

**LAPORAN PRAKTIKUM
JARINGAN KOMPUTER**

PRAKTIKUM – 5: Ping Route Traceroute



Disusun Oleh :

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MODUL PRAKTIKUM V

PING DAN ROUTE

LANGKAH PRAKTIKUM

1. PING (Packet Internet Gopher)

- Buka terminal pada linux Anda.
- Cek koneksi dengan ping 10.10.10.1

```
debian@debian:~$ ping 10.10.10.1
PING 10.10.10.1 (10.10.10.1) 56(84) bytes of data.
From 192.168.73.206 icmp_seq=1 Destination Host Unreachable
From 192.168.73.206 icmp_seq=2 Destination Host Unreachable
From 192.168.73.206 icmp_seq=3 Destination Host Unreachable
From 192.168.73.206 icmp_seq=4 Destination Host Unreachable
From 192.168.73.206 icmp_seq=5 Destination Host Unreachable
^C
--- 10.10.10.1 ping statistics ---
7 packets transmitted, 0 received, +5 errors, 100% packet loss, time 6059ms
pipe 3
debian@debian:~$ _
```

c. Cek konektivitas ping detik.com

```
root@debian:/home/debian# ping -c 10 detik.com
PING detik.com (103.49.221.211) 56(84) bytes of data.
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=1 ttl=51 time=15.7 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=2 ttl=51 time=15.4 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=3 ttl=51 time=15.9 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=4 ttl=51 time=15.4 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=5 ttl=51 time=15.6 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=6 ttl=51 time=15.3 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=7 ttl=51 time=15.9 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=8 ttl=51 time=15.6 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=9 ttl=51 time=15.4 ms
64 bytes from s211-cast-211-221-49-103.detik.com (103.49.221.211): icmp_seq=10 ttl=51 time=15.3 ms

--- detik.com ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9014ms
rtt min/avg/max/mdev = 15.326/15.551/15.949/0.226 ms
root@debian:/home/debian# _
```

d. Cek konektivitas ping Kompas.com

```
root@debian:/home/debian# ping -c 5 -i 3 kompas.com
PING kompas.com (3.168.203.36) 56(84) bytes of data.
64 bytes from server-3-168-203-36.cgk51.r.cloudfront.net (3.168.203.36): icmp_seq=1 ttl=243 time=23.8 ms
64 bytes from server-3-168-203-36.cgk51.r.cloudfront.net (3.168.203.36): icmp_seq=2 ttl=243 time=22.1 ms
64 bytes from server-3-168-203-36.cgk51.r.cloudfront.net (3.168.203.36): icmp_seq=3 ttl=243 time=22.3 ms
64 bytes from server-3-168-203-36.cgk51.r.cloudfront.net (3.168.203.36): icmp_seq=4 ttl=243 time=22.2 ms
64 bytes from server-3-168-203-36.cgk51.r.cloudfront.net (3.168.203.36): icmp_seq=5 ttl=243 time=22.7 ms

--- kompas.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 12015ms
rtt min/avg/max/mdev = 22.139/22.625/23.762/0.605 ms
root@debian:/home/debian#
```

e. Cek konektivitas ping mikrotik.com

```
root@debian:/home/debian# ping -c 5 -i 0.3 mikrotik.com
PING mikrotik.com (159.148.172.205) 56(84) bytes of data.
64 bytes from 159.148.172.205 (159.148.172.205): icmp_seq=1 ttl=44 time=303 ms
64 bytes from 159.148.172.205 (159.148.172.205): icmp_seq=2 ttl=44 time=303 ms
64 bytes from 159.148.172.205 (159.148.172.205): icmp_seq=3 ttl=44 time=303 ms
64 bytes from 159.148.172.205 (159.148.172.205): icmp_seq=4 ttl=44 time=303 ms
64 bytes from 159.148.172.205 (159.148.172.205): icmp_seq=5 ttl=44 time=303 ms

--- mikrotik.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 1223ms
rtt min/avg/max/mdev = 302.894/303.117/303.401/0.171 ms
root@debian:/home/debian# _
```

