

PANDUAN KONFIGURASI GNS3 UNTUK LAB CISCO

Cara Gampang Menguasai Cisco
Secara Cepat dan Mudah

AGUS SETIAWAN

NIXTRAIN

PANDUAN KONFIGURASI GNS3

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Kata Pengantar



Assalamu'alaikum wr.wb.

Halo, salam kenal buat pembaca semuanya...

Nama saya Agus Setiawan, instruktur Cisco dari Nixtrain - IT Solution & Training Center, Bandung, Jawa Barat. Sudah lama saya ingin membuat Tutorial Ebook GNS3 ini, namun baru bisa diselesaikan bulan ini, Juni 2016, karena ada beberapa kesibukan yang cukup menyita waktu buat menulis lagi.

Oya, dengan menggunakan GNS3, belajar Cisco menjadi terasa menyenangkan karena bisa mencoba simulasi yang mendekati real network, bahkan simulasi di laptop kita bisa dihubungkan dengan topologi real. Paket analisis juga bisa diterapkan ketika menggunakan GNS3. GNS3 lebih advanced dibandingkan dengan Cisco Packet Tracer. Untuk kebutuhan hardware laptop minimal RAM 2 GB. Agar proses CPU tidak memberatkan, pada saat mau ngelab GNS3 setting dulu idle-pc nya.

Bagi yang ingin mereview ulang tutorial Cisco Packet Tracer, silahkan pelajari di channel Youtube saya : <https://www.youtube.com/c/agussetiawannixtrain>

Terima kasih buat rekan-rekan yang sudah mendownload ebook ini, apabila ada pertanyaan, saran dan kritik silahkan hubungi saya melalui email info@nixtrain.com

Jangan lupa join group **Road to CCNA** -> www.facebook.com/groups/roadtoccna untuk diskusi seputar Cisco networking, sertifikasi internasional, dll.

Keep calm & follow your passion!

Wassalamu'alaikum wr.wb.

Penulis

Bandung, Juni 2016

Agus Setiawan
www.facebook.com/agussetiawan2013

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Chapter 1 - Overview GNS3

GNS3 adalah software emulator network, pertama kali release tahun 2008. Dapat digunakan untuk mensimulasikan network yang komplek dan bisa dikombinasikan antara virtual lab dan real devices (perangkat network asli). GNS3 menggunakan software emulasi dynamips untuk menjalankan Cisco IOS.

GNS3 merupakan software gratis dan opensource, bisa di download di
<http://www.gns3.net/download/>

Bagi Anda yang ingin mengambil ujian sertifikasi Cisco level profesional dan expert, direkomendasikan ngelabnya menggunakan GNS3. Dengan tampilan GUI, GNS3 mempermudah network engineer untuk mensimulasikan fitur Cisco IOS.

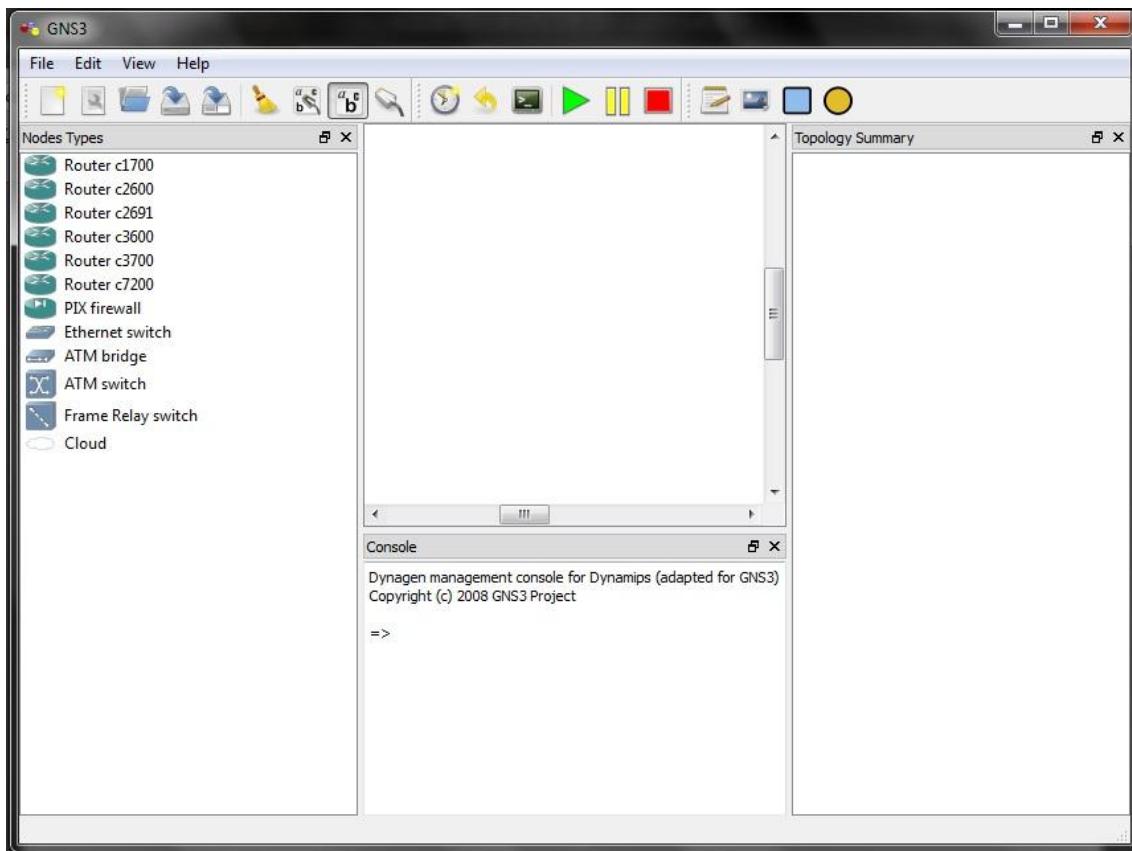
Fitur GNS3:

- Mendukung desain topologi yang komplek dan berkualitas tinggi
- Mampu mengemulasikan platform Cisco IOS router dan firewall PIX
- Simulasi simple Ethernet, ATM dan Frame Relay
- Mampu menghubungkan simulasi network dan real topologi network
- Mampu mengcapture packet menggunakan wireshark

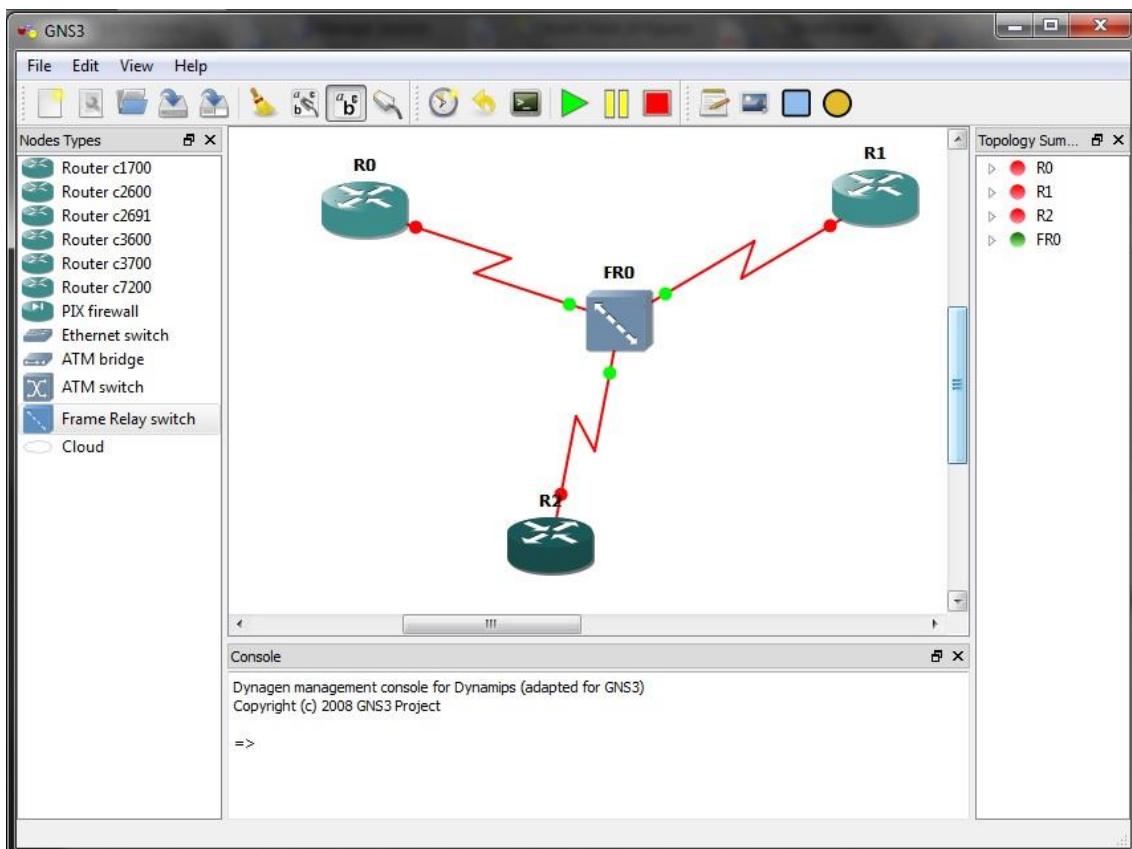
Platform device Cisco yang didukung oleh GNS3:

1710	2611	2691
1720	2611XM	3620
1721	2620	3640
1750	2620XM	3660
1751	2621	3725
1760	2621XM	3745
2610	2650XM	7200
2610XM	2651XM	

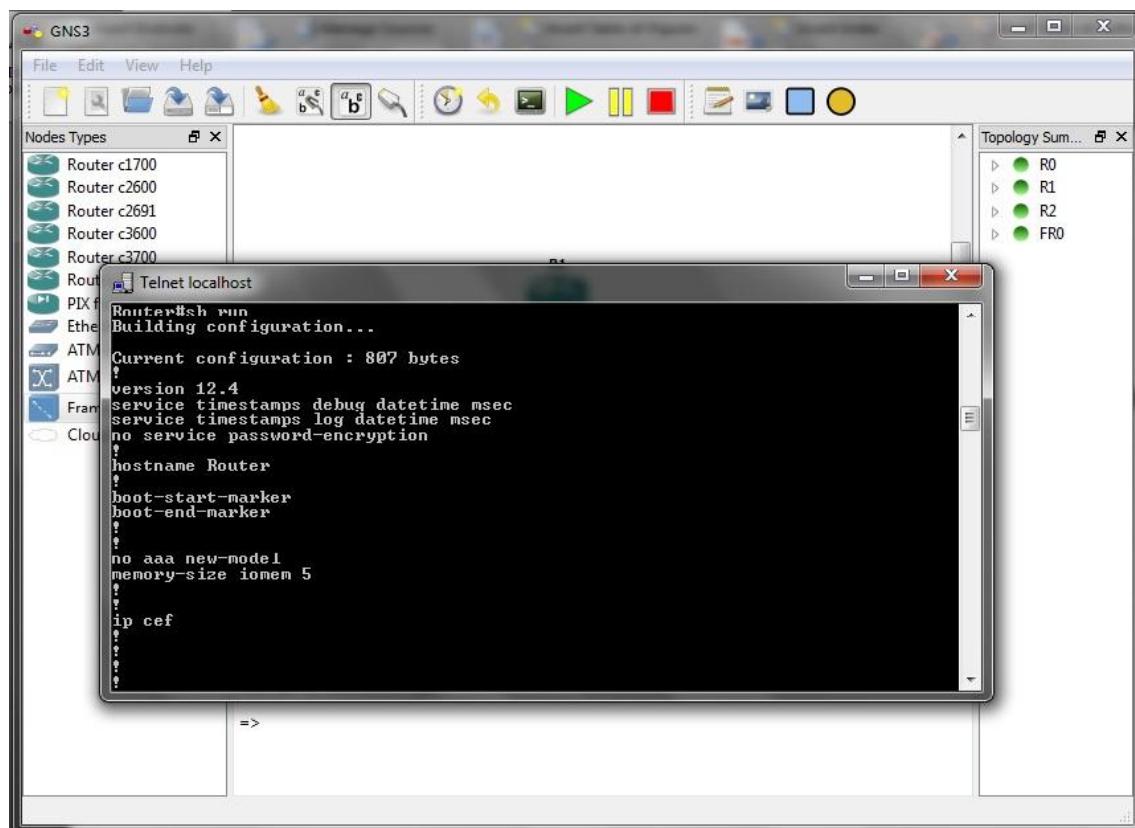
Tampilan GNS3:



Topologi Frame Relay:

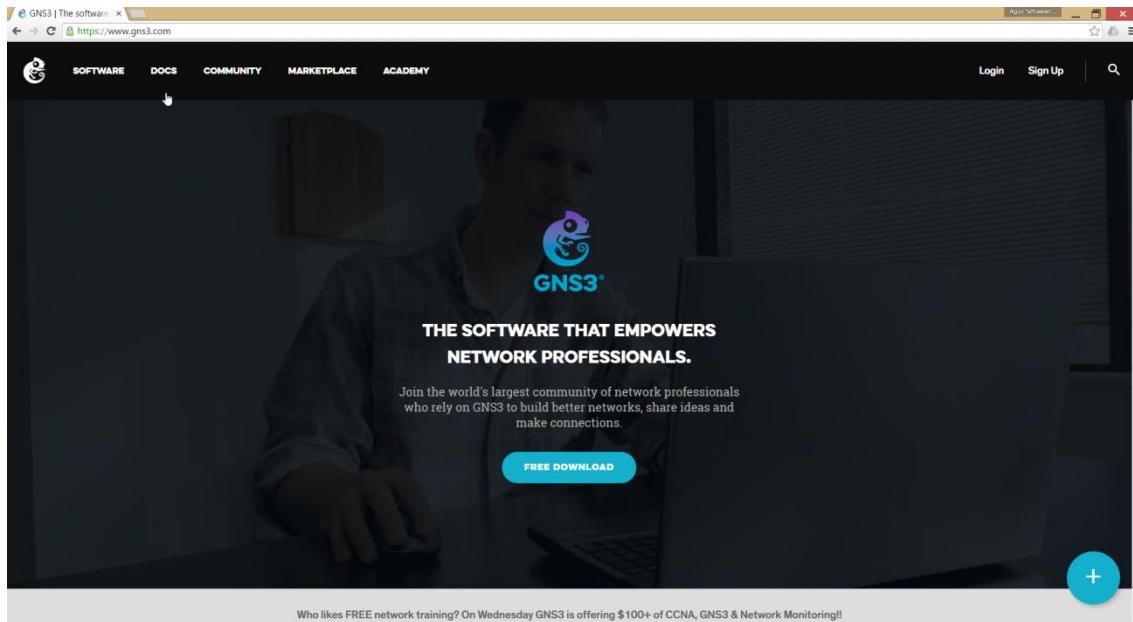


Console Router CLI (Command Line Interface)

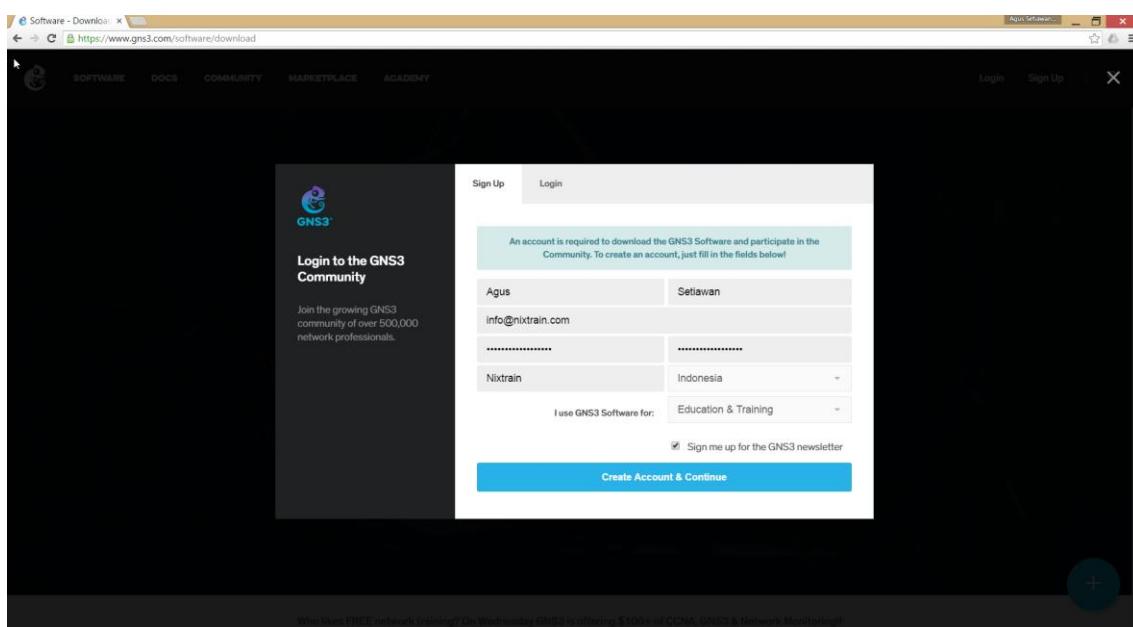


Chapter 2 - Download GNS3

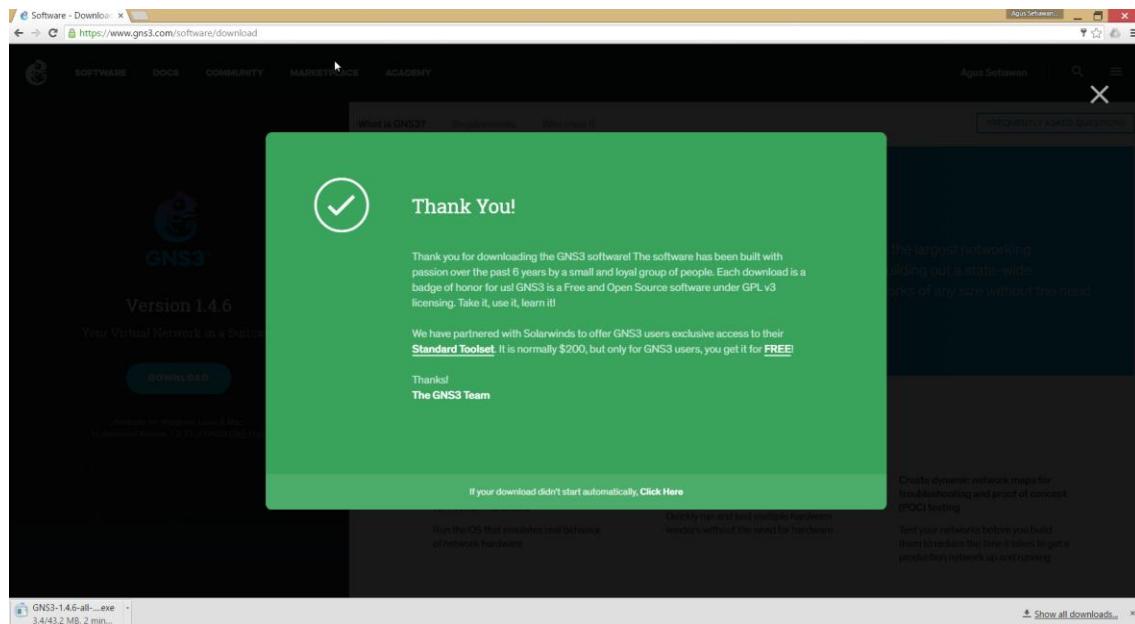
Untuk mendownload GNS3, kunjungi website <https://www.gns3.com/>



Klik Free Download dan isi form registrasi untuk mendownload GNS3.

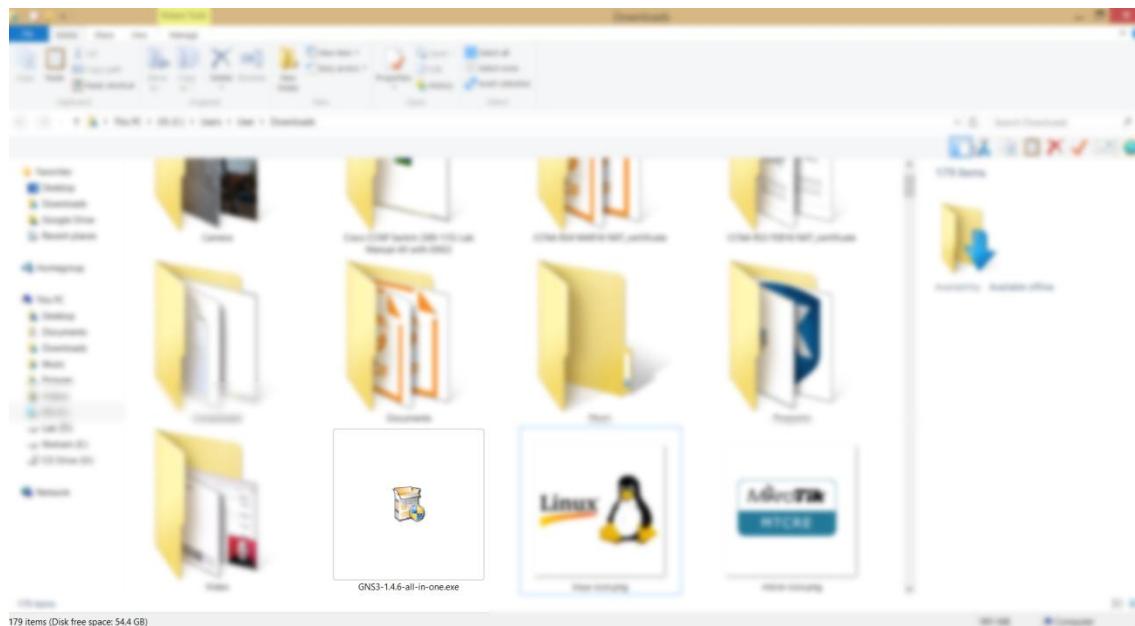


Klik **Create Account & Continue**, maka akan muncul pilihan download GNS3. Pada ebook ini, saya menggunakan sistem operasi Windows, jadi pilih yang Windows.



Perhatikan bagian bawah bar, proses download sedang berlangsung. Ukuran file installer GNS3 kurang lebih 43,2 MB.

Hasil download installer GNS3.



Beberapa waktu yang lalu, saya mengadakan survey kecil-kecilan di group Road to CCNA (www.facebook.com/groups/roadtoccna) mengenai rekomendasi versi GNS3 yang stable untuk ngelab, dari hasil survey didapatkan informasi bahwa GNS3 yang stable yaitu versi 0.8.6. Oleh karena itu, pada section instalasi saya menggunakan versi 0.8.6. Dari proses instalasi tidak jauh

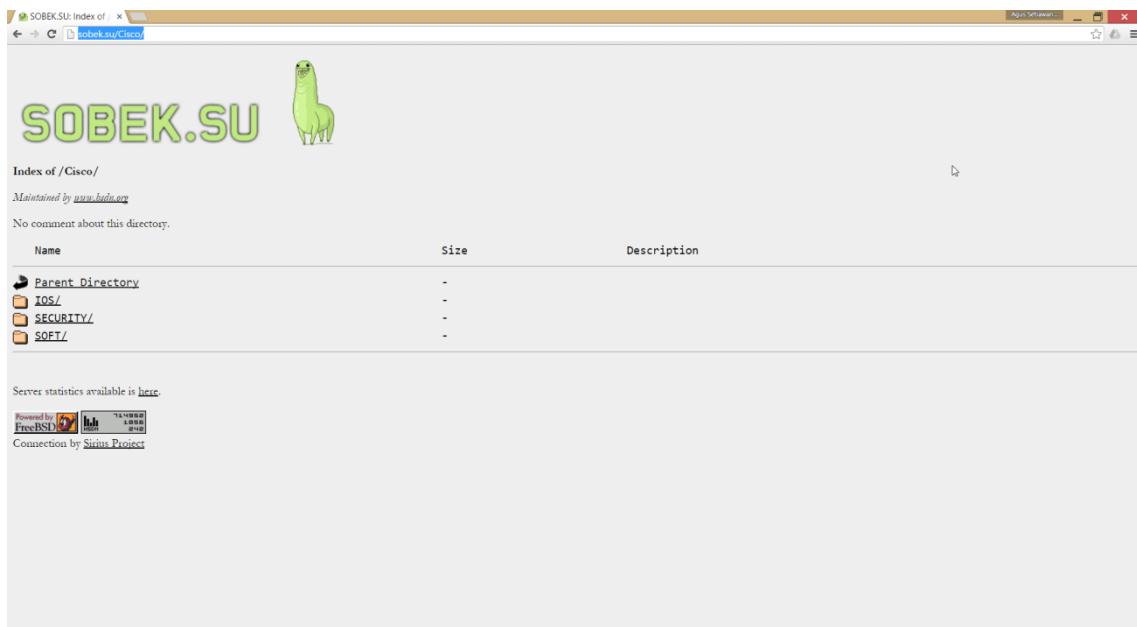
berbeda, hanya untuk versi terbaru Anda membutuhkan koneksi internet untuk mendownload paket software yang tidak disertakan dalam file installer GNS3 terbaru.

Anda bisa mendownload GNS 0.8.6 di website www.nixtrain.com/blog

Chapter 3 - Download Cisco IOS

GNS3 tidak menyediakan Cisco IOS, oleh karena itu, kita perlu menyediakan Cisco IOS sendiri.

