LAPORAN PRAKTIKUM
BANDWITH MANAJEMEN
MATA KULIAH ADMINISTRASI JARINGAN

Disusun Oleh

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PROGRAM STUDI TEKNIK KOMPUTER

JURUSAN TEKNIK KOMPUTER DAN INFORMATIKA

POLITEKNIK NEGERI MEDAN

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BANDWITH MANAJEMEN

```
Change your password
new password>
[admin@MikroTik] > interface print
Flags: D - dynamic, X - disabled, R - running, S - slave
 #    NAME                              TYPE       ACTUAL-MTU L2MTU  MAX-L2MTU MAC-ADDRESS
 0  R ether1                            ether           1500                  08:00:27:76:CF:B2
 1  R ether2                            ether           1500                  08:00:27:09:01:64
[admin@MikroTik] > interface print detail
Flags: D - dynamic, X - disabled, R - running, S - slave
 0  R  name="ether1" default-name="ether1" type="ether" mtu=1500 actual-mtu=1500 mac-address=08:00:27:76:CF:B2
        last-link-up-time=mar/04/2025 05:59:36 link-downs=0

 1  R  name="ether2" default-name="ether2" type="ether" mtu=1500 actual-mtu=1500 mac-address=08:00:27:09:01:64
        last-link-up-time=mar/04/2025 05:59:35 link-downs=0
[admin@MikroTik] >
```

- **`interface print`** → Menampilkan daftar interface yang tersedia.
- **`interface print detail`** → Menampilkan detail lengkap dari interface yang tersedia

```
[admin@MikroTik] > interface ethernet set  0 name=internet
[admin@MikroTik] > interface ethernet set  1 name=local
[admin@MikroTik] > interface print
Flags: D - dynamic, X - disabled, R - running, S - slave
 #    NAME                              TYPE       ACTUAL-MTU L2MTU  MAX-L2MTU MAC-ADDRESS
 0  R internet                          ether           1500                  08:00:27:76:CF:B2
 1  R local                             ether           1500                  08:00:27:09:01:64
[admin@MikroTik] >
```

- **`interface ethernet set 0 name=internet`** → Mengubah nama interface Ethernet 0 menjadi "internet".
- **`interface ethernet set 1 name=local`** → Mengubah nama interface Ethernet 1 menjadi "local".
(Tujuan pengubahan nama ini adalah untuk mempermudah identifikasi saat mengatur IP address.)

```
[admin@MikroTik] > ping google.com
  SEQ HOST                                      SIZE TTL TIME   STATUS
    0 74.125.130.102                              56  56 44ms
    1 74.125.130.102                              56  56 39ms
    2 74.125.130.102                              56  56 48ms
    3 74.125.130.102                              56  56 54ms
    4 74.125.130.102                              56  56 54ms
    5 74.125.130.102                              56  56 43ms
    sent=6 received=6 packet-loss=0% min-rtt=39ms avg-rtt=47ms max-rtt=54ms

[admin@MikroTik] > █
```

Gunakan perintah **`ping google.com`** untuk menguji koneksi internet.

- Jika muncul **"Request Time Out"**, kemungkinan perangkat tidak terhubung ke internet.

```
[admin@MikroTik] > ip dhcp-client print
Flags: X - disabled, I - invalid, D - dynamic
 #   INTERFACE                                      USE-PEER-DNS ADD-DEFAULT-ROUTE STATUS      ADDRESS
 0   internet                                       yes          yes               bound       172.20.10.3/28
[admin@MikroTik] >
```

- **ip dhcp-client print** → Mengecek status DHCP Client pada perangkat.

```
[admin@MikroTik] > ip dhcp-client print
Flags: X - disabled, I - invalid, D - dynamic
 #   INTERFACE                                      USE-PEER-DNS ADD-DEFAULT-ROUTE STATUS      ADDRESS
 0   internet                                       yes          yes               bound       172.20.10.3/28
[admin@MikroTik] > ip dhcp-client rem 0
[admin@MikroTik] > ip dhcp-client add  interface=internet \
\... use-peer-dns=yes use-peer-ntp=yes \
\... add-default-route=yes disabled=no
[admin@MikroTik] >
```

