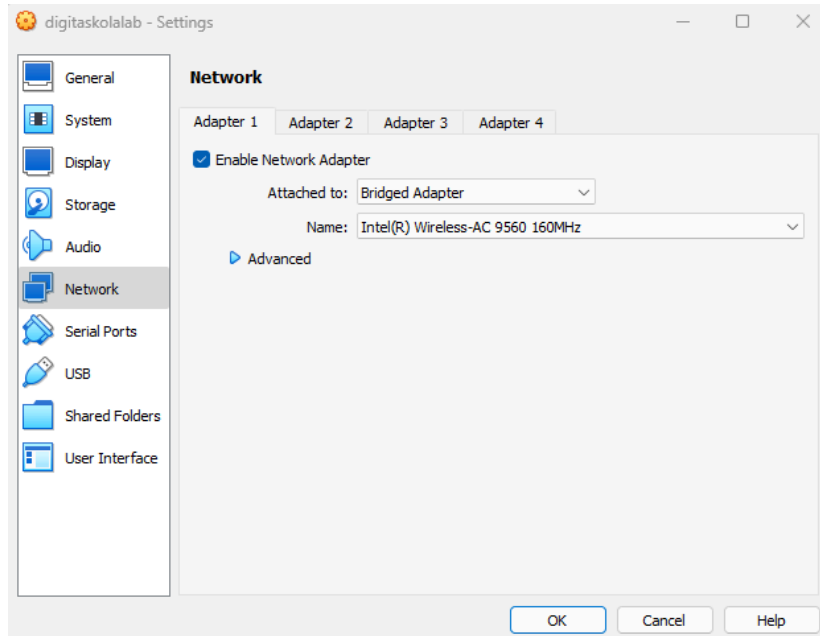


Linux and Unix Administration

SSH ke VM di Virtual Box

- Mengubah konfigurasi adapter network menjadi **bridge adapter**



- Memastikan ssh sudah terinstall dan cek ip address

```
[*] local_tun[:remote_tun] destination [command [argument ...
root@digitaskolalab:/home/huan# ssh -V
OpenSSH_8.9p1 Ubuntu-3ubuntu0.10, OpenSSL 3.0.2 15 Mar 2022
root@digitaskolalab:/home/huan# _
```

```
root@digitaskolalab:/home/huan# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:8b:7e:2d brd ff:ff:ff:ff:ff:ff
    inet 192.168.18.215/24 metric 100 brd 192.168.18.255 scope global dynamic enp0s3
        valid_lft 3464sec preferred_lft 3464sec
    inet6 2404:8000:1035:1586:a00:27ff:fe8b:7e2d/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 259153sec preferred_lft 172753sec
    inet6 fe80::a00:27ff:fe8b:7e2d/64 scope link
        valid_lft forever preferred_lft forever
root@digitaskolalab:/home/huan# _
```

- SSH ke VM dan cek koneksi

```
PS C:\Users\juanm> ssh huan@192.168.18.215
The authenticity of host '192.168.18.215 (192.168.18.215)' can't be established.
ED25519 key fingerprint is SHA256:HS0eYe7gxe4z7RKM1mbTgvOKurTB+U+GEkjAyp6UTDo.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.18.215' (ED25519) to the list of known hosts.
huan@192.168.18.215's password:
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 5.15.0-119-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Fri Sep  6 10:49:40 AM UTC 2024

System load:                0.17333984375
Usage of /:                  6.5% of 78.19GB
Memory usage:                11%
Swap usage:                  0%
Processes:                   139
Users logged in:             1
IPv4 address for enp0s3:     192.168.18.215
IPv6 address for enp0s3:     2404:8000:1035:1586:a00:27ff:fe8b:7e2d

Expanded Security Maintenance for Applications is not enabled.

37 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Sep  6 10:46:50 2024
huan@digitaskolalab:~$ sudo su
[sudo] password for huan:
root@digitaskolalab:/home/huan#
```

```
root@digitaskolalab:/home/huan# ping google.com
PING google.com(sc-in-f138.1e100.net (2404:6800:4003:c02::8a)) 56 data bytes
64 bytes from sc-in-f138.1e100.net (2404:6800:4003:c02::8a): icmp_seq=1 ttl=56 time=20.5 ms
64 bytes from sc-in-x8a.1e100.net (2404:6800:4003:c02::8a): icmp_seq=2 ttl=56 time=18.8 ms
64 bytes from sc-in-f138.1e100.net (2404:6800:4003:c02::8a): icmp_seq=3 ttl=56 time=20.2 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2032ms
rtt min/avg/max/mdev = 18.760/19.813/20.469/0.752 ms
root@digitaskolalab:/home/huan#
```