Download Cisco IOS di website <http://sobek.su/Cisco/>



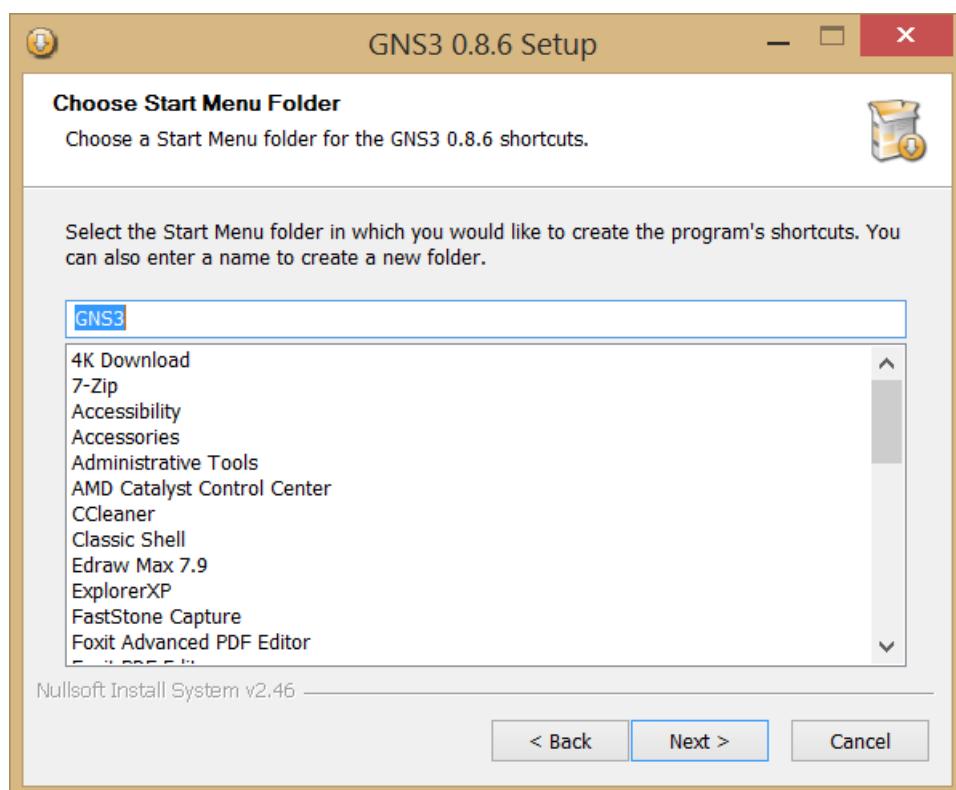
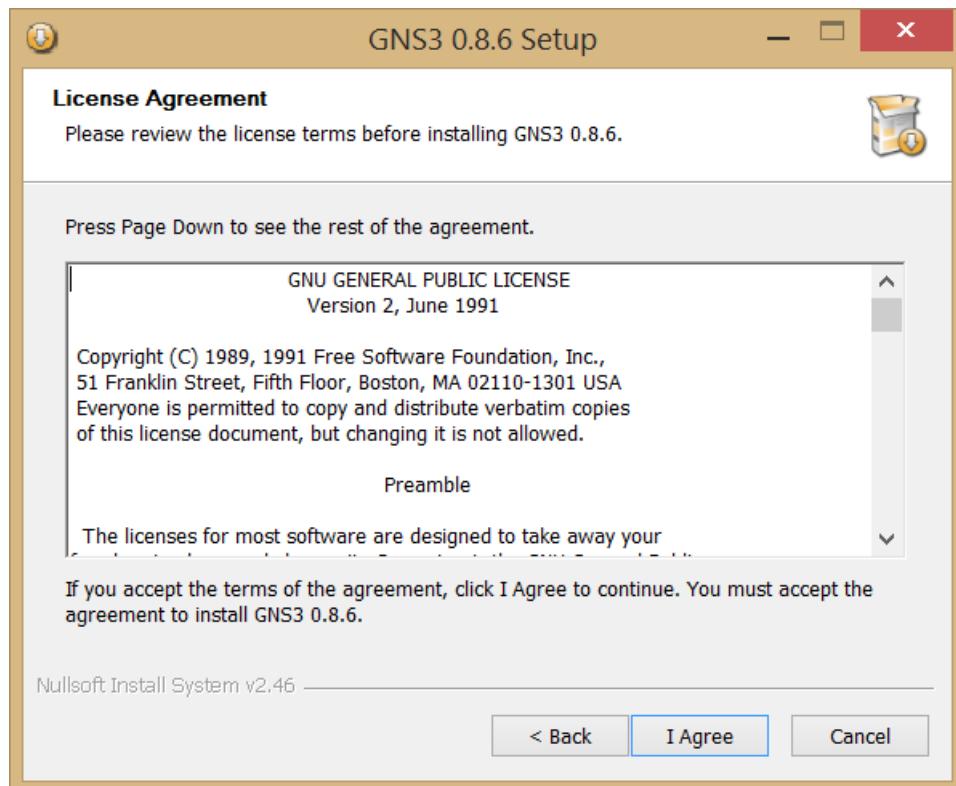
Pada tutorial ini, saya menggunakan Cisco IOS C2691 yang bisa Anda download di www.nixtrain.com/blog

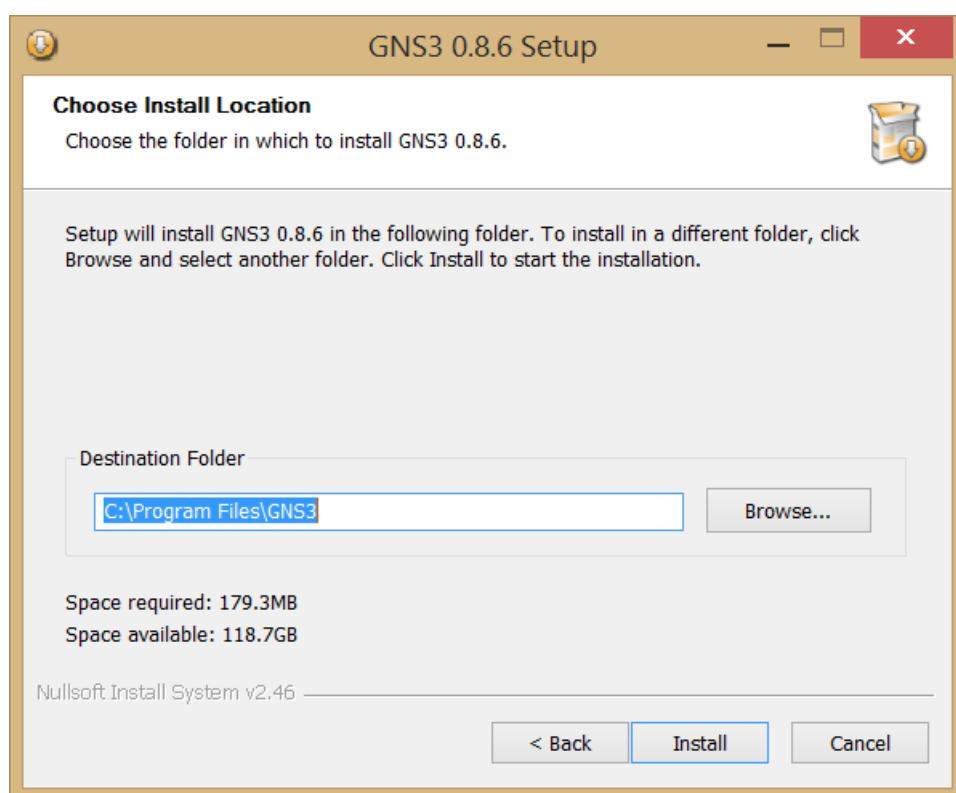
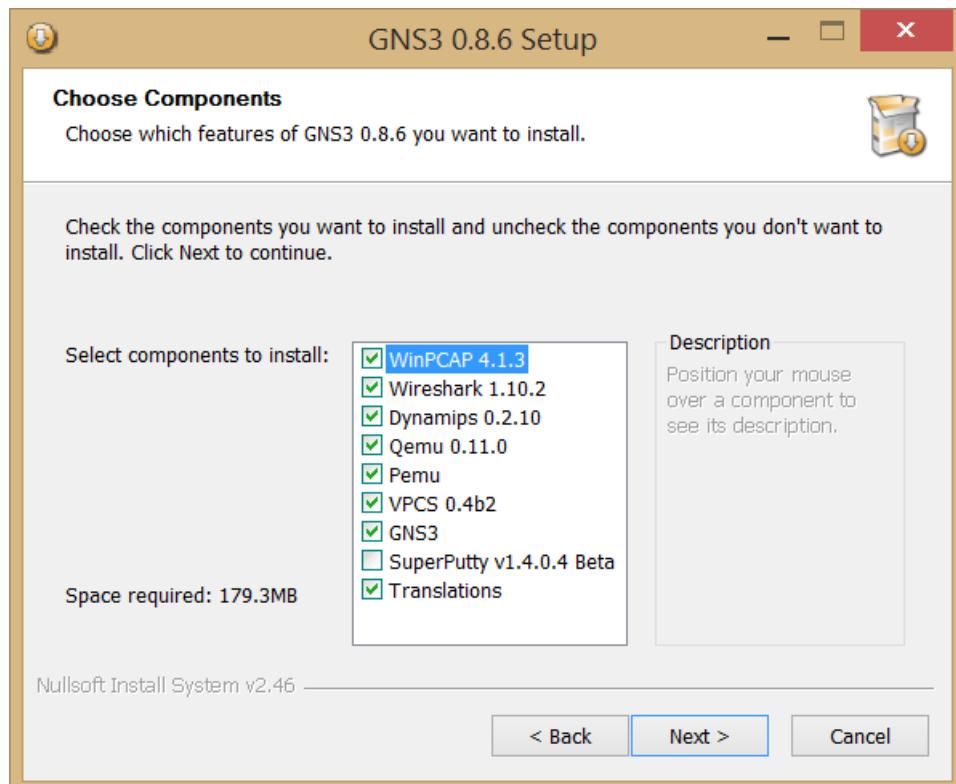
Chapter 4 - Instalasi GNS3 di Windows

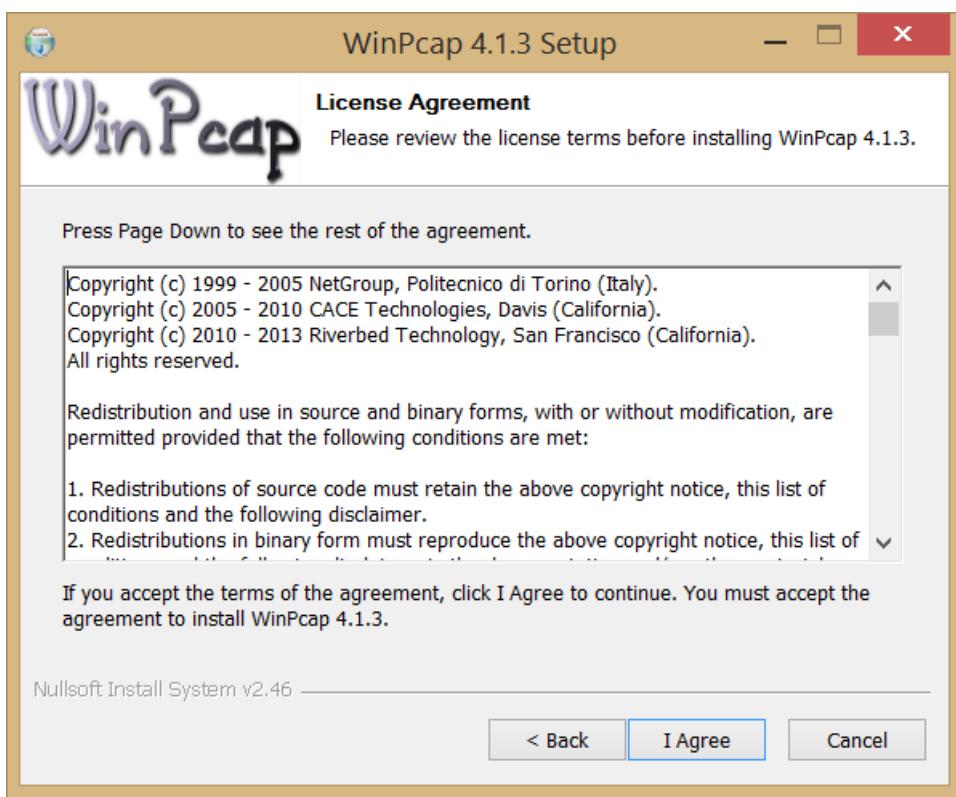
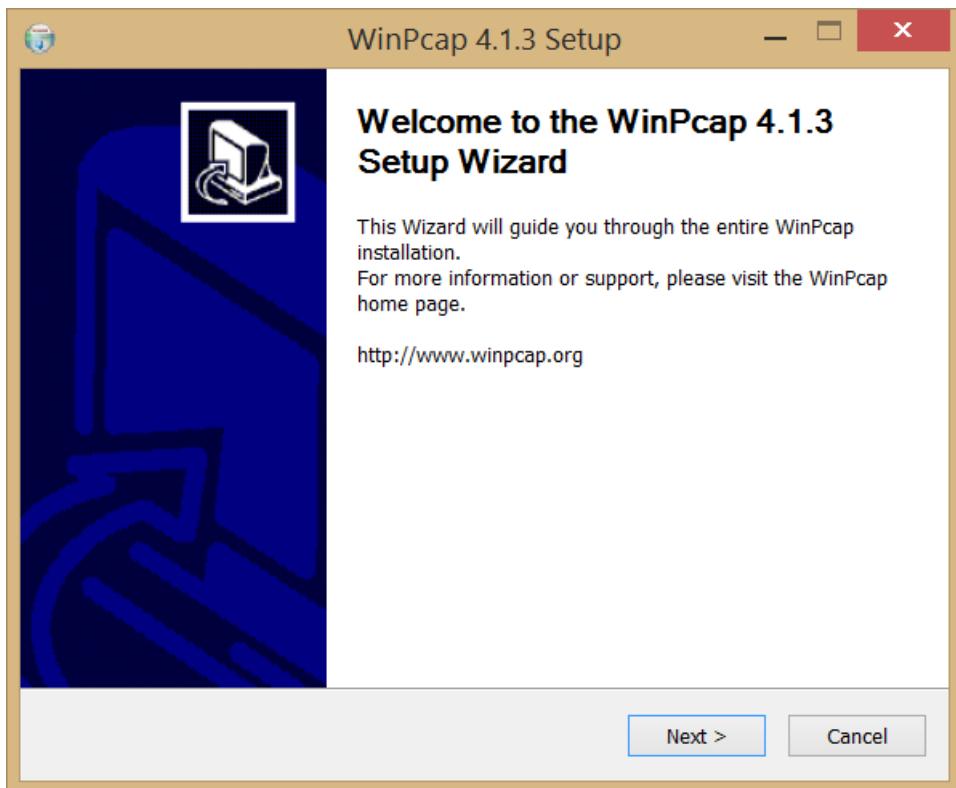
Setelah berhasil mendownload file installer GNS3, langkah berikutnya yaitu instalasi GNS3. Klik file installer GNS3 untuk memulai instalasi. Pada ebook ini, saya menggunakan GNS3 versi 0.8.6 untuk proses instalasinya. Secara teknis, instalasi GNS3 cukup mudah, tinggal klik next saja, namun pastikan semua paket software terinstall secara lengkap, misalnya wireshark dan winpcap.

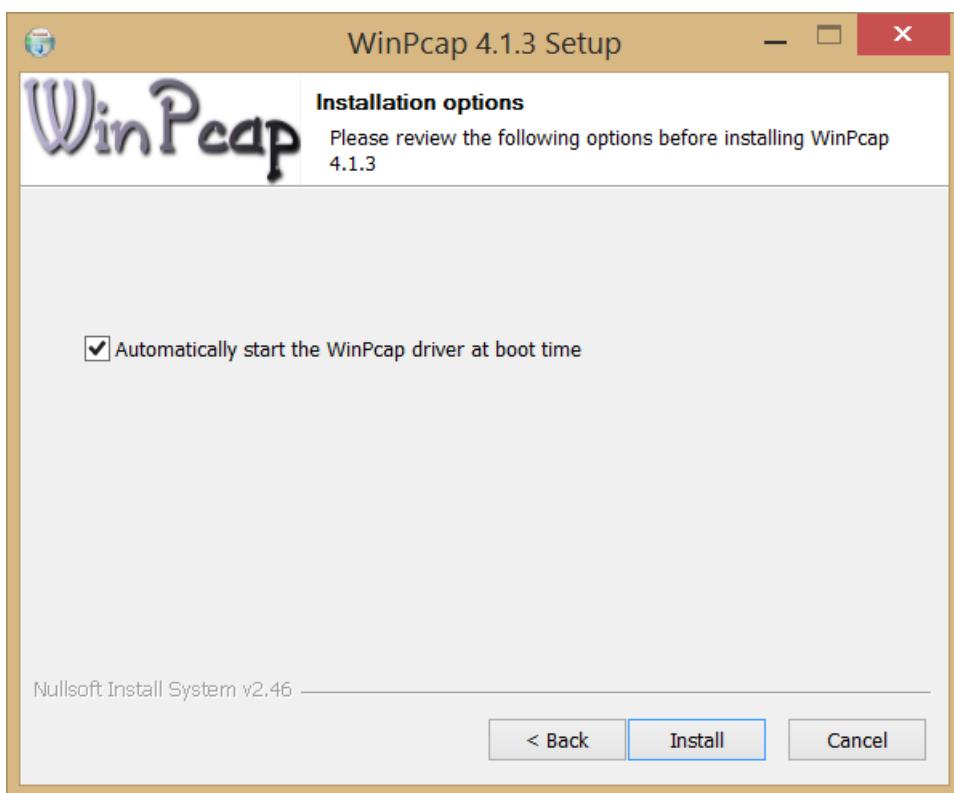
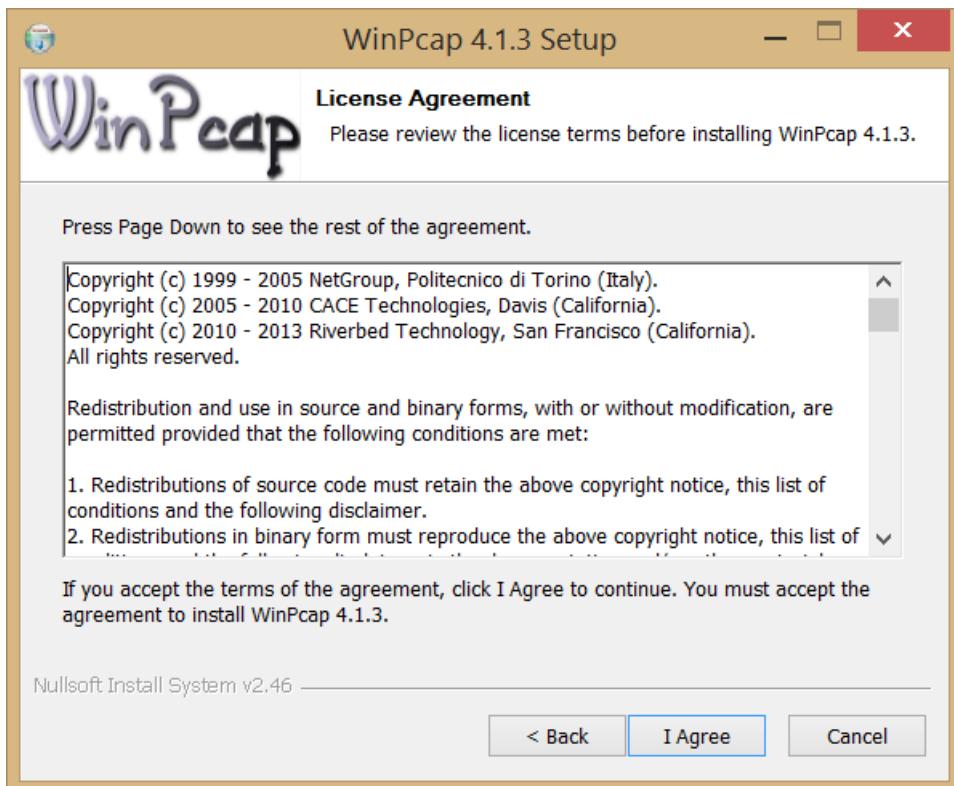
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Documentation	6/25/2016 9:03 AM	Folder	100 KB
Documentation	6/25/2016 9:03 AM	Folder	100 KB
GNS3-0.8.6-all-in-one	6/25/2016 9:03 AM	Application	60,899 KB
Documentation	6/25/2016 9:03 AM	Folder	100 KB
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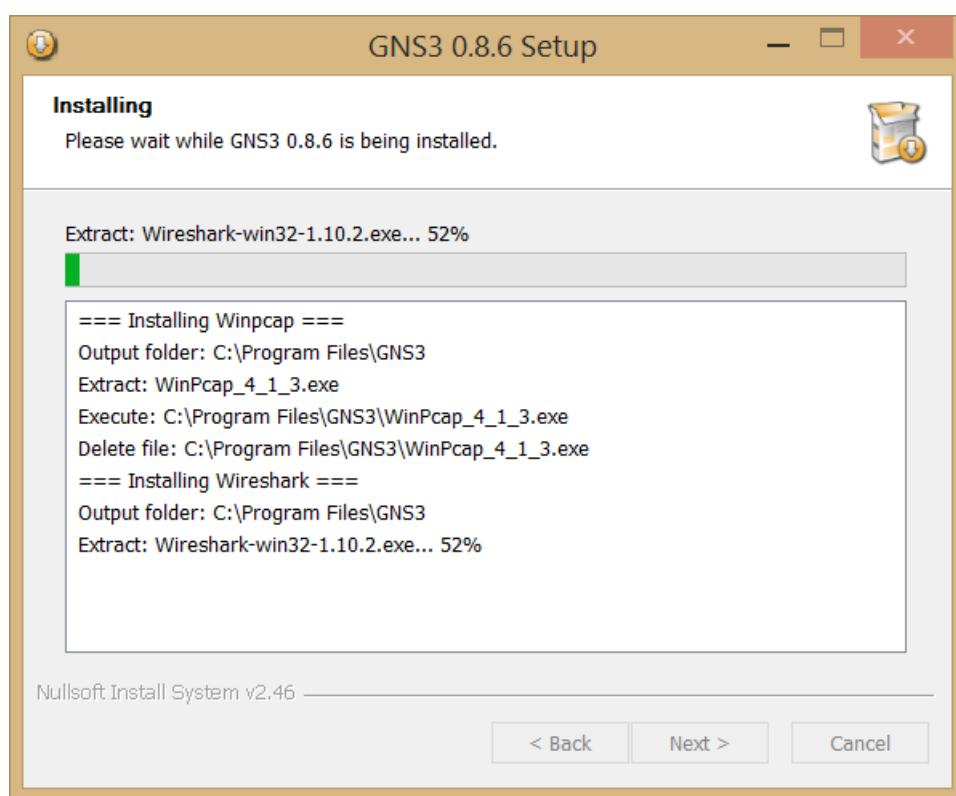
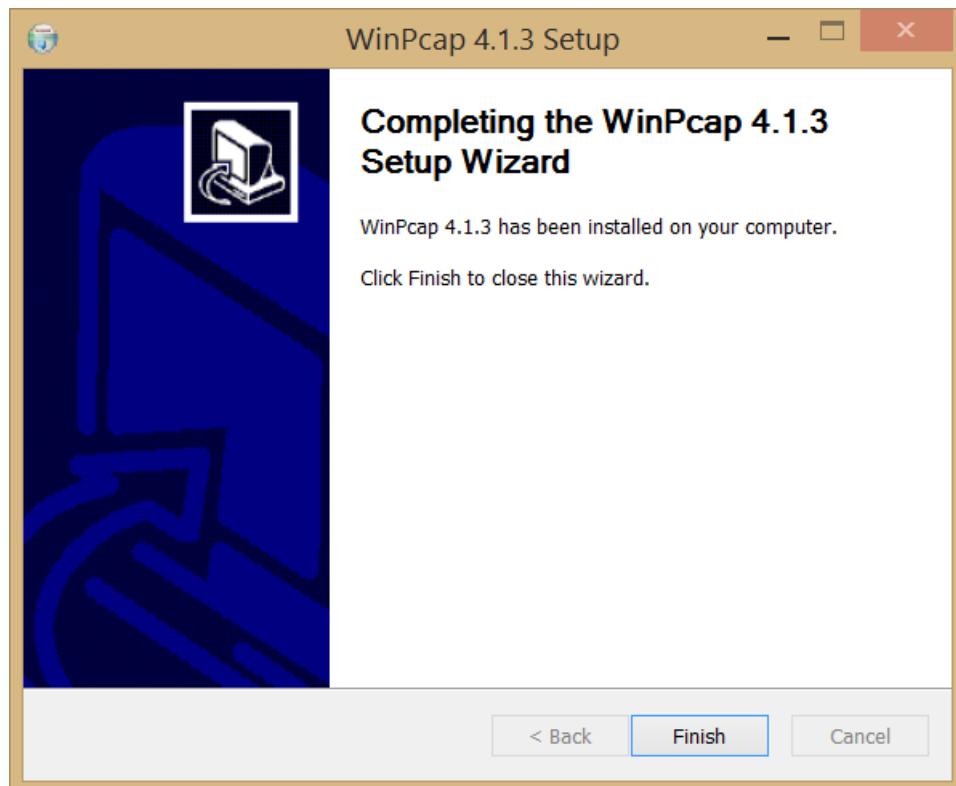


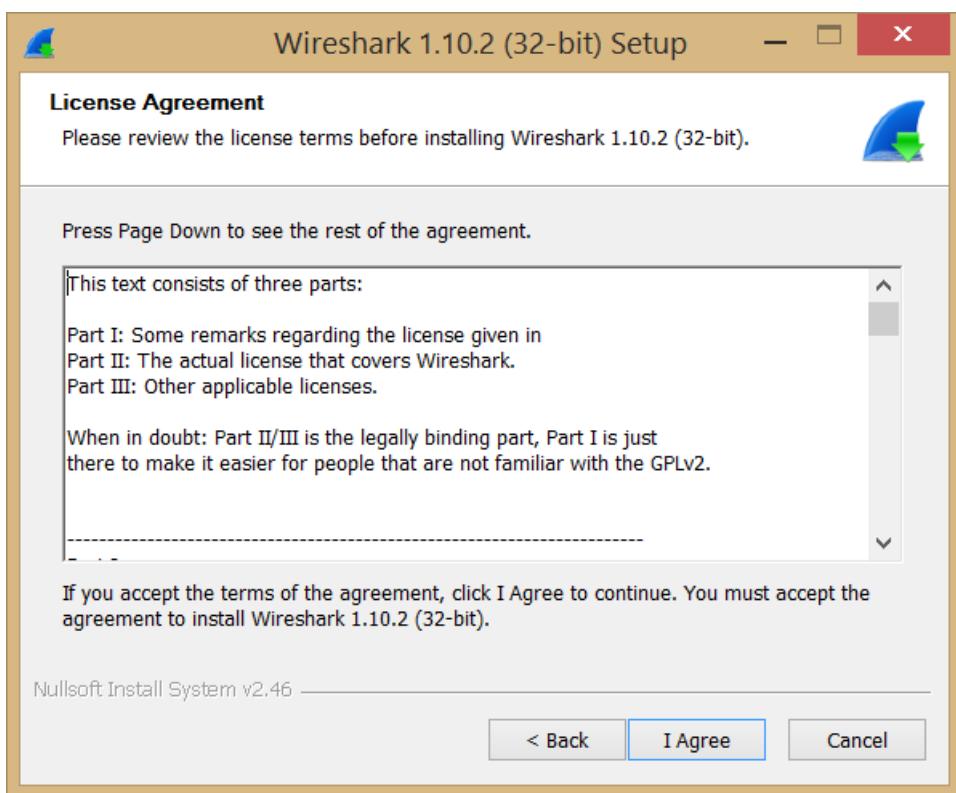
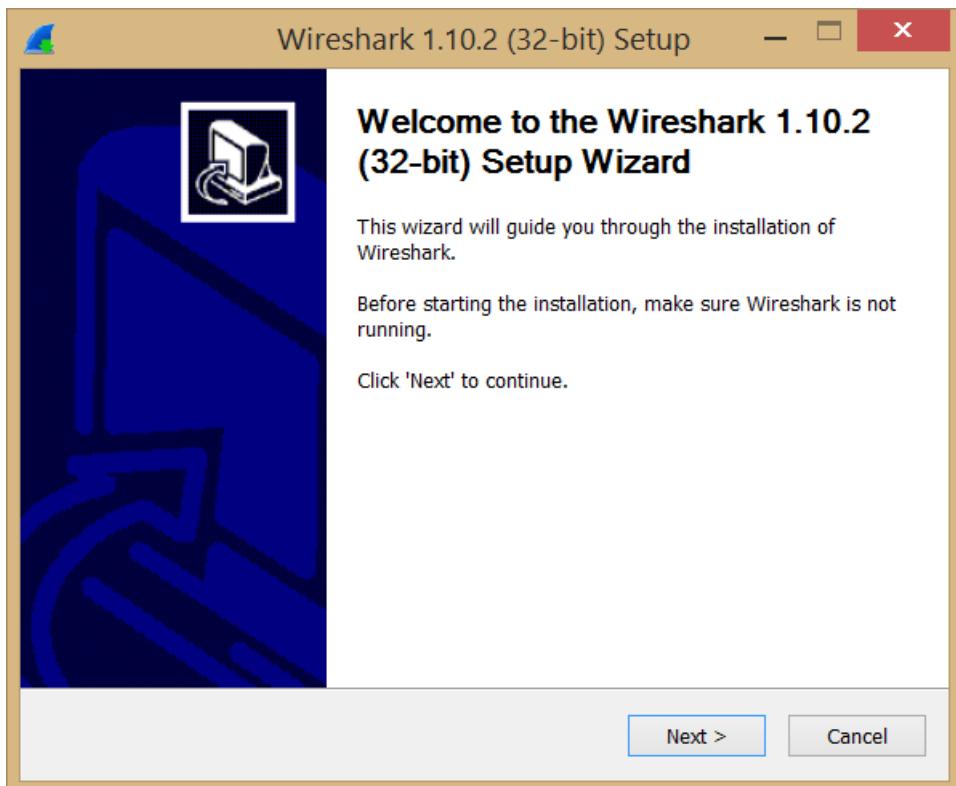


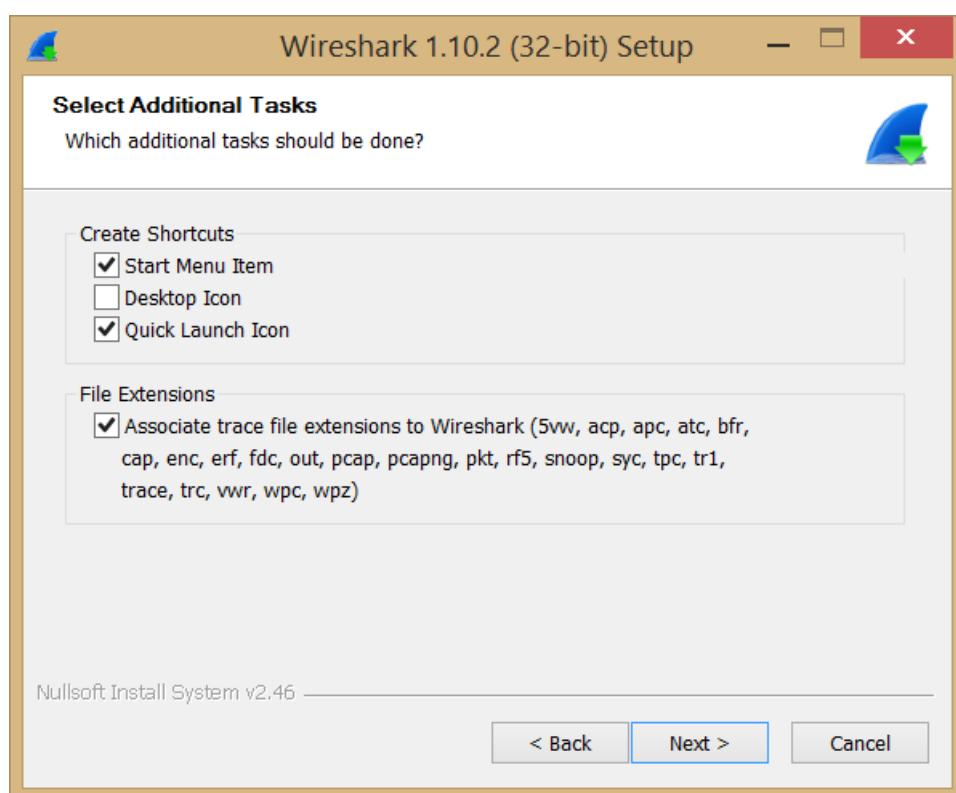
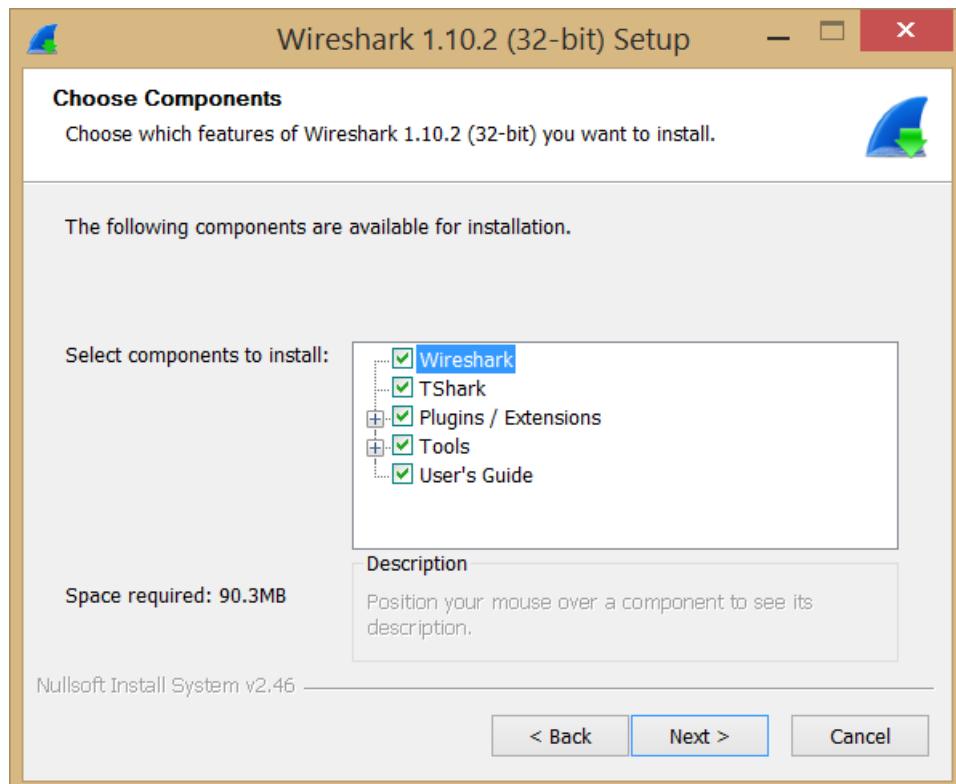


