Laboratorium
Multimedia dan Internet of Things
Departemen Teknik Komputer
Institut Teknologi Sepuluh Nopember

Laporan Akhir
Praktikum Jaringan Komputer

Firewall % NAT

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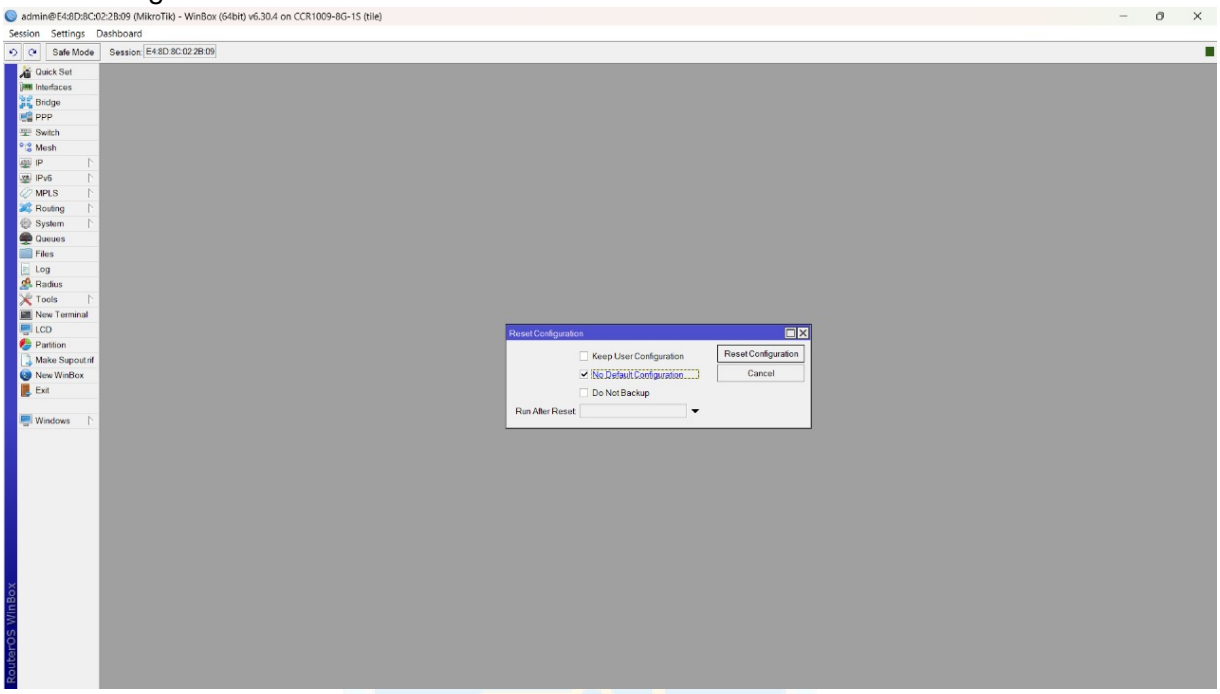
2025

