

**LAPORAN PRAKTIKUM
JARINGAN KOMPUTER**

PRAKTIKUM – 5: Ping Route Traceroute



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**JURUSAN TEKNOLOGI INFORMASI
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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:~$ _
```

- 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# _
```

- Cek konektivitas ping Kompas.com

```
root@debian:/home/debian# ping -c 5 -i 1 kompas.com
PING kompas.com (3.168.203.36) 56(84) bytes of data.
64 bytes from server-3-168-203-36.cgi51.r.cloudfront.net (3.168.203.36): icmp_seq=1 ttl=243 time=23.8 ms
64 bytes from server-3-168-203-36.cgi51.r.cloudfront.net (3.168.203.36): icmp_seq=2 ttl=243 time=22.1 ms
64 bytes from server-3-168-203-36.cgi51.r.cloudfront.net (3.168.203.36): icmp_seq=3 ttl=243 time=22.3 ms
64 bytes from server-3-168-203-36.cgi51.r.cloudfront.net (3.168.203.36): icmp_seq=4 ttl=243 time=22.2 ms
64 bytes from server-3-168-203-36.cgi51.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# _
```

- 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#

```

- 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#

```

- 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. Traceeroute

- 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.ifeorte.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-pni.jkt-link.ifeorte.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#

```

- 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.

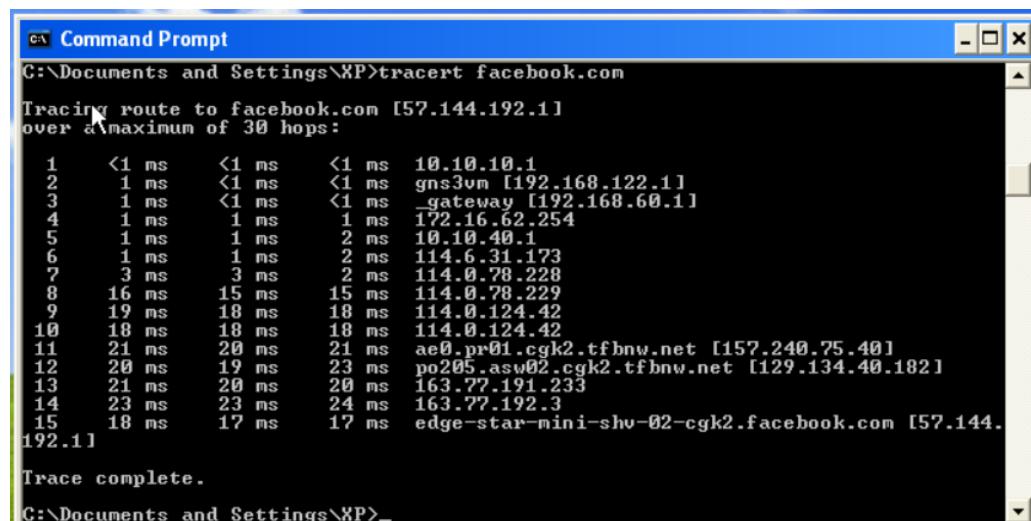
d. Traceroute dengan 4 parameter ke youtube.com

- 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. Traceroute gateway pada windows diluar jaringan intranet polinema.

facebook.com



The screenshot shows a Windows Command Prompt window titled "Command Prompt". The command entered is "tracert facebook.com". The output displays the traceroute path from the local machine to the target website, listing 15 routers along the way with their respective IP addresses and round-trip times (RTT) in milliseconds. The routers are located across different networks, including the local network (10.10.10.1) and external networks (e.g., 192.168.122.1, 192.168.60.1, 172.16.62.254, 10.10.40.1, 114.6.31.173, 114.0.78.228, 114.0.78.229, 114.0.124.42, ae0.pr01.cgi2.tfbnw.net, po205.asw02.cgi2.tfbnw.net, 163.77.191.233, 163.77.192.3, edge-star-mini-shv-02-cgk2.facebook.com).

```
C:\Documents and Settings\XP>tracert facebook.com
Tracing route to facebook.com [57.144.192.1]
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 [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  1 ms    1 ms    2 ms  10.10.40.1
 6  1 ms    1 ms    2 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  19 ms   18 ms   18 ms  114.0.124.42
10  18 ms   18 ms   18 ms  114.0.124.42
11  21 ms   20 ms   21 ms  ae0.pr01.cgi2.tfbnw.net [157.240.75.40]
12  20 ms   19 ms   23 ms  po205.asw02.cgi2.tfbnw.net [129.134.40.182]
13  21 ms   20 ms   20 ms  163.77.191.233
14  23 ms   23 ms   24 ms  163.77.192.3
15  18 ms   17 ms   17 ms  edge-star-mini-shv-02-cgk2.facebook.com [57.144.192.1]

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

Polinema.ac.id

```
C:\ 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

```
C:\ 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>
```