A. Lakukan langkah berikut untuk manajemen user dan group

- Membuat tiga pengguna baru bernama user1, user2 dan user3

Command:

```
useradd user1
```

```
useradd user2
```

```
useradd user3
```

```
root@digitaskolalab:/home/huan# useradd user1
^[[Aroot@digitaskolalab:/home/huan# useradd user2
root@digitaskolalab:/home/huan# useradd user3
```

- Membuat grup baru bernama devteam

Command:

```
groupadd devteam
```

```
root@digitaskolalab:/home/huan# groupadd devteam
root@digitaskolalab:/home/huan# cat /etc/group
group  group-
root@digitaskolalab:/home/huan# cat /etc/group
group  group-
root@digitaskolalab:/home/huan# cat /etc/group |grep devteam
devteam:x:1004:
root@digitaskolalab:/home/huan#
```

- Memasukan user1&user2 ke devteam

Command:

```
usermod -aG devteam user1
```

```
usermod -aG devteam user2
```

```
root@digitaskolalab:/home/huan# usermod -aG devteam user1
root@digitaskolalab:/home/huan# usermod -aG devteam user2
```

- Membuat direktori baru /home/shared dengan nama sesi_3

Command:

```
mkdir /home/shared
```

```
mkdir /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# ls /home/
huan
root@digitaskolalab:/home/huan# mkdir /home/shared
root@digitaskolalab:/home/huan# mkdir /home/shared/sesi_3
root@digitaskolalab:/home/huan# ls -l /home/shared/sesi_3
total 0
root@digitaskolalab:/home/huan# ls -lah /home/shared/sesi_3
total 8.0K
drwxr-xr-x 2 root root 4.0K Sep  6 11:01 .
drwxr-xr-x 3 root root 4.0K Sep  6 11:01 ..
```

- Memberikan kepemilikan folder sesi_3 ke grup devteam

Command:

```
chgrp devteam /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# chgrp devteam /home/shared/sesi_3/
root@digitaskolalab:/home/huan# ls -l /home/shared/
total 4
drwxr-xr-x 2 root devteam 4096 Sep  6 11:01 sesi_3
root@digitaskolalab:/home/huan#
```

- Memberikan permission akses sehingga hanya grup devteam yang dapat membaca, menulis dan melakukan eksekusi di dalam folder project, sedangkan pengguna lain tidak memiliki akses

Command:

```
chmod 070 /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# ls -l /home/shared/
total 4
drwxr-xr-x 2 root devteam 4096 Sep  6 11:01 sesi_3
root@digitaskolalab:/home/huan# chmod 070 /home/shared/sesi_3/
root@digitaskolalab:/home/huan# ls -l /home/shared/
total 4
d---rwx--- 2 root devteam 4096 Sep  6 11:01 sesi_3
root@digitaskolalab:/home/huan#
```

- Masuklah sebagai user1 apakah bisa membuat file didalam sesi_3

Command:

```
su user1
```

```
echo $USER
```

```
touch /home/shared/sesi_3/juan.txt
```

```
ls -l /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# su user1
$ echo $USER
user1
$ touch /home/shared/sesi_3/juan.txt
$ ls -l /home/shared/sesi_3/
total 0
-rw-rw-r-- 1 user1 user1 0 Sep  6 11:10 juan.txt
$
```

Jawaban:

user1 bisa membuat file pada direktori /home/shared/sesi_3/ karena dia memiliki full akses pada direktori tersebut dari grup devteam

- Masuklah sebagai user2 apakah bisa membuat file didalam sesi_3

Command:

```
su user2
```

```
echo $USER
```

```
touch /home/shared/sesi_3/user2.txt
```

```
ls -l /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# su user2
$ echo $USER
user2
$ touch /home/shared/sesi_3/user2.txt
$ ls -l /home/shared/sesi_3/
total 0
-rw-rw-r-- 1 user1 user1 0 Sep  6 11:10 juan.txt
-rw-rw-r-- 1 user2 user2 0 Sep  6 11:12 user2.txt
```

Jawaban:

user2 bisa membuat file pada direktori /home/shared/sesi_3/ karena dia memiliki full akses pada direktori tersebut dari grup devteam

- Masuklah sebagai user3 apakah bisa membuat file didalam sesi_3

Command:

```
su user3
```

```
echo $USER
```

```
touch /home/shared/sesi_3/user3.txt
```

```
ls -l /home/shared/sesi_3
```

```
root@digitaskolalab:/home/huan# su user3
$ echo $USER
user3
$ touch /home/shared/sesi_3/user3.txt
touch: cannot touch '/home/shared/sesi_3/user3.txt': Permission denied
$
```