2. ROUTE

- a. Buka terminal pada komputer linux Anda.
- b. Menghapus gateway

```
source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto ens3
iface ens3 inet static
    address 192.168.60.142
    netmask 255.255.255.0
    #gateway 192.168.60.1
```

- c. Melakukan ping ke 192.168.60.142 detik.com

```
root@debian:/home/debian# ping 192.168.60.142
PING 192.168.60.142 (192.168.60.142) 56(84) bytes of data.
64 bytes from 192.168.60.142: icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from 192.168.60.142: icmp_seq=2 ttl=64 time=0.048 ms
64 bytes from 192.168.60.142: icmp_seq=3 ttl=64 time=0.046 ms
64 bytes from 192.168.60.142: icmp_seq=4 ttl=64 time=0.048 ms
64 bytes from 192.168.60.142: icmp_seq=5 ttl=64 time=0.047 ms
^C
--- 192.168.60.142 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4097ms
rtt min/avg/max/mdev = 0.040/0.045/0.048/0.003 ms
root@debian:/home/debian#

root@debian:/home/debian# ping detik.com
ping: detik.com: Temporary failure in name resolution
root@debian:/home/debian#
```

- d. Menambahkan gateway

```
source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto ens3
iface ens3 inet static
    address 192.168.60.142
    netmask 255.255.255.0
    gateway 192.168.60.1
```

- e. Mengakses ping ke 192.168.60.142 detik.com

```

root@debian:/home/debian# ping 192.168.60.142
PING 192.168.60.142 (192.168.60.142) 56(84) bytes of data.
64 bytes from 192.168.60.142: icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from 192.168.60.142: icmp_seq=2 ttl=64 time=0.048 ms
64 bytes from 192.168.60.142: icmp_seq=3 ttl=64 time=0.046 ms
64 bytes from 192.168.60.142: icmp_seq=4 ttl=64 time=0.048 ms
64 bytes from 192.168.60.142: icmp_seq=5 ttl=64 time=0.047 ms
^C
--- 192.168.60.142 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4097ms
rtt min/avg/max/mdev = 0.040/0.045/0.048/0.003 ms
root@debian:/home/debian#

```

```

root@debian:/home/debian# ping detik.com
ping: detik.com: Temporary failure in name resolution
root@debian:/home/debian#

```

- f. Mengakses ping teman ke-1

```

root@debian:/home/debian# ping 192.168.60.4
PING 192.168.60.4 (192.168.60.4) 56(84) bytes of data.
64 bytes from 192.168.60.4: icmp_seq=1 ttl=64 time=1.44 ms
64 bytes from 192.168.60.4: icmp_seq=2 ttl=64 time=0.686 ms
64 bytes from 192.168.60.4: icmp_seq=3 ttl=64 time=0.673 ms
64 bytes from 192.168.60.4: icmp_seq=4 ttl=64 time=0.753 ms
64 bytes from 192.168.60.4: icmp_seq=5 ttl=64 time=0.717 ms
^C
--- 192.168.60.4 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 0.673/0.854/1.444/0.295 ms
root@debian:/home/debian#

```

- g. Minta teman Anda yang ke-1 untuk melakukan blokir akses ke komputernya dengan menambahkannya pada tabel route.
- h. Cobalah untuk mengakses kembali komputer teman Anda yang ke-1 dari komputer Anda menggunakan utilitas PING. Catat hasilnya.

```

root@debian:/home/debian# ping 192.168.60.4
PING 192.168.60.4 (192.168.60.4) 56(84) bytes of data.
^C
--- 192.168.60.4 ping statistics ---
25 packets transmitted, 0 received, 100% packet loss, time 24561ms

```

- i. Cobalah untuk meminta teman ke-2 Anda untuk mengakses komputer teman Anda yang ke-1 dari komputernya menggunakan utilitas PING. Catat hasilnya.

