

MODUL PRAKTIKUM IV

PROTOKOL LAPISAN TRANSPORT

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LANGKAH PRAKTIKUM

I. Netstat Pada Sistem Operasi Linux

1. Akses komputer linux Anda dalam project yang telah terbuka.
2. Pastikan koneksi komputer anda sudah terhubung dengan internet, dengan menjalankan perintah ping ke www.google.com. Pastikan terdapat kata-kata replay

```
debian@debian:~$ ping google.com
PING google.com (74.125.68.138) 56(84) bytes of data.
64 bytes from sc-in-f138.1e100.net (74.125.68.138): icmp_seq=1 ttl=101 time=91ms
64 bytes from sc-in-f138.1e100.net (74.125.68.138): icmp_seq=2 ttl=101 time=86ms
^C64 bytes from 74.125.68.138: icmp_seq=3 ttl=101 time=1030 ms

--- google.com ping statistics ---
4 packets transmitted, 3 received, 25% packet loss, time 4600ms
rtt min/avg/max/mdev = 868.401/938.880/1029.704/67.404 ms, pipe 2
debian@debian:~$
```

pada output perintah tersebut. Hentikan utilitas ping dengan menekan kombinasi tombol keyboard ctrl+c.

3. Jika belum, tanyakan ke dosen / instruktur agar bisa mendapatkan koneksi internet.

4. Lakukan pemutakhiran indeks repositori pada komputer linux Anda dengan menjalankan perintah “sudo apt update”, kemudian masukkan password dari user linux yang Anda gunakan. Dan pastikan tidak ada kata-kata error yang muncul pada proses pemutakhiran tersebut.

```

bian@debian:~$ sudo apt update
[sudo] password for debian:
et:1 http://security.debian.org/debian-security bullseye-security InRelease
et:2 http://deb.debian.org/debian bullseye InRelease [116 kB]
et:3 http://security.debian.org/debian-security bullseye-security/main Sources
et:4 http://deb.debian.org/debian bullseye-updates InRelease [44.1 kB]
et:5 http://deb.debian.org/debian bullseye/main Sources [8,500 kB]
et:6 http://security.debian.org/debian-security bullseye-security/non-free Sources
et:7 http://security.debian.org/debian-security bullseye-security/main amd64
et:8 http://security.debian.org/debian-security bullseye-security/main Trans
et:9 http://security.debian.org/debian-security bullseye-security/non-free amd64
et:10 http://security.debian.org/debian-security bullseye-security/non-free Sources
et:11 http://deb.debian.org/debian bullseye/non-free Sources [81.0 kB]
et:12 http://deb.debian.org/debian bullseye/contrib Sources [43.2 kB]
et:13 http://deb.debian.org/debian bullseye/main amd64 Packages [8,066 kB]
et:14 http://deb.debian.org/debian bullseye/main Translation-en [6,235 kB]
et:15 http://deb.debian.org/debian bullseye/contrib amd64 Packages [50.4 kB]
et:16 http://deb.debian.org/debian bullseye/contrib Translation-en [46.9 kB]
et:17 http://deb.debian.org/debian bullseye/non-free amd64 Packages [96.4 kB]
et:18 http://deb.debian.org/debian bullseye/non-free Translation-en [92.5 kB]
et:19 http://deb.debian.org/debian bullseye-updates/main Sources [7,908 B]
et:20 http://deb.debian.org/debian bullseye-updates/main amd64 Packages [18.
et:21 http://deb.debian.org/debian bullseye-updates/main Translation-en [10.
et:5 http://deb.debian.org/debian bullseye/main Sources [8,500 kB]
Fetching 19.1 MB in 46min 11s (6,893 B/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
24 packages can be upgraded. Run 'apt list --upgradable' to see them.

: Repository 'http://security.debian.org/debian-security bullseye-security In
unity' to 'oldstable-security'
: Repository 'http://deb.debian.org/debian bullseye InRelease' changed its 'S
: Repository 'http://deb.debian.org/debian bullseye InRelease' changed its 'S
: Repository 'http://deb.debian.org/debian bullseye-updates InRelease' change
able-updates'
bian@debian:~$

```

5. Pada sistem operasi linux, utilitas netstat berada pada paket aplikasi net-tools. Oleh karena itu lakukan instalasi paket net-tools untuk dapat menggunakan utilitas netstat. Jalankan perintah “sudo apt install net-tools” untuk melakukan instalasi paket tersebut.

```

debian@debian:~$ sudo apt install net-tools
[sudo] password for debian:
Reading package lists... Done
Building dependency tree
Reading state information... Done
net-tools is already the newest version.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.