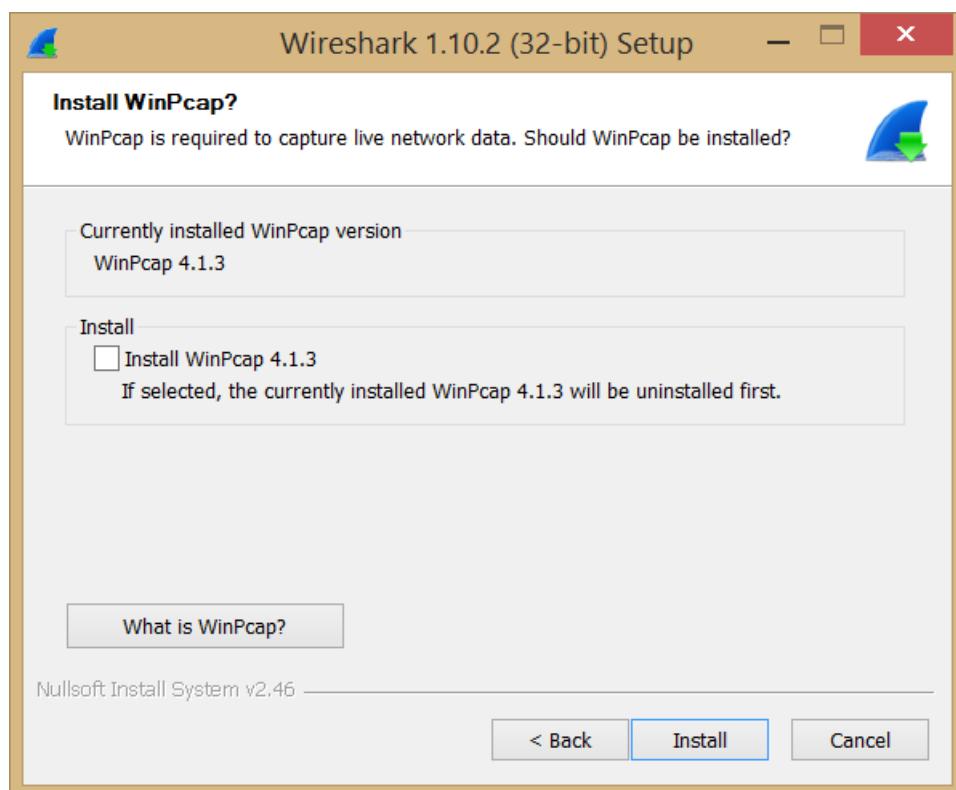
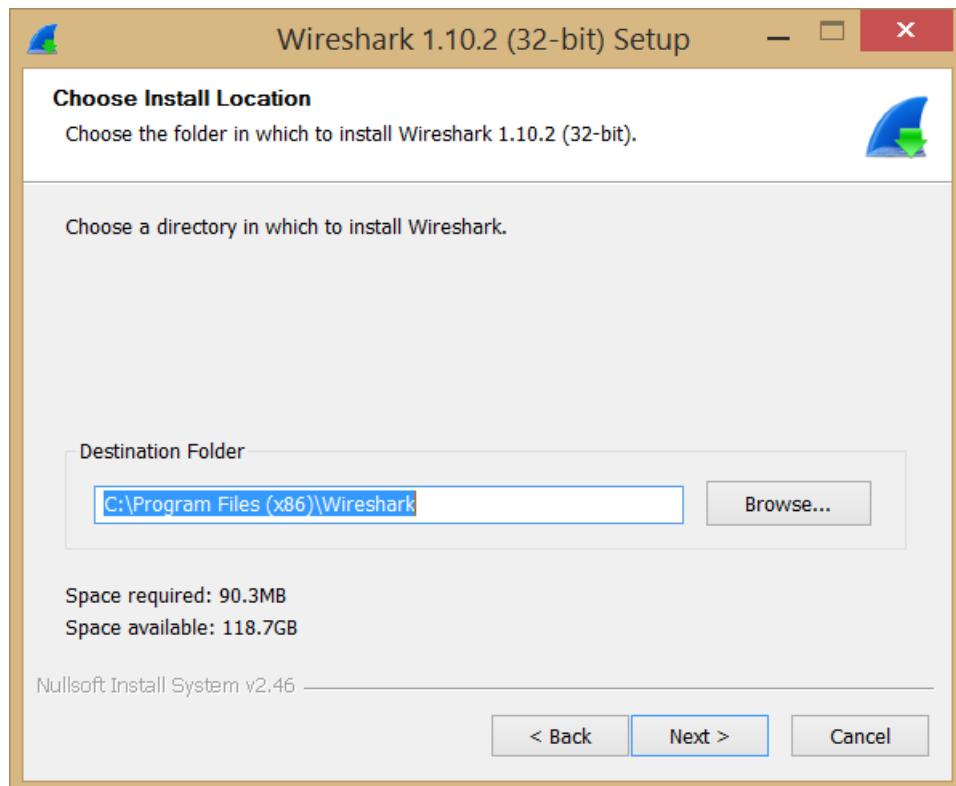


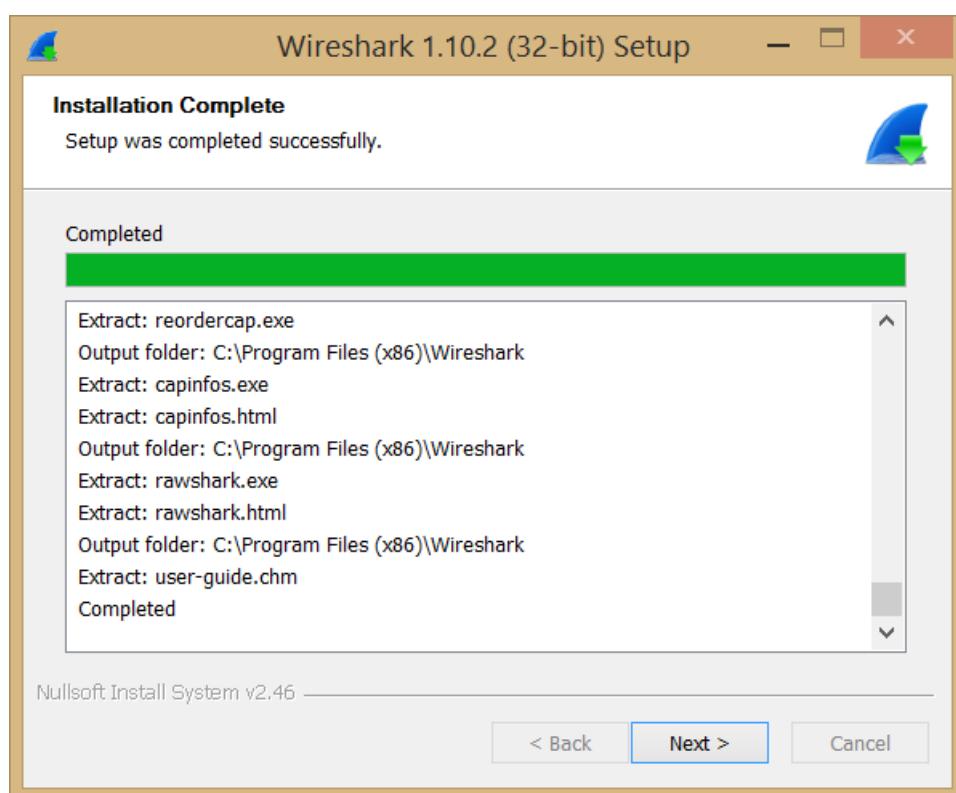
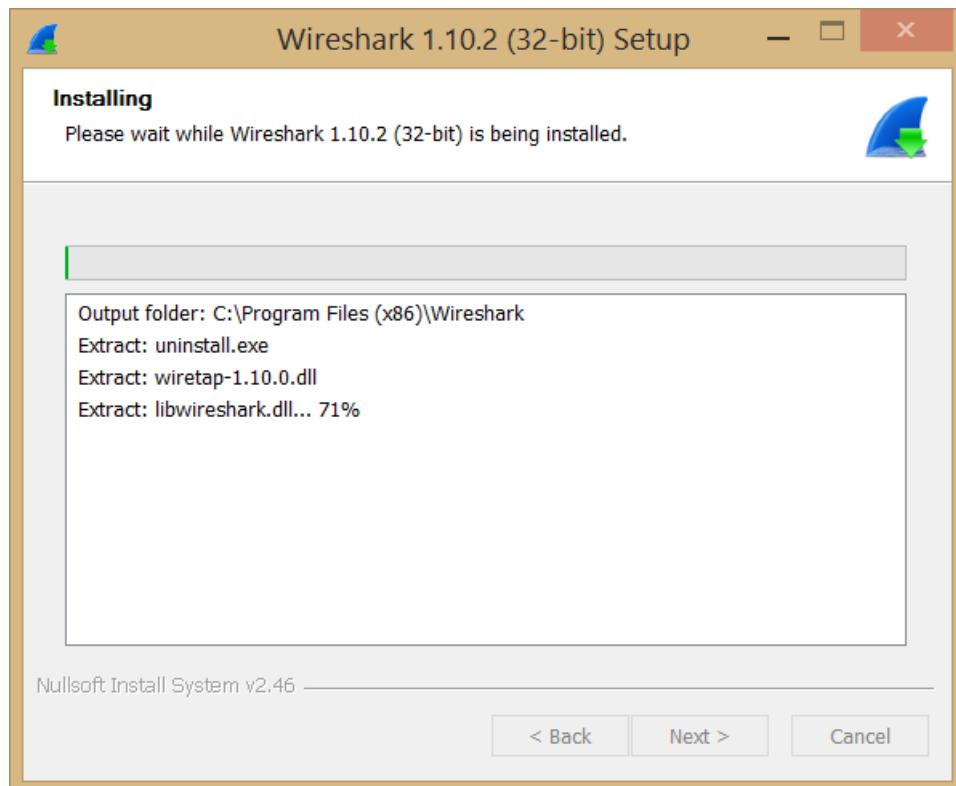


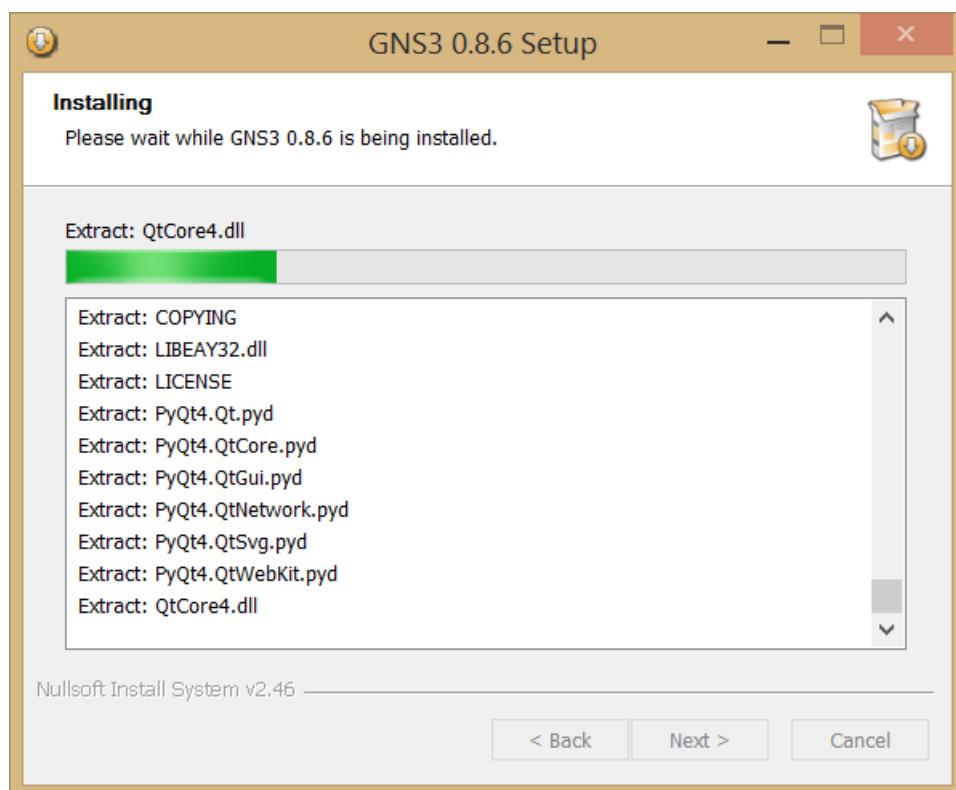
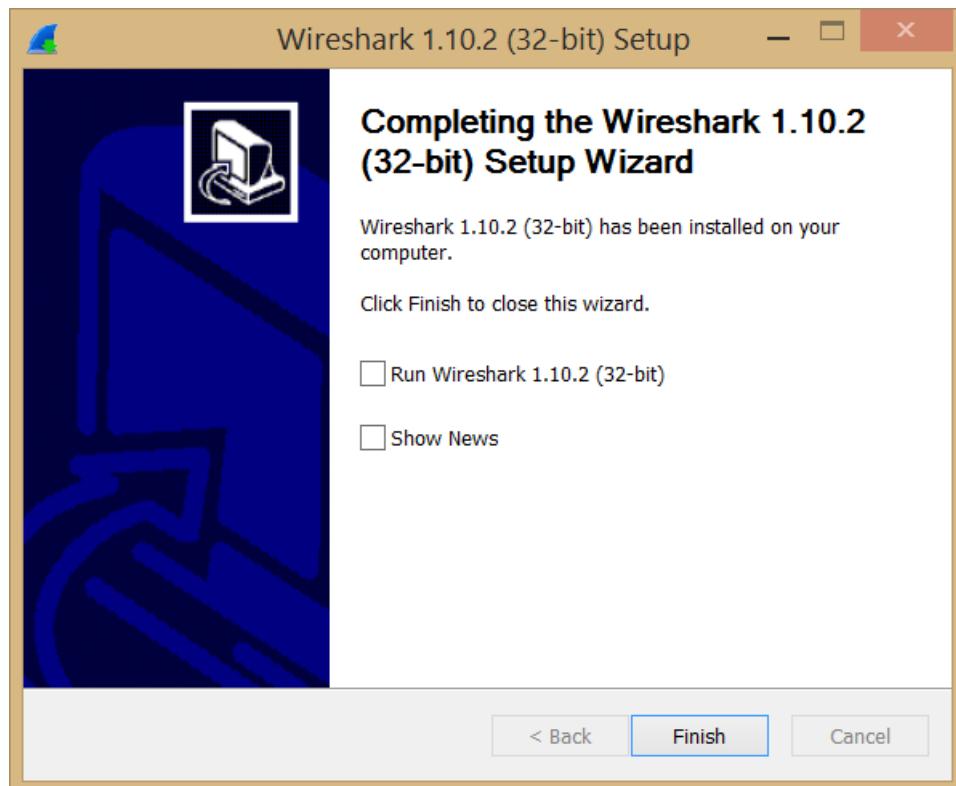


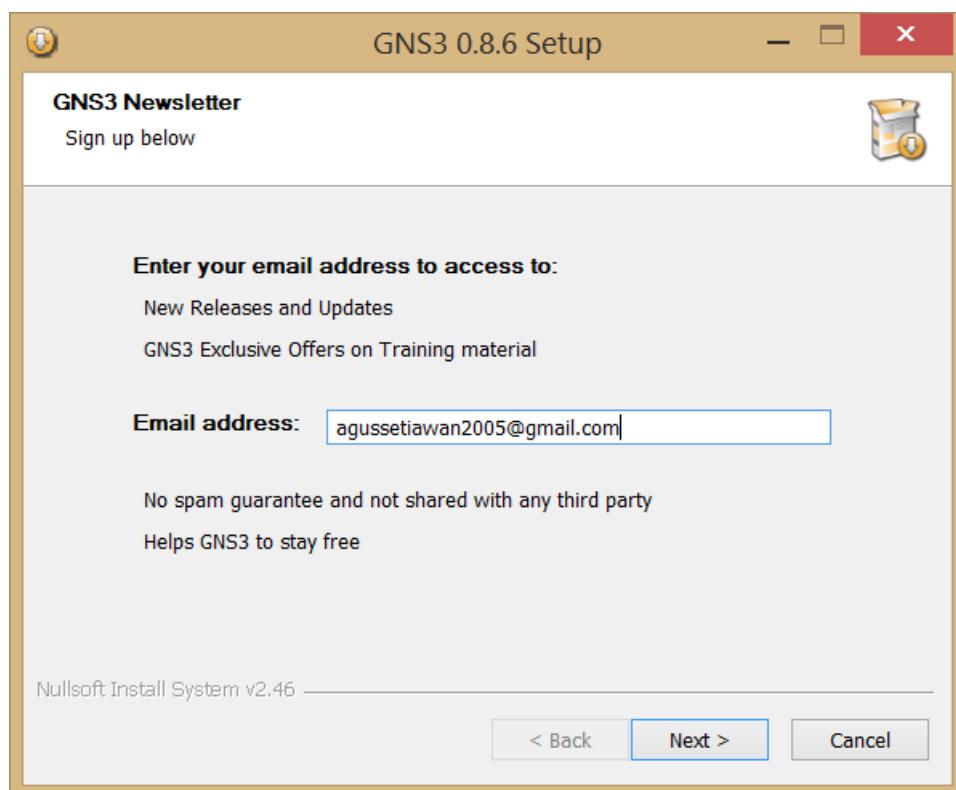
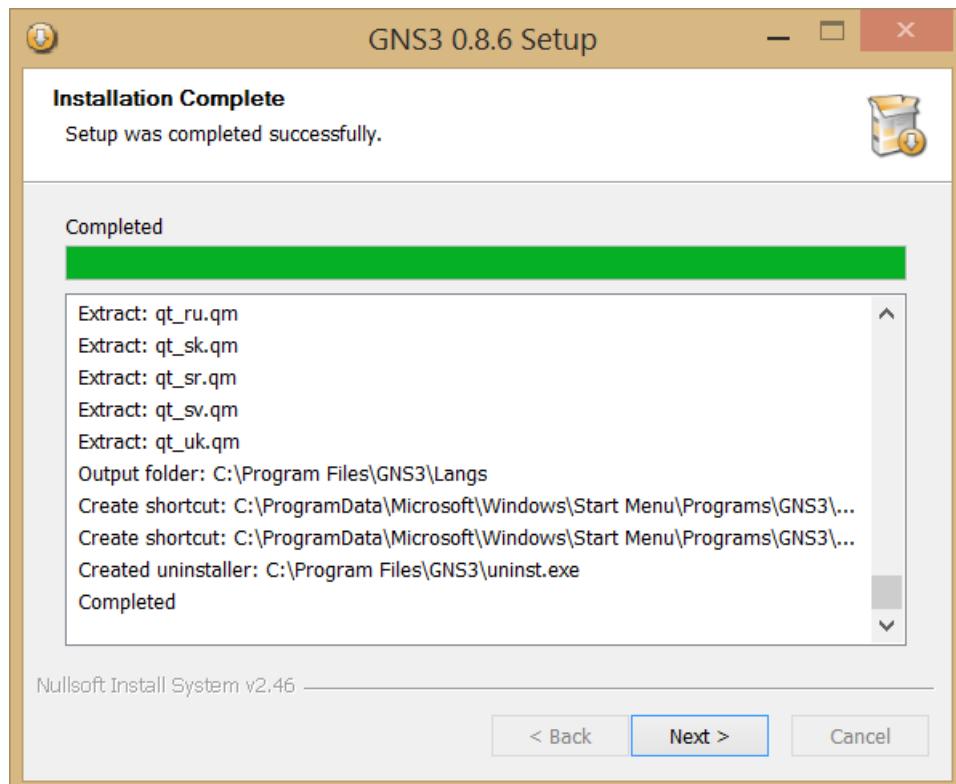


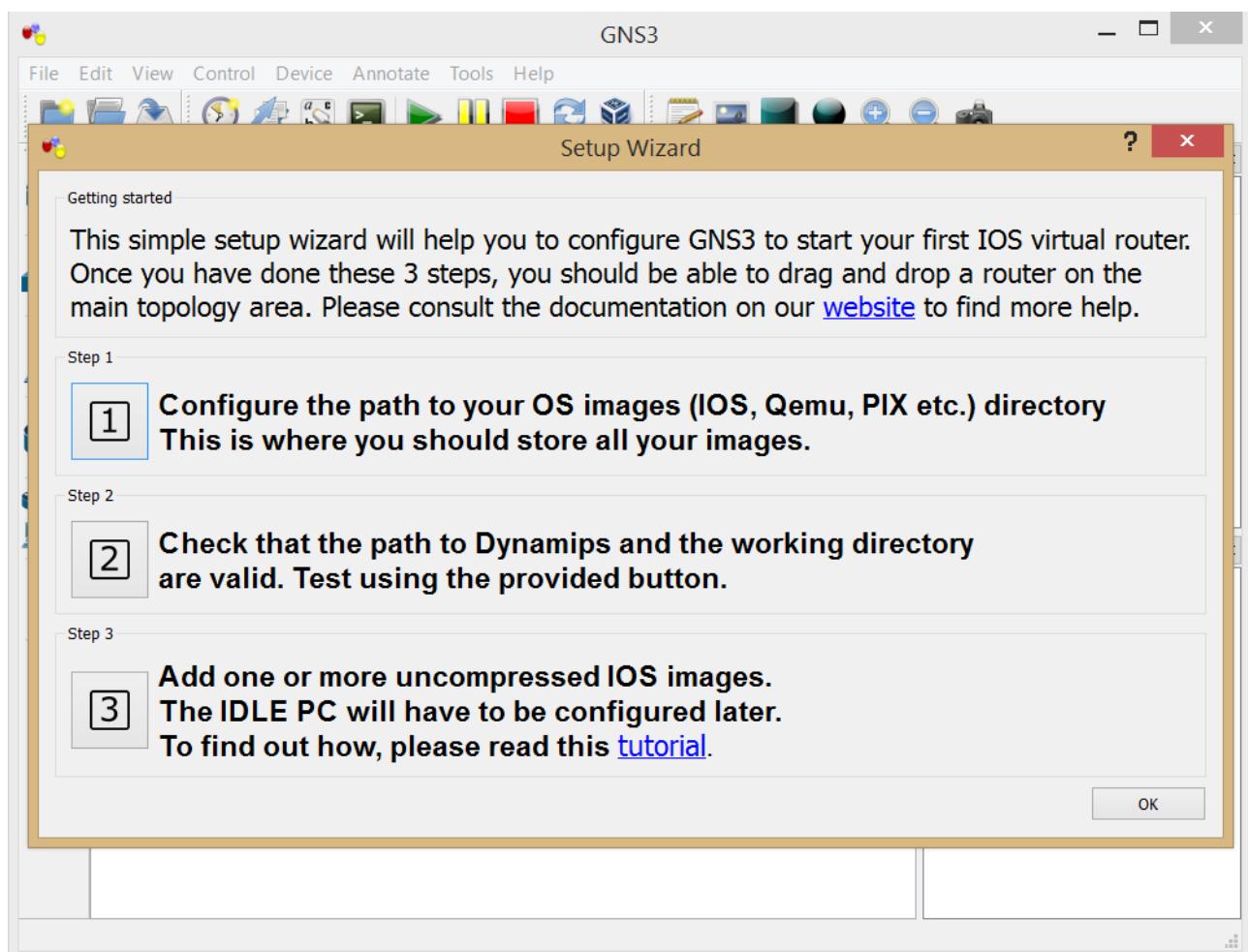
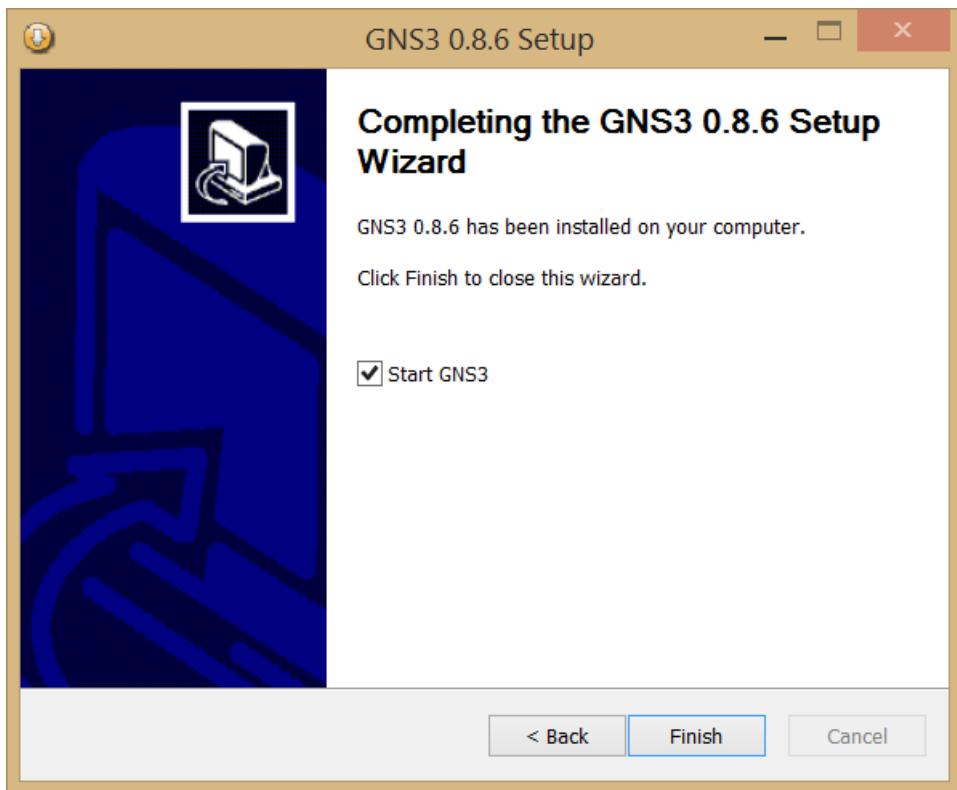