Hasil: Teman ke-2 dapat mengakses computer tema

- j. Minta teman Anda yang ke-1 untuk menghapus pengaturan pemblokiran akses ke komputernya dengan menghapusnya pada tabel route.
- k. Cobalah untuk mengakses kembali komputer teman Anda yang ke-1 dari komputer Anda menggunakan utilitas PING. Catat hasilnya.

```

root@debian:/home/debian# ping 192.168.60.4
PING 192.168.60.4 (192.168.60.4) 56(84) bytes of data.
64 bytes from 192.168.60.4: icmp_seq=1 ttl=64 time=1.65 ms
64 bytes from 192.168.60.4: icmp_seq=2 ttl=64 time=0.742 ms
64 bytes from 192.168.60.4: icmp_seq=3 ttl=64 time=0.615 ms
64 bytes from 192.168.60.4: icmp_seq=4 ttl=64 time=0.619 ms
64 bytes from 192.168.60.4: icmp_seq=5 ttl=64 time=0.697 ms
^C
--- 192.168.60.4 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4006ms
rtt min/avg/max/mdev = 0.615/0.865/1.652/0.396 ms
root@debian:/home/debian#

```

- l. Lakukan langkah h-m namun bertukar posisi. Jika sebelumnya Anda diblokir oleh teman Anda, sekarang Anda lakukan blokir terhadap teman Anda. Lakukan hingga semua teman dalam kelompok Anda melakukan langkah h-m.

```

root@debian:/home/debian# ip route add blackhole 192.168.60.4
root@debian:/home/debian#

```

- m. Lakukan pemblokiran akses komputer Anda dari jaringan dengan range IP 10.10.10.0/24.

```

root@debian:/home/debian# ip route add blackhole 10.10.10.0/24
root@debian:/home/debian# ping 10.10.10.1
ping: connect: Invalid argument
root@debian:/home/debian# ip route del blackhole 10.10.10.0/24
root@debian:/home/debian# ping 10.10.10.1
PING 10.10.10.1 (10.10.10.1) 56(84) bytes of data.
From 192.168.60.13 icmp_seq=1 Destination Host Unreachable
From 192.168.60.13 icmp_seq=2 Destination Host Unreachable
From 192.168.60.13 icmp_seq=3 Destination Host Unreachable
From 192.168.60.13 icmp_seq=4 Destination Host Unreachable
From 192.168.60.13 icmp_seq=5 Destination Host Unreachable
From 192.168.60.13 icmp_seq=6 Destination Host Unreachable
From 192.168.60.13 icmp_seq=7 Destination Host Unreachable
^C
--- 10.10.10.1 ping statistics ---
7 packets transmitted, 0 received, +7 errors, 100% packet loss, time 6093ms
pipe 4
root@debian:/home/debian#

```

3. Traceroute

- a. Ping keluar internet polinema, ping ke google.com

```

root@debian:/home/debian# traceroute google.com
traceroute to google.com (216.239.38.120), 30 hops max, 60 byte packets
 1 10.10.10.1 (10.10.10.1) 0.612 ms 0.583 ms 0.566 ms
 2 gns3vm (192.168.122.1) 30.797 ms 30.769 ms 30.741 ms
 3 _gateway (192.168.60.1) 30.706 ms 30.678 ms 30.649 ms
 4 172.16.62.254 (172.16.62.254) 30.621 ms 30.596 ms 30.484 ms
 5 10.10.40.1 (10.10.40.1) 30.452 ms 30.418 ms 30.387 ms
 6 114.6.31.173 (114.6.31.173) 2.901 ms 1.615 ms 1.547 ms
 7 114.0.78.228 (114.0.78.228) 2.855 ms 3.156 ms 3.107 ms
 8 182.16.180.141 (182.16.180.141) 15.084 ms * 114.0.78.229 (114.0.78.229) 15.516 ms
 9 114.0.116.21 (114.0.116.21) 26.909 ms 26.878 ms 26.842 ms
10 core1-isix.jkt-link.ifte.net.id (103.12.14.26) 15.630 ms 114.0.116.21 (114.0.116.21) 27.493 ms core-ix.01.csf.hyperne
o.id (122.102.46.9) 31.061 ms
11 72.14.205.94 (72.14.205.94) 26.809 ms 26.776 ms google-pnl.jkt-link.ifte.net.id (103.116.216.158) 29.314 ms
12 * * *
13 any-in-2678.1e100.net (216.239.38.120) 26.912 ms 25.662 ms 25.527 ms
root@debian:/home/debian#