```

6. Kemudian setelah paket aplikasi berhasil dipasang, jalankan perintah “netstat”.
7. Ambil gambar hasil output perintah netstat tersebut, dan jelaskan arti dari output tampilan yang ada pada komputer linux Anda tersebut.

- Outputnya berupa keterangan jaringan – jaringan yang ada, jika ada tulisan connected berarti jaringannya sedang terhubung dengan linux yang saya gunakan. Lalu yang berada pada ujung kanan adalah Lokasi terhubungnya/berjalannya.

8. Tambahkan opsi yang cocok pada perintah netstat untuk menampilkan port-port yang sedang terbuka dan listen pada komputer linux Anda beserta nama proses atau PIDnya. Jangan lupa menggunakan akses super user (sudo) untuk dapat menampilkan detil nama proses atau PID dari aplikasi yang sedang menggunakan port tersebut.

```
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      342/sshd: /usr/sbin
tcp6       0      0 :::21                   :::*                     LISTEN      338/vsftpd
tcp6       0      0 :::22                   :::*                     LISTEN      342/sshd: /usr/sbin

debian@debian:~$ sudo netstat -l
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 0.0.0.0:bootpc          0.0.0.0:*
Active UNIX domain sockets (only servers)
Proto RefCnt Flags   Type       State       I-Node   Path
unix    2      [ ACC ] STREAM    LISTENING   12575    /run/user/1000/systemd/private
unix    2      [ ACC ] STREAM    LISTENING   12146    /run/dbus/system_bus_socket
unix    2      [ ACC ] STREAM    LISTENING   10750    /run/systemd/private
unix    2      [ ACC ] STREAM    LISTENING   10752    /run/systemd/userdb/io.systemd.DynamicUser
unix    2      [ ACC ] STREAM    LISTENING   10753    /run/systemd/io.systemd.ManagedOOM
unix    2      [ ACC ] STREAM    LISTENING   10761    /run/lvm/lvmpolld.socket
unix    2      [ ACC ] STREAM    LISTENING   10765    /run/systemd/fscd.progress
unix    2      [ ACC ] STREAM    LISTENING   10773    /run/systemd/journal/stdout
unix    2      [ ACC ] SEQPACKET LISTENING   10775    /run/udev/control
unix    2      [ ACC ] STREAM    LISTENING   10972    /run/systemd/journal/io.systemd.journal
debian@debian:~$
```

9. Cobalah menggunakan 5 opsi yang telah dijelaskan pada dasar teori. Ambil gambar output tampilan perintah dengan opsi yang telah Anda pilih. Dan berikan penjelasan atau analisa maksud dari tampilan yang Anda dapatkan.
 - Sudo netstat -l berguna untuk menampilkan semua koneksi yang listening saja

```

debian@debian:~$ sudo netstat -l
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 0.0.0.0:bootpc          0.0.0.0:*
Active UNIX domain sockets (only servers)
Proto RefCnt Flags     Type       State      I-Node   Path
unix: 2      [ ACC ]     STREAM    LISTENING   12575     /run/user/1000/systemd/private
unix: 2      [ ACC ]     STREAM    LISTENING   12146     /run/dbus/system_bus_socket
unix: 2      [ ACC ]     STREAM    LISTENING   10750     /run/systemd/private
unix: 2      [ ACC ]     STREAM    LISTENING   10752     /run/systemd/userdb/10.systemd.DynamicUser
unix: 2      [ ACC ]     STREAM    LISTENING   10753     /run/systemd/10.systemd.ManagedOOM
unix: 2      [ ACC ]     STREAM    LISTENING   10761     /run/lvm/lvmpolld.socket
unix: 2      [ ACC ]     STREAM    LISTENING   10765     /run/systemd/fsck.progress
unix: 2      [ ACC ]     STREAM    LISTENING   10773     /run/systemd/journal/stdout
unix: 2      [ ACC ]     SEQPACKET LISTENING   10775     /run/udev/control
unix: 2      [ ACC ]     STREAM    LISTENING   10972     /run/systemd/journal/10.systemd.journal
debian@debian:~$

