

TAUC 1.0

How to Setup a Speed Test Server

Editors: Hungmao Chu, Dean Hsiao



1. Web Server Installation (HTTP)

1.1. INSTALL NGINX

```
$ sudo apt install nginx -y
```

1.2. CREATE RELATED DIRECTORIES AND DOWNLOAD FILES

```
$ sudo mkdir /var/www/html/download
```

```
$ sudo mkdir /var/www/html/upload
```

```
$ sudo chmod -R 777 /var/www/html/download
```

```
$ sudo chmod -R 777 /var/www/html/upload
```

```
$ cd /var/www/html/download
```

```
$ dd if=/dev/zero of=download_file_200MB.txt bs=1024 count=200KB
```

// * You could specify different file name for 'of' option and change file size in 'count' option.

// * e.g. bs=1024 count=200KB (to generate a file with size 200MB (200KB x 1024))

1.3. SET NGINX CONFIGURATION (FILE: /ETC/NGINX/NGINX.CONF)ADD FOLLOWING CONTENT IN THE BOTTOM OF 'HTTP' SESSION

```
http {  
    ...  
    client_max_body_size 2000M  
  
    server {  
        client_max_body_size 2000M  
    }  
  
    location /upload {  
        client_max_body_size 2000M  
    }  
}
```

1.4. RESTART NGINX

```
$ sudo service nginx restart
```

1.5. TEST DOWNLOAD FILE

Use a browser and connection to

http://<ServerIP>/download/download_file_200MB.txt.

You will see the browser starts to download the specified file.

2. FTP Server Installation (FTP)

2.1. INSTALL VSFTP

```
$ sudo apt install vsftpd -y
```

2.2. CREATE RELATED DIRECTORIES AND DOWNLOAD FILES

```
$ sudo mkdir -p /var/ftp
```

```
$ sudo chown nobody:nogroup /var/ftp
```

```
$ echo "vsftpd test file" | sudo tee /var/ftp/test.log
```

```
$ sudo mkdir /var/ftp/upload/
```

```
$ sudo chmod a+rx /var/ftp/upload/
```

```
$ sudo mkdir /var/ftp/download/
```

```
$ sudo chmod a+rx /var/ftp/download/
```

2.3. SET VSFTP CONFIGURATION (FILE: /ETC/VSFTPD.CONF)

```
$ SUDO CP /ETC/VSFTPD.CONF  
/ETC/VSFTPD.CONF.ORIG
```

Edit /etc/vsftpd.conf and change following configuration.

```
anonymous_enable=YES  
write_enable=YES  
anon_upload_enable=YES  
anon_mkdir_write_enable=YES  
local_umask=022
```

Append following configuration in bottom of file.

```
anon_other_write_enable=YES  
anon_root=/var/ftp/  
no_anon_password=NO  
hide_ids=YES  
pasv_min_port=40000  
pasv_max_port=50000
```

2.4. RESTART VSFTPD

```
$ sudo systemctl restart vsftpd
```

2.5. TEST DOWNLOAD AND UPLOAD FILE WITH ACCOUNT 'ANONYMOUS" (WITHOUT PASSWORD)

⇒ anonymous (Little Capital).

3. Server Hardware

1. CPU

1. Overall, IPC is the most important metric for performance with Linux Server
Fewer but faster cores are better than more but slower cores.
2. Ensure that NUMA is **not** enabled
3. Single socket board designs perform better than multi socket
4. If NUMA is not avoidable, ensure that kernel networking threads are allocated to single NUMA node. Interrupts will also have to be carefully tuned.
5. Required CPU instructions:
6. AES-NI

2. Memory

Memory size does not have a tangible impact on per-stream performance. However, it does directly correlate to the quantity of clients it can serve. **16GB** minimum is recommended, **32GB** to **64GB** is more than sufficient to serve a large quantity of clients.

3. Storage

1. Ensure that at least **1GB** of disk is free for Linux Server and future upgrades.
2. Logs also consume space.

4. NIC

Chelsio and Mellanox have been reported to perform well. Intel NIC' s are a close third, but are considerably cheaper.

5. Bandwidth

One gigabit per second (**1 Gbps**) of bandwidth is the minimum requirement to be a host on speedtest.net.