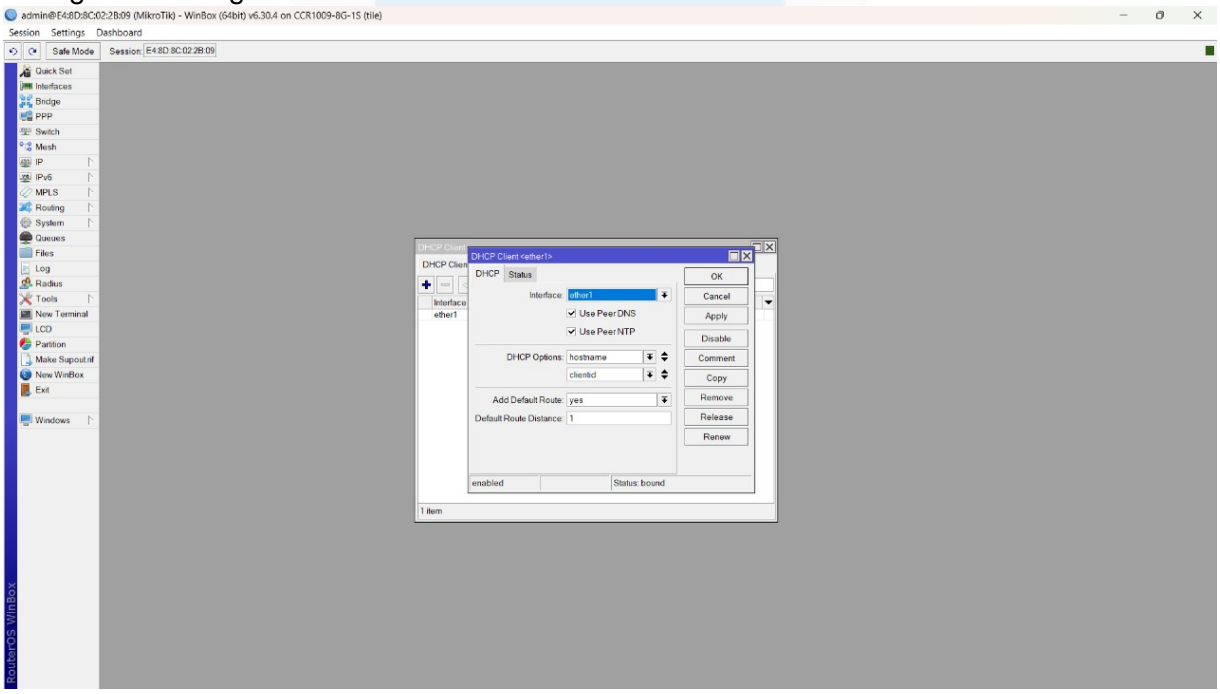
1 Langkah-Langkah Percobaan

1. Reset konfigurasi router

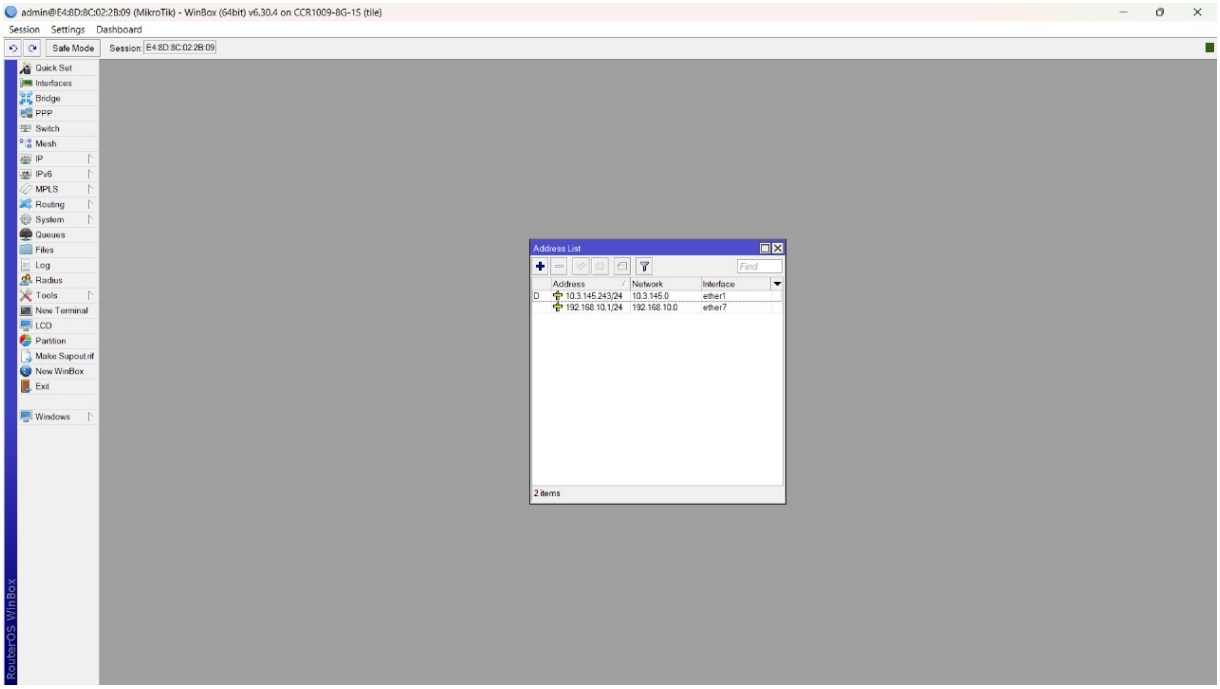


2. Konfigurasi DHCP Client pada Router A

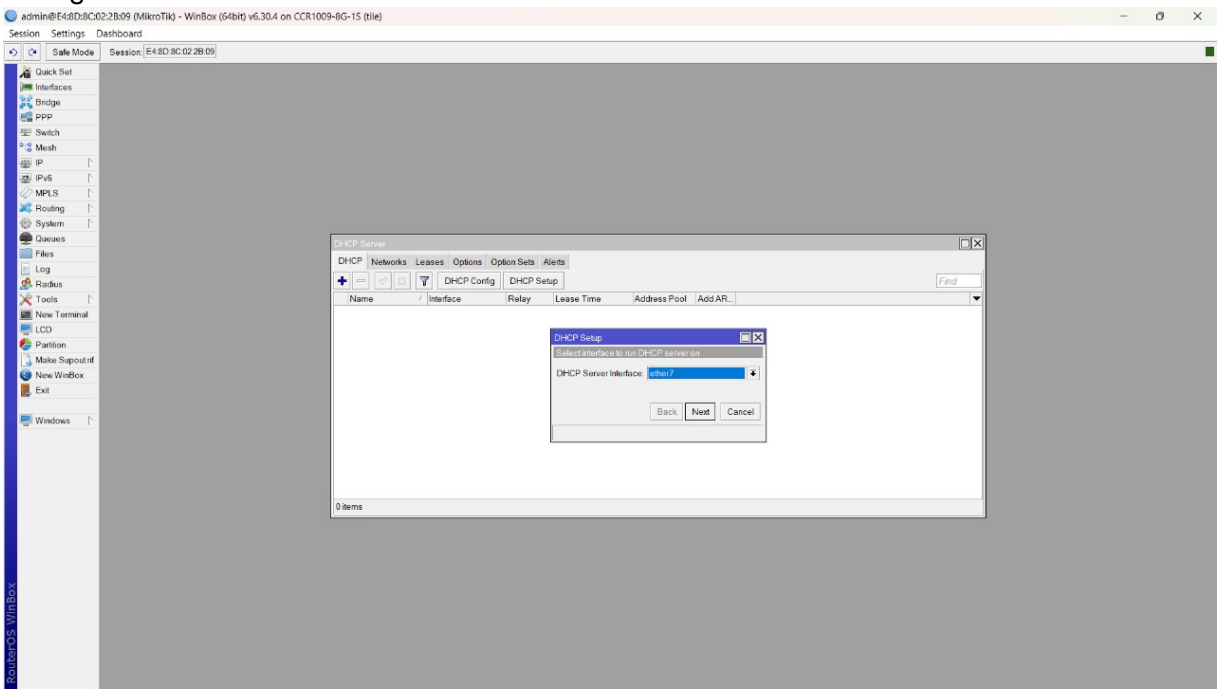
3. Konfigurasi routing statis



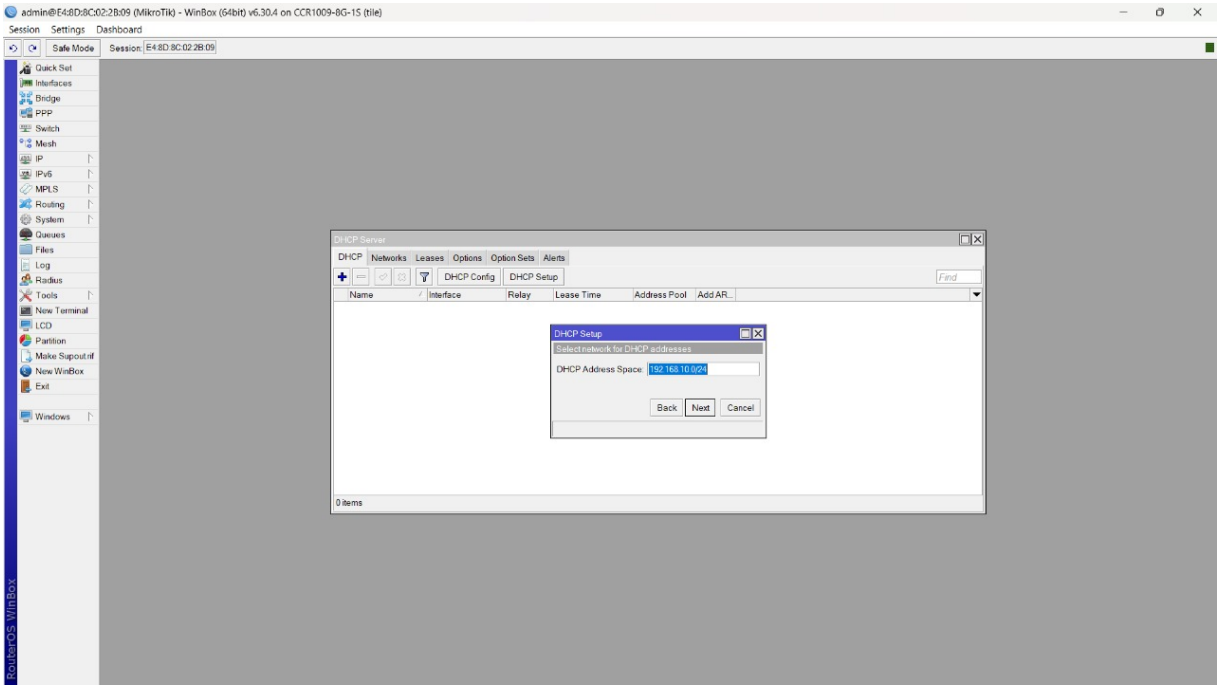
4. Penambahan IP pada ether 7



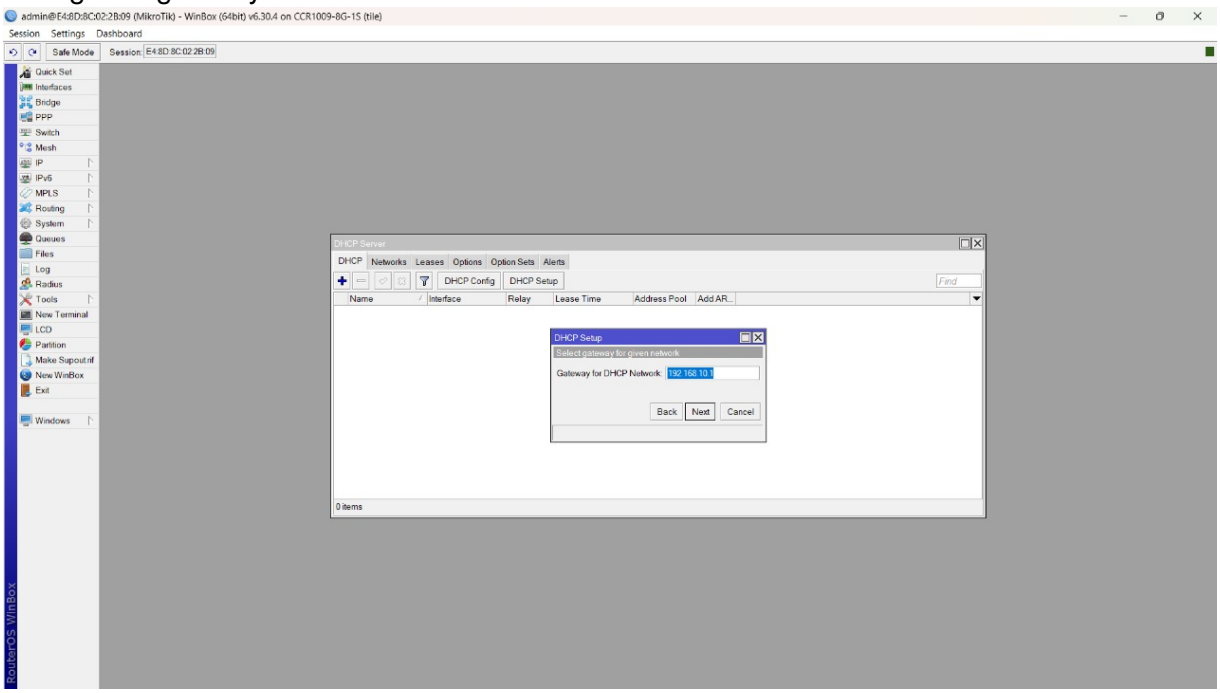
5. Konfigurasi interface



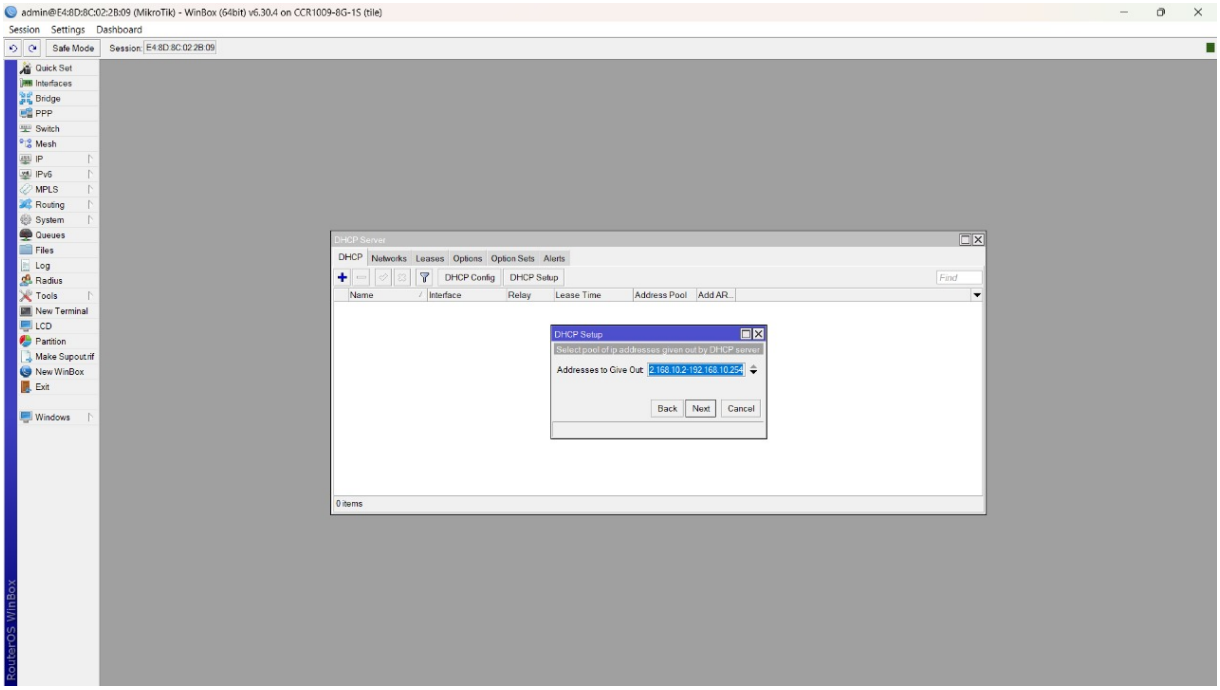
6. Konfigurasi address space



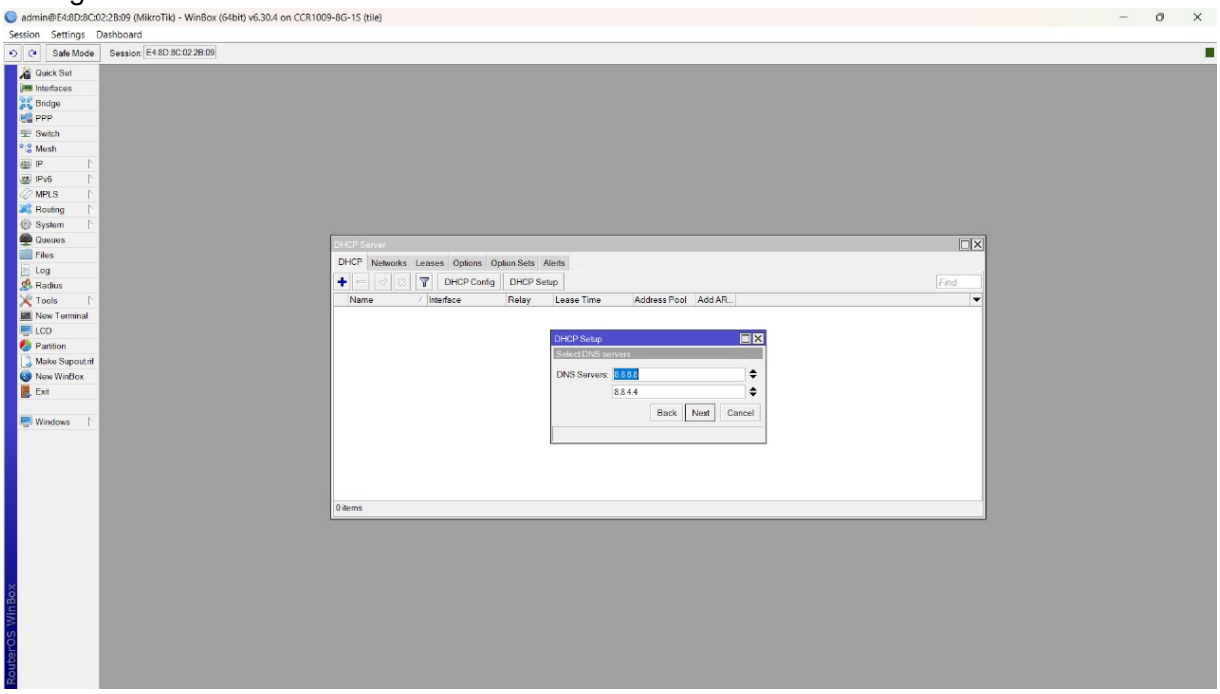
7. Konfigurasi gateway



