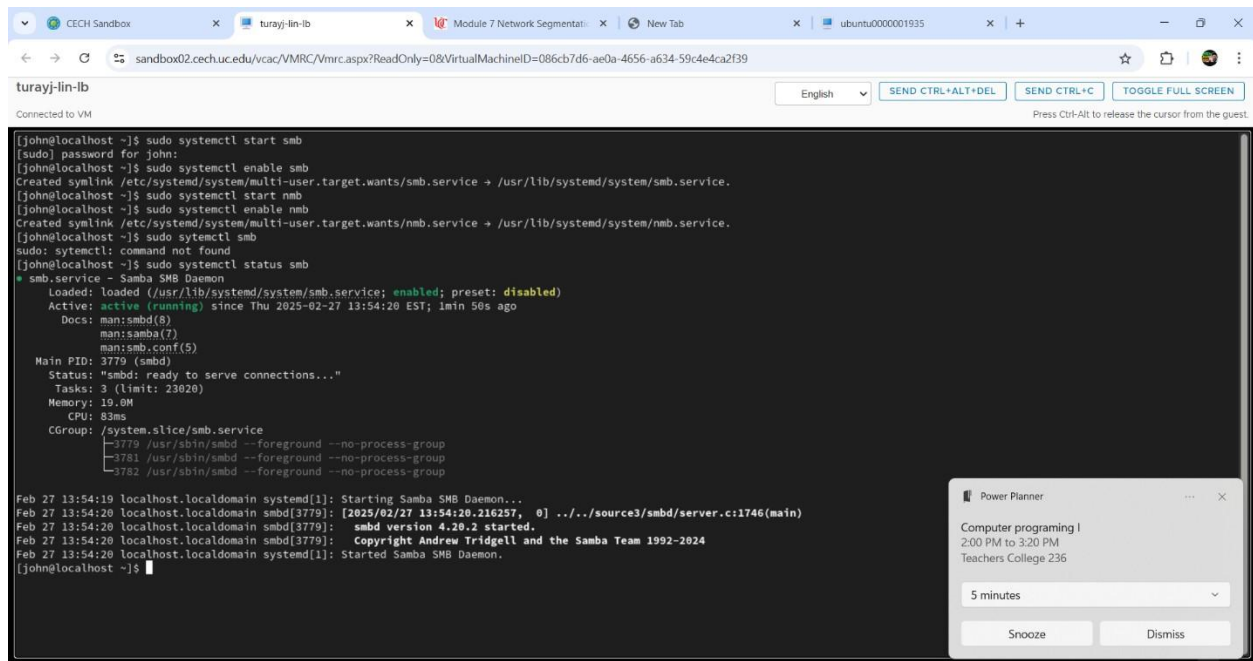
[john@localhost ~]$
```

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 :



The screenshot shows a terminal window titled 'turayj-lin-lb' connected to a VM. The user 'john' is at the prompt. The terminal shows the following commands and output:

```
[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: 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:11746(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 ~]$
```

A 'Power Planner' notification window is visible in the bottom right corner, showing 'Computer programing I' and a time range of '2:00 PM to 3:20 PM'.

CECH Sandbox

turayj-lin-lb

Module 7 Network Segmentation

New Tab

ubuntu000001935

sandbox02.cech.uc.edu/vcac/VMRC/VMrc.aspx?ReadOnly=0&VirtualMachineID=086cb7d6-ae0a-4656-a634-59c4e4ca2f39

turayj-lin-lb

English

SEND CTRL+ALT+DEL

SEND CTRL+C

TOGGLE FULL SCREEN

Connected to VM

Press Ctrl-Alt to release the cursor from the guest.