Jawaban:

user3 tidak bisa membuat file pada direktori /home/shared/sesi_3/ karena user tersebut termasuk sebagai others yang tidak memiliki hak akses pada direktori /home/shared/sesi_3/

- B. Lakukan konfigurasi dan instalasi NGINX berikut ini, lakukan verifikasi menggunakan curl untuk memastikan servis berjalan. Lalu lakukan verifikasi service nginx dengan `netstat -tuln` dan `ps aux | grep nginx`

- Menginstall Nginx

```
sudo su
```

```
huan@digitaskolalab:~$ sudo su
root@digitaskolalab:/home/huan# |
```

```
apt update
```

```

root@digitaskolalab:/home/huan# apt update
Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:5 http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,988 kB]
Get:6 http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.8 kB]
Get:7 http://id.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2,386 kB]
Get:8 http://id.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [410 kB]
Get:9 http://id.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [616 B]
Get:10 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1,123 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1,771 kB]
Get:12 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [261 kB]
Get:13 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.1 kB]
Get:14 http://id.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:15 http://id.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [444 B]
59% [7 Packages store 0 B] [11 Packages 205 kB/1,771 kB 12%] 789 kB/s 7s

```

apt install -y nginx

```

root@digitaskolalab:/home/huan# apt install -y nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjpeg-turbo8
  libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4
  nginx-common nginx-core
Suggested packages:
  libgd-tools fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjpeg-turbo8
  libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4 nginx
  nginx-common nginx-core
0 upgraded, 20 newly installed, 0 to remove and 43 not upgraded.

```

systemctl start nginx

systemctl enable nginx

systemctl status nginx

```

root@digitaskolalab:/home/huan# systemctl start nginx
root@digitaskolalab:/home/huan# systemctl enable nginx
Synchronizing state of nginx.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable nginx
root@digitaskolalab:/home/huan# systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2024-09-06 11:17:35 UTC; 48s ago
     Docs: man:nginx(8)
  Main PID: 3015 (nginx)
    Tasks: 5 (limit: 2218)
   Memory: 6.7M
      CPU: 323ms
  CGroup: /system.slice/nginx.service

```

- Mengedit File HTML

```
sh -c 'echo "<!DOCTYPE html> \
```

```
<html> \
```

```
<head> \
```

```
    <title>Welcome to Nginx!</title> \
```

```
</head> \
```

```
<body> \
```

```
    <h1>Success! Nginx is serving this HTML page.</h1> \
```

```
</body> \
```

```
</html>" > /var/www/html/index.html'
```

```
root@digitaskolalab:/home/huan# cat /var/www/html/index.  
cat: /var/www/html/index.: No such file or directory  
root@digitaskolalab:/home/huan# cat /var/www/html/index.html  
<!DOCTYPE html>  
<html>  
<head>  
  <title>Welcome to Nginx!</title>  
</head>  
<body>  
  <h1>Success! Nginx is serving this HTML page.</h1>  
</body>  
</html>  
root@digitaskolalab:/home/huan#
```

- Memberikan akses permission pada file index.html
chmod 644 /var/www/html/index.html

```
root@digitaskolalab:/home/huan# ls -l /var/www/html/index.html  
-rw-r--r-- 1 root root 161 Sep  6 11:19 /var/www/html/index.html  
root@digitaskolalab:/home/huan# chmod 644 /var/www/html/index.html  
root@digitaskolalab:/home/huan# ls -l /var/www/html/index.html  
-rw-r--r-- 1 root root 161 Sep  6 11:19 /var/www/html/index.html  
root@digitaskolalab:/home/huan#
```

- Melakukan konfigurasi nginx
echo 'server {
 listen 80 default_server;
 listen [::]:80 default_server;

 root /var/www/html;
 index index.html;

 server_name _;

 location / {
 try_files \$uri \$uri/ =404;
 }
' | sudo tee /etc/nginx/sites-available/default

```

root@digitaskolalab:/home/huan# echo 'server {
    listen 80 default_server;
    listen [::]:80 default_server;
    root /var/www/html;
    index index.html;
    server_name _;
    location / {
        try_files $uri $uri/ =404;
    }
}' | sudo tee /etc/nginx/sites-available/default
server {
    listen 80 default_server;
    listen [::]:80 default_server;
    root /var/www/html;
    index index.html;
    server_name _;
    location / {
        try_files $uri $uri/ =404;
    }
}
root@digitaskolalab:/home/huan#