- **ip dhcp-client remove 0** → Menghapus konfigurasi DHCP Client pada interface Ethernet 0 ("internet").
- **ip dhcp-client add interface=internet use-peer-dns=yes use-peer-ntp=yes add-default-route=yes disabled=no**
→ Menambahkan interface "internet" ke DHCP Client dengan pengaturan otomatis untuk DNS, NTP, dan default route.

```
\... ......................................
[admin@MikroTik] > ip dns print
                     servers:
             dynamic-servers: 172.20.10.1
              use-doh-server:
             verify-doh-cert: no
         allow-remote-requests: no
           max-udp-packet-size: 4096
          query-server-timeout: 2s
           query-total-timeout: 10s
         max-concurrent-queries: 100
     max-concurrent-tcp-sessions: 20
                    cache-size: 2048KiB
                 cache-max-ttl: 1w
                    cache-used: 25KiB
[admin@MikroTik] >
```

ip dns print → Melihat daftar **IP Dynamic Server** yang sedang digunakan.

```
[admin@MikroTik] > ip route print
Flags: X - disabled, A - active, D - dynamic, C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
 #      DST-ADDRESS         PREF-SRC        GATEWAY         DISTANCE
 0 ADS  0.0.0.0/0                           172.20.10.1            1
 1 ADC  172.20.10.0/28      172.20.10.4     internet               0
[admin@MikroTik] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
 #   ADDRESS             NETWORK         INTERFACE
 0 D 172.20.10.4/28      172.20.10.0     internet
[admin@MikroTik] >
```

- **`ip route print`** → Menampilkan daftar rute jaringan yang tersedia.
- **`ip address print`** → Menampilkan daftar alamat IP yang telah dikonfigurasi.

```
[admin@MikroTik] > ip address add address=192.168.33.1/24 interface=local
[admin@MikroTik] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
 #   ADDRESS            NETWORK         INTERFACE
 0 D 172.20.10.4/28     172.20.10.0     internet
 1   192.168.33.1/24    192.168.33.0    local
[admin@MikroTik] >
```

`ip address add address=192.168.33.1/24 interface=local`

→ Menambahkan IP Address **192.168.33.1/24** pada interface **local**.

```
[admin@MikroTik] > ip address set 1 disabled=yes
[admin@MikroTik] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
 #   ADDRESS            NETWORK         INTERFACE
 0 D 172.20.10.4/28     172.20.10.0     internet
 1 X 192.168.33.1/24    192.168.33.0    local
[admin@MikroTik] > ip address set 1 disabled=no
[admin@MikroTik] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
 #   ADDRESS            NETWORK         INTERFACE
 0 D 172.20.10.4/28     172.20.10.0     internet
 1   192.168.33.1/24    192.168.33.0    local
[admin@MikroTik] >
```

- **`ip address set 1 disabled=yes`** → Menonaktifkan IP Address pada Ethernet 1.
- **`ip address set 1 disabled=no`** → Mengaktifkan kembali IP Address pada Ethernet

```
[admin@MikroTik] > ip firewall nat print
Flags: X - disabled, I - invalid, D - dynamic
[admin@MikroTik] > ip firewall nat add chain=srcnat \
\... out-interface=internet action=masquerade
[admin@MikroTik] > ip firewall nat print
Flags: X - disabled, I - invalid, D - dynamic
 0   chain=srcnat action=masquerade out-interface=internet
[admin@MikroTik] > █
```

- **`ip firewall nat print`** → Menampilkan daftar aturan yang ada dalam **IP Firewall NAT**.
- **`ip firewall nat add chain=srcnat out-interface=internet action=masquerade`**

→ Mengatur **NAT Masquerade** pada interface **internet** agar klien di jaringan lokal dapat mengakses internet.

```
[admin@MikroTik] > ip dhcp-server setup
Select interface to run DHCP server on

dhcp server interface: local
Select network for DHCP addresses

dhcp address space: 192.168.33.0/24
Select gateway for given network

gateway for dhcp network: 192.168.33.1
Select pool of ip addresses given out by DHCP server

addresses to give out: 192.168.33.20 -192.168.33.25
invalid value for argument min
addresses to give out: 192.168.33.20-192.168.33.25
Select DNS servers

dns servers: 172.20.10.1
Select lease time

lease time: 25m
```

- Jalankan perintah **`ip dhcp-server setup`** untuk memulai konfigurasi DHCP Server.