```

- Sudo netstat netstat -s berguna untuk menampilkan statistik per protokol

```

OutType8: 1
OutType8: 4
Tcp:
  4 active connection openings
  0 passive connection openings
  0 failed connection attempts
  1 connection resets received
  0 connections established
  19709 segments received
  15580 segments sent out
  7 segments retransmitted
  1 bad segments received
  3 resets sent
Udp:
  52 packets received
  1 packets to unknown port received
  0 packet receive errors
  60 packets sent
  0 receive buffer errors
  0 send buffer errors
  IgnoredMulti: 1407
UdpLite:
TcpExt:
  2 TCP sockets finished time wait in fast timer
  1662 delayed acks sent
  1 delayed acks further delayed because of locked socket
  10344 packet headers predicted
  12 acknowledgments not containing data payload received
  TCPLostRetransmit: 4
  TCPTimeouts: 7
  TCPLOSSProbes: 1
  1 connections aborted due to timeout
  TCPRecvCoalesce: 7621
  TCPDFIFOQueue: 7618
  TCPChallengeACK: 1
  TCPSYNChallenge: 1
  TCPSynRetrans: 1

```

- Sudo netstat netstat -e berguna untuk menampilkan statistik paket yang dikirim dan yang diterima

unix	2	[]	DGRAM		10763	/run/systemd/journ
unix	8	[]	DGRAM		10769	/run/systemd/journ
unix	7	[]	DGRAM		10771	/run/systemd/journ
unix	3	[]	STREAM	CONNECTED	11000	
unix	2	[]	DGRAM		11009	
unix	3	[]	DGRAM		10749	
unix	3	[]	DGRAM		11013	
unix	3	[]	STREAM	CONNECTED	12530	
unix	3	[]	STREAM	CONNECTED	11052	/run/systemd/journ
unix	3	[]	DGRAM		10748	
unix	2	[]	DGRAM		11017	
unix	3	[]	DGRAM		11012	
unix	3	[]	STREAM	CONNECTED	12531	/run/systemd/journ
unix	3	[]	STREAM	CONNECTED	12316	
unix	2	[]	DGRAM		14864	
unix	3	[]	STREAM	CONNECTED	12315	
unix	3	[]	STREAM	CONNECTED	12351	/run/dbus/system_bu
unix	3	[]	STREAM	CONNECTED	12578	/run/dbus/system_bu
unix	3	[]	STREAM	CONNECTED	12261	
unix	3	[]	DGRAM		12141	
unix	3	[]	STREAM	CONNECTED	12350	
unix	3	[]	STREAM	CONNECTED	12024	
unix	2	[]	DGRAM		12540	
unix	2	[]	DGRAM		12133	
unix	2	[]	DGRAM		12337	
unix	3	[]	DGRAM		12140	
unix	2	[]	DGRAM		12558	
unix	3	[]	DGRAM		12139	
unix	2	[]	DGRAM		12286	
unix	2	[]	DGRAM		12126	
unix	3	[]	STREAM	CONNECTED	12025	/run/systemd/journ
unix	3	[]	STREAM	CONNECTED	12262	/run/systemd/journ
unix	3	[]	DGRAM		12138	
unix	3	[]	STREAM	CONNECTED	12318	/run/dbus/system_bu
unix	3	[]	STREAM	CONNECTED	12163	/run/systemd/journ
unix	3	[]	STREAM	CONNECTED	12165	
unix	2	[]	DGRAM		12166	