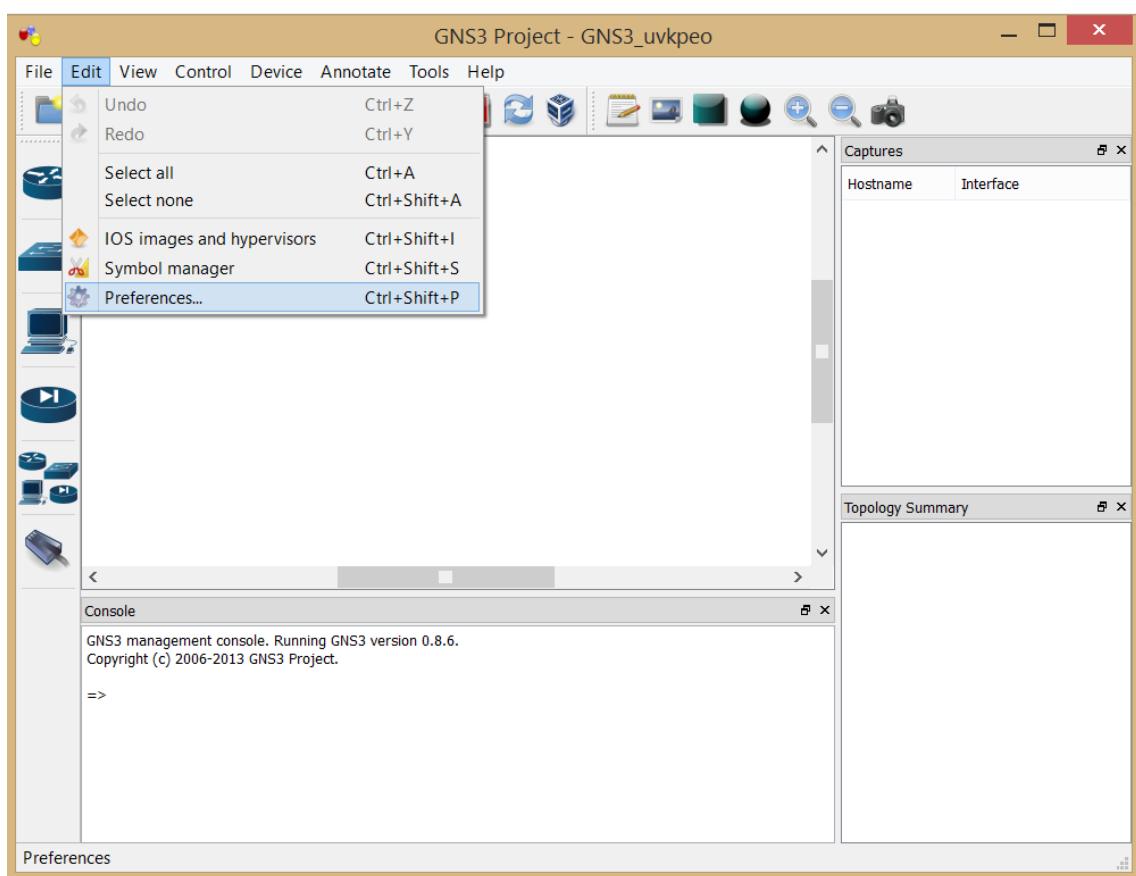
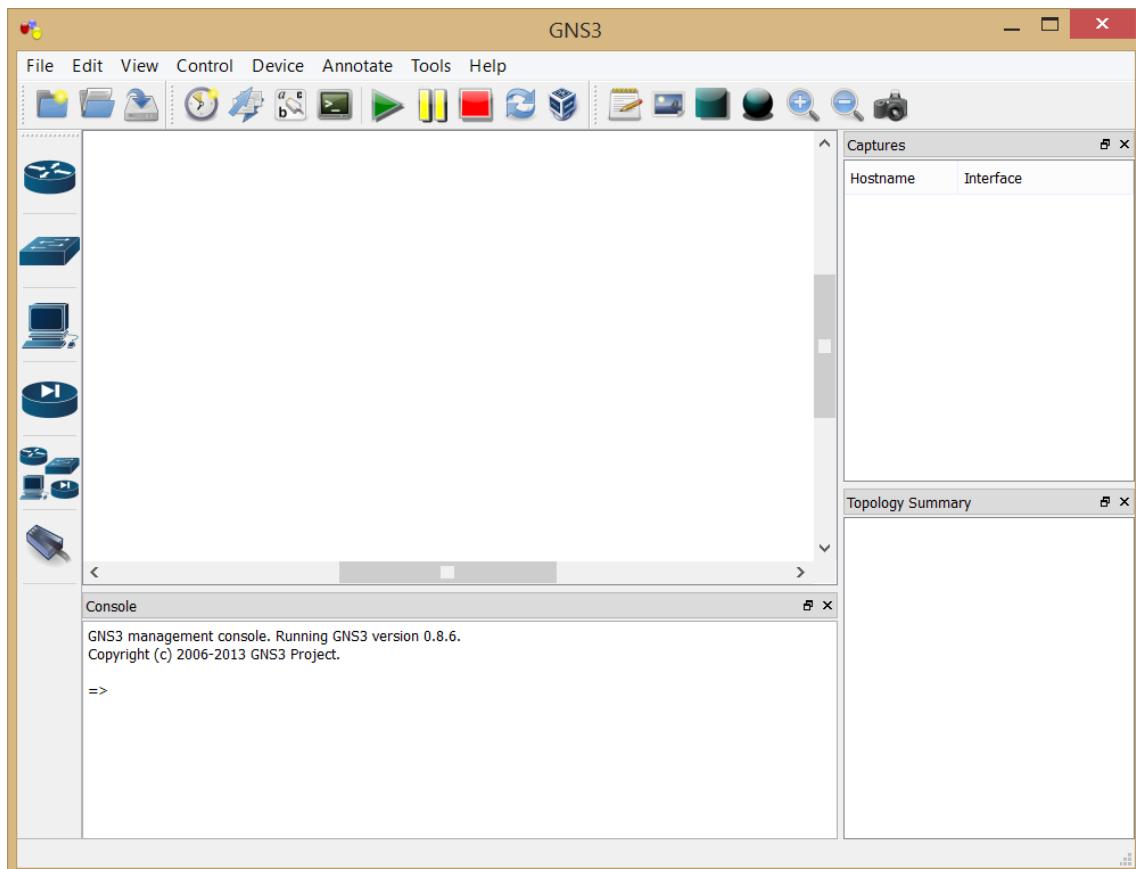


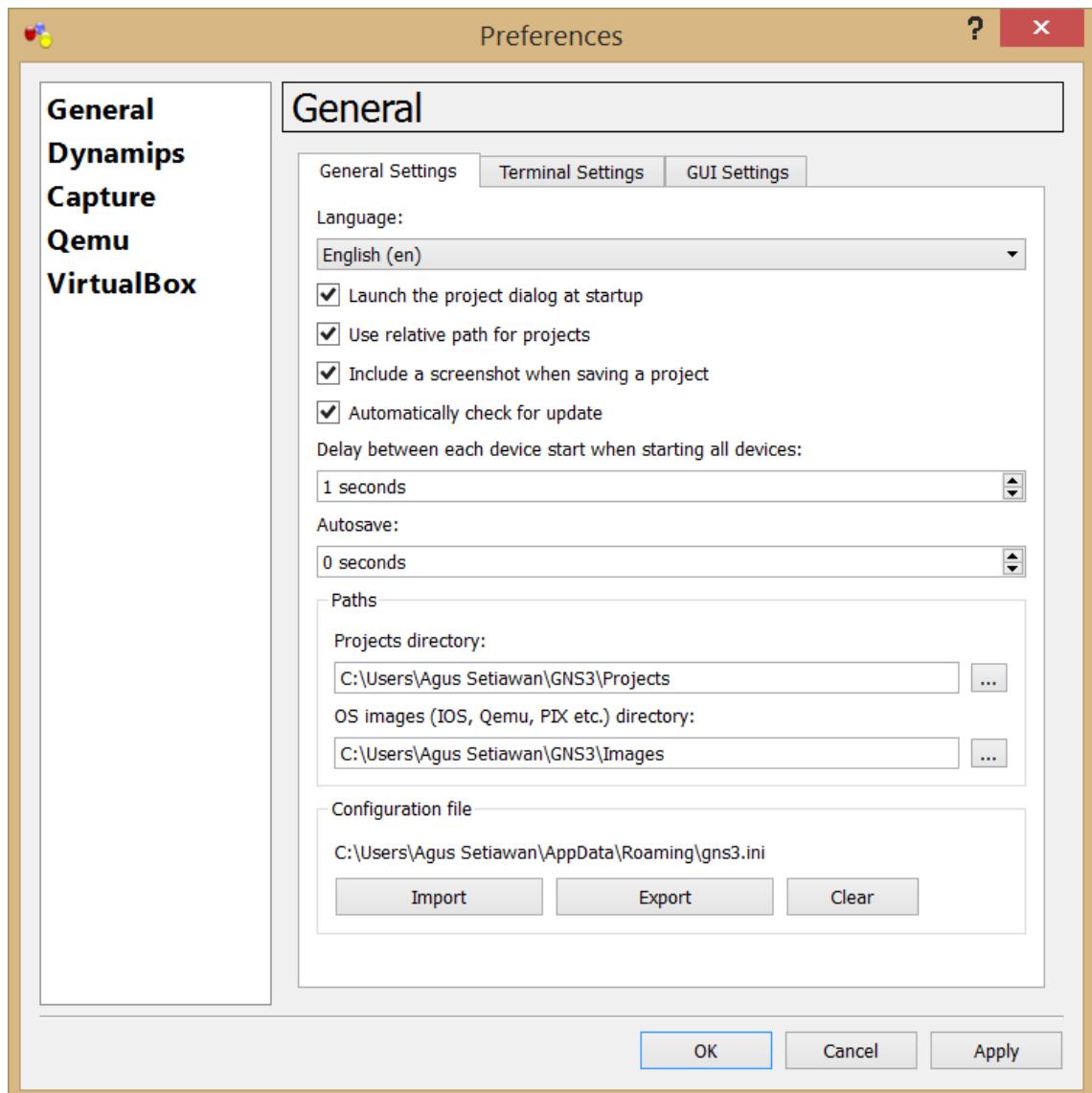


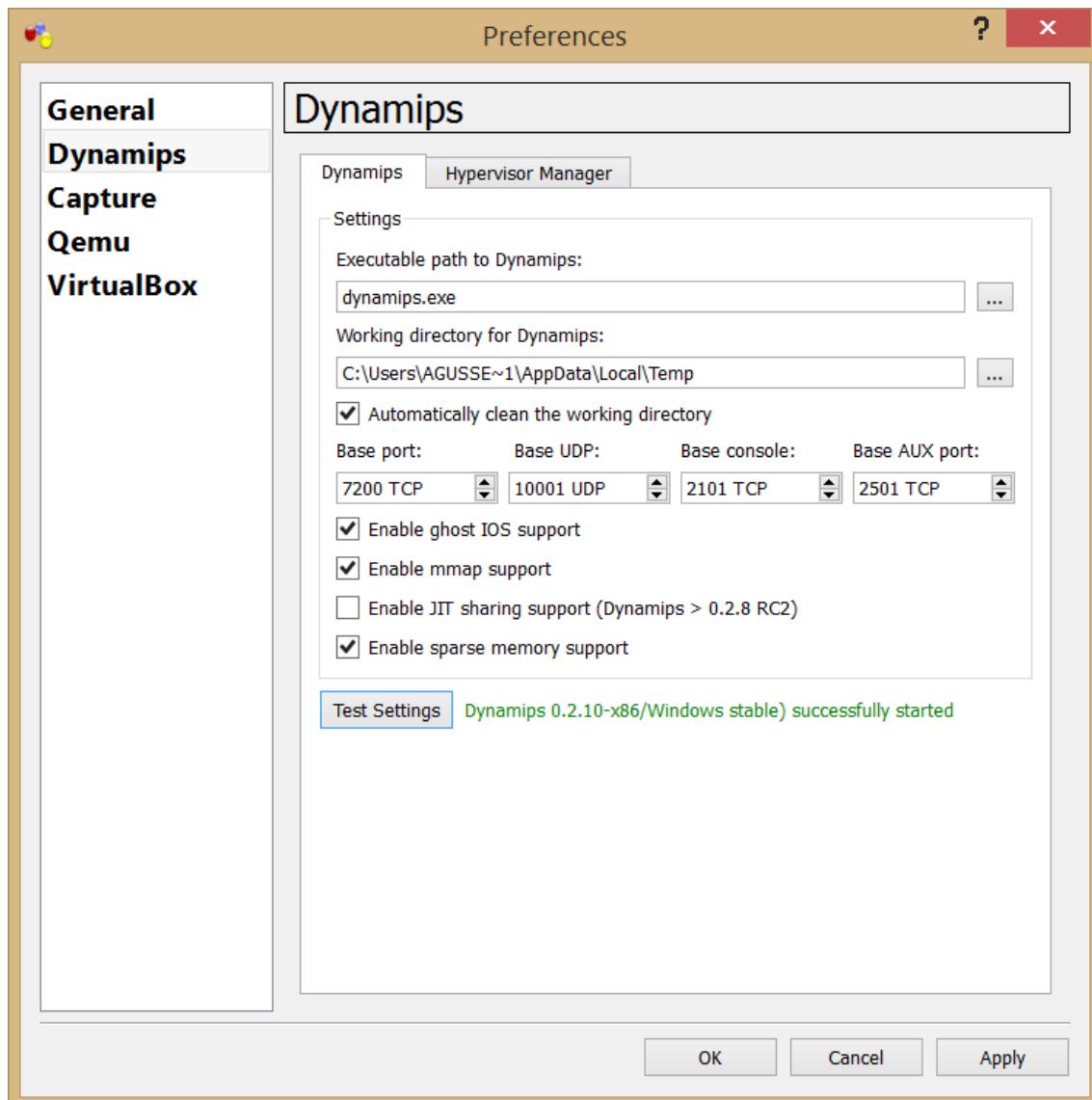




Setelah selesai instalasi, lakukan proses testing dynamips apakah sudah berjalan atau belum?



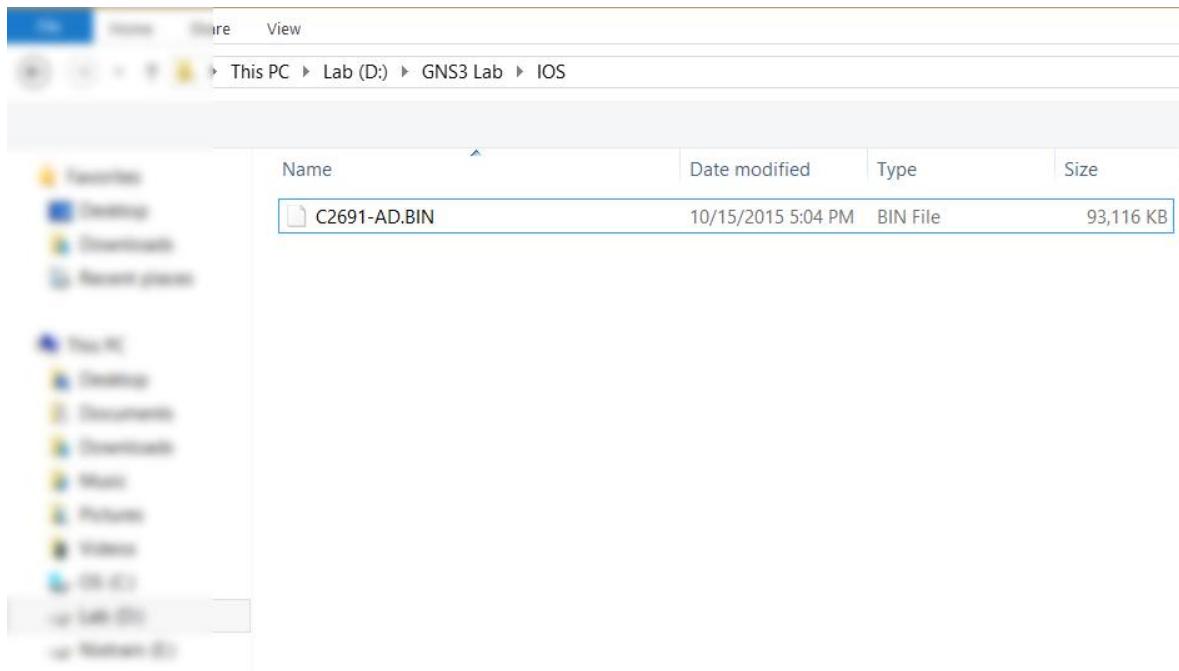




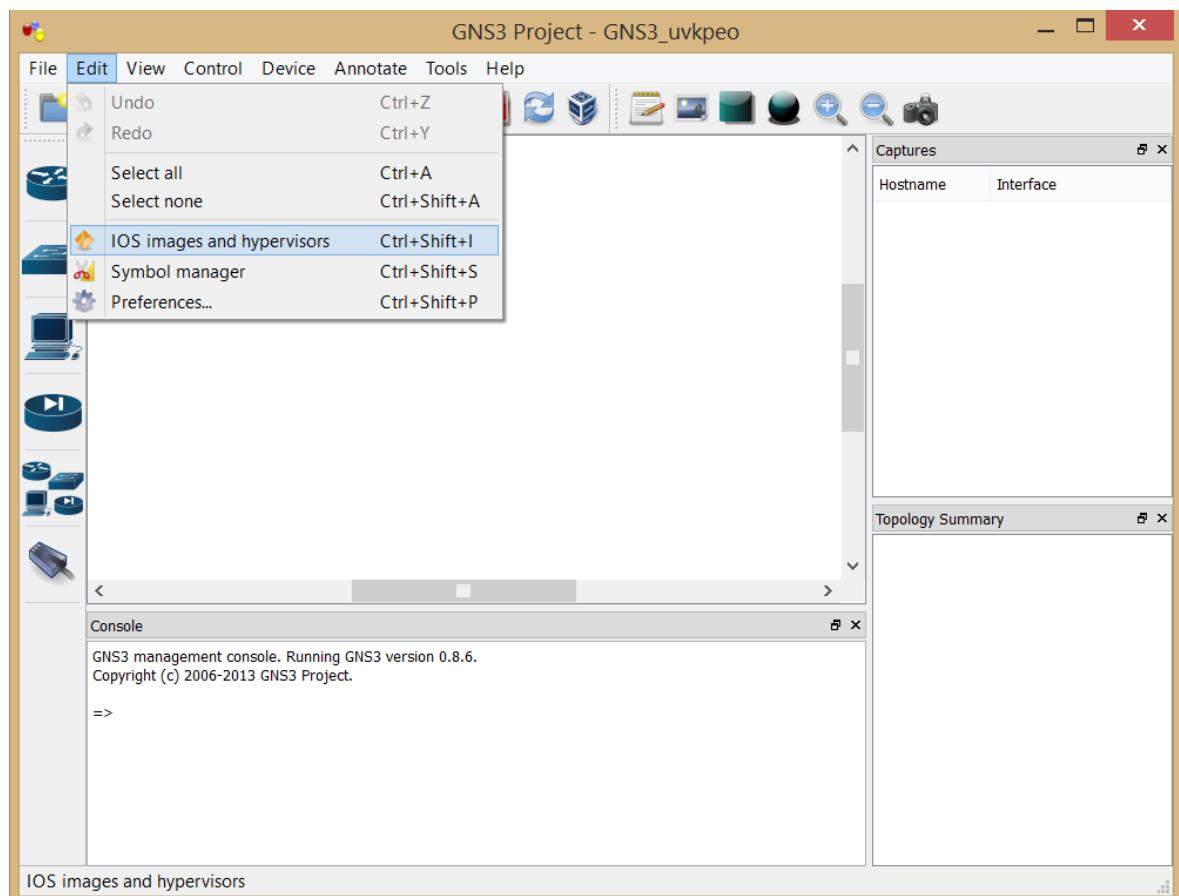
GNS3 telah selesai di install dan dynamips sudah berjalan. Langkah berikutnya yaitu upload Cisco IOS kedalam GNS3.

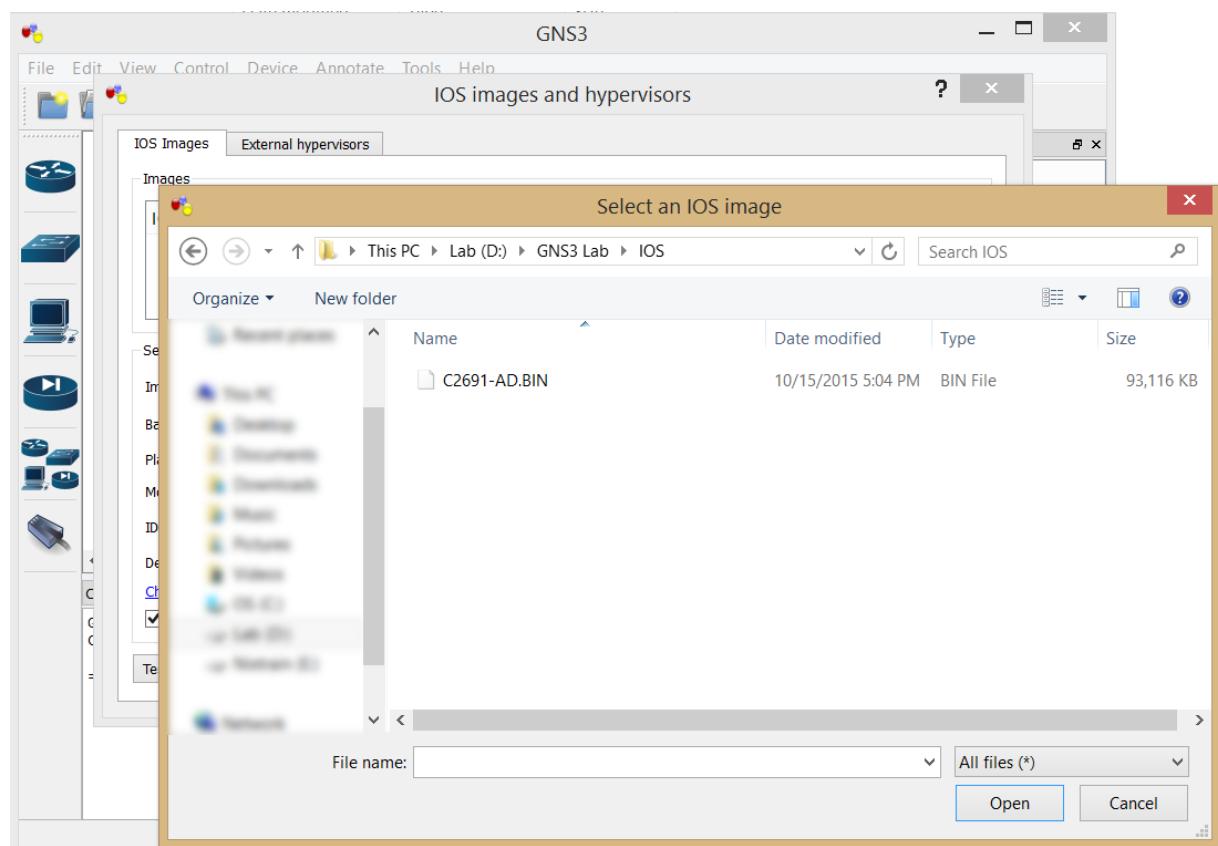
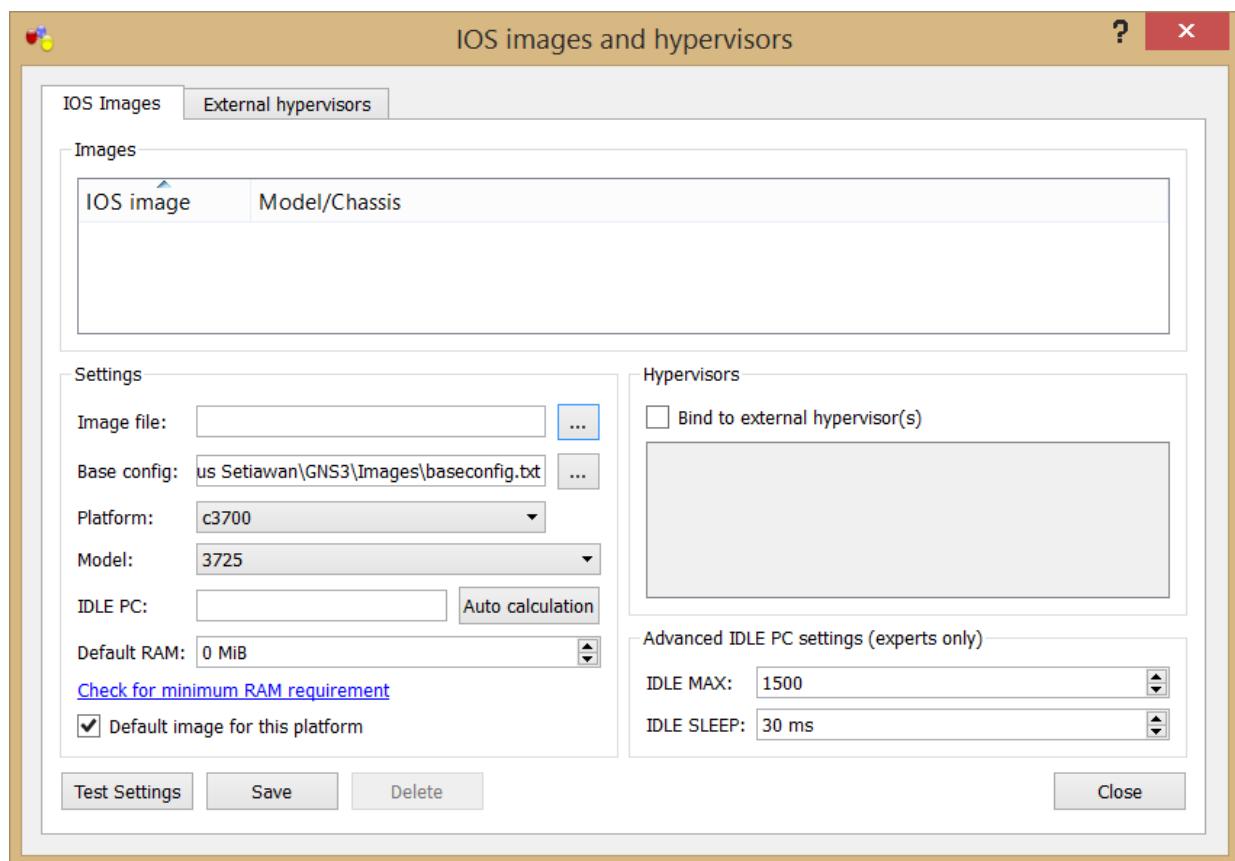
Chapter 5 - Upload Cisco IOS ke GNS3

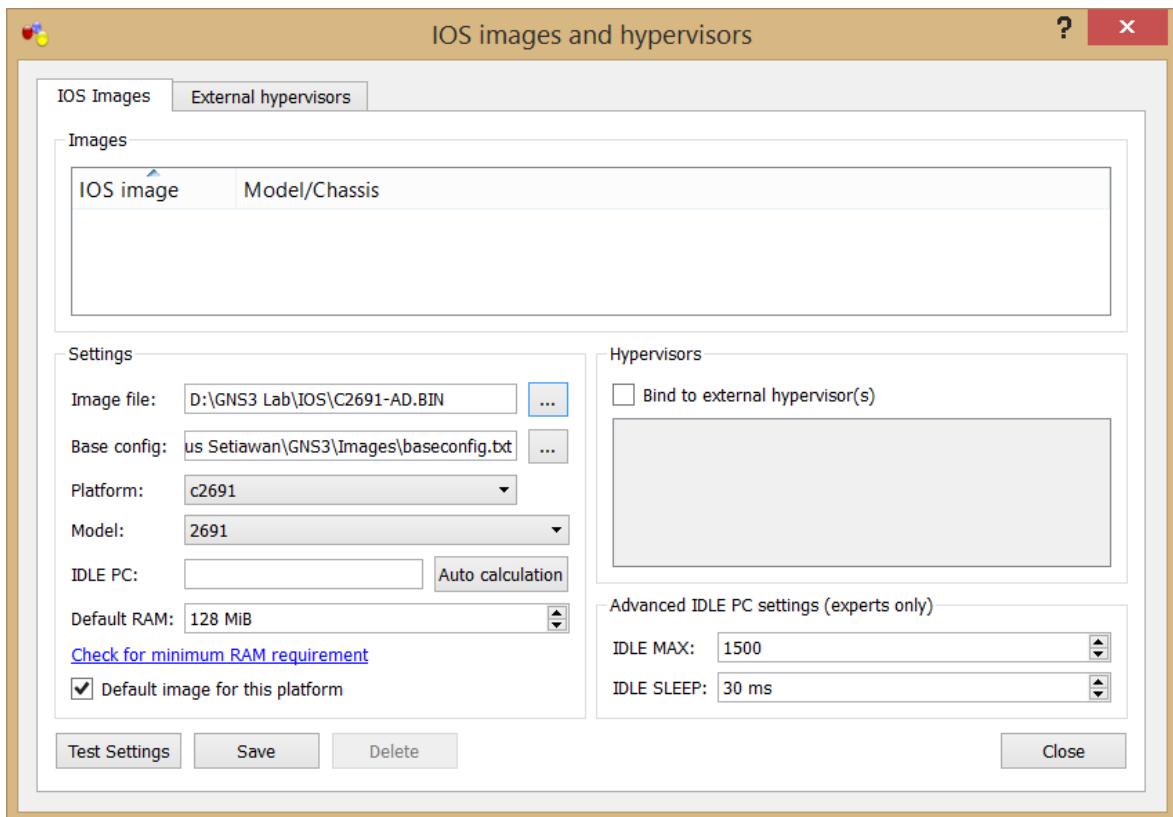
Siapkan Cisco IOS yang telah didownload dari www.nixtrain.com/blog :



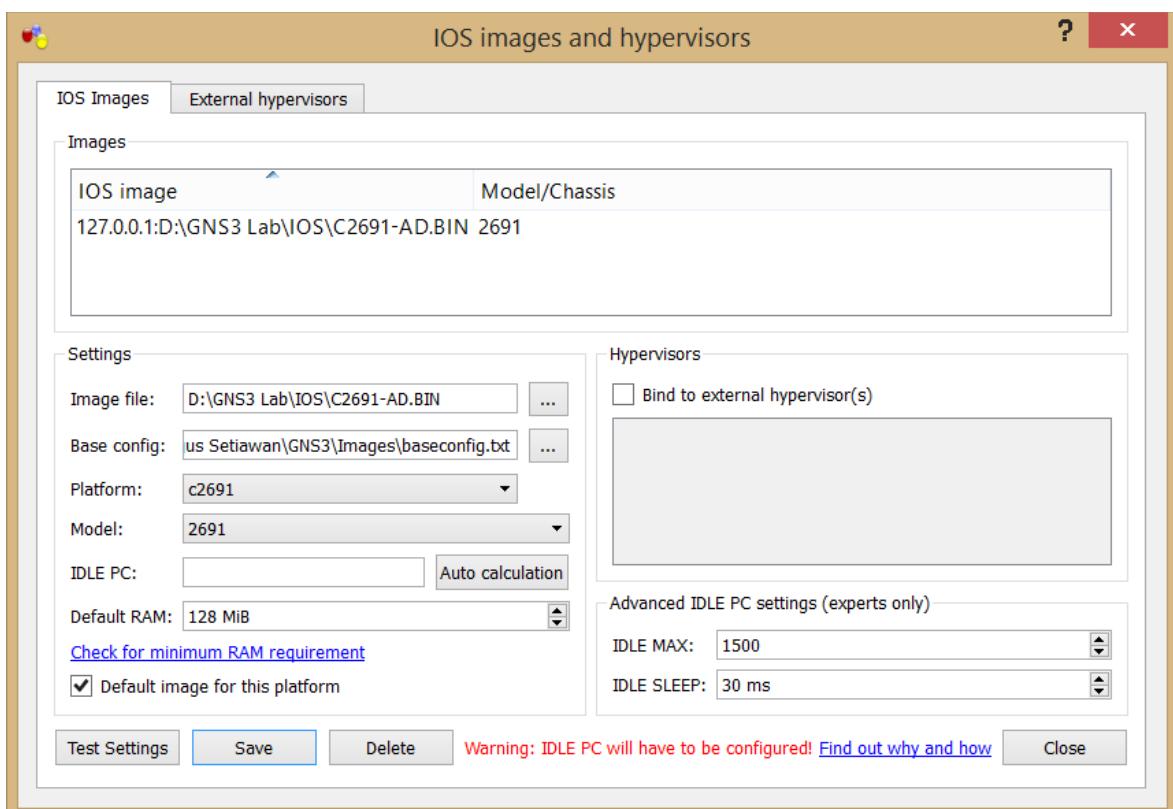
Jalankan GNS3 dan ikuti langkah-langkah berikut ini:







Tekan **Save** untuk menyimpan Cisco IOS yang akan diload di GNS3. Dan **Close** untuk mengakhiri.

