

Lab1 Objectives:

1. Install `ftpd` service on your laptop

- command:
 - `sudo apt install vsftpd`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ sudo apt install vsftpd
[sudo] password for mariam:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm13 linux-headers-5.15.0-58
  linux-headers-5.15.0-58-generic
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  vsftpd
0 upgraded, 1 newly installed, 0 to remove and 159 not upgraded.
Need to get 123 kB of archives.
After this operation, 326 kB of additional disk space will be used.
Get:1 http://eg.archive.ubuntu.com/ubuntu jammy/main amd64 vsftpd amd64 3.0.5-0ubuntu1 [123 kB]
Fetched 123 kB in 1s (172 kB/s)
Preconfiguring packages ...
Selecting previously unselected package vsftpd.
(Reading database ... 234846 files and directories currently installed.)
Preparing to unpack .../vsftpd_3.0.5-0ubuntu1_amd64.deb ...
Unpacking vsftpd (3.0.5-0ubuntu1) ...
Setting up vsftpd (3.0.5-0ubuntu1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/vsftpd.service → /l
b/systemd/system/vsftpd.service.
Processing triggers for man-db (2.10.2-1) ...
```

2. enable port 21 and 20 (tcp) using `iptables` command using `INPUT` chain

- commands:
 - `sudo iptables -A INPUT -p tcp --dport 20 -j ACCEPT`
 - `sudo iptables -A INPUT -p tcp --dport 21 -j ACCEPT`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ sudo iptables -A INPUT -p tcp --dport 20 -j ACCEPT
mariam@mariam-VirtualBox:~/Desktop$ sudo iptables -A INPUT -p tcp --dport 21 -j ACCEPT
```

3. connect to ftp server (e.g: localhost) and browse the current directory

- commands:
 - `ftp localhost`
 - `ls`

- screen shot:

```

mariam@mariam-VirtualBox:~/Desktop$ ftp localhost
Connected to localhost.
220 (vsFTPd 3.0.5)
Name (localhost:mariam): mariam
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ftp
Already connected to localhost, use close first.
ftp> ls
229 Entering Extended Passive Mode (||||14048|)
150 Here comes the directory listing.
drwxr-xr-x  2 1000      1000          4096 Feb 26 00:13 Desktop
drwxr-xr-x  3 1000      1000          4096 Feb 08 14:02 Documents
drwxr-xr-x  2 1000      1000          4096 Feb 01 14:42 Downloads
drwxr-xr-x  2 1000      1000          4096 Feb 01 14:42 Music
drwxr-xr-x  3 1000      1000          4096 Feb 25 00:35 Pictures
drwxr-xr-x  2 1000      1000          4096 Feb 01 14:42 Public
drwxr-xr-x  2 1000      1000          4096 Feb 01 14:42 Templates
drwxr-xr-x  2 1000      1000          4096 Feb 01 14:42 Videos
drwx----- 5 1000      1000          4096 Feb 11 13:38 snap
226 Directory send OK.
ftp> █

```

4. enable ufw service

- commands:

- sudo ufw enable
- sudo ufw status

- screen shot:

```

mariam@mariam-VirtualBox:~/Desktop$ sudo ufw enable
Firewall is active and enabled on system startup
mariam@mariam-VirtualBox:~/Desktop$ sudo ufw status
Status: active

```

5. block port 20 and 21 (tcp) using ufw

- commands:

- sudo ufw deny 20/tcp
- sudo ufw deny 21/tcp

- screen shot:

```

mariam@mariam-VirtualBox:~/Desktop$ sudo ufw deny 20/tcp
Rule added
Rule added (v6)
mariam@mariam-VirtualBox:~/Desktop$ sudo ufw deny 21/tcp
Rule added
Rule added (v6)

```

6. try to connect to ftp service.

- commands:
 - ftp localhost
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ ftp localhost
Connected to localhost.
220 (vsFTPD 3.0.5)
Name (localhost:mariam): mariam
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
```

7. capture the ufw log to detect the blocked operation

- commands:
 - tail /var/log/kern.log
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ tail /var/log/kern.log
Apr  5 14:25:31 mariam-VirtualBox kernel: [ 123.750587] audit: type=1107 audit(1680697531.335:57): pid=655 uid=102 auid=4294967295 se
s=4294967295 subj=unconfined msg='apparmor="DENIED" operation="dbus_method_call" bus="system" path="/org/freedesktop/PolicyKit1/Autho
rity" interface="org.freedesktop.PolicyKit1.Authority" member="CheckAuthorization" mask="send" name=":1.7" pid=1869 label="snap.snap-s
tore.snap-store" peer_pid=666 peer_label="unconfined"
```

8. install nfs service on your system

- commands:
 - sudo apt install nfs-kernel-server
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ sudo apt install nfs-kernel-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 libllvm13 linux-headers-5.15.0-58 linux-headers-5.15.0-58-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  keyutils libevent-core-2.1-7 libnfsidmap1 nfs-common rpcbind
Suggested packages:
  open-iscsi watchdog
The following NEW packages will be installed:
  keyutils libevent-core-2.1-7 libnfsidmap1 nfs-common nfs-kernel-server rpcbind
0 upgraded, 6 newly installed, 0 to remove and 159 not upgraded.
Need to get 615 kB of archives.
```

9. enable nfs service on the firewall

- commands:
 - `sudo ufw allow 2049/tcp`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ sudo ufw allow 2049/tcp
Rule added
Rule added (v6)
```

10. create and share /tmp/shares folder using exportfs command and /etc/exports file

- commands:
 - `echo '/tmp/shares *(rw)' | sudo tee -a /etc/exports`
 - `sudo exportfs -a`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ echo '/tmp/shares *(rw)' | sudo tee -a /etc/exports
/tmp/shares *(rw)
mariam@mariam-VirtualBox:~/Desktop$ sudo exportfs -a
exportfs: /etc/exports [1]: Neither 'subtree_check' or 'no_subtree_check' specified for export "*/tmp/shares".
Assuming default behaviour ('no_subtree_check').
NOTE: this default has changed since nfs-utils version 1.0.x
```

11. mount the remote share on /mnt folder (you can using localhost as well)

- commands:
 - `sudo mount -t nfs localhost:/tmp/shares /mnt`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ sudo mount -t nfs localhost:/tmp/shares /mnt
```

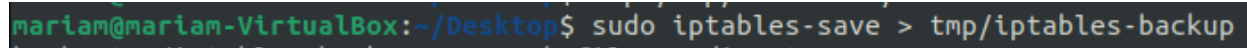
12. copy some files to the remote share

- commands:
 - `scp /tmp/file.txt /mnt`
- screen shot:

```
mariam@mariam-VirtualBox:~/Desktop$ scp /tmp/file.txt /mnt
```

13. save iptables rules to /tmp/iptables-backup file

- commands:
 - `sudo iptables-save > tmp/iptables-backup`
- screen shot:



```
mariaam@mariaam-VirtualBox:~/Desktop$ sudo iptables-save > tmp/iptables-backup
```