- Sudo netstat netstat -i berguna untuk menampilkan tabel network interface

```

debian@debian:~$ sudo netstat -i
Kernel Interface table
Iface      MTU     RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OVR Flg
ens3       1500    22372      0      0      0    15904      0      0      0 BMR
lo         65536      0      0      0      0      0      0      0      0 LRU
debian@debian:~$

```

- Sudo netstat netstat -p berguna untuk menampilkan spesifik port pada mesin target

unix	2	[]	DGRAM		10763	1/init
unix	8	[]	DGRAM		10769	1/init
unix	7	[]	DGRAM		10771	1/init
unix	3	[]	STREAM	CONNECTED	11000	211/systemd-udev
unix	2	[]	DGRAM		11009	211/systemd-udev
unix	3	[]	DGRAM		10749	1/init
unix	3	[]	DGRAM		11013	211/systemd-udev
unix	3	[]	STREAM	CONNECTED	12530	402/systemd
unix	3	[]	STREAM	CONNECTED	11052	1/init
unix	3	[]	DGRAM		10748	1/init
unix	2	[]	DGRAM		11017	1/init
unix	3	[]	DGRAM		11012	211/systemd-udev
unix	3	[]	STREAM	CONNECTED	12531	1/init
unix	3	[]	STREAM	CONNECTED	12316	355/dbus-daemon
unix	2	[]	DGRAM		14945	1109/sudo
unix	3	[]	STREAM	CONNECTED	12315	355/dbus-daemon
unix	3	[]	STREAM	CONNECTED	12351	355/dbus-daemon
unix	3	[]	STREAM	CONNECTED	12578	355/dbus-daemon
unix	3	[]	STREAM	CONNECTED	12261	363/systemd-logind
unix	3	[]	DGRAM		12141	332/systemd-timesyn
unix	3	[]	STREAM	CONNECTED	12350	363/systemd-logind
unix	3	[]	STREAM	CONNECTED	12024	332/systemd-timesyn
unix	2	[]	DGRAM		12540	403/(sd-pam)
unix	2	[]	DGRAM		12133	332/systemd-timesyn
unix	2	[]	DGRAM		12337	363/systemd-logind
unix	3	[]	DGRAM		12140	332/systemd-timesyn
unix	2	[]	DGRAM		12558	402/systemd
unix	3	[]	DGRAM		12139	332/systemd-timesyn
unix	2	[]	DGRAM		12286	361/rsyslogd
unix	2	[]	DGRAM		12126	353/dhclient
unix	3	[]	STREAM	CONNECTED	12025	1/init
unix	3	[]	STREAM	CONNECTED	12262	1/init
unix	3	[]	DGRAM		12138	332/systemd-timesyn
unix	3	[]	STREAM	CONNECTED	12318	355/dbus-daemon
unix	3	[]	STREAM	CONNECTED	12163	1/init
unix	3	[]	STREAM	CONNECTED	12165	1/init
unix	2	[]	DGRAM		12166	354/cron