```

- Melakukan reload nginx
 nginx -t
 systemctl reload nginx

```

root@digitaskolalab:/home/huan# nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
root@digitaskolalab:/home/huan# systemctl reload nginx
root@digitaskolalab:/home/huan#

```


- Melakukan verifikasi nginx

curl -v <http://localhost>

```
root@digitaskolalab:/home/huan# curl -v http://localhost
*   Trying 127.0.0.1:80...
* Connected to localhost (127.0.0.1) port 80 (#0)
> GET / HTTP/1.1
> Host: localhost
> User-Agent: curl/7.81.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Server: nginx/1.18.0 (Ubuntu)
< Date: Fri, 06 Sep 2024 11:23:26 GMT
< Content-Type: text/html
< Content-Length: 161
< Last-Modified: Fri, 06 Sep 2024 11:19:13 GMT
< Connection: keep-alive
< ETag: "66dae531-a1"
< Accept-Ranges: bytes
<
<!DOCTYPE html>
<html>
<head>
  <title>Welcome to Nginx!</title>
</head>
<body>
  <h1>Success! Nginx is serving this HTML page.</h1>
</body>
</html>
* Connection #0 to host localhost left intact
root@digitaskolalab:/home/huan#
```

- Menginstall Netstat
apt-get install net-tools

```

root@digitaskolab:/home/huan# apt-get install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
 net-tools
0 upgraded, 1 newly installed, 0 to remove and 43 not upgraded.
Need to get 204 kB of archives.
After this operation, 819 kB of additional disk space will be used.
Get:1 http://id.archive.ubuntu.com/ubuntu jammy/main amd64 net-tools amd64 1.60+git20181103.0eebece-1ubuntu5 [204 kB]
Fetched 204 kB in 5s (38.3 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 74857 files and directories currently installed.)
Preparing to unpack ../net-tools_1.60+git20181103.0eebece-1ubuntu5_amd64.deb ...
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

```

- Menjalankan perintah netstat -tuln dan ps aux|grep nginx

```

root@digitaskolab:/home/huan# netstat -tuln |grep "tcp"
tcp        0      0 localhost:37418      localhost:http        TIME_WAIT
tcp        0      52 digitaskolab:ssh    192.168.18.60:64190  ESTABLISHED
tcp        0      0 localhost:57128      localhost:http        TIME_WAIT
root@digitaskolab:/home/huan# ps aux|grep nginx
root      3015  0.0  0.6 55324 12476 ?        S    11:17   0:00 nginx: master process /usr/sbin/nginx
nx -g daemon on; master_process on;
www-data  3268  0.0  0.2 55996  5760 ?        S    11:22   0:00 nginx: worker process
www-data  3269  0.0  0.2 55996  5760 ?        S    11:22   0:00 nginx: worker process
www-data  3270  0.0  0.2 55996  5760 ?        S    11:22   0:00 nginx: worker process
www-data  3271  0.0  0.2 55996  5760 ?        S    11:22   0:00 nginx: worker process
root      3429  0.0  0.1  6480  2392 pts/2    S+   11:34   0:00 grep --color=auto nginx
root@digitaskolab:/home/huan#

```

Penjelasan Tugas B

- Curl merupakan command yang digunakan pada terminal untuk mengakses atau menampilkan konten website yang ingin dituju. Pada tugas kali ini saya diminta untuk mengakses file index.html yang sudah dihosting pada vm dan di expose pada port 80 sehingga ketika diakses menggunakan curl, menampilkan konten yang ada pada index.html dan untuk option atau flag -v sendiri itu digunakan untuk verbose atau debugging ketika mengakses website pada localhost.
- Perintah netstat sendiri digunakan untuk menampilkan data statistik koneksi jaringan dari dan ke komputer yang digunakan, dalam kasus homework yang diberikan oleh digitaskola ini adalah pada vm yang sudah diinstall pada virtualbox. Untuk flag atau option -tuln berfungsi untuk menampilkan seluruh koneksi tcp dan udp yang aktif dan terkoneksi beserta nomor port dan statusnya. Pada kasus homework kali ini dari percobaan yang sudah saya lakukan ketika saya menambahkan command grep "tcp" dengan pipeline, maka yang muncul hanya koneksi tcp saja dan bisa dilihat status dari http pada localhost itu time_wait yang artinya akses ke website yang saya lakukan pada curl sudah terputus atau disconnected.

- Sedangkan Perintah `ps aux|grep nginx` sendiri digunakan untuk menampilkan proses status PID yang memiliki kata `nginx` di prosesnya. Untuk opsi `aux` digunakan untuk menampilkan seluruh proses dari seluruh user yang ada pada vm