```
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 ~]$ 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)
   Main PID: 3833 (nmbd)
   Status: "nmbd: ready to serve connections..."
     Tasks: 1 (limit: 23020)
    Memory: 3.6M
       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

CECH Sandbox

turayj-lin-lb

Module 7 Network Segmentation

New Tab

ubuntu000001935

sandbox02.cech.uc.edu/vcac/VMRC/VMrc.aspx?ReadOnly=0&VirtualMachineID=086cb7d6-ae0a-4656-a634-59c4e4ca2f39

turayj-lin-lb

English

SEND CTRL+ALT+DEL

SEND CTRL+C

TOGGLE FULL SCREEN

Connected to VM

Press Ctrl-Alt to release the cursor from the guest.

```
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
              └─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
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

Computer programming I

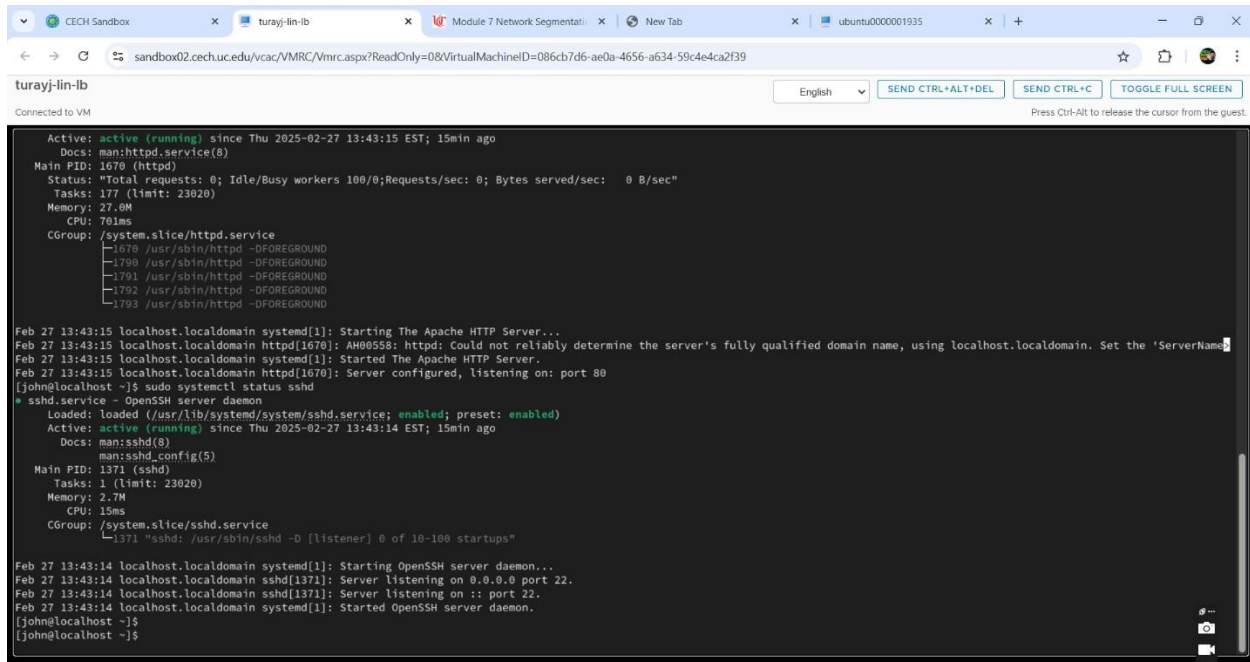
2:00 PM to 3:20 PM

Teachers College 236

5 minutes

Snooze

Dismiss

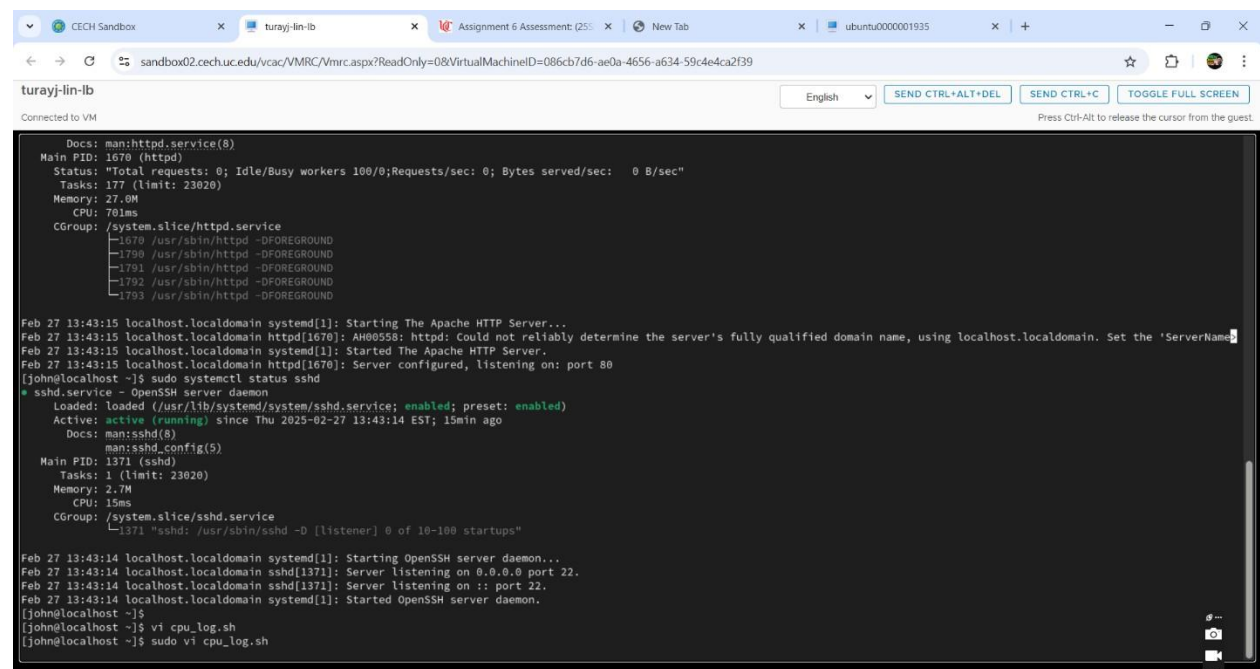