II. Netstat Pada Sistem Operasi Windows

1. Akses komputer windows Anda dalam project yang telah terbuka.
2. Pastikan koneksi komputer anda sudah terhubung dengan internet, dengan menjalankan perintah ping ke www.google.com pada terminal command prompt. Pastikan terdapat kata-kata replay pada output perintah tersebut. Hentikan utilitas ping dengan menekan kombinasi tombol keyboard ctrl+c.

```
C:\Documents and Settings\XP>ping google.com
Pinging google.com [172.217.194.101] with 32 bytes of data:
Reply from 172.217.194.101: bytes=32 time=29ms TTL=103
Reply from 172.217.194.101: bytes=32 time=28ms TTL=103
Reply from 172.217.194.101: bytes=32 time=28ms TTL=103
Reply from 172.217.194.101: bytes=32 time=28ms TTL=103
Ping statistics for 172.217.194.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 28ms, Maximum = 29ms, Average = 28ms

C:\Documents and Settings\XP>ping google.com
Pinging google.com [74.125.200.113] with 32 bytes of data:
Reply from 74.125.200.113: bytes=32 time=28ms TTL=101
Reply from 74.125.200.113: bytes=32 time=28ms TTL=101
Reply from 74.125.200.113: bytes=32 time=28ms TTL=101
Reply from 74.125.200.113: bytes=32 time=28ms TTL=101
Ping statistics for 74.125.200.113:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 28ms, Maximum = 28ms, Average = 28ms

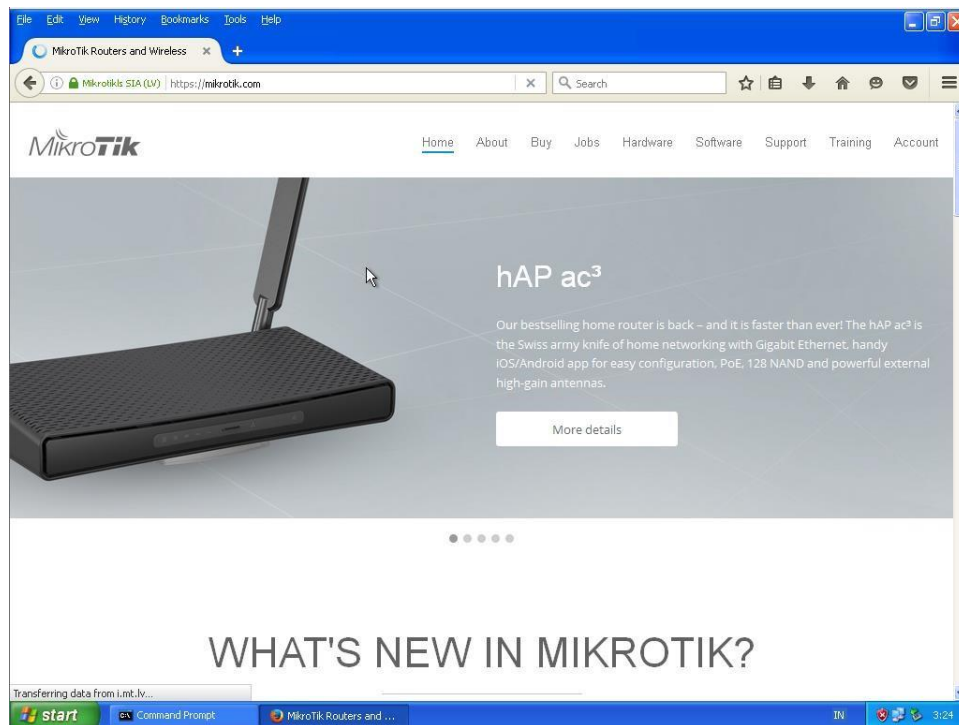
C:\Documents and Settings\XP>
```

3. Jika belum, tanyakan ke dosen / instruktur agar bisa mendapatkan koneksi internet.
4. Jika telah dapat terhubung ke jaringan internet, jalankan perintah “netstat”.

```
C:\Documents and Settings\XP>netstat
Active Connections
Proto Local Address          Foreign Address         State
TCP    gns3-winxp:1032        51.143.49.66:http      ESTABLISHED

C:\Documents and Settings\XP>netstat
Active Connections
Proto Local Address          Foreign Address         State
C:\Documents and Settings\XP>
```

5. Ambil gambar hasil output perintah netstat tersebut, dan jelaskan arti dari output tampilan yang ada pada komputer linux Anda tersebut.
6. Cobalah untuk membuka sebuah laman web menggunakan aplikasi peramban yang ada pada komputer windows Anda tersebut.