```

- b. Traceroute ke polinema.ac.id untuk mendapatkan gateway.

```

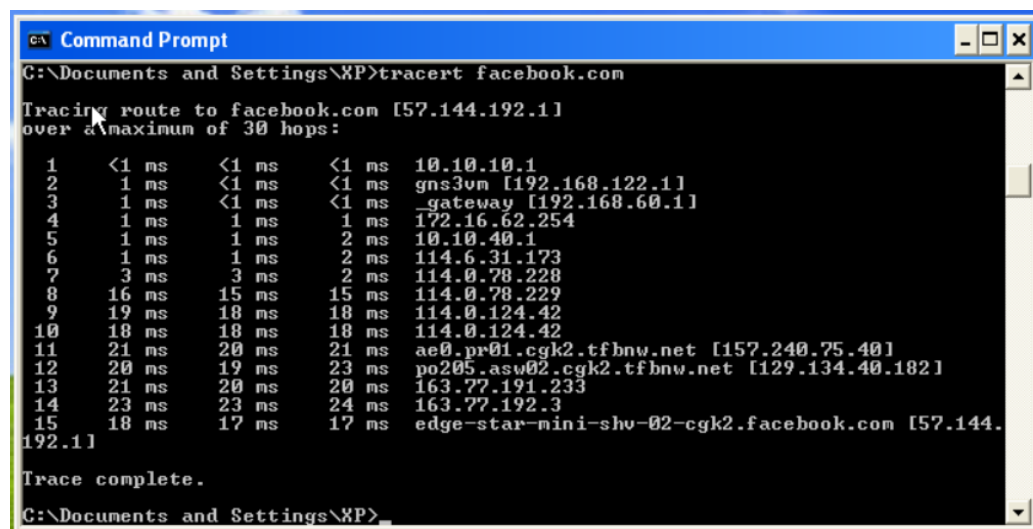
root@debian:/home/debian# traceroute polinema.ac.id
traceroute to polinema.ac.id (10.10.92.49), 30 hops max, 60 byte packets
 1 10.10.10.1 (10.10.10.1) 0.418 ms 0.435 ms 0.417 ms
 2 gns3vm (192.168.122.1) 0.747 ms 0.763 ms 0.726 ms
 3 _gateway (192.168.60.1) 0.767 ms 0.764 ms 0.731 ms
 4 172.16.62.254 (172.16.62.254) 1.286 ms 1.315 ms 1.275 ms
 5 10.10.92.49 (10.10.92.49) 1.227 ms 1.131 ms 1.092 ms
root@debian:/home/debian#