```
Active: active (running) since Thu 2025-02-27 13:43:15 EST; 15min ago
Docs: man:httpd.service(8)
Main PID: 1670 (httpd)
Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
Tasks: 177 (limit: 23020)
Memory: 27.0M
CPU: 701ms
CGroup: /system.slice/httpd.service
├─1670 /usr/sbin/httpd -DFOREGROUND
├─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'
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/ssh.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/ssh.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 ~]$
```

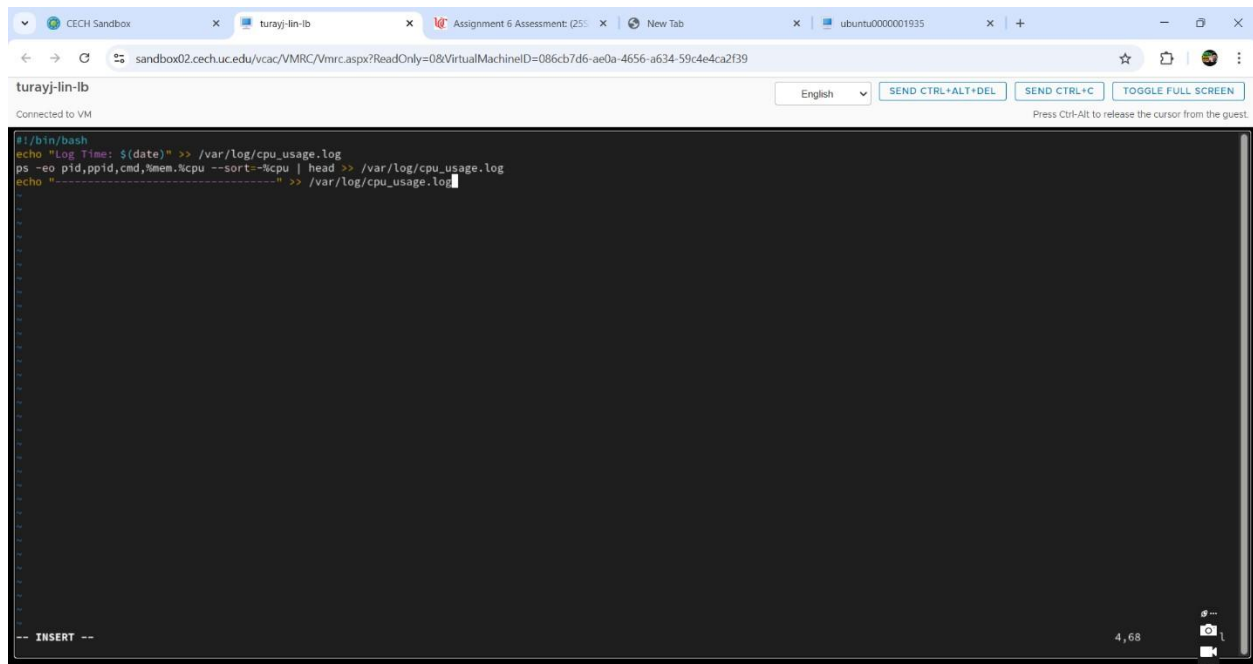
Next I created the script to run the log file:



```
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
├─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'
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/ssh.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/ssh.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
```

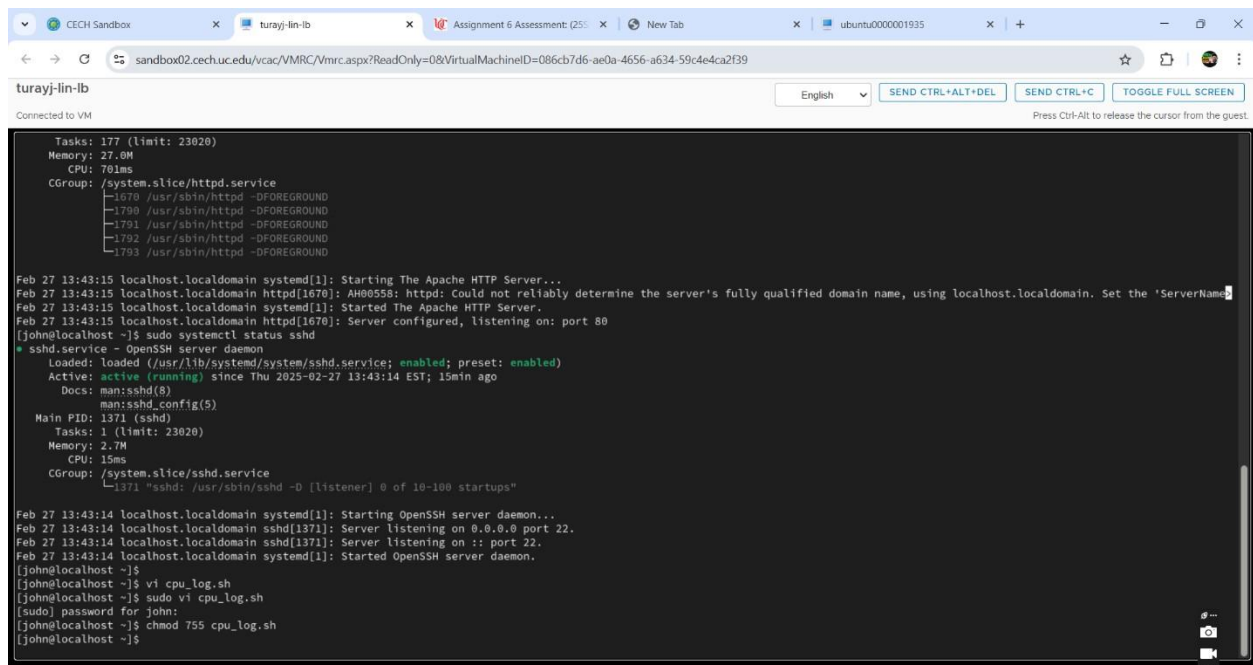


The screenshot shows a terminal window titled "turayj-lin-lb" connected to a VM. The terminal displays the following commands and output:

```
#!/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
```

The terminal output shows a list of processes sorted by CPU usage, with the top processes being the kernel (0.0%), systemd (0.0%), and various system services (0.0%). The terminal also shows the prompt "INSERT" and a status bar at the bottom indicating "4,68".

Then I made the file executable:



The screenshot shows a terminal window titled "turayj-lin-lb" connected to a VM. The terminal displays the following commands and output:

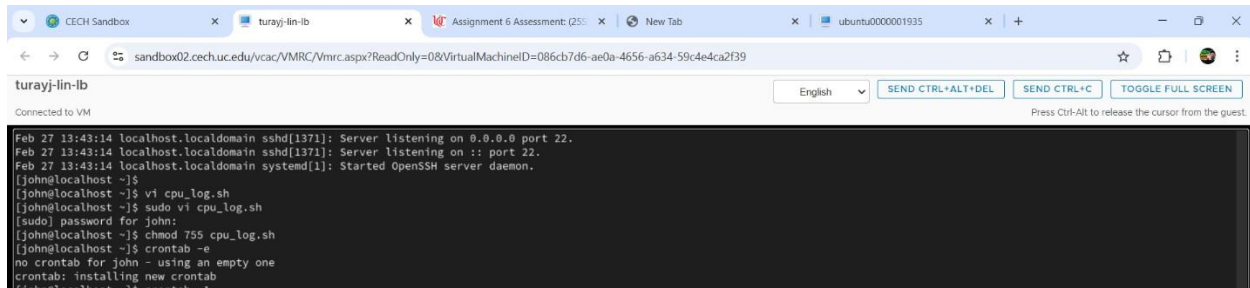
```
Tasks: 177 (limit: 23020)
Memory: 27.0M
CPU: 701ms
CGroup: /system.slice/httpd.service
├─1670 /usr/sbin/httpd -DFOREGROUND
├─1790 /usr/sbin/httpd -DFOREGROUND
├─1791 /usr/sbin/httpd -DFOREGROUND
├─1792 /usr/sbin/httpd -DFOREGROUND
└─1793 /usr/sbin/httpd -DFOREGROUND

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'
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"

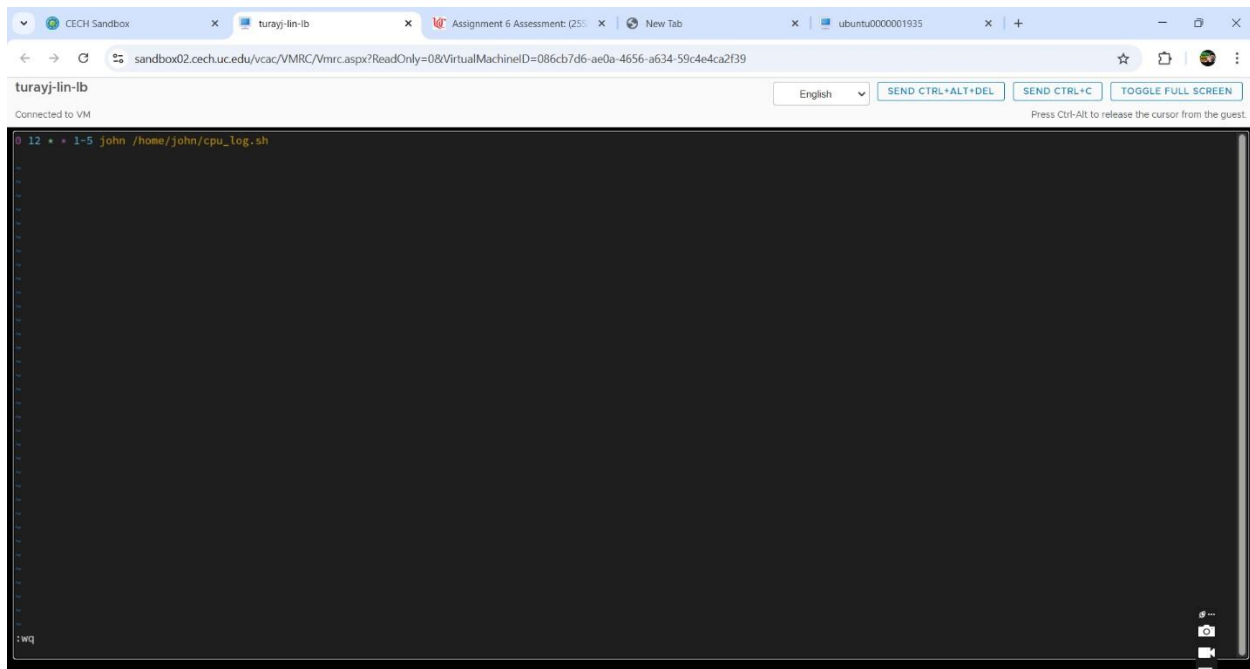
Feb 27 13:43:14 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on 0.0.0.0 port 22.
Feb 27 13:43:14 localhost.localdomain sshd[1371]: Server listening on :: port 22.
Feb 27 13:43:14 localhost.localdomain systemd[1]: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