7. Jalankan kembali perintah “netstat” pada command prompt Anda.

```
C:\Documents and Settings\XP>netstat
Active Connections
Proto Local Address          Foreign Address         State
C:\Documents and Settings\XP>netstat
Active Connections
Proto Local Address          Foreign Address         State
TCP    gns3-winxp:1032        201.181.244.35.bc.googleusercontent. ESTABLISHED
TCP    gns3-winxp:1034        152.195.38.76:http      ESTABLISHED
TCP    gns3-winxp:1038        sh-in-f99.1e100.net:https ESTABLISHED
TCP    gns3-winxp:1043        sd-in-f94.1e100.net:http TIME_WAIT
TCP    gns3-winxp:1045        28.35.117.34.bc.googleusercontent.co ESTABLISHED
TCP    gns3-winxp:1047        sd-in-f94.1e100.net:https ESTABLISHED
TCP    gns3-winxp:1048        sd-in-f94.1e100.net:https ESTABLISHED
TCP    gns3-winxp:1050        sh-in-f94.1e100.net:https ESTABLISHED
TCP    gns3-winxp:1064        123.208.120.34.bc.googleusercontent. ESTABLISHED
```

8. Ambil gambar hasil output perintah netstat tersebut, dan jelaskan arti dari output tampilan yang ada pada komputer linux Anda tersebut.

- Outputnya adalah jaringan yang telah kita datangi/kita buka, seperti saya telah membuka google, maka muncul pada netstat.

9. Tambahkan opsi yang cocok pada perintah netstat untuk menampilkan semua portport yang sedang menggunakan oleh protokol tcp.

```
C:\Documents and Settings\XP>netstat -a
Active Connections
Proto Local Address          Foreign Address         State
TCP    gns3-winxp:epmap       gns3-winxp:0           LISTENING
TCP    gns3-winxp:microsoft-ds gns3-winxp:0           LISTENING
TCP    gns3-winxp:netbios-ssn gns3-winxp:0           LISTENING
TCP    gns3-winxp:1038        sh-in-f99.1e100.net:https TIME_WAIT
TCP    gns3-winxp:1045        28.35.117.34.bc.googleusercontent.co ESTABLISHED
TCP    gns3-winxp:1071        server-18-154-7-26.cgk51.r.cloudfrontn TIME_WAIT
TCP    gns3-winxp:1072        server-18-154-7-26.cgk51.r.cloudfrontn TIME_WAIT
TCP    gns3-winxp:1073        sh-in-f97.1e100.net:https TIME_WAIT
TCP    gns3-winxp:1084        sa-in-f156.1e100.net:https TIME_WAIT
TCP    gns3-winxp:1103        216.239.36.178:https    TIME_WAIT
TCP    gns3-winxp:1105        sd-in-f94.1e100.net:https TIME_WAIT
TCP    gns3-winxp:1106        216.239.36.181:https    TIME_WAIT
TCP    gns3-winxp:1107        sf-in-f149.1e100.net:https TIME_WAIT
```


10. Cobalah menggunakan 3 opsi yang telah dijelaskan pada dasar teori. Ambil gambar output tampilan perintah dengan opsi yang telah Anda pilih. Dan berikan penjelasan atau analisa maksud dari tampilan yang Anda dapatkan.

- `netstat -e` berguna untuk menampilkan statistik paket yang dikirim dan yang diterima

```
C:\Documents and Settings\XP>netstat -e
Interface Statistics

              Received              Sent
Bytes          10637962             784733
Unicast packets    14564             12329
Non-unicast packets    240              23
Discards           0              0
Errors             0              0
Unknown protocols    0              0
C:\Documents and Settings\XP>
```

- `netstat -n` berguna untuk menampilkan alamat dan port dalam bentuk numerik

```
C:\Documents and Settings\XP>netstat -n
Active Connections

Proto Local Address          Foreign Address         State
TCP   10.10.10.23:1045        34.117.35.28:80        ESTABLISHED
TCP   10.10.10.23:1142        18.65.39.112:443       ESTABLISHED
TCP   10.10.10.23:1144        34.160.90.233:443      ESTABLISHED
TCP   10.10.10.23:1145        35.244.181.201:443     ESTABLISHED
TCP   127.0.0.1:1030          127.0.0.1:1031        ESTABLISHED
TCP   127.0.0.1:1031          127.0.0.1:1030        ESTABLISHED
C:\Documents and Settings\XP>
```