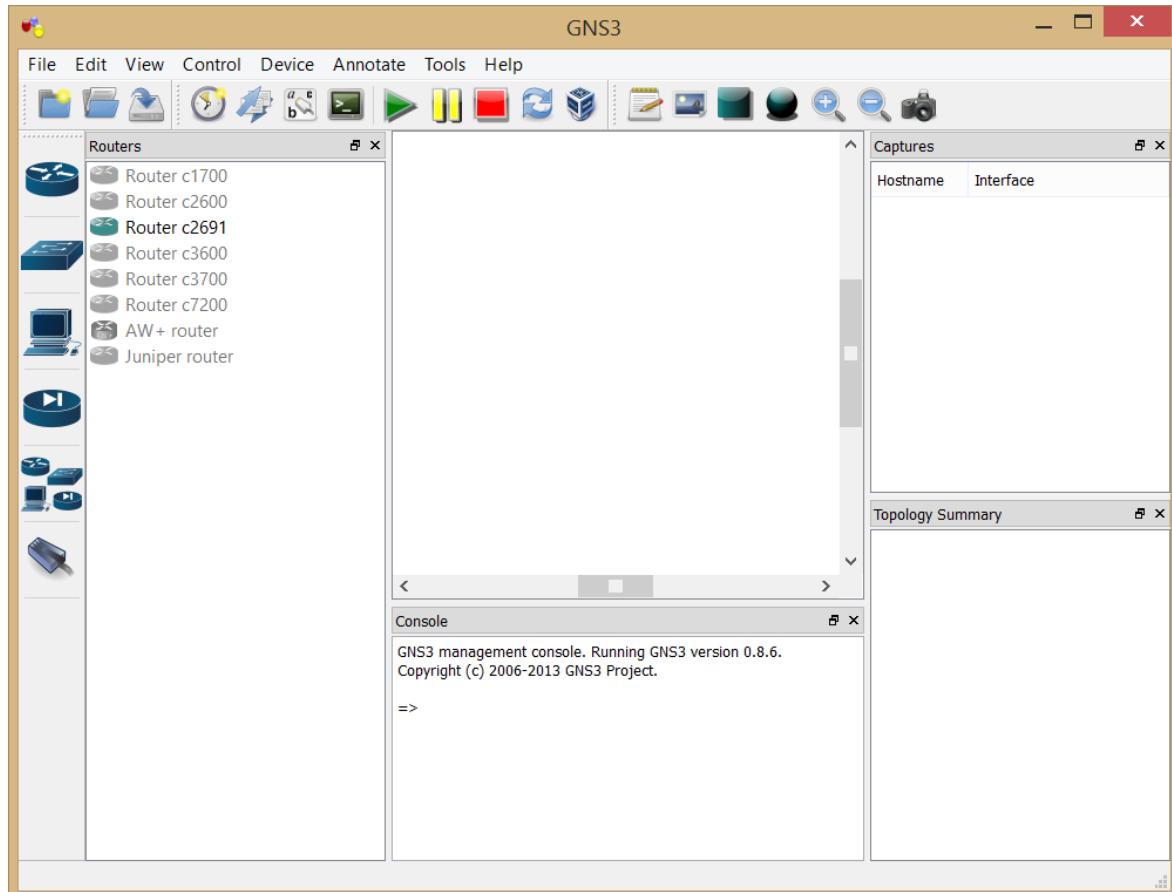


Chapter 6 - Setting idle-pc

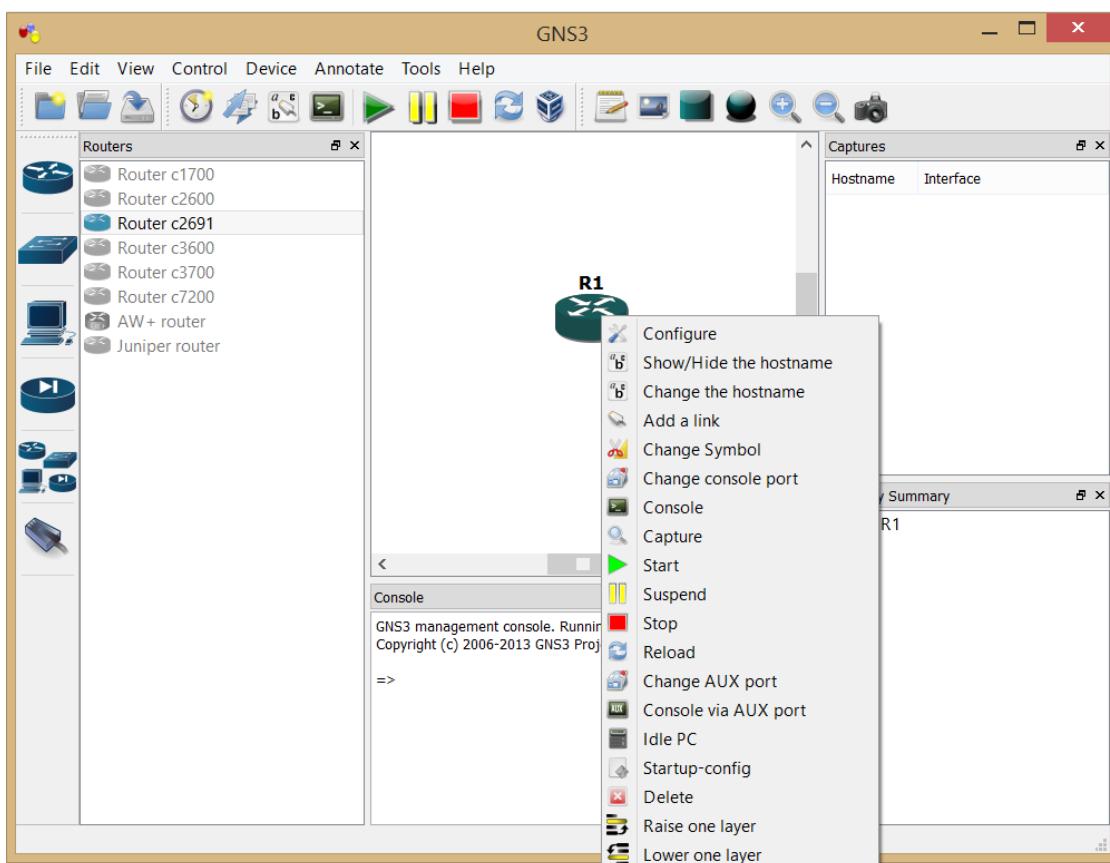
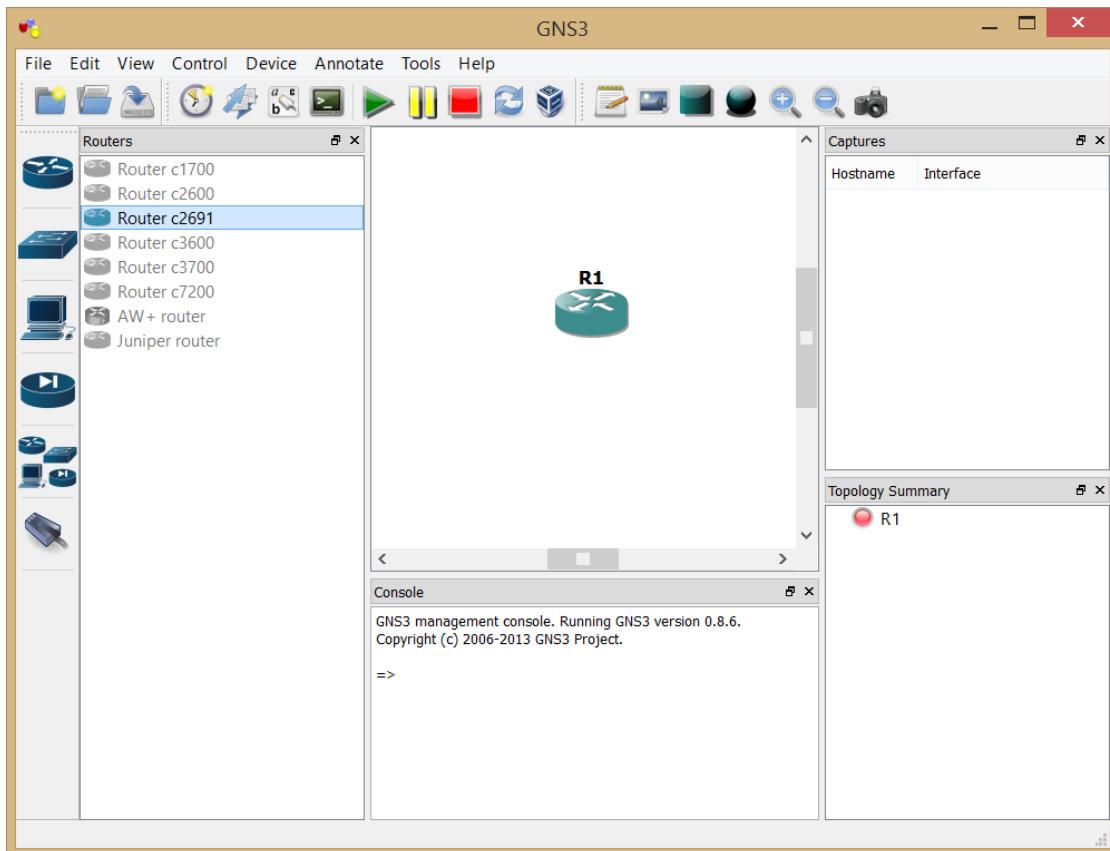
Pengaturan idle-pc yang benar akan menurunkan kinerja CPU sehingga laptop / komputer tidak lemot lagi ketika menjalankan router di GNS3.

Berikut ini langkah-langkah mensetting idle-pc:

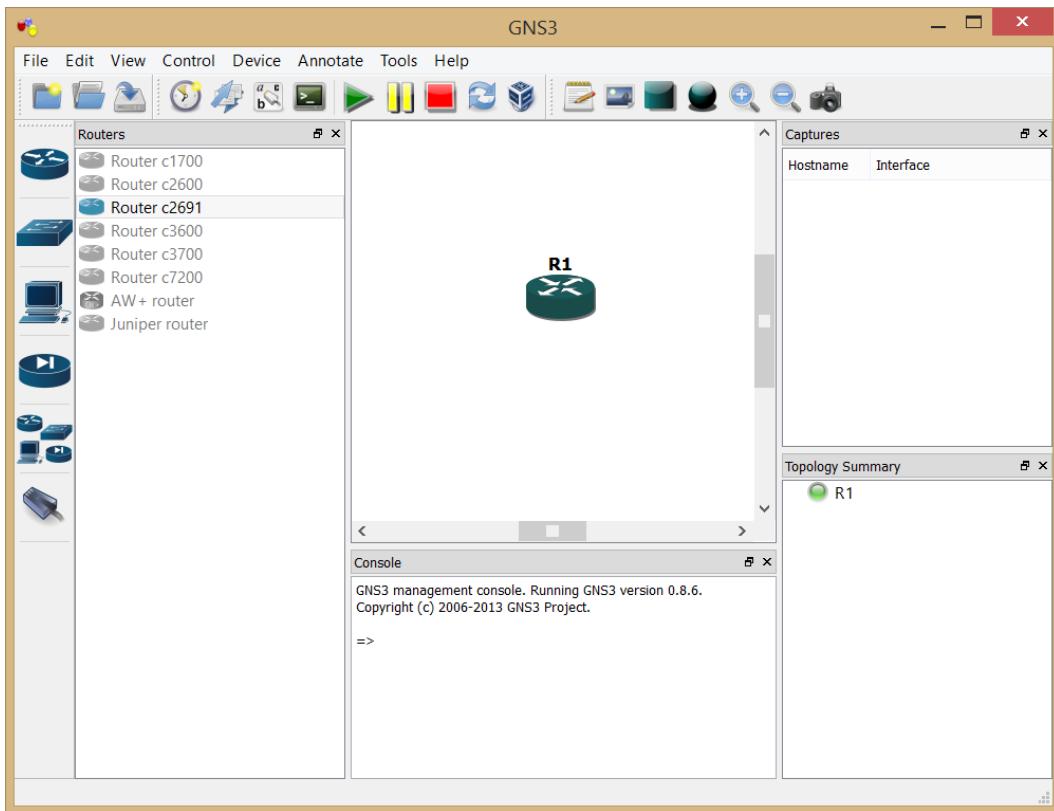
Jalankan GNS3 terlebih dahulu dan perhatikan pada tab **Routers** -> Router C2691 berwarna hijau, artinya Cisco IOS yang aktif di GNS3 hanya Router C2691.



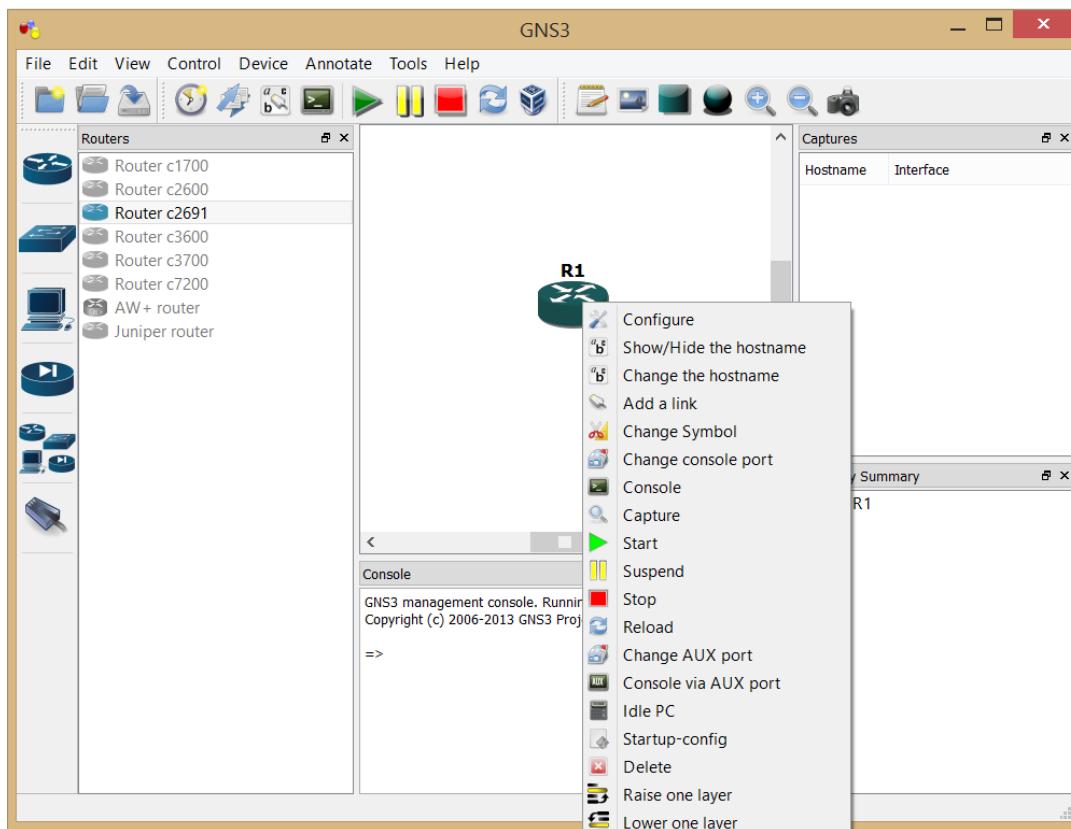
Drag Router C2961 ke area kerja GNS3 dan nyalakan routernya dengan cara klik kanan pilih Start.



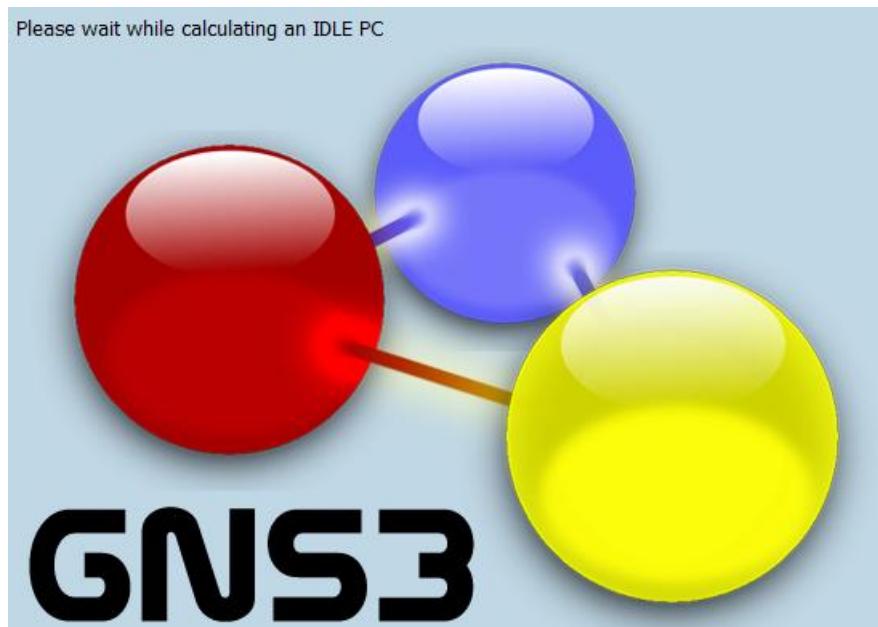
Router sudah berjalan normal ditandai warna hijau pada bagian R1 di tab **Topologi Summary**. Sebelum di klik Start, R1 masih berwarna merah artinya kondisi router masih mati.



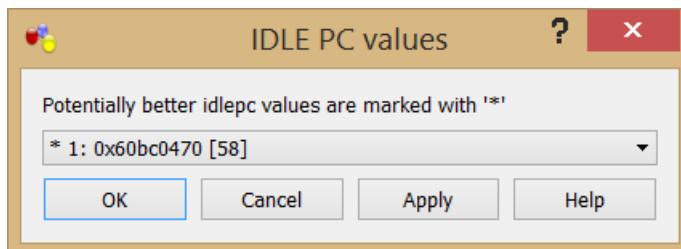
Klik kanan lagi pada **R1** dan pilih **Idle PC**.



Tunggu beberapa detik, GNS3 akan melakukan kalkulasi idle-pc. Tips untuk memilih idle-pc yang terbaik ditandai dengan bintang.



Hasil kalkukasi idle-pc:



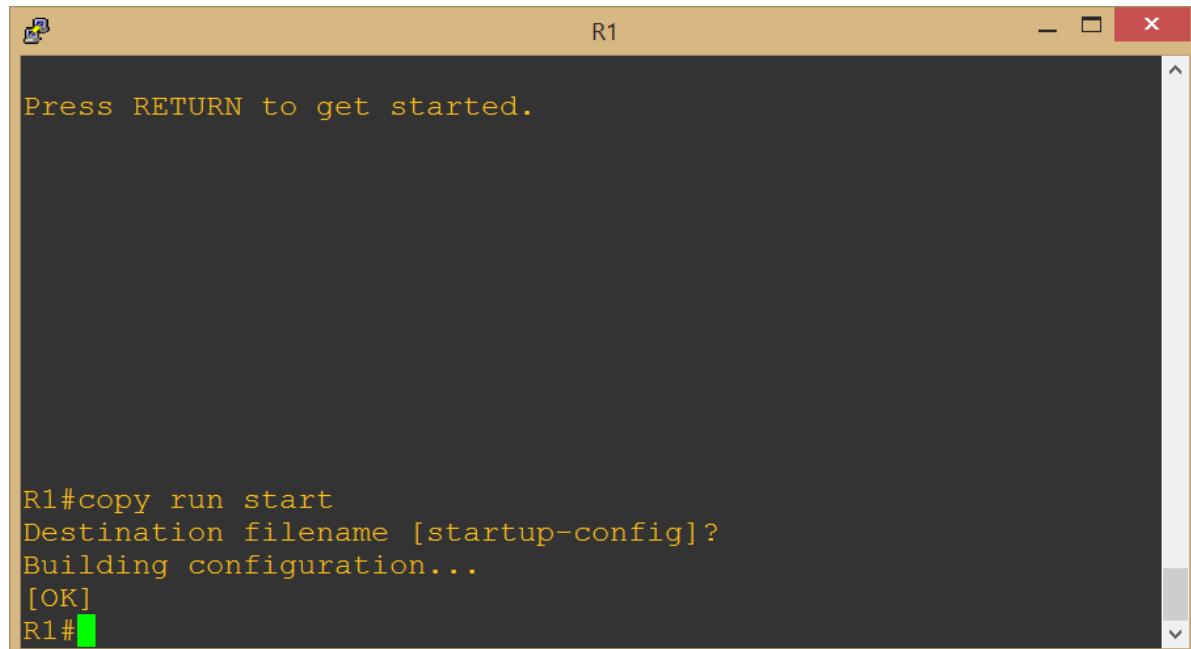
Apabila belum dapat * (bintang), tutup GNS3 dan ulangi lagi langkah penentuan idle-pc diatas.

Chapter 7 - Menyimpan Konfigurasi GNS3

Untuk menyimpan hasil lab GNS3 dilakukan dengan dua cara:

1. Simpan konfigurasi router
2. Simpan topologi network

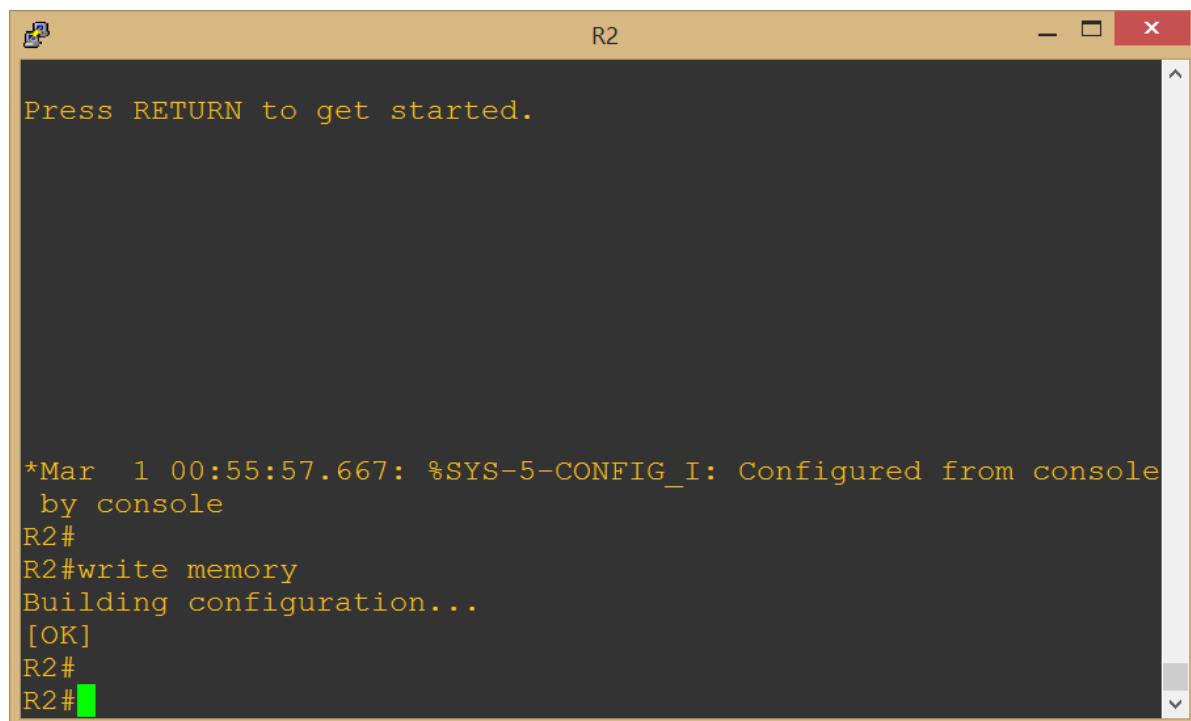
Untuk menyimpan konfigurasi Router menggunakan command copy run start atau write memory:



R1

```
Press RETURN to get started.

R1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

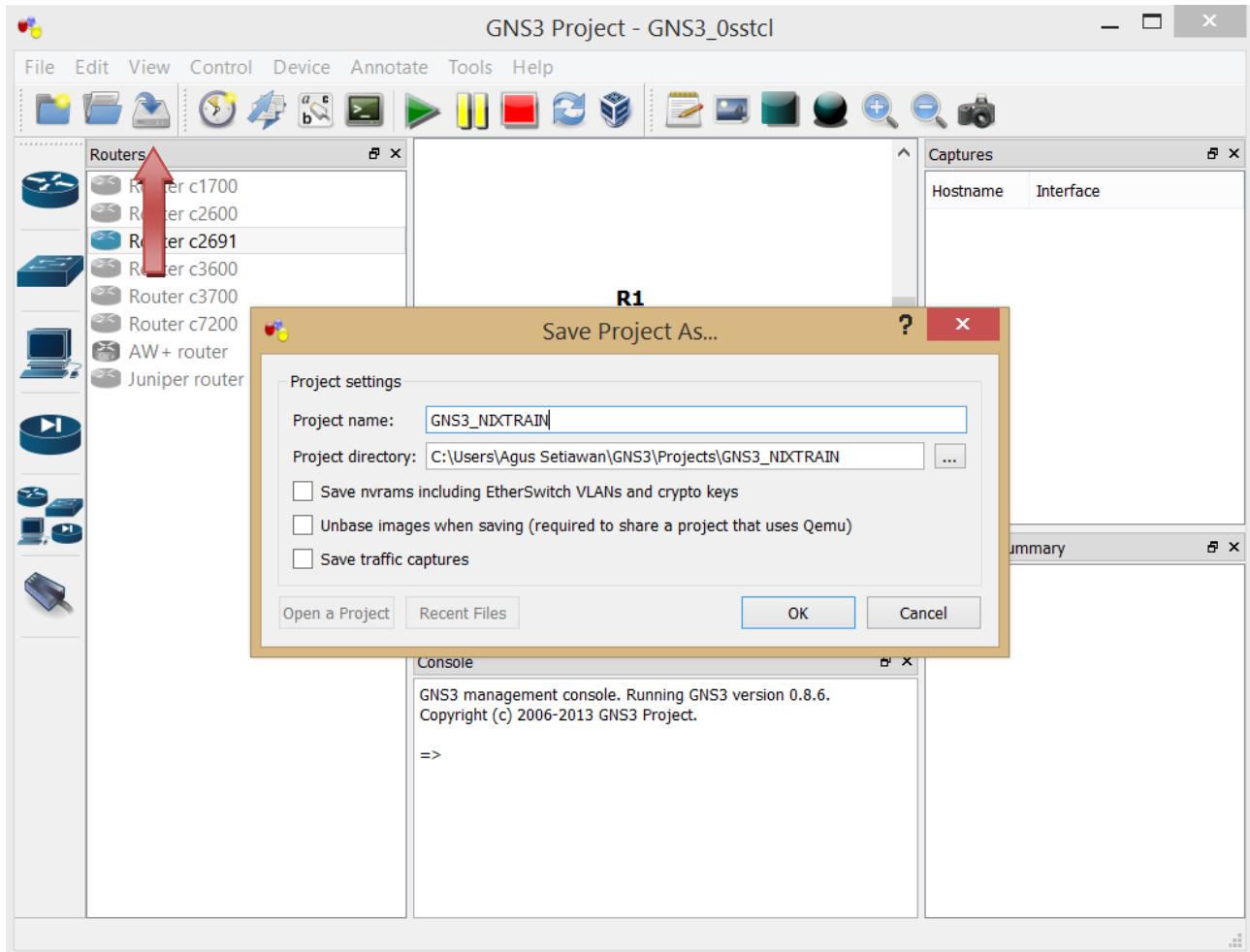


R2

```
Press RETURN to get started.