- Pilih interface **LAN**, lalu tekan **Enter**.
- Tentukan rentang alamat IP yang akan diberikan, misalnya **192.168.33.20 - 192.168.33.25**, lalu tekan **Enter**.
- DNS akan dikonfigurasi secara otomatis.
- **Lease time** (durasi peminjaman IP) diatur menjadi **25 menit**.

```
[admin@MikroTik] > ip dhcp-server print
Flags: D - dynamic, X - disabled, I - invalid
 #    NAME              INTERFACE          RELAY      ADDRESS-POOL        LEASE-TIME ADD-ARP
 0    dhcp1             local                         dhcp_pool0          25m
[admin@MikroTik] >
```

- DHCP Server akan aktif dan siap digunakan.

```
[admin@MikroTik] > ip firewall filter add chain=input src-address=192.168.33.25 dst-address= 192.168.137.76 \
\... protocol=icmp action=drop
[admin@MikroTik] > ping 192.168.33.25
  SEQ HOST                              SIZE TTL TIME  STATUS
    0 192.168.33.25                                    timeout
    1 192.168.33.25                                    timeout
    2 192.168.33.25                                    timeout
    3 192.168.33.25                                    timeout
    4 192.168.33.25                                    timeout
    5 192.168.33.25                                    timeout
    sent=6 received=0 packet-loss=100%

[admin@MikroTik] >
```

perintah ini untuk memblokir mikrotik dari windows virtual

```
lease time: 25m
[admin@MikroTik] > ip firewall filter add chain=output src-address=192.168.137.76/24 \
\... dst-address=192.168.137.34 pr
priority   protocol
\... dst-address=192.168.137.34 protocol=icmp action=drop
[admin@MikroTik] > ping 192.168.137.34
  SEQ HOST                              SIZE TTL TIME  STATUS
    0                                                  packet rejected
    1                                                  packet rejected
    2                                                  packet rejected
    3                                                  packet rejected
    sent=4 received=0 packet-loss=100%

[admin@MikroTik] >
```

perintah ini untuk memblokir dari laptop utama ke mikrotik

```
[admin@MikroTik] > queue simple add name=client1 target=192.168.33.25 max-limit=512k/512K limit-at=256k/256k
[admin@MikroTik] > queue simple print
Flags: X - disabled, I - invalid, D - dynamic
 0    name="client1" target=192.168.33.25/32 parent=none packet-marks="" priority=8/8 queue=default-small/default-small
      limit-at=256k/256k max-limit=512k/512k burst-limit=0/0 burst-threshold=0/0 burst-time=0s/0s bucket-size=0.1/0.1
[admin@MikroTik] > queue simple set 0 disabled=yes
[admin@MikroTik] > queue simple add name=client1 target=192.168.33.25 max-limit=512k/512K limit-at=256k/256k parent=
none  client1
[admin@MikroTik] > queue simple add name=Total-Bandwith max-limit=3M/3M
target:
[admin@MikroTik] > queue simple add name=client1 target=192.168.33.25 max-limit=512k/512K limit-at=256k/256k parent=Total
-Bandwith
failure: already have such name
[admin@MikroTik] > queue simple add name=clientkyuh target=192.168.33.25 max-limit=512k/512K limit-at=256k/256k parent=To
tal-Bandwith
[admin@MikroTik] > queue simple print
Flags: X - disabled, I - invalid, D - dynamic
 0 XI  name="client1" target=192.168.33.25/32 parent=none packet-marks="" priority=8/8 queue=default-small/default-small
      limit-at=256k/256k max-limit=512k/512k burst-limit=0/0 burst-threshold=0/0 burst-time=0s/0s bucket-size=0.1/0.1

 1    name="Total-Bandwith" parent=none packet-marks="" priority=8/8 queue=default-small/default-small limit-at=0/0
      max-limit=3M/3M burst-limit=0/0 burst-threshold=0/0 burst-time=0s/0s bucket-size=0.1/0.1

 2    name="clientkyuh" target=192.168.33.25/32 parent=Total-Bandwith packet-marks="" priority=8/8
      queue=default-small/default-small limit-at=256k/256k max-limit=512k/512k burst-limit=0/0 burst-threshold=0/0
      burst-time=0s/0s bucket-size=0.1/0.1
[admin@MikroTik] > queue simple rem 0
```

- **Simple Queue** digunakan untuk mengatur dan membatasi penggunaan bandwidth pada jaringan.

- Dengan fitur ini, administrator dapat menetapkan batas kecepatan upload dan download untuk setiap pengguna atau perangkat dalam jaringan.