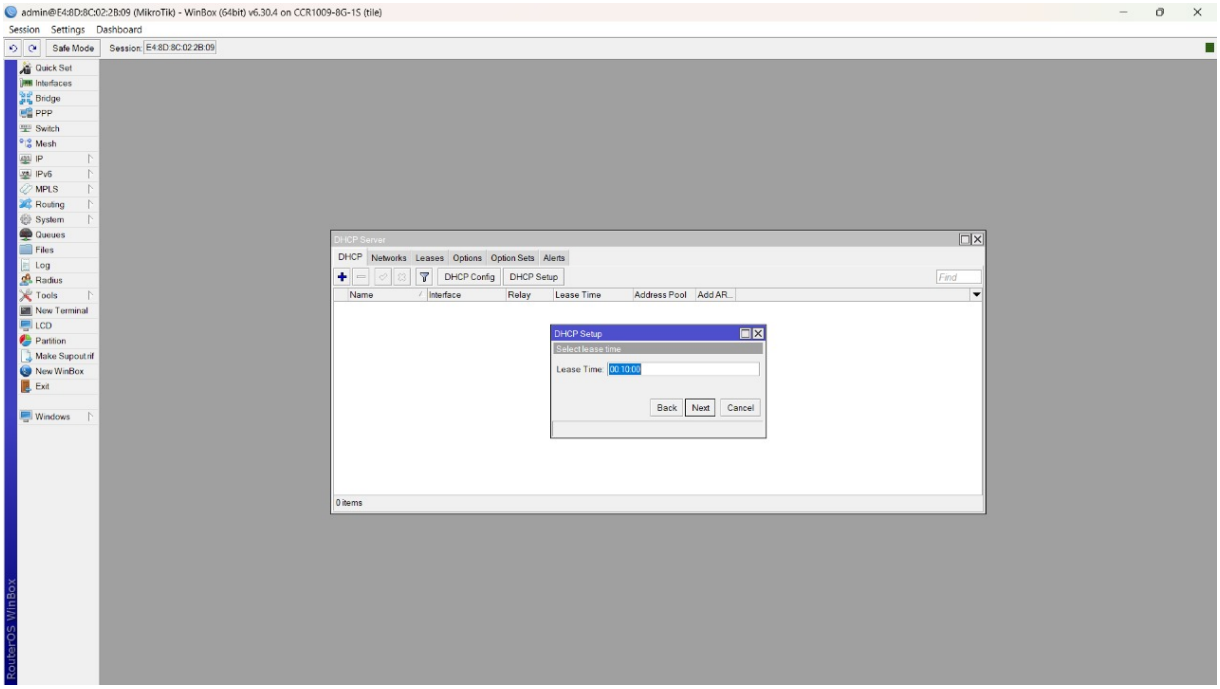
8. Konfigurasi Give Out



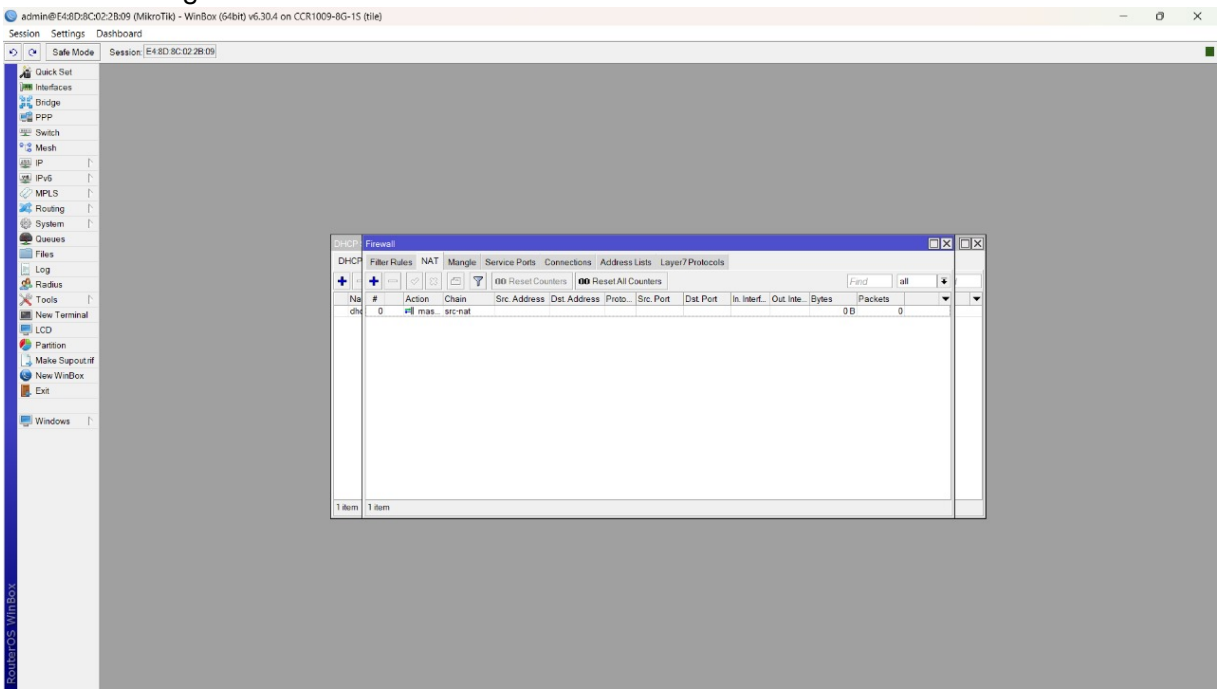
9. Konfigurasi DNS



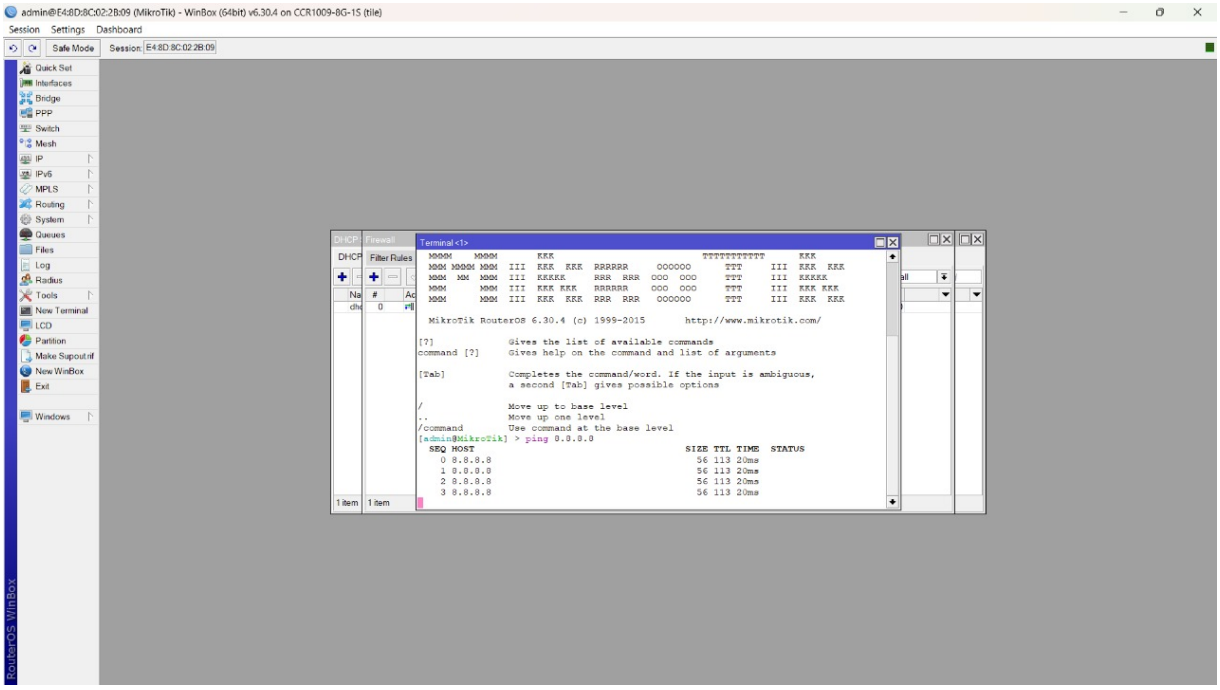
10. Konfigurasi Lease Time



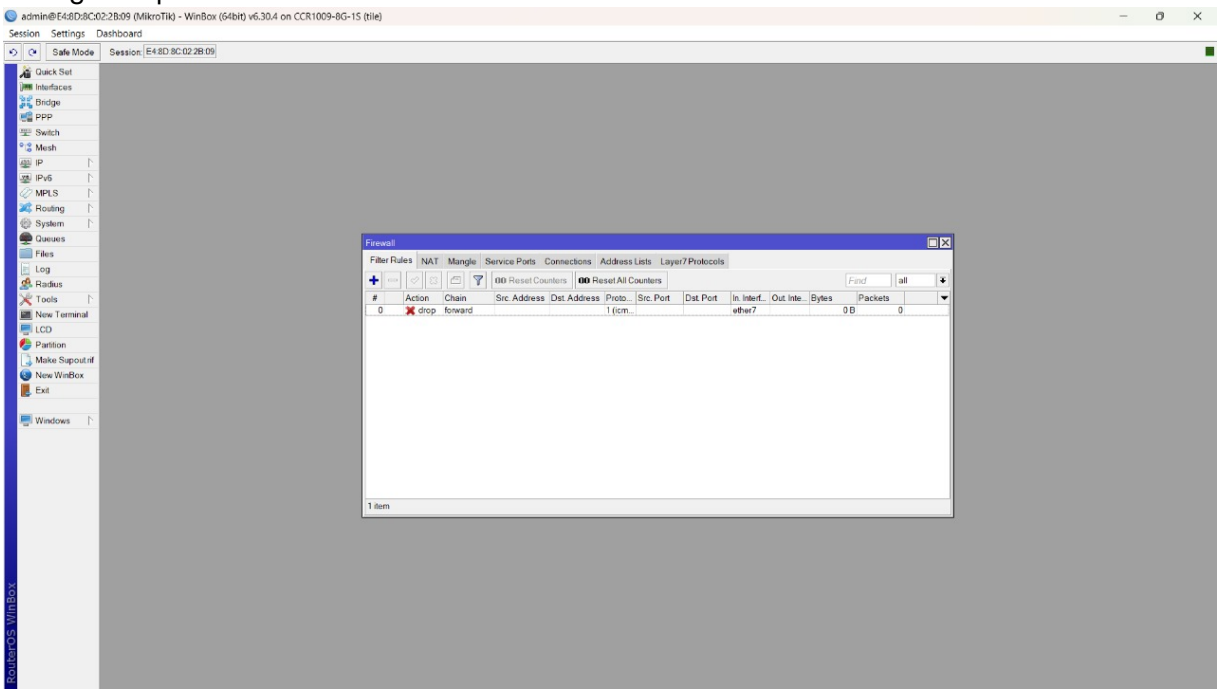
11. Lakukan konfigurasi NAT



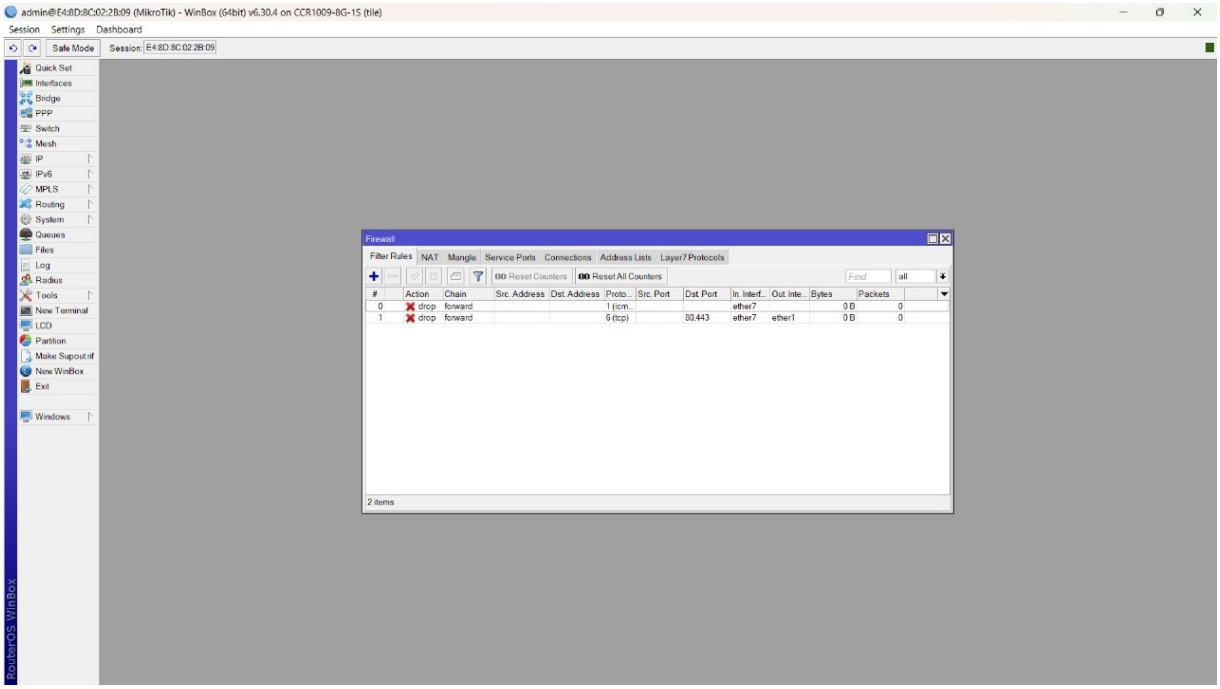
12. Coba koneksi



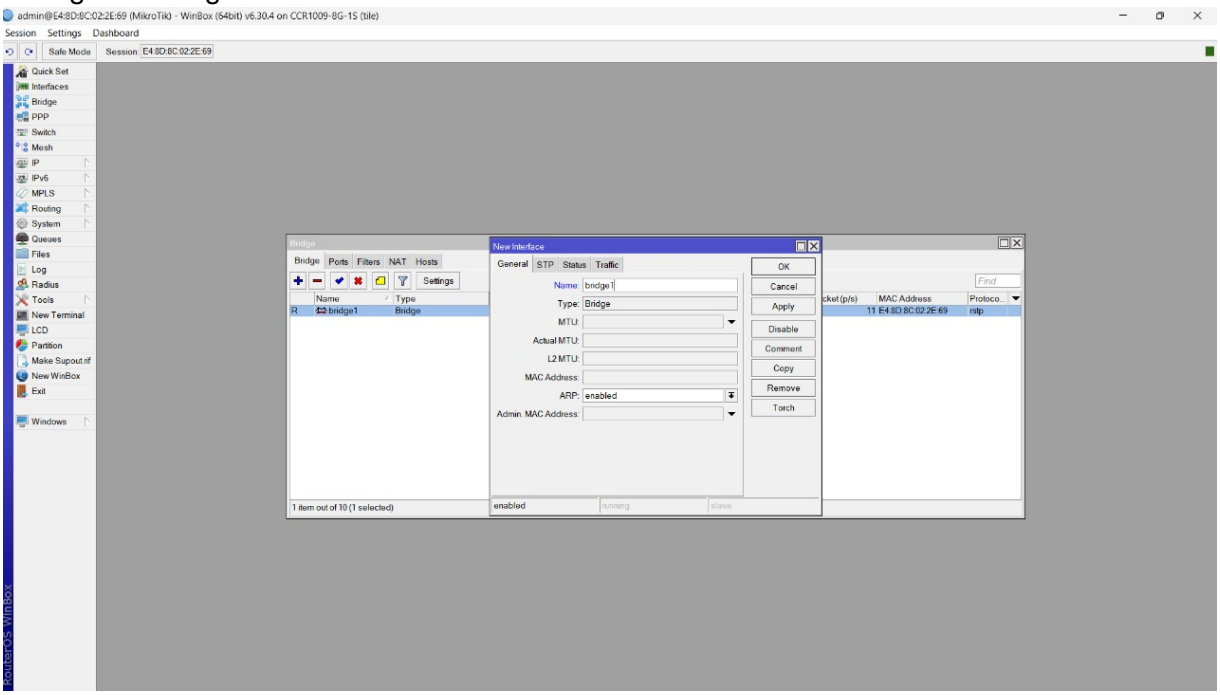
13. Konfigurasi pemblokiran ICMP



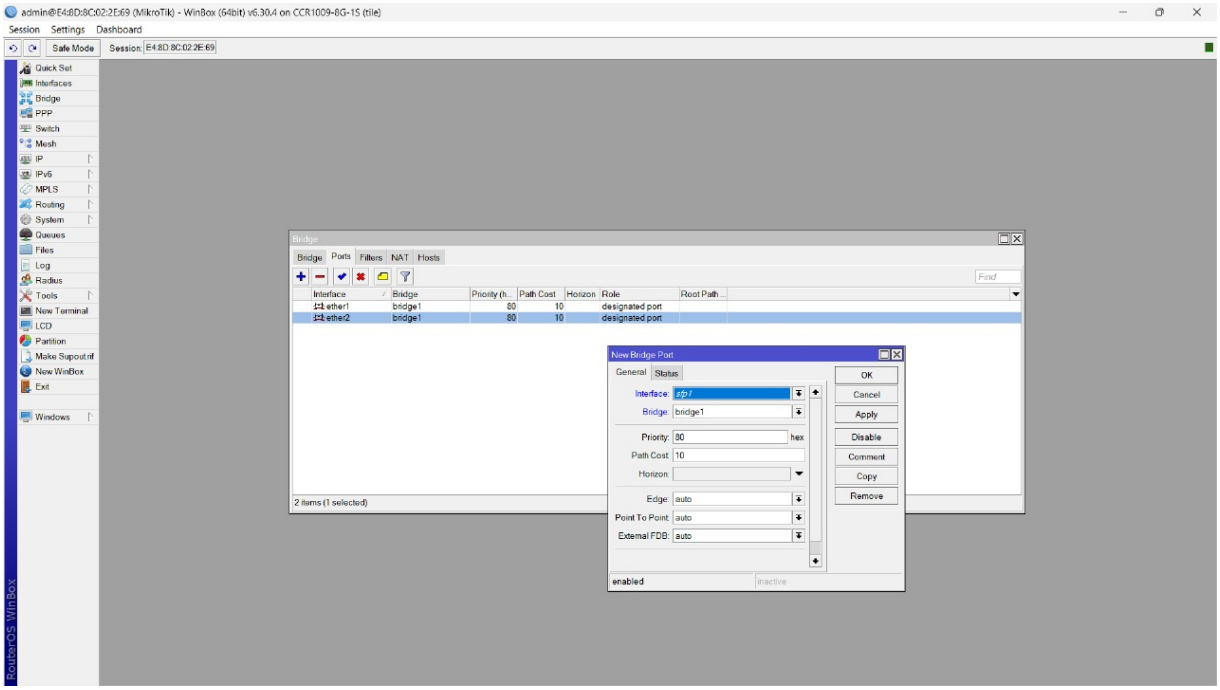
14. konfigurasi content blocking



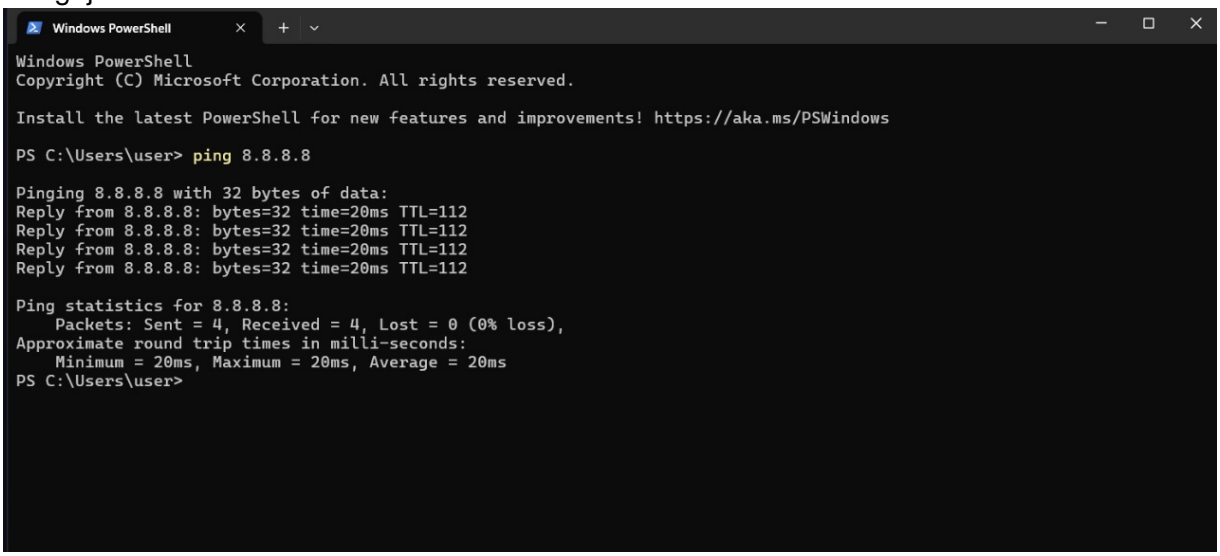
15. Konfigurasi bridge router B