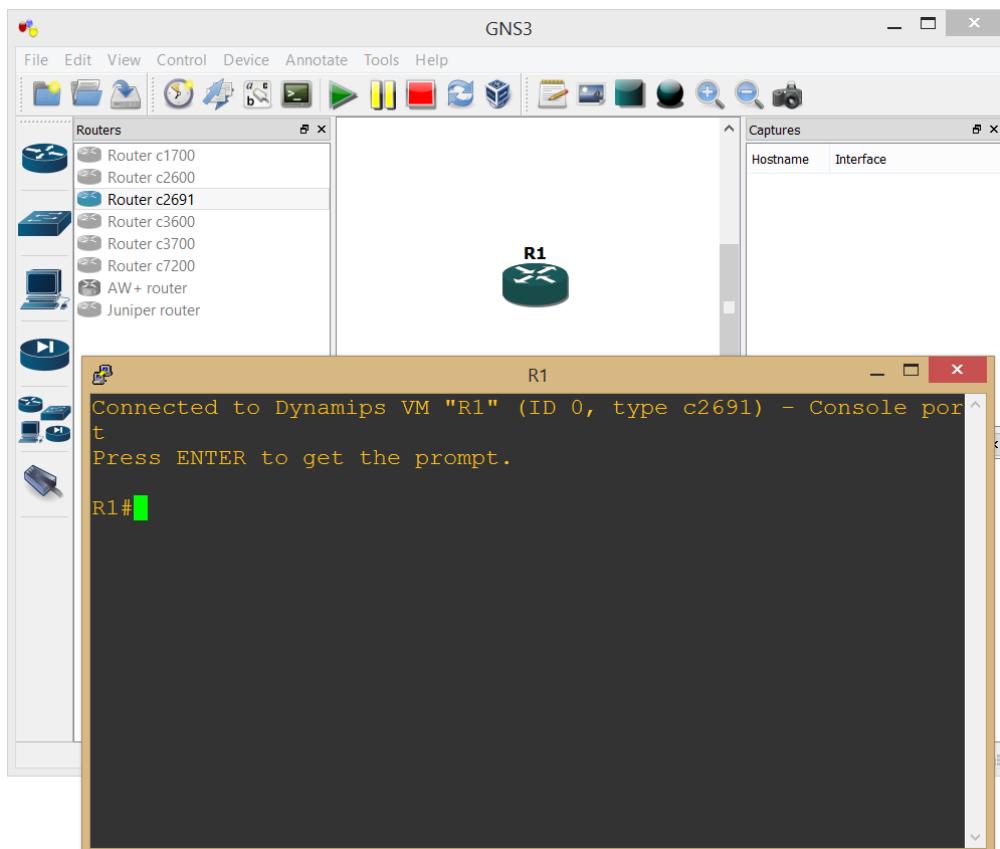
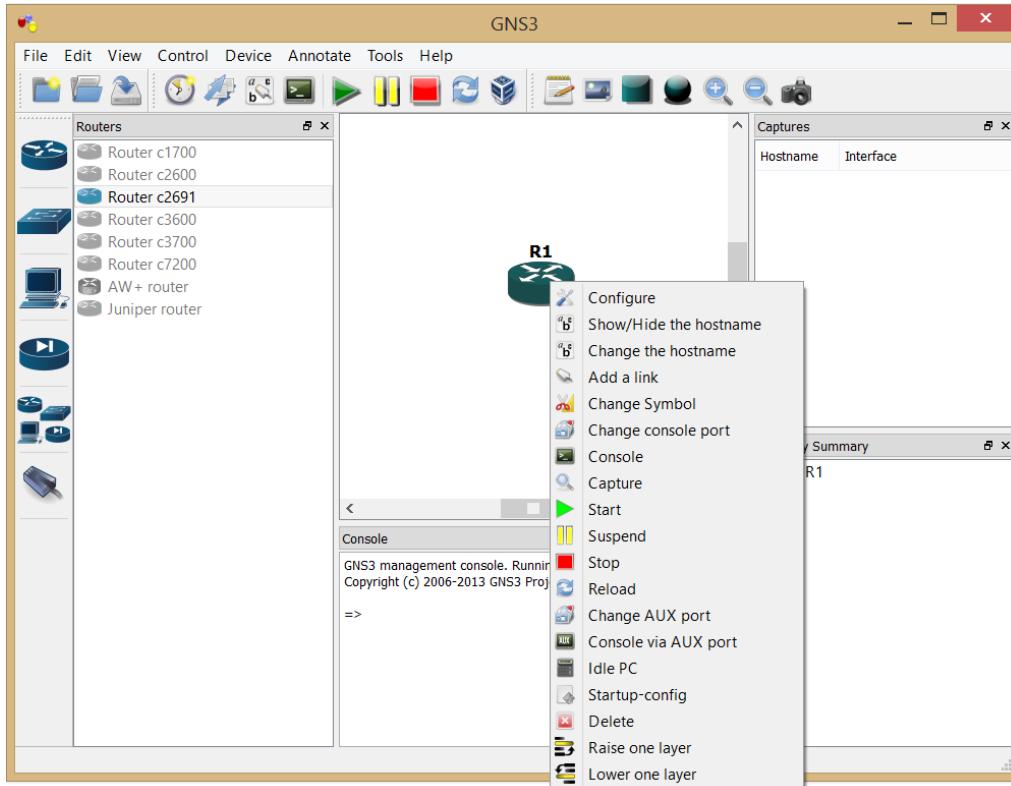
*Mar  1 00:55:57.667: %SYS-5-CONFIG_I: Configured from console
by console
R2#
R2#write memory
Building configuration...
[OK]
R2#
R2#
```

Untuk menyimpan topologi GNS3, tekan tombol simpan baris ketiga dari kiri menu GNS3. Lalu berikan nama file, misalnya GNS3_NIXTRAIN dan tentukan letak folder penyimpanan GNS3.



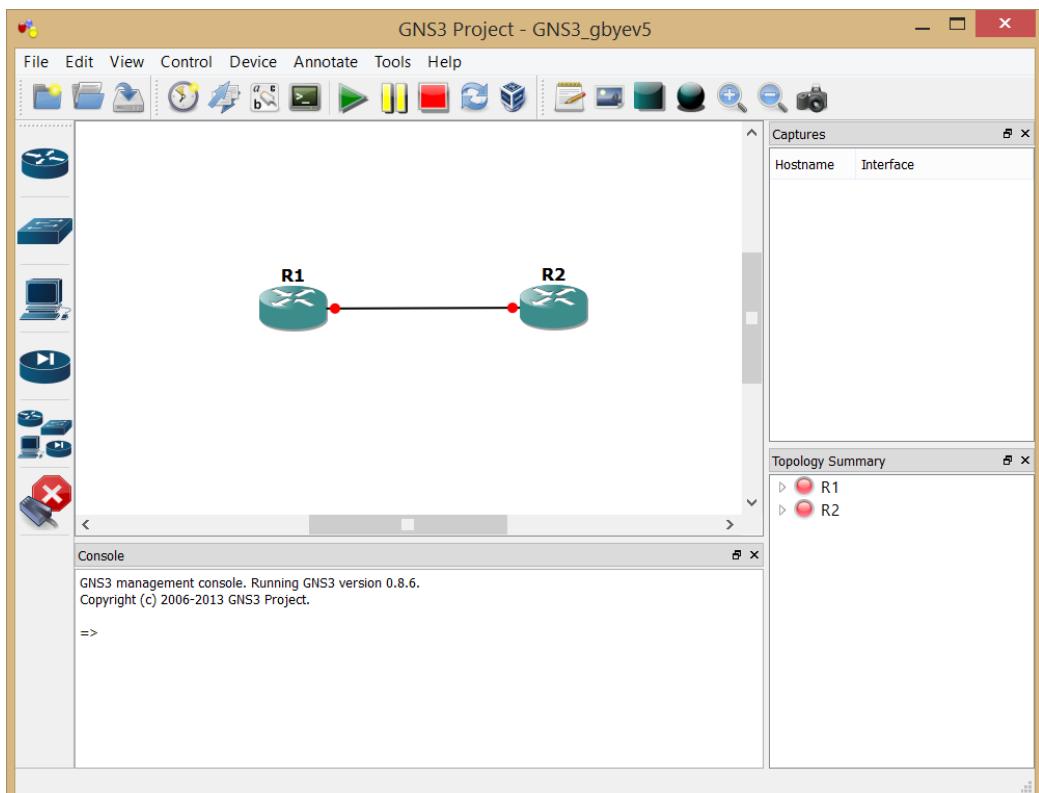
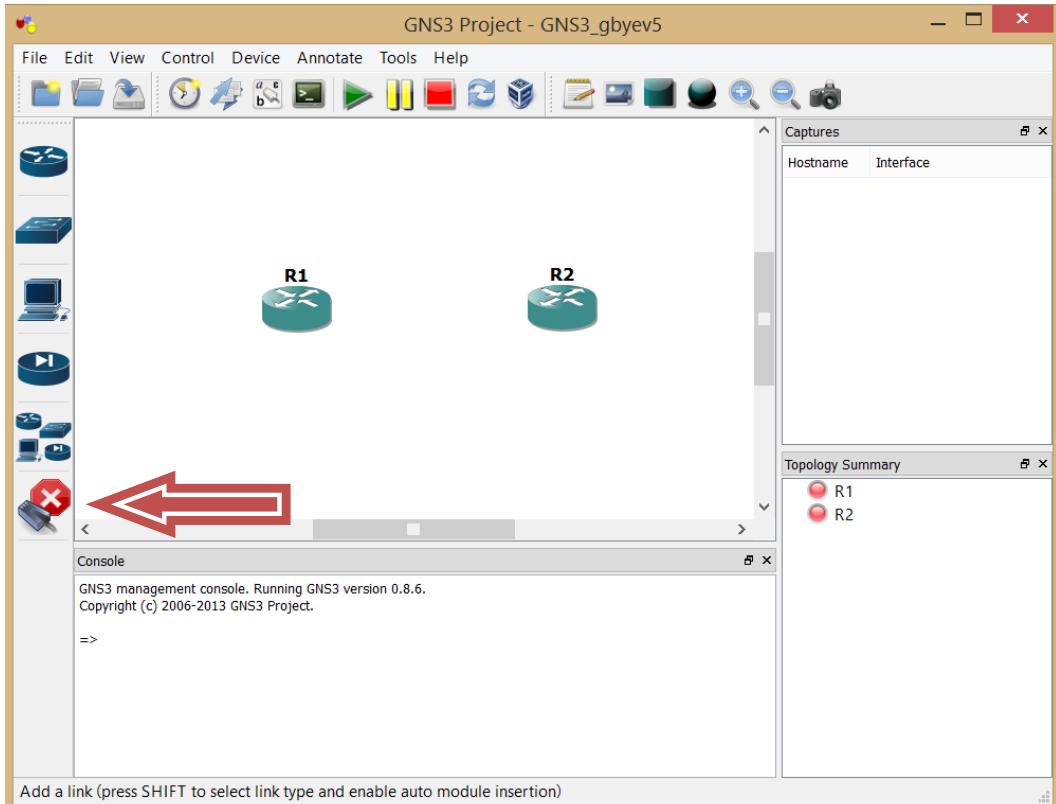
Chapter 8 - Console Router

Untuk console router, jalankan GNS3 dan klik kanan pilih Console.

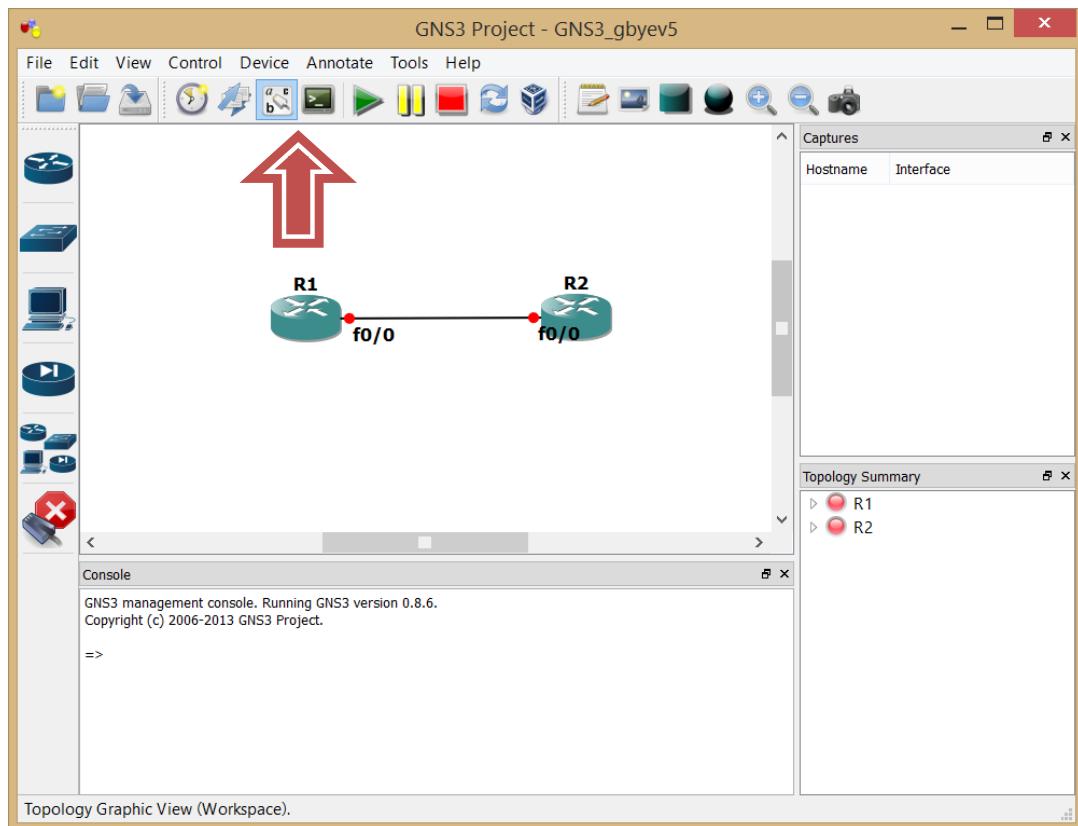


Chapter 9 - Cabling antar Router

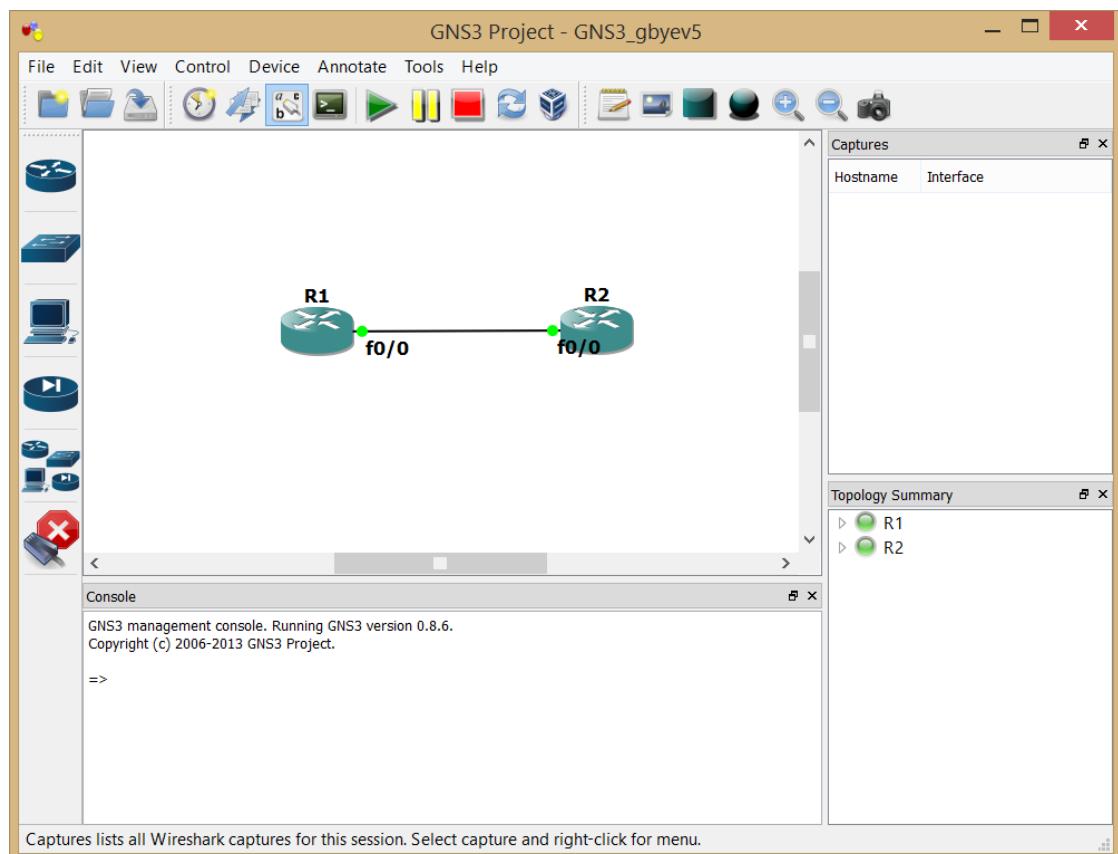
Buat topologi sederhana seperti dibawah ini dan pilih simbol kabel, di ujung paling bawah sebelah kiri. Hubungkan R1 dan R2, masing-masing menggunakan interface f0/0.



Klik simbol abc untuk menampilkan nama interface:

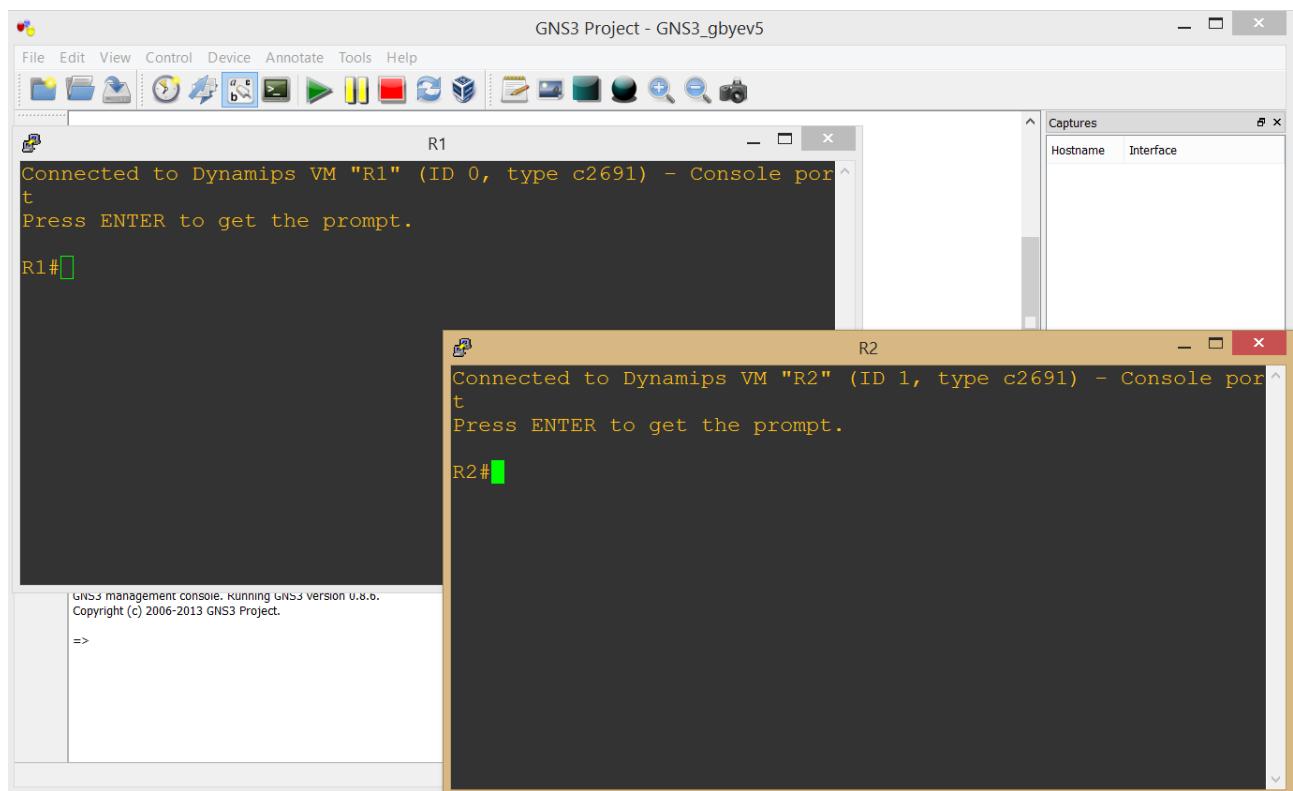
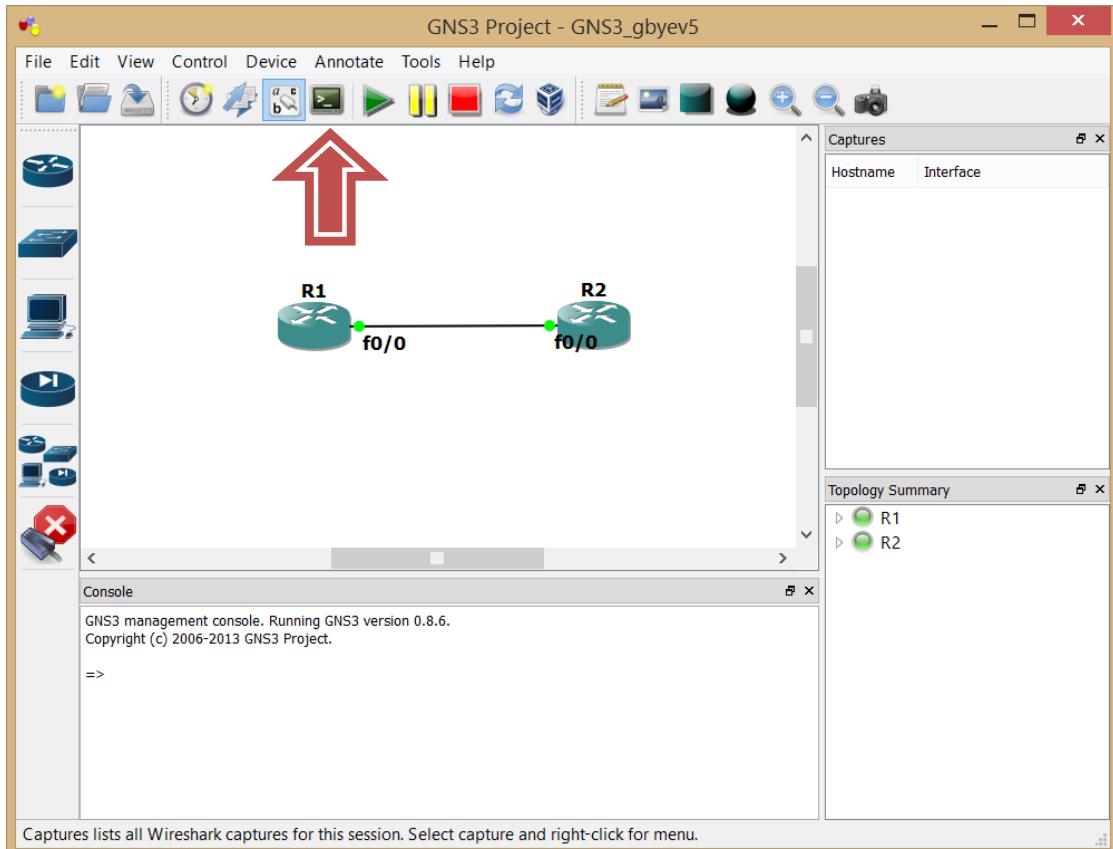


Nyalakan semua device dengan menekan tombol power on:

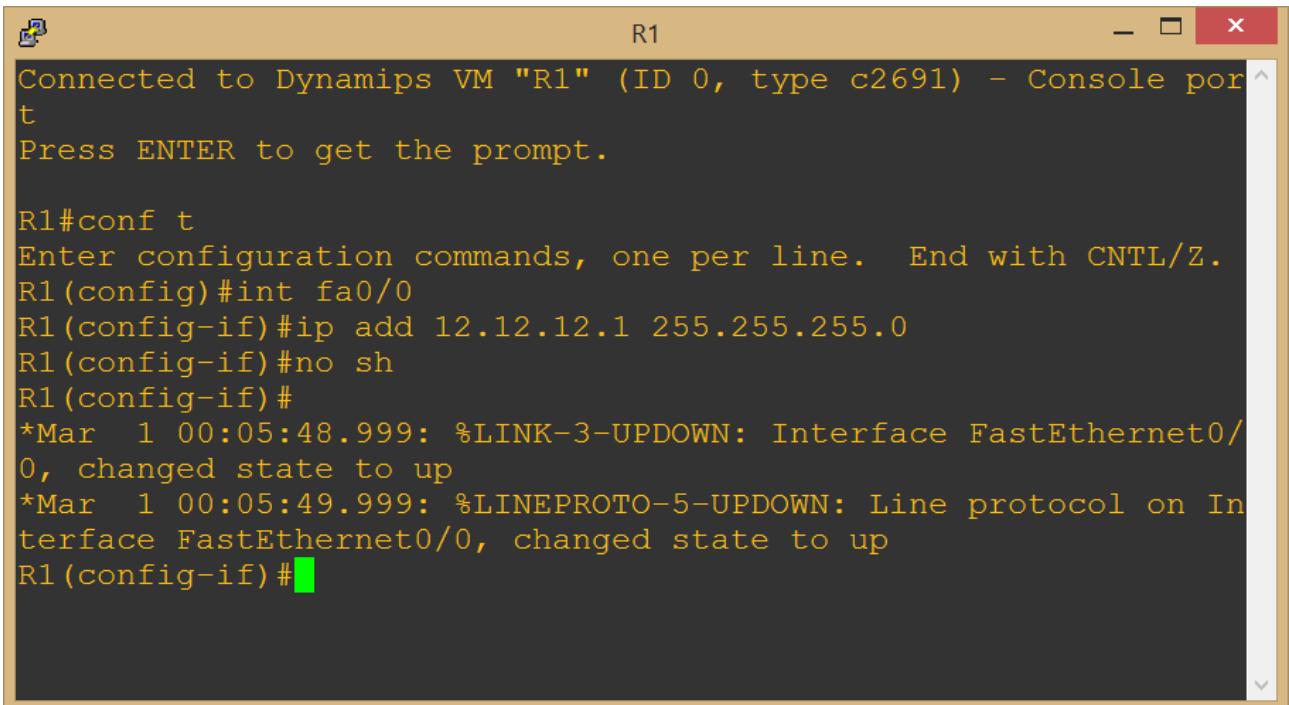


Chapter 10 - Config Basic Router

Tekan tombol console pada tab bagian atas:

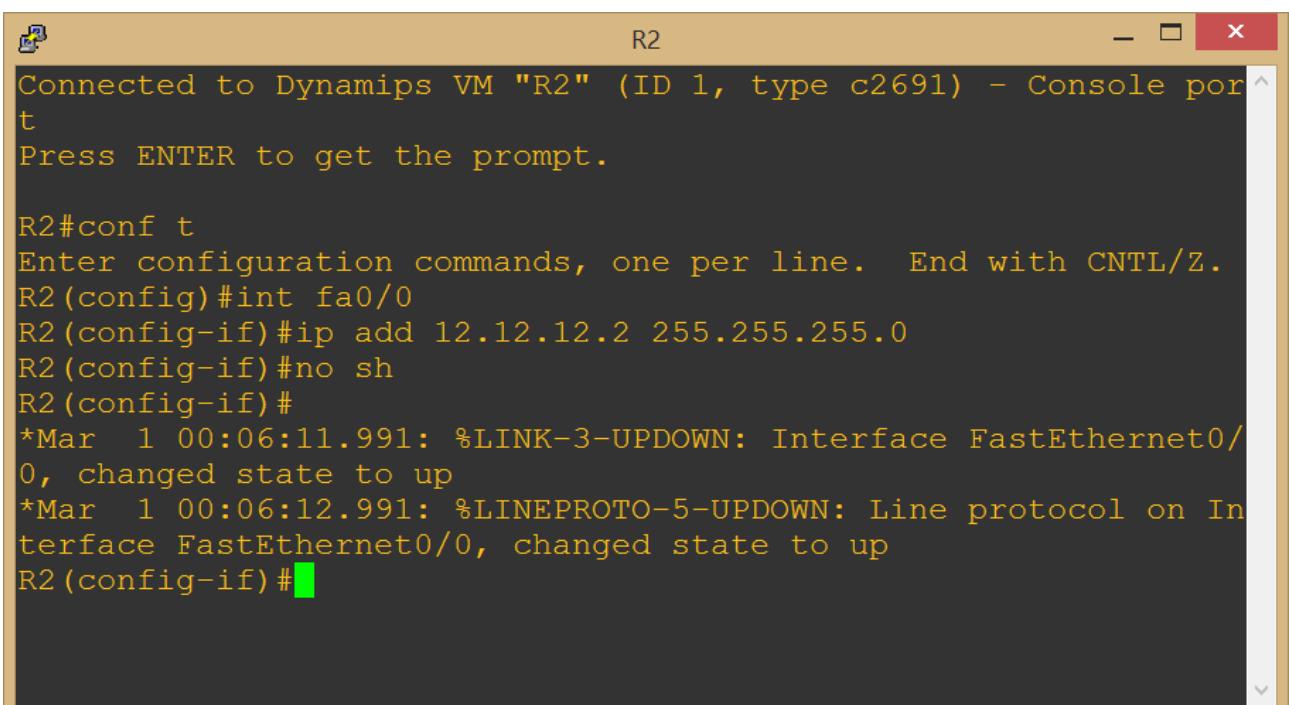


Ketikkan command setting IP address router di R1 dan R2:



```
R1
Connected to Dynamips VM "R1" (ID 0, type c2691) - Console port
Press ENTER to get the prompt.