The terminal output shows the status of the Apache HTTP Server and the OpenSSH server daemon. It also shows the execution of the script "cpu_log.sh" and the setting of permissions for the file.

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
crontab: /home/john: No such file or directory
```



```
0 12 * * 1-5 john /home/john/cpu_log.sh
[... lines ...]
[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.

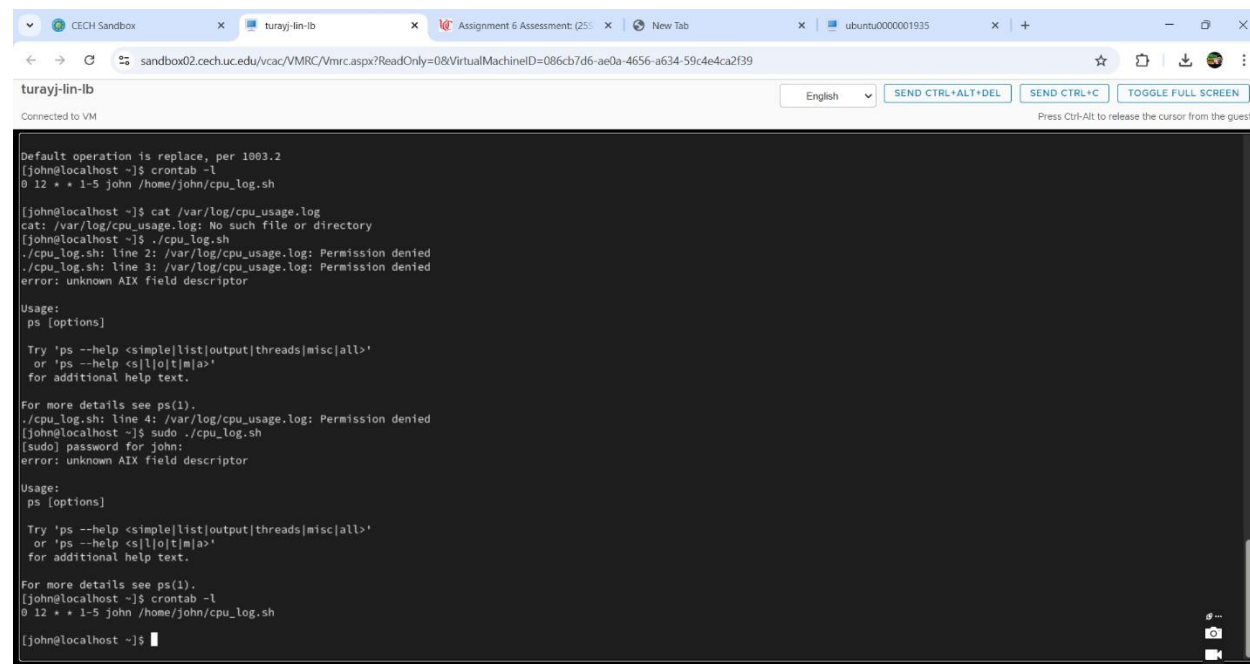
For more details see ps(1).
./cpu_log.sh: line 4: /var/log/cpu_usage.log: Permission denied
[john@localhost ~]$ sudo ./cpu_log.sh
[sudo] password for john:
error: unknown AIX field descriptor

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 ~]$
```

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



```
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 ~]$
```