- `netstat -o` berguna untuk menampilkan PID (Process ID) untuk setiap koneksi

```
C:\Documents and Settings\XP>netstat -o
Active Connections

Proto Local Address          Foreign Address         State           PID
TCP   gns3-winxp:1045        28.35.117.34.bc.googleusercontent.com:http ESTABLISHED    468
TCP   gns3-winxp:1142        server-18-65-39-112.ams1.r.cloudfront.net: ESTABLISHED    468
TCP   gns3-winxp:1144        233.90.160.34.bc.googleusercontent.com:http ESTABLISHED    468
TCP   gns3-winxp:1145        201.181.244.35.bc.googleusercontent.com:http ESTABLISHED    468
TCP   gns3-winxp:1030        localhost:1031         ESTABLISHED    468
TCP   gns3-winxp:1031        localhost:1030         ESTABLISHED    468
C:\Documents and Settings\XP>
```

III. NMAP

1. Akses kembali komputer linux Anda dalam project yang telah terbuka.
2. Pastikan koneksi komputer anda masih dapat terhubung dengan internet, dengan menjalankan perintah ping ke `www.google.com`. Pastikan terdapat kata-kata replay pada output perintah tersebut. Hentikan utilitas ping dengan menekan kombinasi tombol keyboard `ctrl+c`.

```
debian@debian:~$ ping google.com
PING google.com (216.239.38.120) 56(84) bytes of data:
64 bytes from any-in-2678.1e100.net (216.239.38.120): icmp_seq=1 ttl=113 time=31.4 ms
64 bytes from any-in-2678.1e100.net (216.239.38.120): icmp_seq=2 ttl=113 time=28.6 ms
64 bytes from any-in-2678.1e100.net (216.239.38.120): icmp_seq=3 ttl=113 time=28.5 ms
64 bytes from any-in-2678.1e100.net (216.239.38.120): icmp_seq=4 ttl=113 time=28.5 ms
64 bytes from any-in-2678.1e100.net (216.239.38.120): icmp_seq=5 ttl=113 time=28.8 ms
^C
--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4006ms
rtt min/avg/max/mdev = 28.468/29.157/31.357/1.106 ms
```

3. Jika tidak terkoneksi, tanyakan ke dosen / instruktur agar bisa mendapatkan koneksi internet kembali.

4. Lakukan instalasi paket aplikasi nmap untuk dapat menggunakan utilitas nmap. Jalankan perintah “sudo apt install nmap” untuk melakukan instalasi paket tersebut. Masukkan password dari user debian Anda jika diminta. Kemudian ketikkan huruf “Y” dan tekan tombol enter untuk menyetujui instalasi.

```
debian@debian:~$ sudo apt install nmap
[sudo] password for debian:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libblas3 liblinear4 liblua5.3-0 libpcap0.8 lua-lpeg nmap-common
Suggested packages:
  liblinear-tools liblinear-dev ncat ndiff zenmap
The following NEW packages will be installed:
  libblas3 liblinear4 liblua5.3-0 libpcap0.8 lua-lpeg nmap nmap-common
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 6,425 kB of archives.
After this operation, 27.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] _
```

5. Kemudian setelah paket aplikasi berhasil dipasang, jalankan perintah “nmap localhost”.

```
debian@debian:~$ nmap localhost
Starting Nmap 7.80 ( https://nmap.org ) at 2021-09-21 10:36 WIB
Nmap scan report for localhost (127.0.0.1)
Host is up (0.0011s latency).
Other addresses for localhost (not scanned): ::1
Not shown: 998 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh

Nmap done: 1 IP address (1 host up) scanned in 0.13 seconds

debian@debian:~$ nmap localhost
Starting Nmap 7.80 ( https://nmap.org ) at 2024-09-24 11:29 WIB
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00012s latency).
Other addresses for localhost (not scanned): ::1
All 1000 scanned ports on localhost (127.0.0.1) are closed

Nmap done: 1 IP address (1 host up) scanned in 0.08 seconds
debian@debian:~$
```