R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int fa0/0
R1(config-if)#ip add 12.12.12.1 255.255.255.0
R1(config-if)#no sh
R1(config-if)#
*Mar 1 00:05:48.999: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:05:49.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#[REDACTED]
```



```
R2
Connected to Dynamips VM "R2" (ID 1, type c2691) - Console port
Press ENTER to get the prompt.

R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int fa0/0
R2(config-if)#ip add 12.12.12.2 255.255.255.0
R2(config-if)#no sh
R2(config-if)#
*Mar 1 00:06:11.991: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:06:12.991: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R2(config-if)#[REDACTED]
```

Lakukan tes Ping dari R1 ke R2 dan sebaliknya menggunakan command ping. Pastikan berhasil.

```
R1
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int fa0/0
R1(config-if)#ip add 12.12.12.1 255.255.255.0
R1(config-if)#no sh
R1(config-if)#
*Mar 1 00:05:48.999: %LINK-3-UPDOWN: Interface FastEthernet0/
0, changed state to up
*Mar 1 00:05:49.999: %LINEPROTO-5-UPDOWN: Line protocol on In-
terface FastEthernet0/0, changed state to up
R1(config-if)#do ping 12.12.12.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.12.12.2, timeout is 2 sec-
onds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 28/
32/36 ms
R1(config-if)#[
```

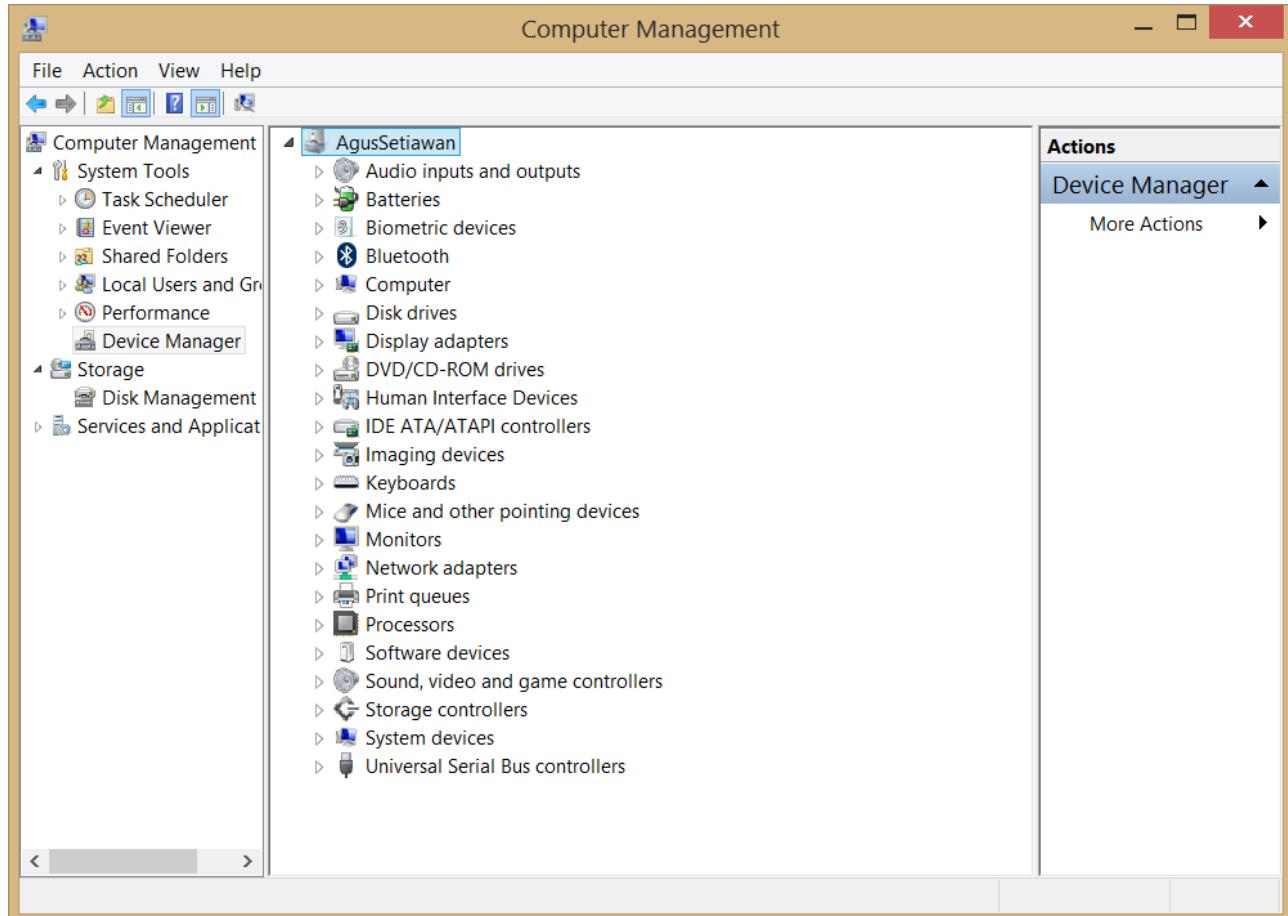
```
R2
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int fa0/0
R2(config-if)#ip add 12.12.12.2 255.255.255.0
R2(config-if)#no sh
R2(config-if)#
*Mar 1 00:06:11.991: %LINK-3-UPDOWN: Interface FastEthernet0/
0, changed state to up
*Mar 1 00:06:12.991: %LINEPROTO-5-UPDOWN: Line protocol on In-
terface FastEthernet0/0, changed state to up
R2(config-if)#do ping 12.12.12.1