```

- c. Jelaskan arti dari hasil traceroute tersebut.
- Setiap baris menunjukkan satu router/gateway (hop) yang dilewati
 - Kamu bisa melihat IP address dan waktu respon (ms) dari masing-masing hop
 - Traceroute berguna untuk mengetahui apakah ada delay, atau di mana letak masalah jaringan.
- d. Traceroute dengan 4 parameter ke youtube.com
- n: Menampilkan IP saja, tanpa resolve nama host
 - m 10: Maksimum jumlah hop = 10
 - w 1: Timeout tiap respons = 1 detik
 - q 1: Hanya kirim 1 probe per hop (default 3)

```
root@debian:/home/debian# traceroute -n -m 10 -w 1 -q 1 youtube.com
traceroute to youtube.com (74.125.200.190), 10 hops max, 60 byte packets
 1  10.10.10.1  0.505 ms
 2  192.168.122.1  0.680 ms
 3  192.168.60.1  0.820 ms
 4  172.16.62.254  1.160 ms
 5  10.10.40.1  1.125 ms
 6  114.6.31.173  1.882 ms
 7  114.0.78.228  2.987 ms
 8  182.16.180.141  15.181 ms
 9  103.116.219.5  16.001 ms
10  142.250.172.176  36.442 ms
root@debian:/home/debian#
```

- e. Tracerart gateway pada windows diluar jaringan intranet polinema.
facebook.com



```

C:\Documents and Settings\XP>tracert facebook.com

Tracing route to facebook.com [57.144.192.11]
over a maximum of 30 hops:
  0  0 ms  0 ms  0 ms  10.10.10.1
  1  1 ms  1 ms  1 ms  gns3vm [192.168.122.1]
  2  1 ms  1 ms  1 ms  gateway [192.168.60.1]
  3  1 ms  1 ms  1 ms  172.16.62.254
  4  1 ms  1 ms  2 ms  10.10.40.1
  5  1 ms  1 ms  2 ms  114.6.31.173
  6  3 ms  3 ms  2 ms  114.0.78.228
  7  16 ms  15 ms  15 ms  114.0.78.229
  8  19 ms  18 ms  18 ms  114.0.124.42
  9  18 ms  18 ms  18 ms  114.0.124.42
 10  21 ms  20 ms  21 ms  ae0.pr01.cgk2.tfbnw.net [157.240.75.40]
 11  20 ms  19 ms  23 ms  po205.asw02.cgk2.tfbnw.net [129.134.40.182]
 12  21 ms  20 ms  20 ms  163.77.191.233
 13  23 ms  23 ms  24 ms  163.77.192.3
 14  18 ms  17 ms  17 ms  edge-star-mini-shv-02-cgk2.facebook.com [57.144.192.11]

Trace complete.
C:\Documents and Settings\XP>

```

Polinema.ac.id

```
CA Command Prompt
C:\Documents and Settings\XP>tracert polinema.ac.id

Tracing route to polinema.ac.id [10.10.92.49]
over a maximum of 30 hops:

  1  <1 ms    <1 ms    <1 ms    10.10.10.1
  2  1 ms     <1 ms    <1 ms    gns3vm.local [192.168.122.1]
  3  1 ms     <1 ms    <1 ms    gateway [192.168.60.1]
  4  1 ms     1 ms     1 ms     172.16.62.254
  5  2 ms     1 ms     1 ms     10.10.92.49

Trace complete.
C:\Documents and Settings\XP>
```

f. Tracert dengan 3 parameter ke facebook.com

```
CA Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\XP>tracert -d -h 10 -w 200 youtube.com

Tracing route to youtube.com [74.125.68.91]
over a maximum of 10 hops:

  1  3 ms     <1 ms    <1 ms    10.10.10.1
  2  1 ms     <1 ms    <1 ms    192.168.122.1
  3  1 ms     <1 ms    <1 ms    192.168.60.1
  4  1 ms     1 ms     1 ms     172.16.62.254
  5  2 ms     1 ms     2 ms     10.10.40.1
  6  2 ms     1 ms     1 ms     114.6.31.173
  7  3 ms     3 ms     2 ms     114.0.78.228
  8  16 ms    15 ms    15 ms    114.0.78.229
  9  27 ms    26 ms    26 ms    114.0.116.23
 10  *        *        *        Request timed out.

Trace complete.
C:\Documents and Settings\XP>_
```