# Linux Troubleshooting

## Resource Limitation ( Soft and Hard limits )

1. Create a user with name : user1

```
sudo useradd user1
```

2. Set the user1 soft limit RAM size to 1 GB

```
su user1
ulimit -Sv 1048576
```

3. Set the user1 soft limit file size to 2MB and Hard Limit file size to 3MB
   while logged in as user1

```
ulimit -Sf 2048
ulimit -Hf 3072
```

4. Set the user1 Linux open file limit Soft = 5000 hard = 6000
   while logged in as user1

```
ulimit -Sn 5000
ulimit -Hn 6000
```

   - For the ulimits to persists across reboots, add followings to `/etc/security/limits.conf` and save the file

```
user1 soft fsize 2048
user1 hard fsize 3072
user1 soft nofile 5000
user1 hard nofile 6000
```

5. Set the servers network card's receiving ring buffer to Maximum value
   - find the max of receiving ring buffer

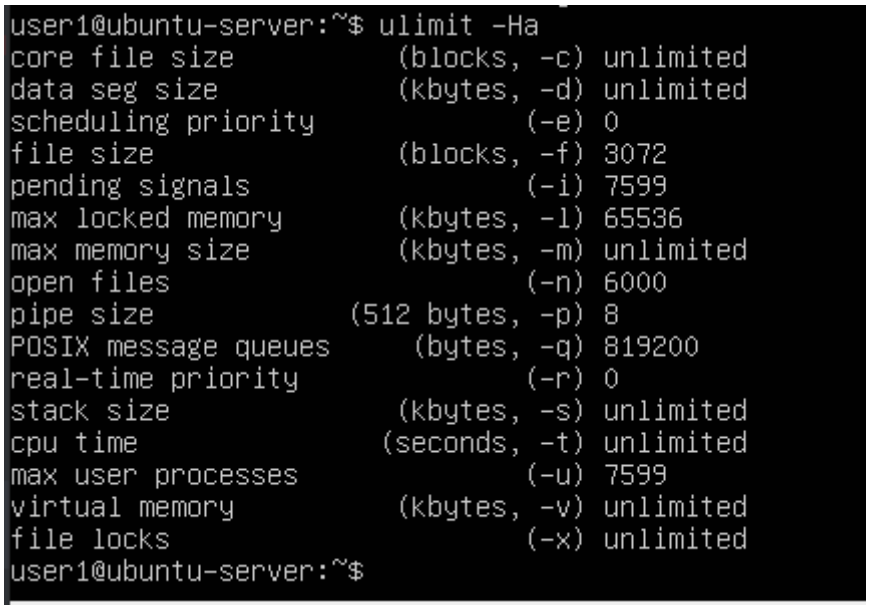
```
ethtool -g enp0s3
```

   - set to the max of receiving ring buffer

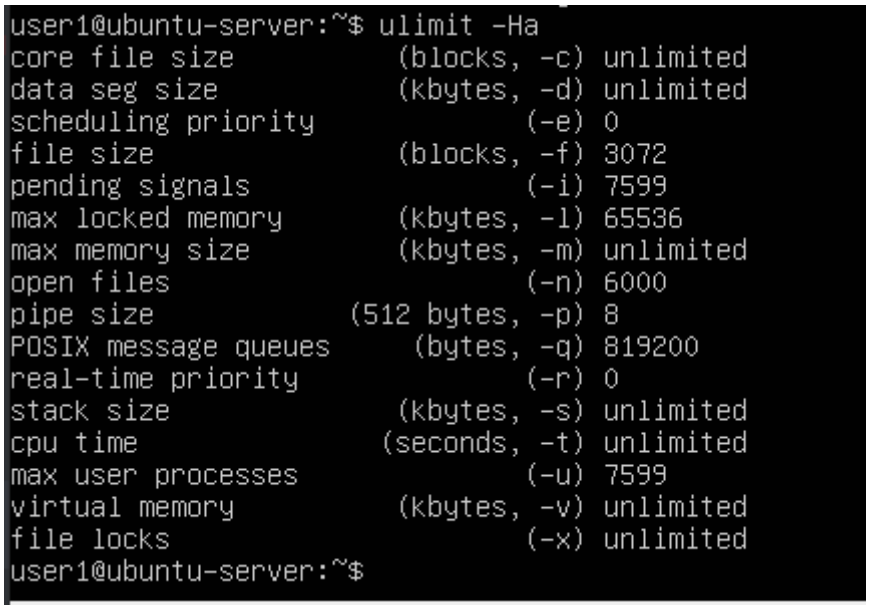
```
sudo ethtool -G enp0s3 rx <max-RX-value>
```