6. Perintah di atas digunakan untuk melihat port-port mana saja yang terbuka pada komputer linux Anda.
7. Cobalah untuk melihat port-port yang terbuka pada komputer server dosen dengan alamat IP 10.10.10.5. Caranya, ganti kata “localhost” dengan alamat IP “10.10.10.5”. Ambil gambar output dari perintah tersebut. Jelaskan port-port apa saja yang terbuka dan servis apa yang berjalan pada port tersebut.

```

debian@debian:~$ nmap 10.10.10.5
Starting Nmap 7.80 ( https://nmap.org ) at 2024-09-24 11:30 WIB
Nmap scan report for 10.10.10.5
Host is up (0.00049s latency).
Not shown: 998 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh

Nmap done: 1 IP address (1 host up) scanned in 0.29 seconds
debian@debian:~$

```

Pada baris pertama ada keterangan nmap ini di jalankan pada tanggal, bulan dan tahun serta jamnya dan daerah jam nya. Pada baris kedua terdapat keterangan nmap di start untuk Alamat yang mana. Pada baris ke tiga tertera kecepatan starting. Sisanya adalah keterangan port pada Alamat ini.

8. Cobalah untuk melihat port-port yang terbuka pada komputer server repositori lokal Jurusan Teknologi Informasi yang mempunyai alamat repolinux.jti.polinema.ac.id. Ambil gambar output dari perintah tersebut. Jelaskan port-port apa saja yang terbuka dan servis apa yang berjalan pada port tersebut.

```

debian@debian:~$ nmap repolinux.jti.polinema.ac.id
Starting Nmap 7.80 ( https://nmap.org ) at 2024-09-24 11:34 WIB
Nmap scan report for repolinux.jti.polinema.ac.id (192.168.60.22)
Host is up (0.00099s latency).
Not shown: 991 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
2049/tcp  open  nfs
5857/tcp  open  wsdapi
8080/tcp  open  http-proxy

Nmap done: 1 IP address (1 host up) scanned in 0.13 seconds
debian@debian:~$

```

9. Cobalah untuk menambahkan opsi "Pn" pada perintah nmap yang Anda jalankan pada langkah 7 dan 8. Ambil gambar output dari perintah tersebut. Jelaskan port-port apa saja yang terbuka, servis apa yang berjalan pada port tersebut, dan perbedaan dari tampilan perintah yang Anda lakukan sebelumnya pada langkah 8 dan 9.

```

debian@debian:~$ nmap -Pn 10.10.10.5
Starting Nmap 7.80 ( https://nmap.org ) at 2024-09-24 11:37 WIB
Nmap scan report for 10.10.10.5
Host is up (0.00043s latency).
Not shown: 998 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh

Nmap done: 1 IP address (1 host up) scanned in 0.14 seconds

```

```
debian@debian:~$ nmap -Pn repolinux.jti.polinema.ac.id
Starting Nmap 7.80 ( https://nmap.org ) at 2024-09-24 11:39 WIB
Nmap scan report for repolinux.jti.polinema.ac.id (192.168.60.22)
Host is up (0.00100s latency).
rDNS record for 192.168.60.22: training.jti.polinema.ac.id
Not shown: 991 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
2049/tcp  open  nfs
5357/tcp  open  wsdapi
8080/tcp  open  http-proxy

Nmap done: 1 IP address (1 host up) scanned in 0.13 seconds
debian@debian:~$
```

Tidak ada perbedaan dari perintah menggunakan -Pn atau tanpa -Pn.

TUGAS

1. Buatlah laporan yang berisi *screenshot* dan penjelasan *step-by-step* dari ketiga langkah praktikum yang telah anda lakukan.
2. Kumpulkan laporan yang anda buat dalam bentuk file pdf dengan mengunggahnya ke server lms seperti pada praktikum-praktikum sebelumnya.
3. Lakukan praktikum semaksimal mungkin pada jam praktikum. Diluar jam praktikum, akan ada kemungkinan permasalahan kecepatan dari masing-masing komputer yang ada pada project tersebut.
4. Selamat mengerjakan.