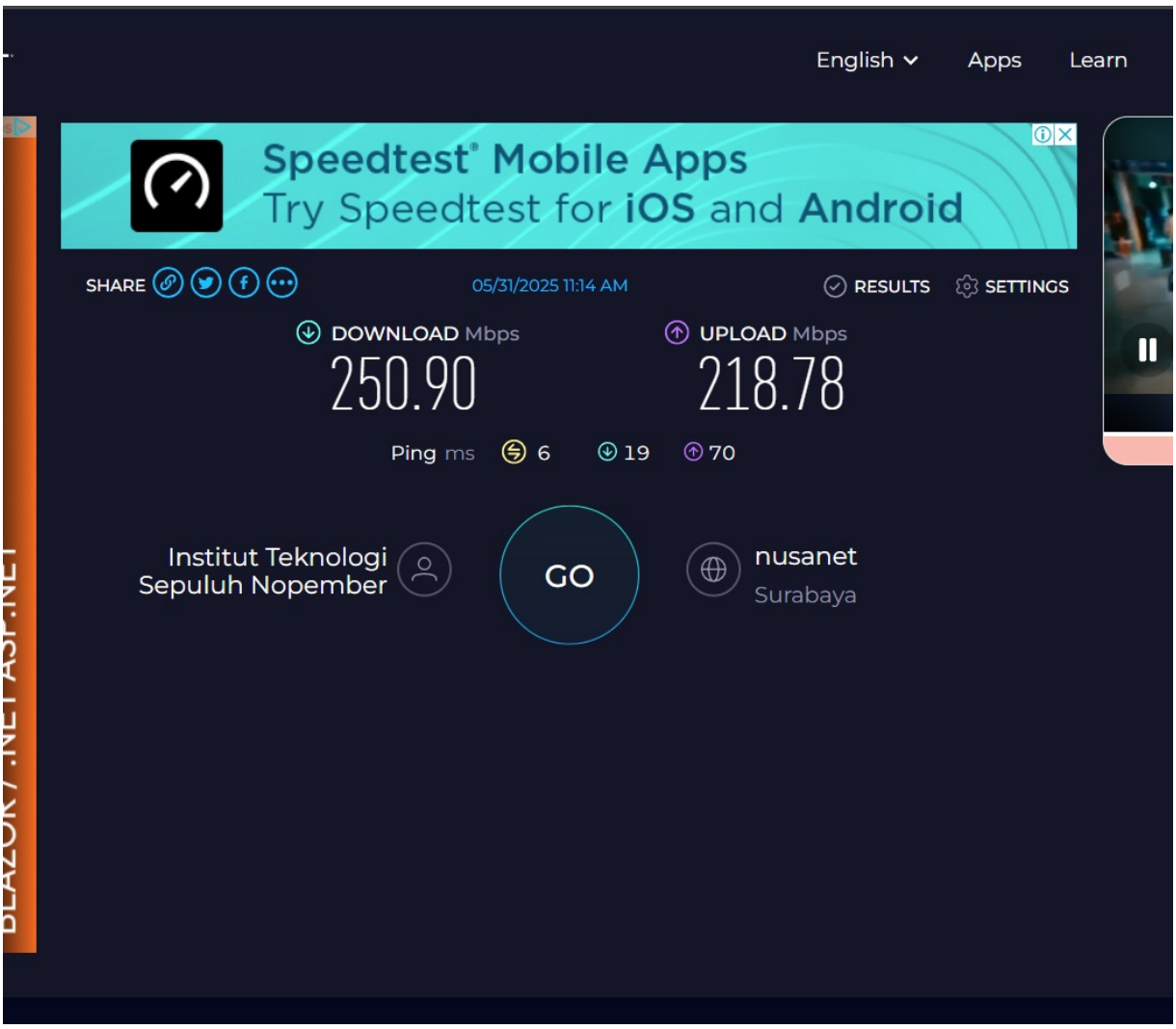
16. Konfigurasi port dalam bridge



17. Pengujian konektivitas ICMP



18. Uji content blocking



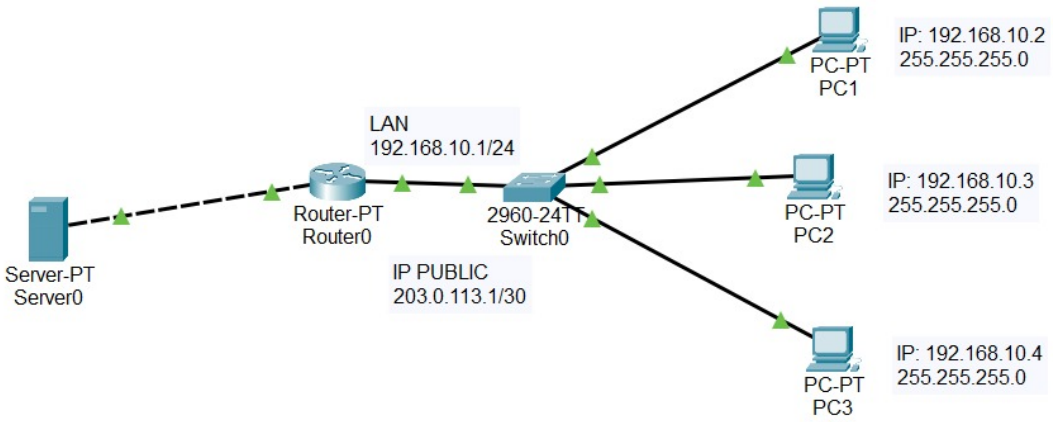
2 Analisis Hasil Percobaan

Selama proses praktikum berlangsung, seluruh tahapan konfigurasi jaringan telah berhasil diimplementasikan dengan mengikuti prosedur yang telah ditetapkan. Setelah melakukan pengaturan layanan DHCP untuk alokasi IP otomatis, konfigurasi NAT untuk menghubungkan jaringan internal dengan eksternal, serta pengaturan firewall