6. Share the screenshot of

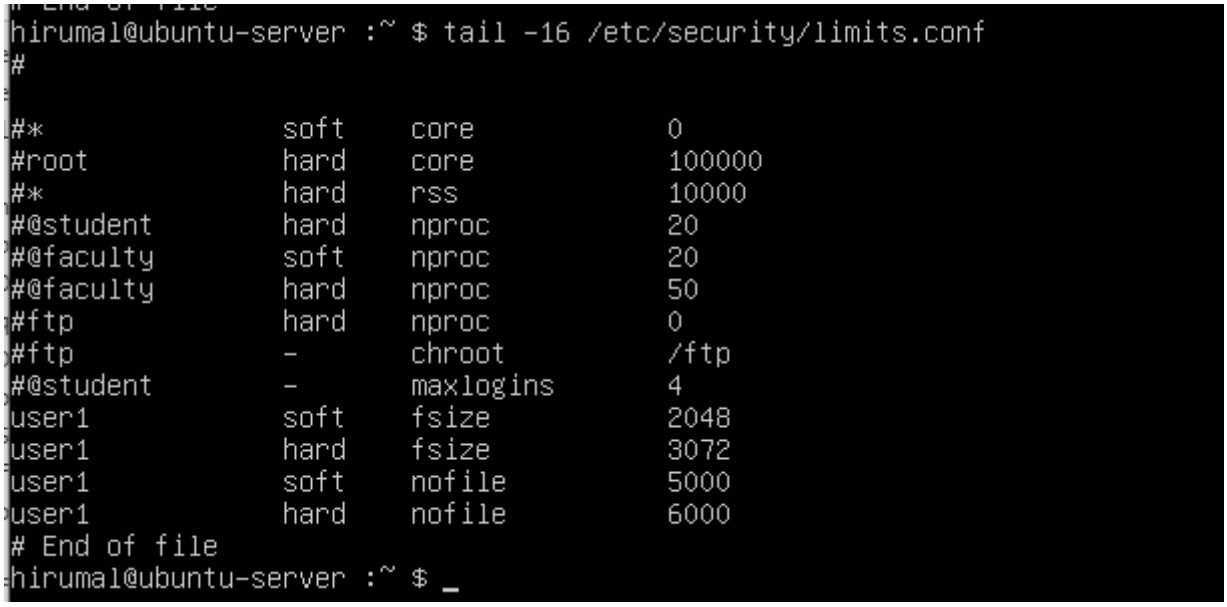
   i. Ulimit -Ha




   ii. Ulimit -Sa




   iii. /etc/security/limits.conf




# SWAP

Creare Two swap files , and one should be in size of 100MB and second file should 200MB

- create files those will be used as swap files

```
sudo fallocate -l 100M /swapfile1
sudo fallocate -l 200M /swapfile2
```

  - if fallocate not installed

```
sudo dd if=/dev/zero of=/swapfile1 bs=1024 count=102400
sudo dd if=/dev/zero of=/swapfile2 bs=1024 count=204800
```

- set permissions

```
sudo chmod 600 /swapfile1
sudo chmod 600 /swapfile2
```

- setup the files as swap space

```
sudo mkswap /swapfile1
sudo mkswap /swapfile2
```

- enable swap

```
sudo swapon /swapfile1
sudo swapon /swapfile2
```

1. Assign 200MB swap file a priority 10 and 100MB swap file a priority 20

```
sudo swapoff /swapfile1; sudo swapon -p 20 /swapfile1
sudo swapoff /swapfile2; sudo swapon -p 10 /swapfile2
```

2. Configure swap files to mount during a boot
   - append followings to the `/etc/fstab` file

```
/swapfile1 swap swap pri=20 0 0
/swapfile2 swap swap pri=10 0 0
```

3. Change system swappiness value to 40

```
sudo sysctl vm.swappiness=40
```

4. Share the screenshot of

   i. ./etc/fstab

```
hirumal@ubuntu-server :~ $ cat /etc/fstab
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda2 during curtin installation
/dev/disk/by-uuid/5847351f-a5fe-4622-9f4f-3e073ba9d315 / ext4 defaults 0 0
/swap.img       none    swap    sw      0       0
UUID=09ebb14c-0b58-4f35-bdac-3d021c3ecb22 /mnt auto defaults,loop 0 0
/swapfile1 swap swap pri=20 0 0
/swapfile2 swap swap pri=10 0 0
hirumal@ubuntu-server :~ $ _
```

   ii. free -m

```
hirumal@ubuntu-server :~ $ free -m
               total        used        free      shared  buff/cache   available
Mem:            1987         149        1534           1         304        1686
Swap:           2297           0        2297
hirumal@ubuntu-server :~ $
```

   iii. swapon -s

```
hirumal@ubuntu-server :~ $ swapon -s
Filename                                Type            Size    Used    Priority
/swap.img                               file            2045948 0       -2
/swapfile1                              file            102396  0       20
/swapfile2                              file            204796  0       10
hirumal@ubuntu-server :~ $ _
```