untuk keamanan jaringan, perangkat klien dapat memperoleh alamat IP secara otomatis dan terhubung ke internet dengan lancar. Untuk memverifikasi efektivitas konfigurasi firewall, dilakukan pengujian dengan mengaktifkan fitur ICMP pada firewall. Hasil uji ping ke alamat DNS publik 8.8.8.8 menunjukkan status "Request Timed Out", yang mengindikasikan bahwa aturan pemblokiran firewall telah berfungsi dengan baik dan sesuai ekspektasi. Pengujian lebih lanjut dilakukan dengan mencoba mengakses situs web "speedtest" yang diketahui telah diblokir oleh sistem. Hasilnya menunjukkan kegagalan akses yang konsisten dengan kebijakan content blocking yang telah dikonfigurasi sebelumnya. Berdasarkan hasil pengujian tersebut, dapat disimpulkan bahwa konfigurasi firewall telah beroperasi secara optimal dan mampu melakukan filtering trafik jaringan sesuai dengan aturan yang telah ditetapkan. Meskipun terdapat beberapa kendala minor dalam proses pemilihan interface dan pengaturan routing selama tahap implementasi awal, namun setelah dilakukan troubleshooting dan penyesuaian konfigurasi yang tepat, seluruh komponen sistem dapat

berfungsi dengan baik dan memberikan hasil yang memuaskan sesuai dengan tujuan praktikum yang diharapkan.

3 Hasil Tugas Modul

1. Berikut adalah Hasil yang didapat



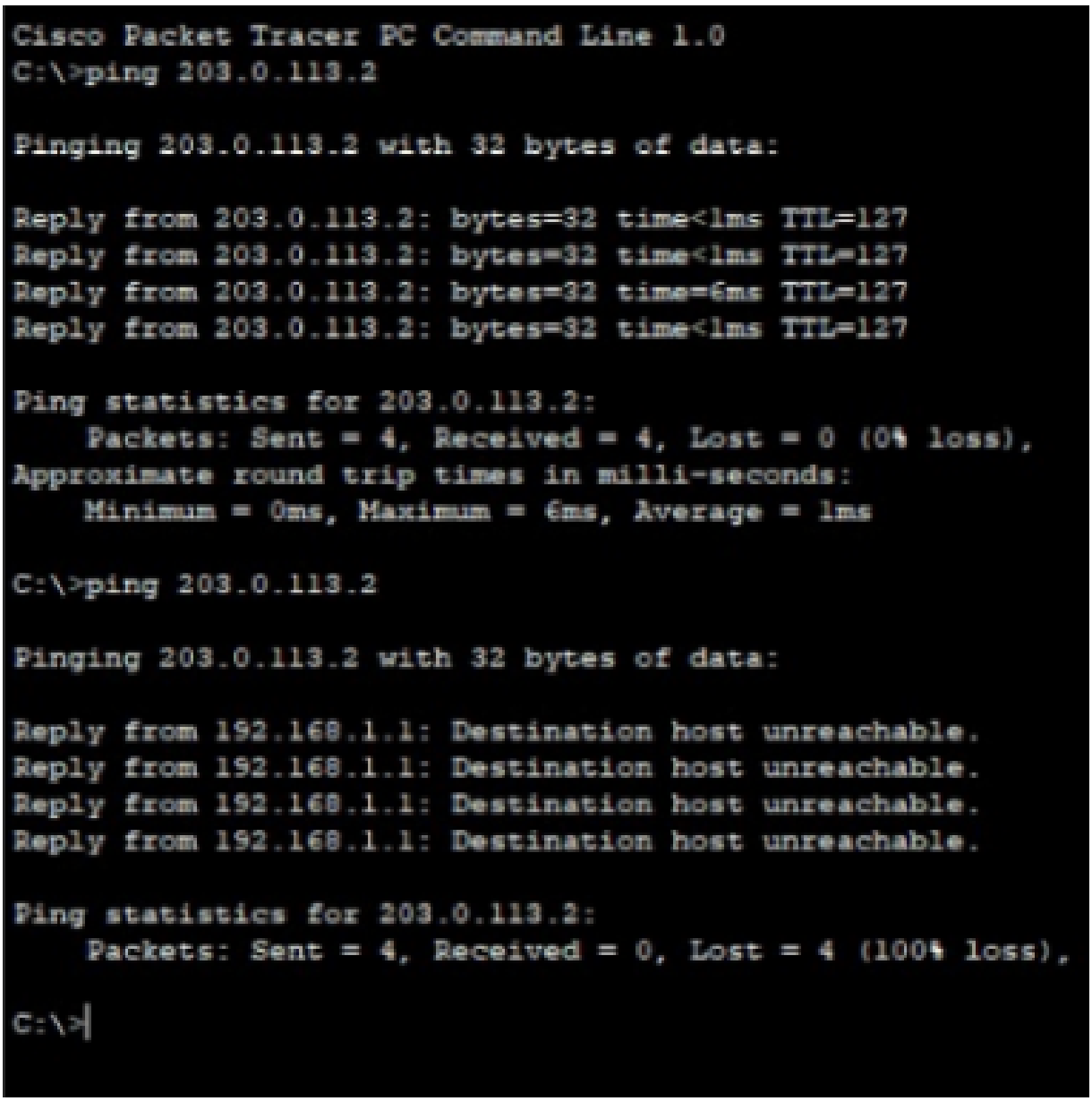
```
C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time=10ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 10ms, Average = 2ms

C:\>
```

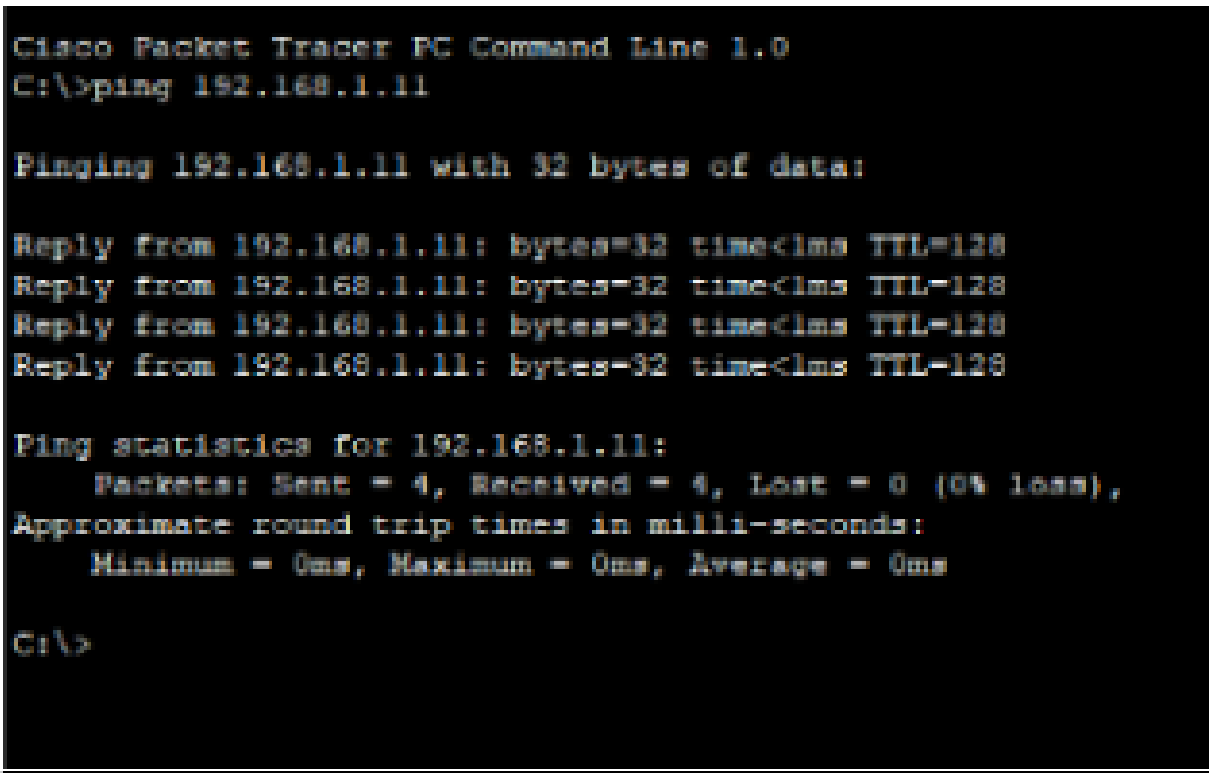
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time=2ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

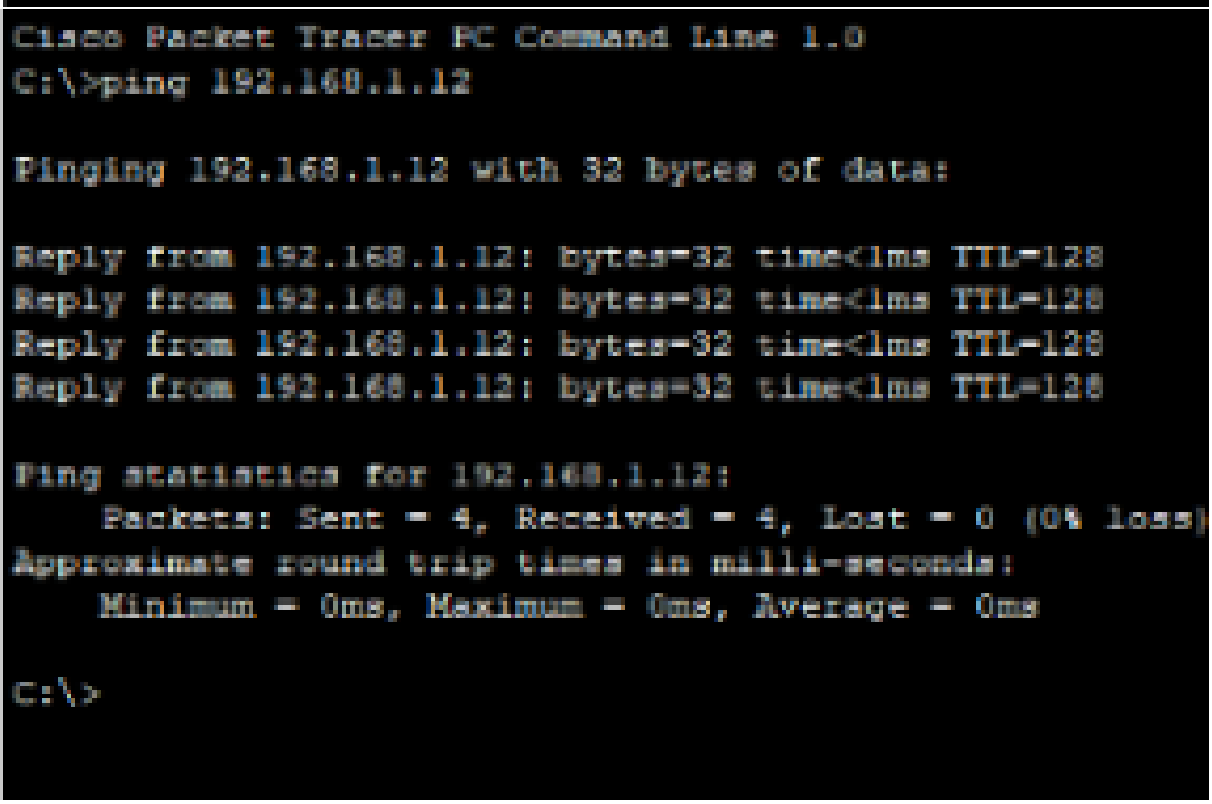
```
Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

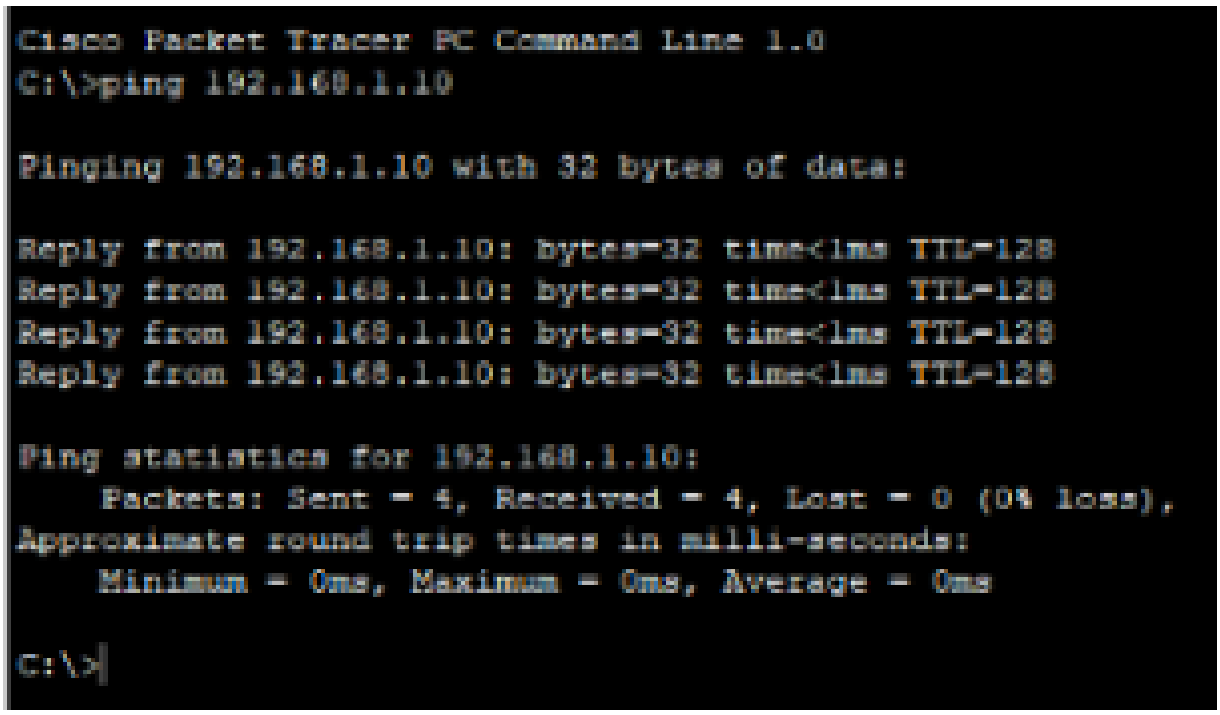
```
Request timed out.
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time=5ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 203.0.113.2: bytes=32 time=7ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time=1ms TTL=127

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 2ms

C:\>ping 203.0.113.2

Pinging 203.0.113.2 with 32 bytes of data:

Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.

Ping statistics for 203.0.113.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)

C:\>
```


Cisco Packet Tracer PC Command Line 1.0
C:\>ping 203.0.113.2
Pinging 203.0.113.2 with 32 bytes of data:
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Reply from 203.0.113.2: bytes=32 time=6ms TTL=127
Reply from 203.0.113.2: bytes=32 time<1ms TTL=127
Ping statistics for 203.0.113.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 6ms, Average = 1ms
C:\>ping 203.0.113.2
Pinging 203.0.113.2 with 32 bytes of data:
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Ping statistics for 203.0.113.2:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>


Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.11
Pinging 192.168.1.11 with 32 bytes of data:
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.11:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>


Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.12
Pinging 192.168.1.12 with 32 bytes of data:
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.12:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>



4 Kesimpulan

Melalui praktikum ini, peserta berhasil memahami cara kerja NAT dan firewall pada MikroTik. NAT memungkinkan perangkat dalam jaringan lokal mengakses internet, sedangkan firewall berfungsi mengatur lalu lintas data dengan memblokir ping dan akses ke situs tertentu. Semua pengujian menunjukkan hasil yang sesuai dengan teori dan memperkuat pemahaman tentang konfigurasi jaringan serta penerapan keamanan yang efektif. Praktikum ini juga menekankan pentingnya ketelitian dalam setiap tahap konfigurasi, karena kesalahan kecil dapat menyebabkan kegagalan fungsi jaringan secara keseluruhan. Dengan demikian, pemahaman yang baik terhadap setiap parameter konfigurasi menjadi kunci keberhasilan dalam implementasi sistem jaringan yang handal dan aman.

5 Lampiran

5.1 Dokumentasi saat praktikum