# FTP

Configure and setup the proftpd FTP server .

```
sudo apt update
sudo apt install proftpd
```

use `/etc/proftpd/proftpd.conf` to configure
If needed change the server name change the server name value in the file.

```
ServerName  "prod-devops-master"
```

To only allow users access to their home directory by adding(or uncommenting),

```
# Use this to jail all users in their homes
DefaultRoot ~
```

Whenever changes are made to the configuration files make sure to restart the ftp service.
To restart:

```
sudo service proftpd restart
```

1. Create a user called proftpuser , which should be able to upload and download content from the ftp server

   ```
   sudo echo "/bin/false" >> /etc/shells
   sudo adduser proftpuser --shell /bin/false --home /home/proftpuser
   ```

   add followings to `/etc/proftpd/proftpd.conf` and save.

   ```
   <Directory /home/proftpuser>
        Umask 022
        AllowOverwrite off
        <Limit LOGIN>
            AllowUser proftpuser
            DenyAll
        </Limit>
        <Limit ALL>
            AllowUser proftpuser
            DenyAll
        </Limit>
   </Directory>
   ```

2. Set the proftpd process priority ( Nice value) as -5
   - if the server is already running
     - find the process PID

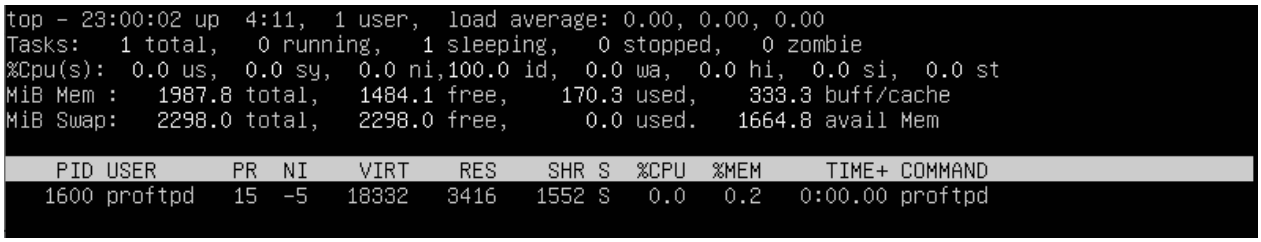
       ```
       ps aux | grep -i 'proftpd'
       ```

     - change nice value

       ```
       renice -n -5 <process-PID>
       ```

3. Share screenshot of

   i. Top command showing priority of the proftpd process




   ii. Share the configuration file of proftpd service

   https://github.com/HirumalPriyashan/linux-training.git

# SQUID Proxy

Setup and configure the Squid proxy server in the Linux box

```
sudo apt update
sudo apt install squid
```

1. Make sure to allow HTTP traffic via squid proxy.
   - open `/etc/squid/squid.conf`

   ```
   sudo nano /etc/squid/squid.conf
   ```

   - navigate to the `http_access deny all` option and change that to the following:

   ```
   http_access allow all
   ```

   - restart the service

   ```
   sudo systemctl restart squid
   ```

2. Then point your local web browser to Squid proxy and check whether you can access HTTP web sites via the proxy

   ```
   curl -x http://127.0.0.1:3128/ -l http://google.com/
   ```

3. Configure Squid proxy to block following Domains

   i. .facebook.com and facebook.com

   ii. .wso2.com and wso2.com

   iii. Ubuntu.com

   - create new file for blocked list

   ```
   sudo nano /etc/squid/blocked.acl
   ```

- add followings to the file

```
.facebook.com
.wso2.com
ubuntu.com
```

- open the /etc/squid/squid.conf file

```
sudo nano /etc/squid/squid.conf
```

- add the following lines before the first `http_access allow` statement:

```
acl blocked_websites dstdomain "/etc/squid/blocked.acl"
http_access deny blocked_websites
```

- restart the service

```
sudo systemctl restart squid
```

4. Configure Squid proxy daemon so that it will start during the boot in only in 1,3,5 run levels

```
update-rc.d squid defaults
update-rc.d squid disable 2 4 6
update-rc.d squid enable 1 3 5
```

```
(runlevel 1 & 6 can be omitted since action will have no effect on those runlevels)
```

5. Assign the I/O priority of Constant to the proftpd process ( Go via ionice command )
   - find `proftpd` service's pid

```
ps aux | grep "proftpd"
```

   - assign the I/O priority

```
sudo ionice -c 1 -p {pid-of-proftpd}
```

i. Share the configuration file of Squid ( You can share configuration file via Github public repository URL )
https://github.com/HirumalPriyashan/linux-training.git