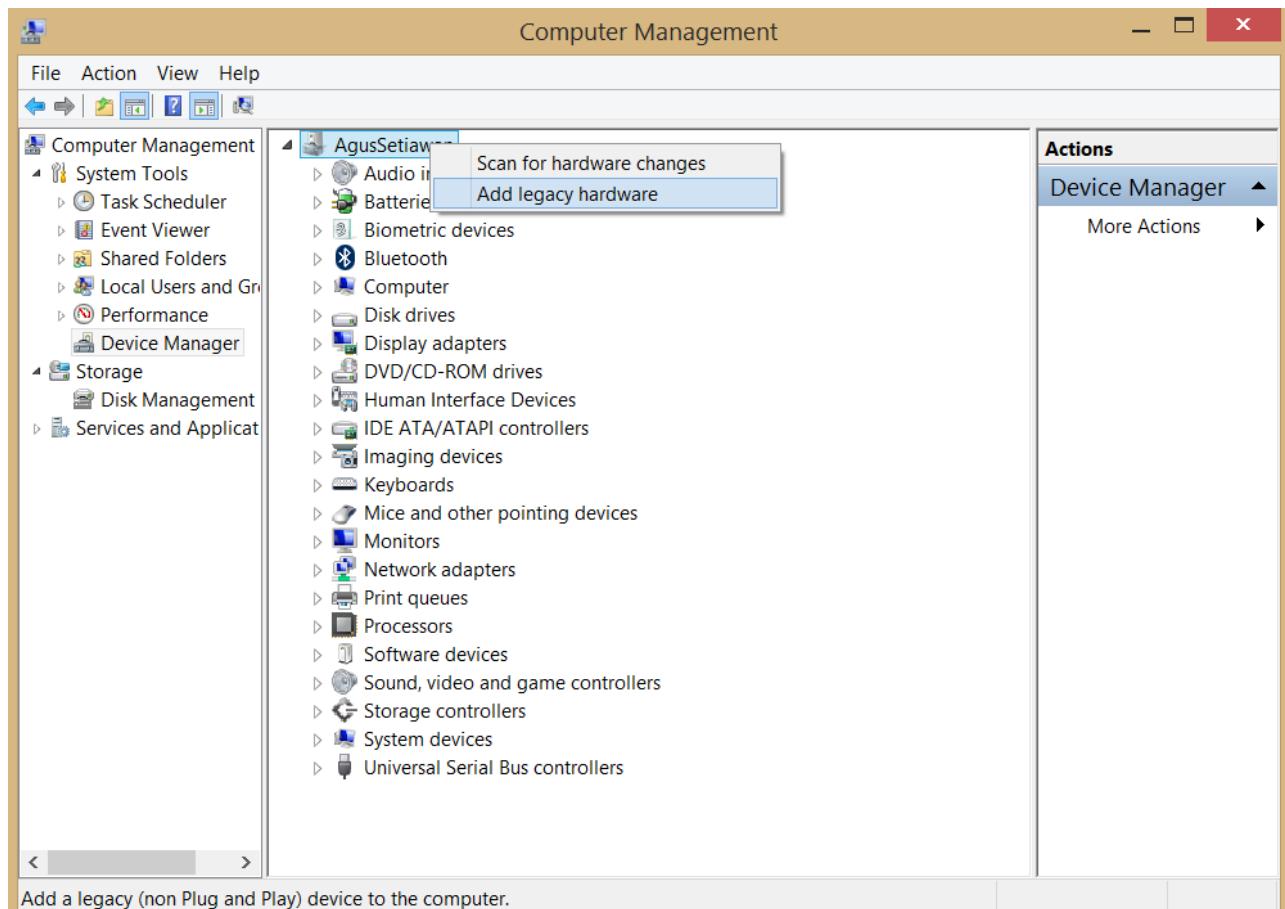
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.12.12.1, timeout is 2 sec-
onds:
.!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 20
/28/32 ms
R2(config-if)#[
```

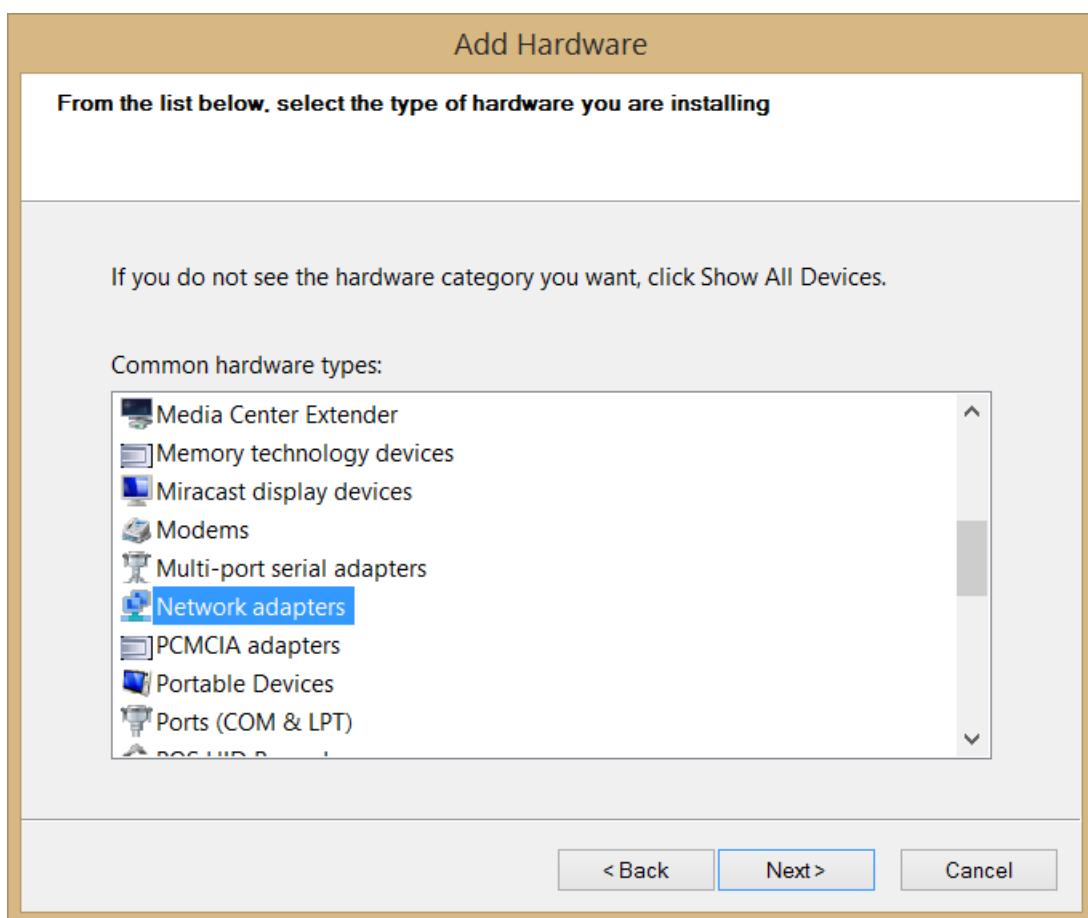
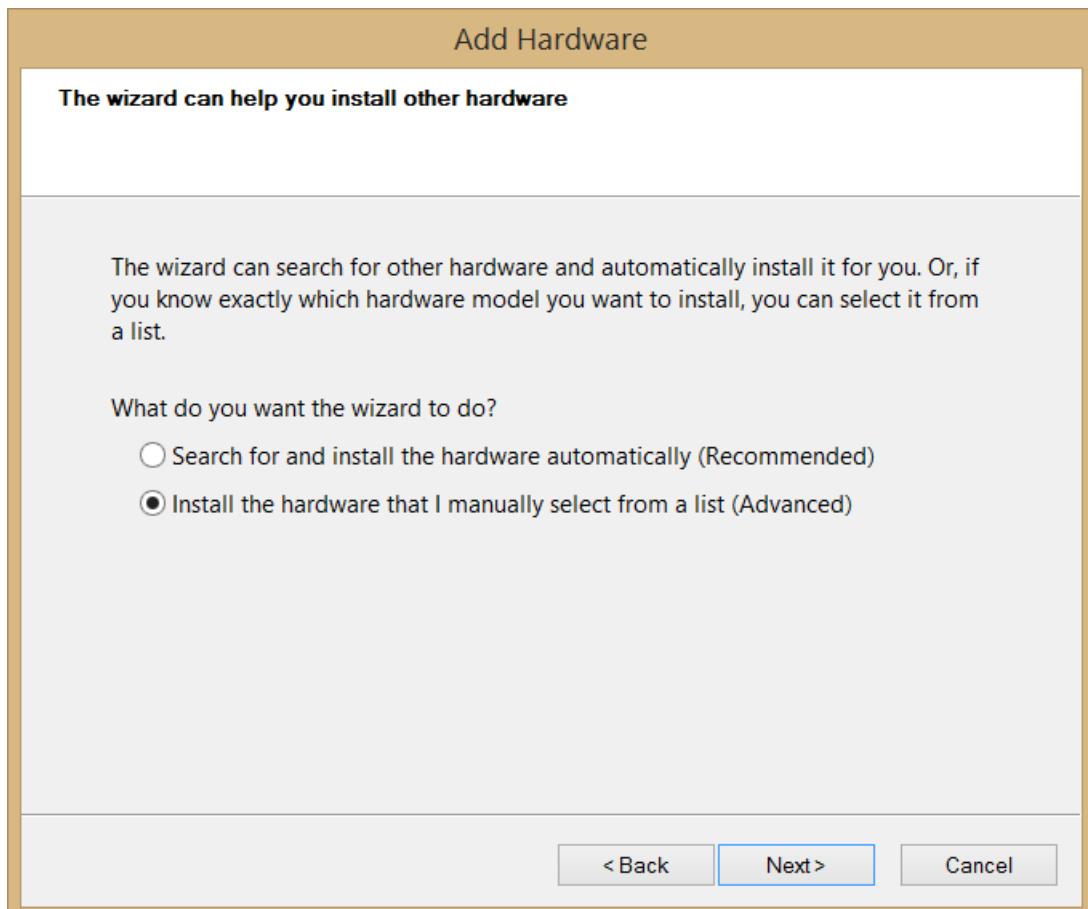
Chapter 11 - Install Loopback Adapter

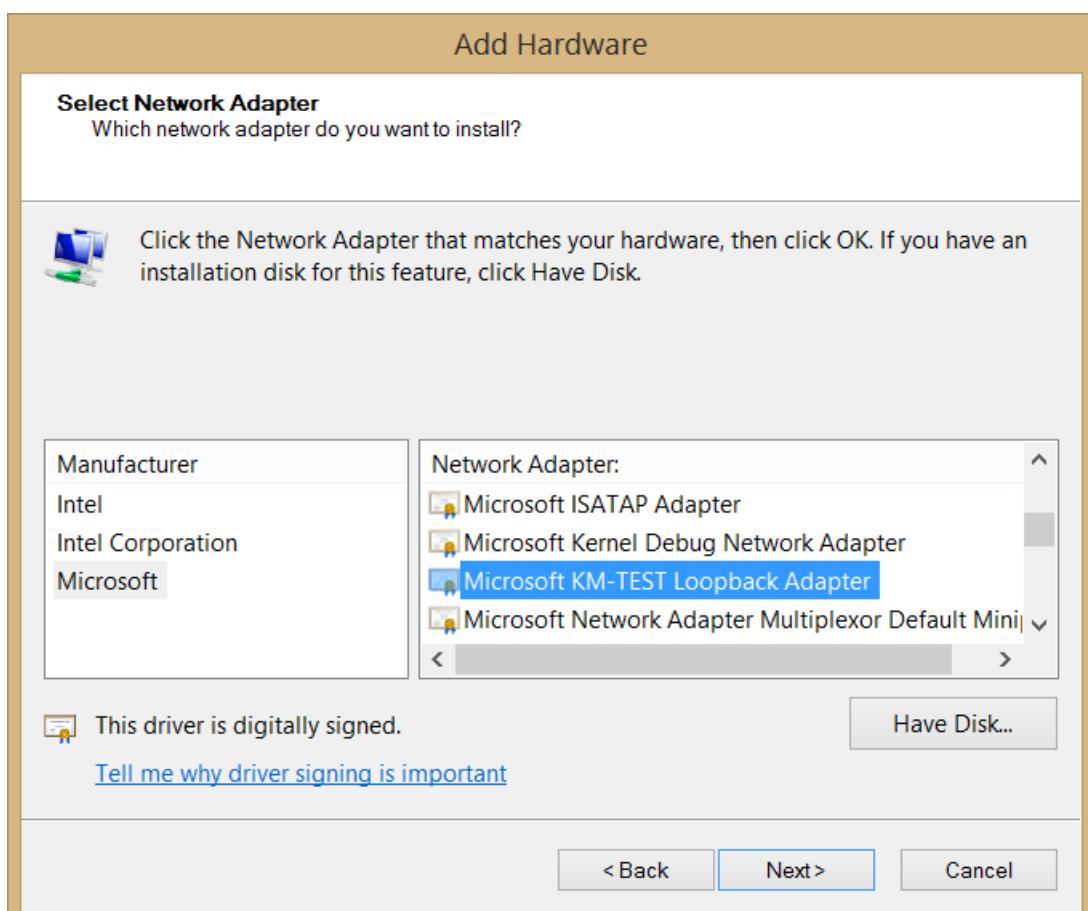
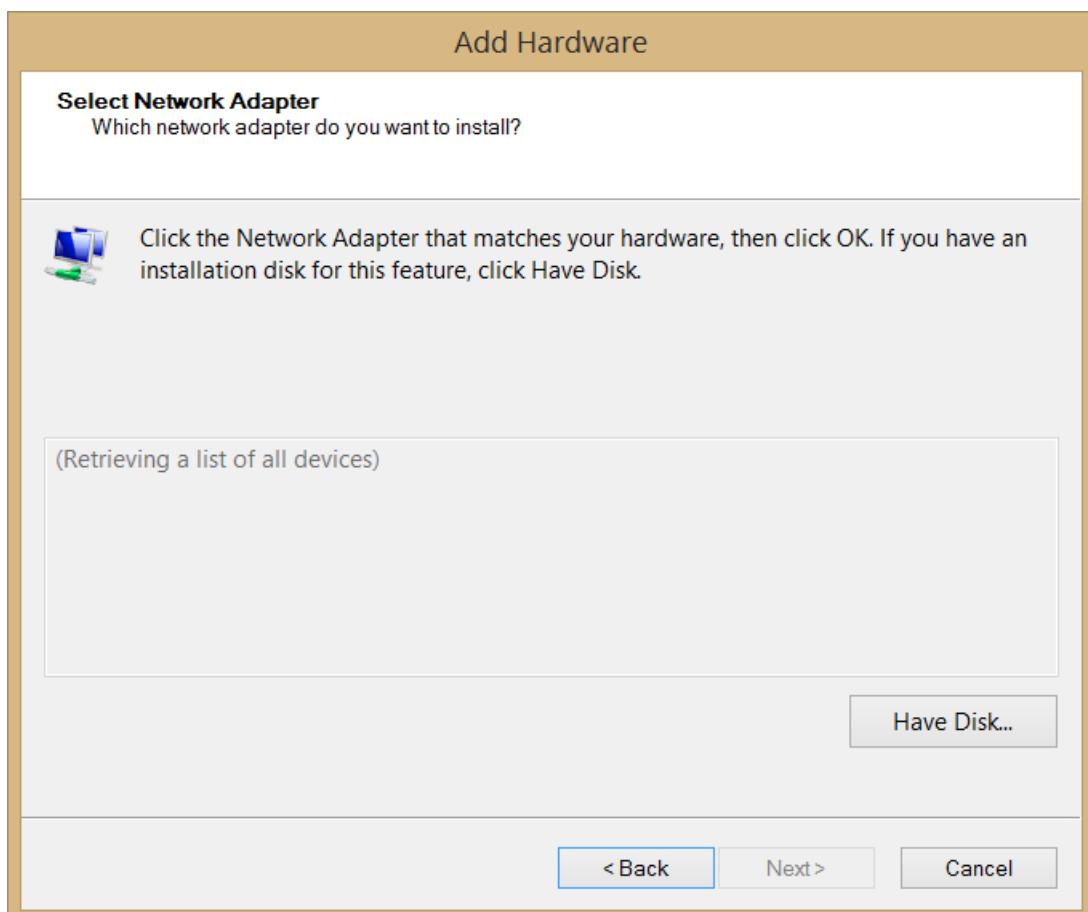
Untuk menghubungkan topologi GNS3 dengan interface laptop, maka kita akan menggunakan loopback adapter microsoft windows. Secara default loopback adapter belum terinstall, oleh karena itu ikuti langkah-langkah install loopback adapter berikut ini :

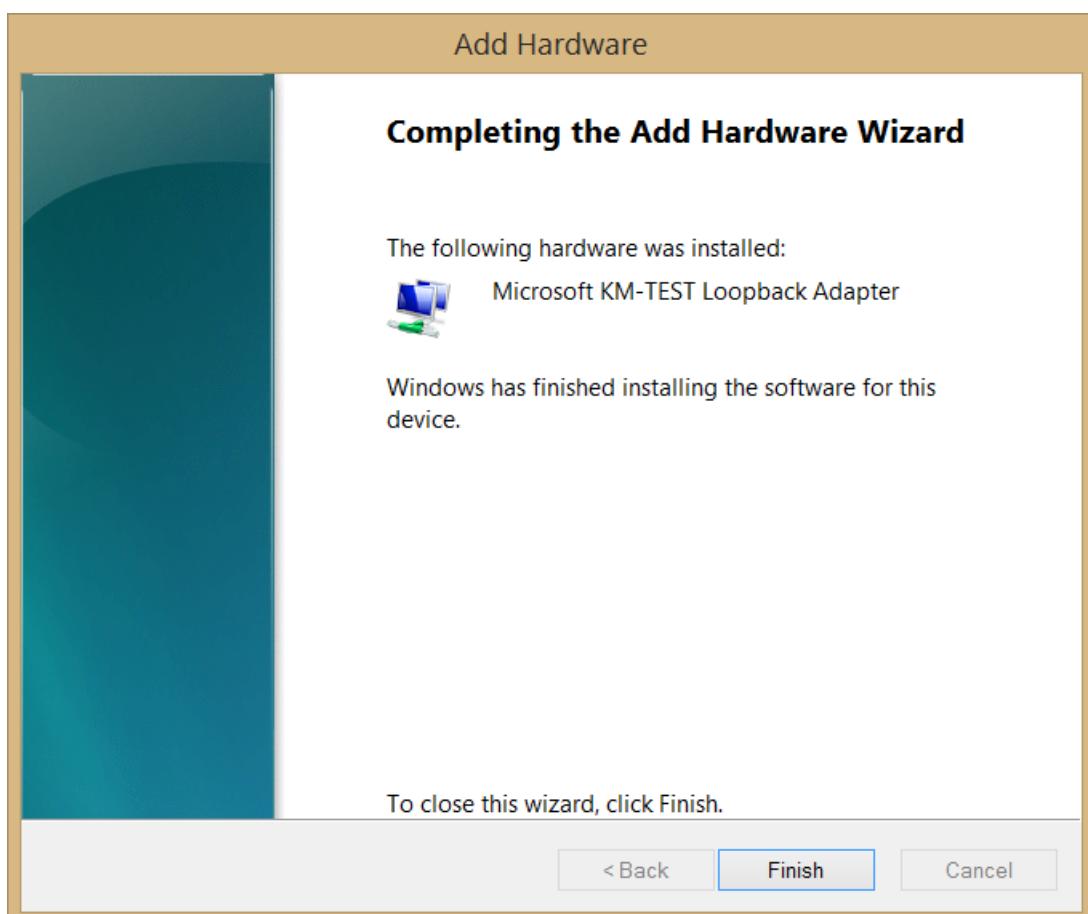
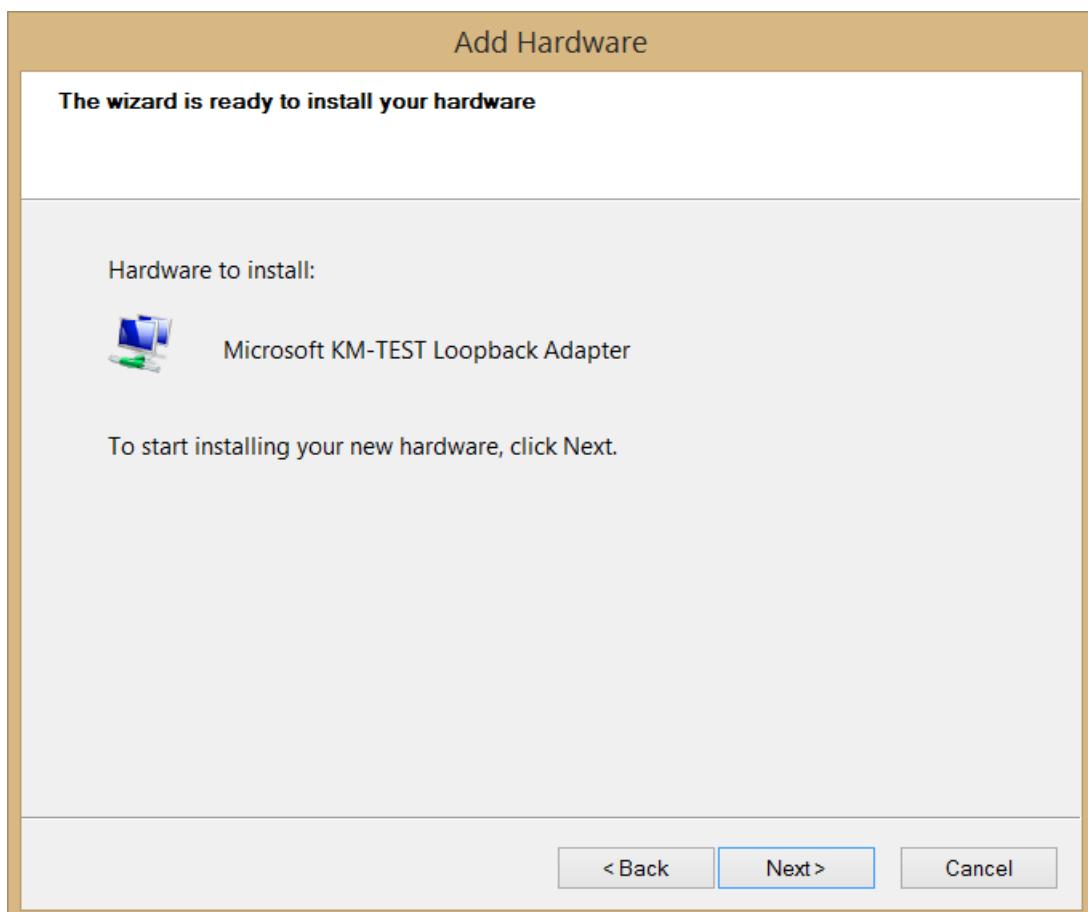
Buka Device Manager.

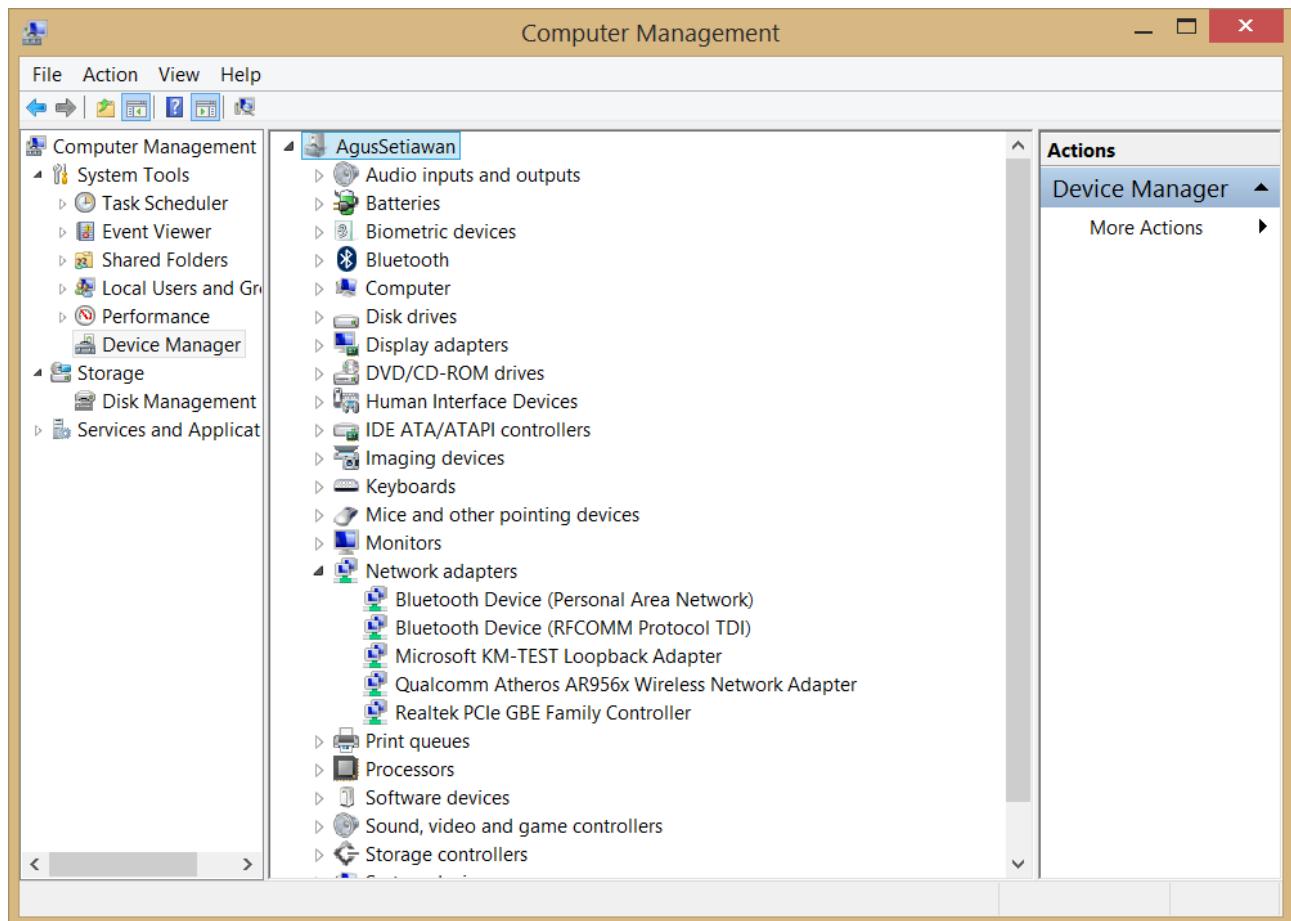










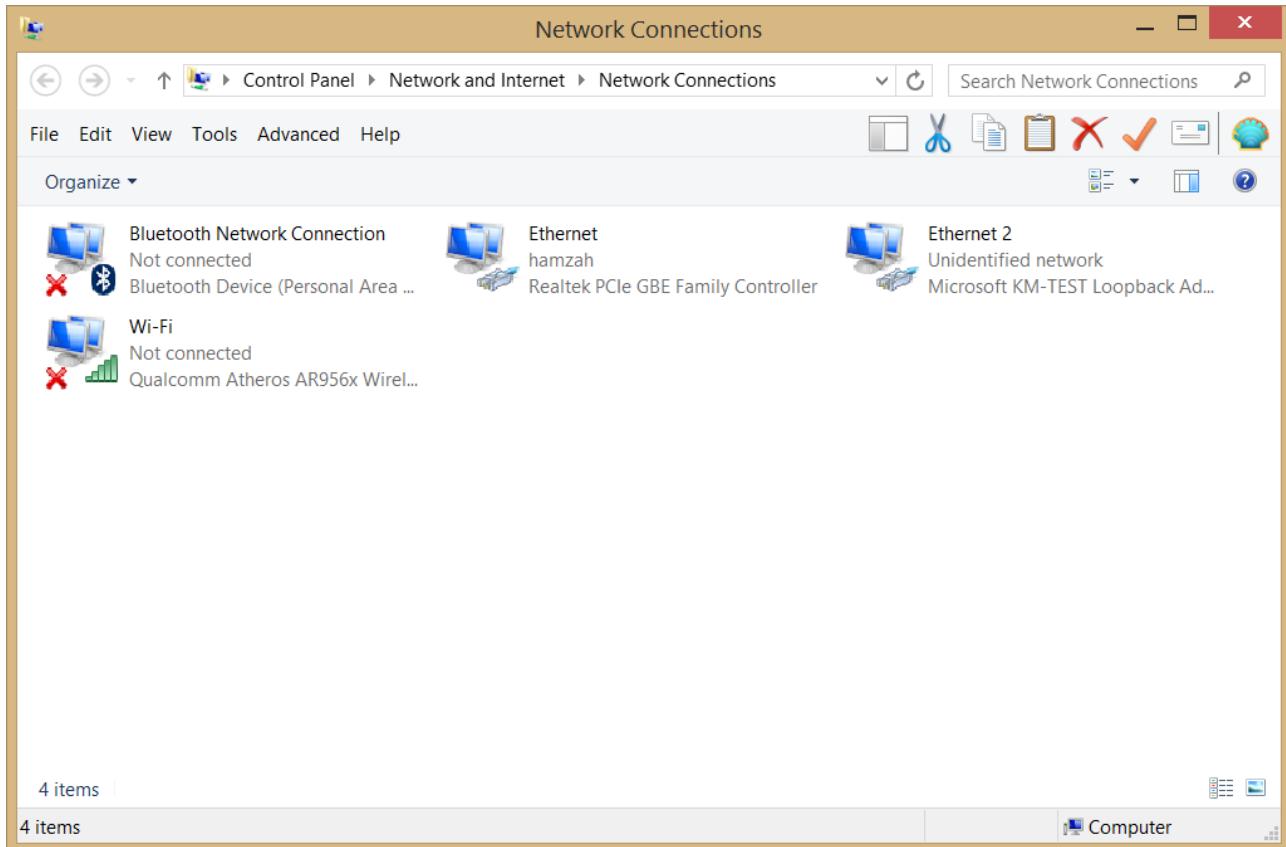


Microsoft KM-TEST Loopback Adapter berhasil di install.

Sebelum menggunakan Loopback Adapter, tutup GNS3 dan restart laptop terlebih dahulu.

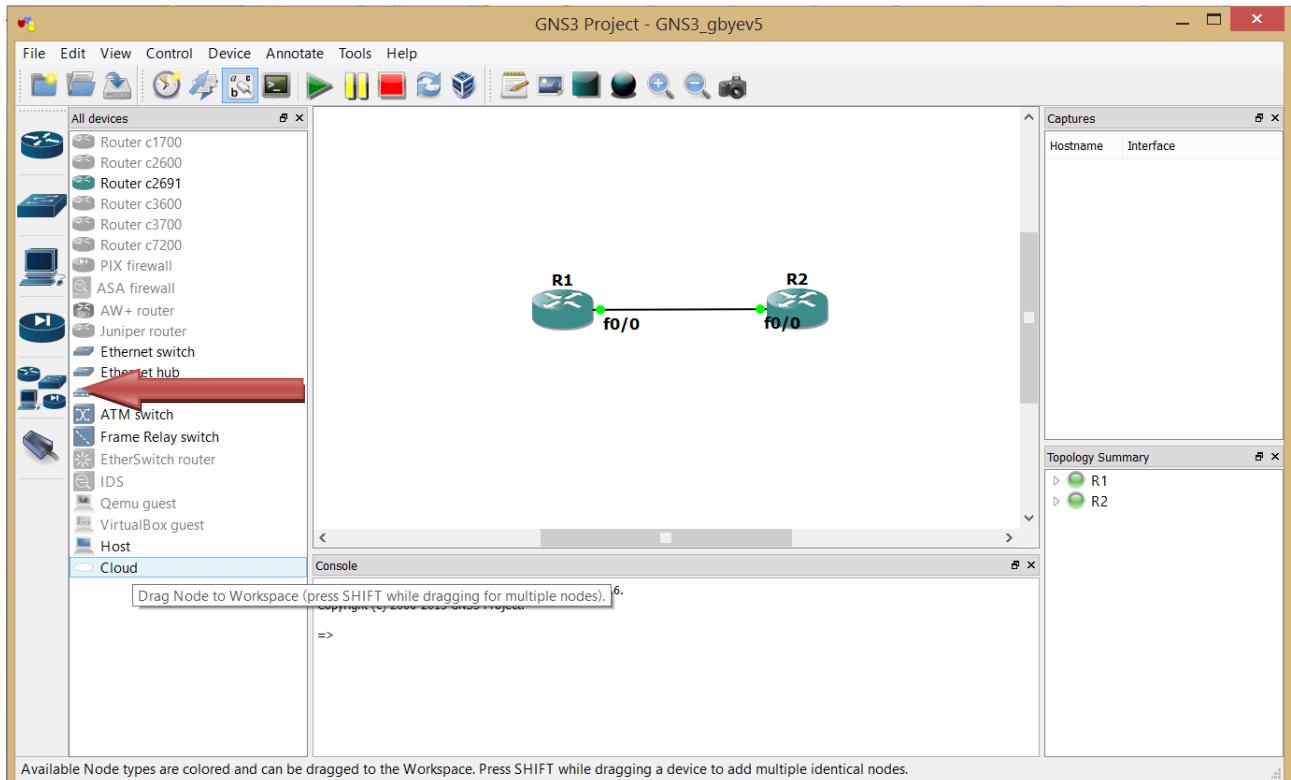
Chapter 12 - GNS3 + Loopback Adapter

Buka Control Panel untuk memastikan bahwa Loopback Adapter berhasil di install.

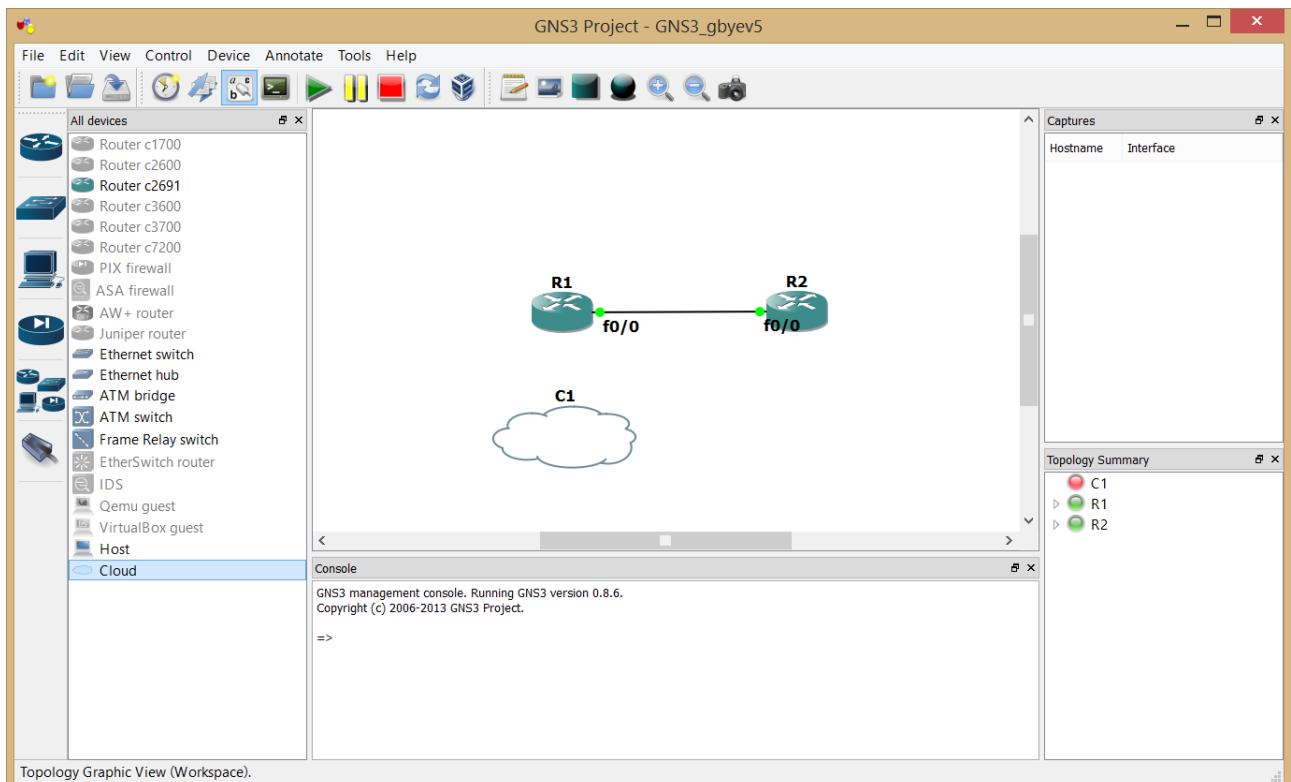


Perhatikan gambar diatas, Ethernet 2 merupakan Loopback Adapter.

Buat topologi lanjutan dari Chapter 9 dengan menambahkan Loopback Adapter. Klik simbol **all devices**.

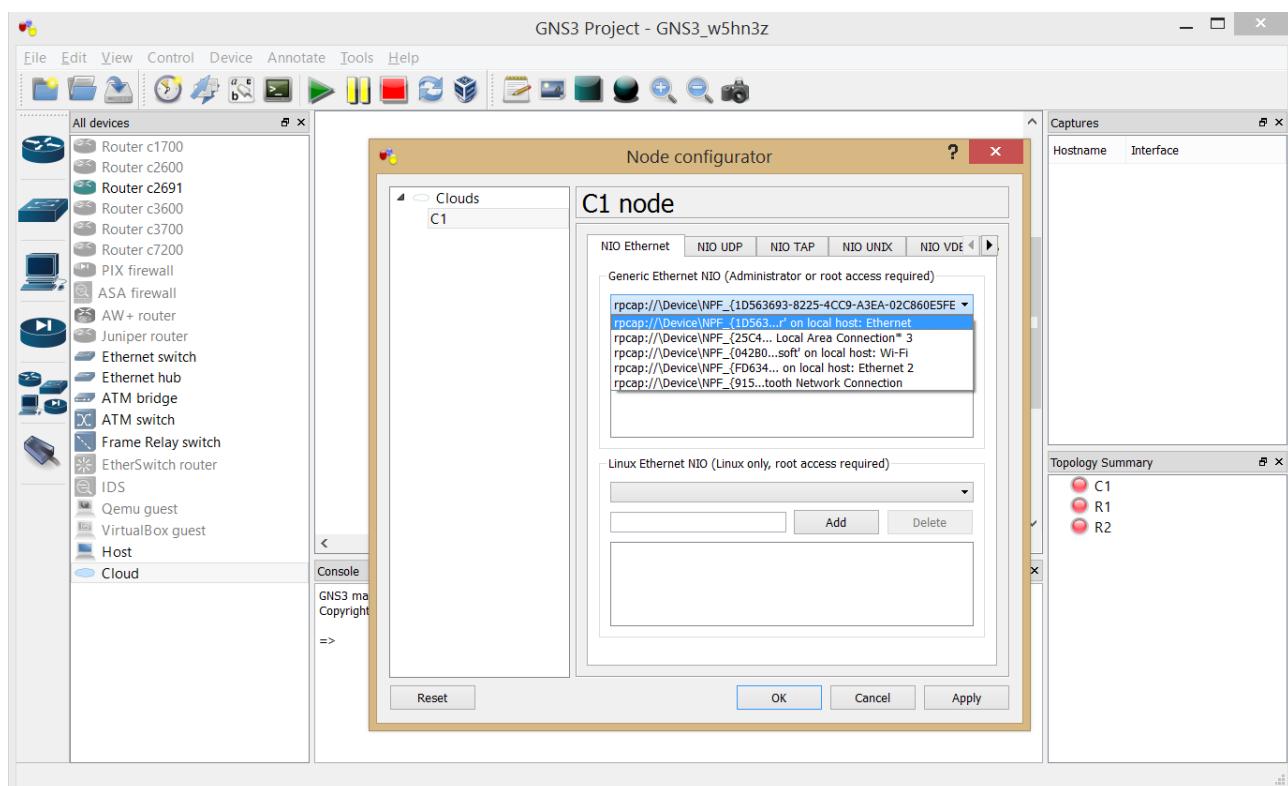
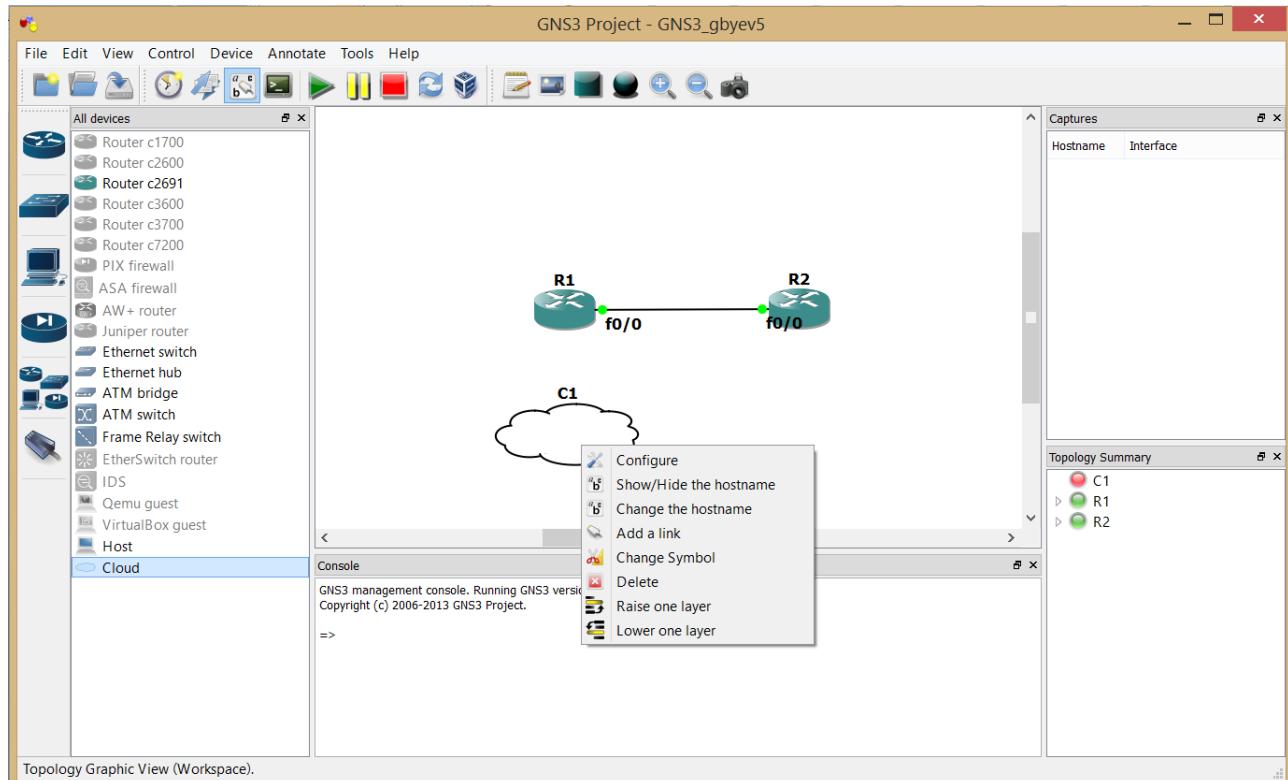


Drag **Cloud** ke area kerja dan letakkan dibawah R1.

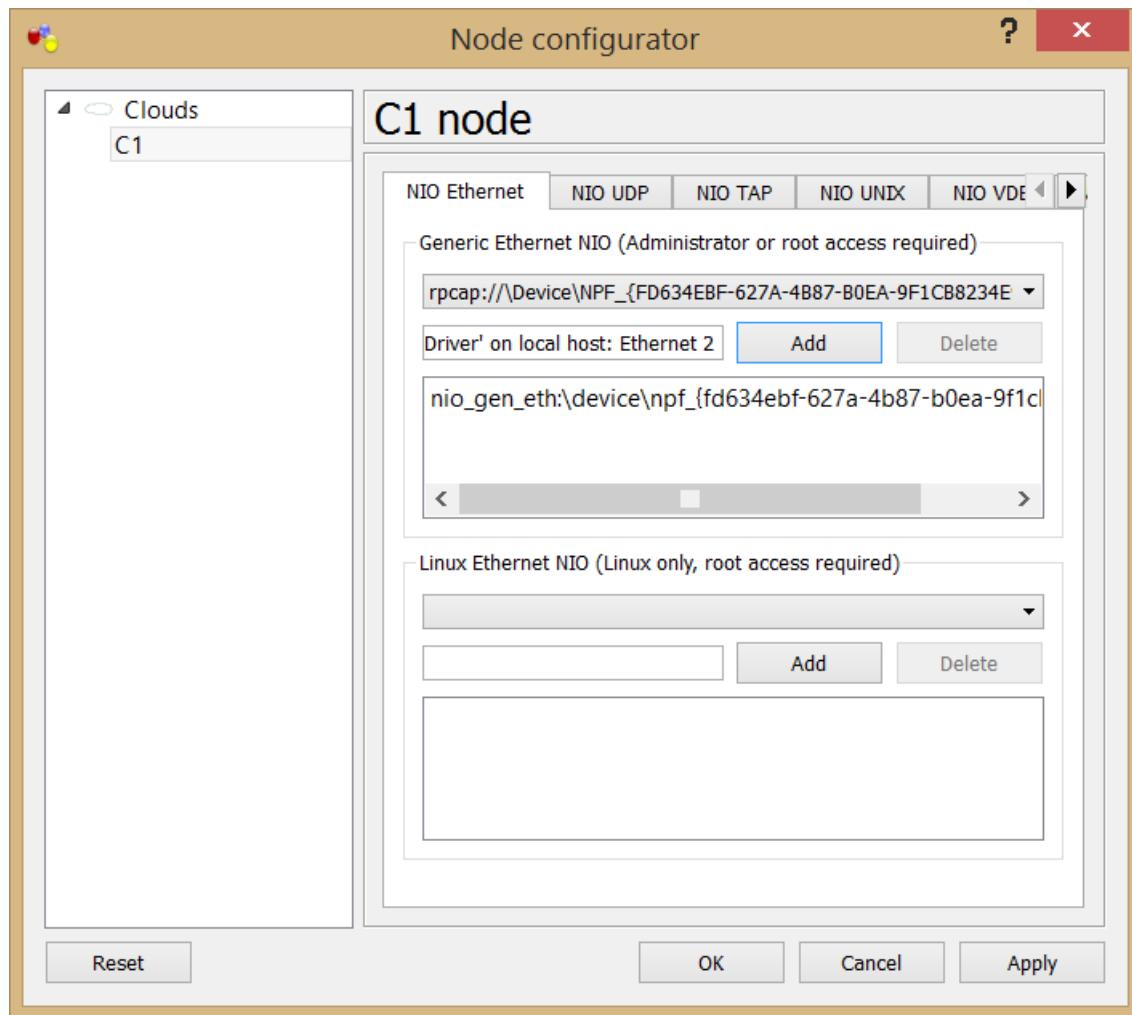


Setting **Cloud** untuk bridging ke Loopback Adapter.

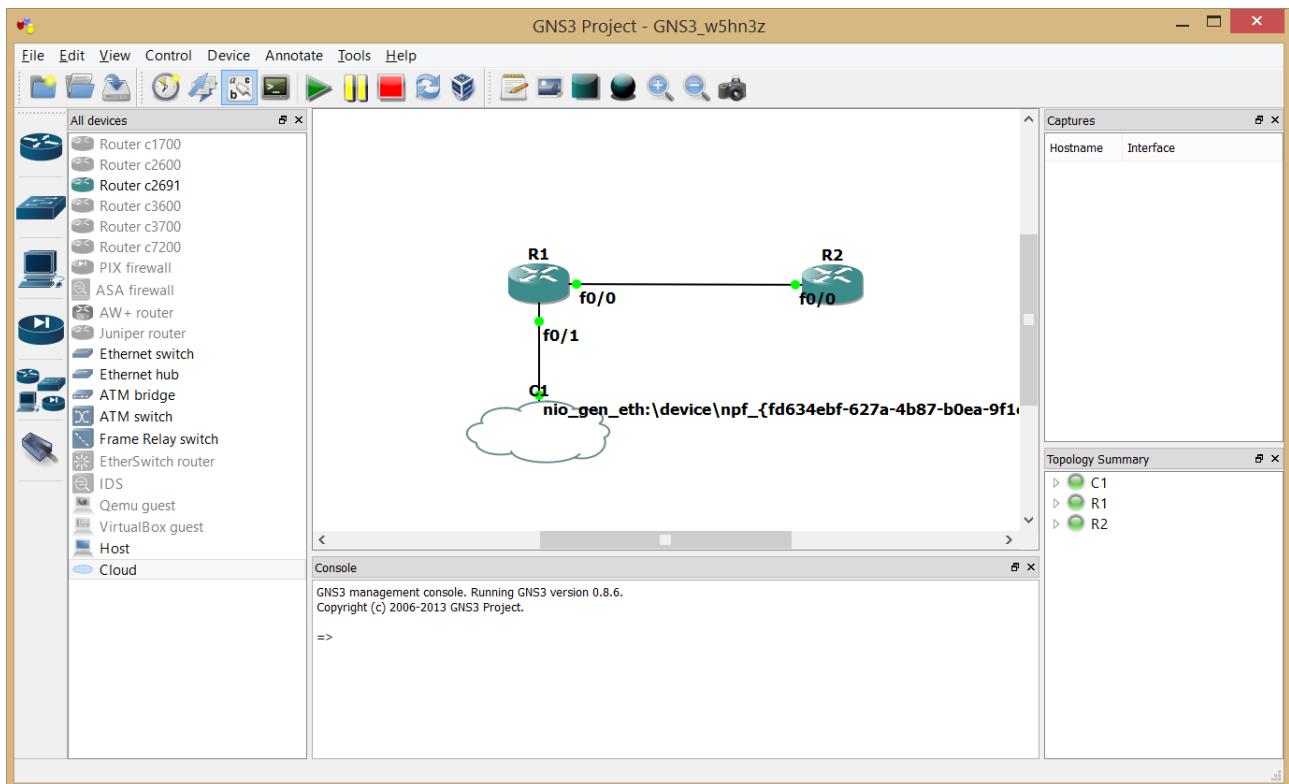
Klik kanan C1 dan pilih **Configure**



Pada tab **NIO Ethernet** , pilih Ethernet 2 dan klik tombol **Add**.



Klik OK. Tambahkan kabel dari fa0/1 R1 ke C1.

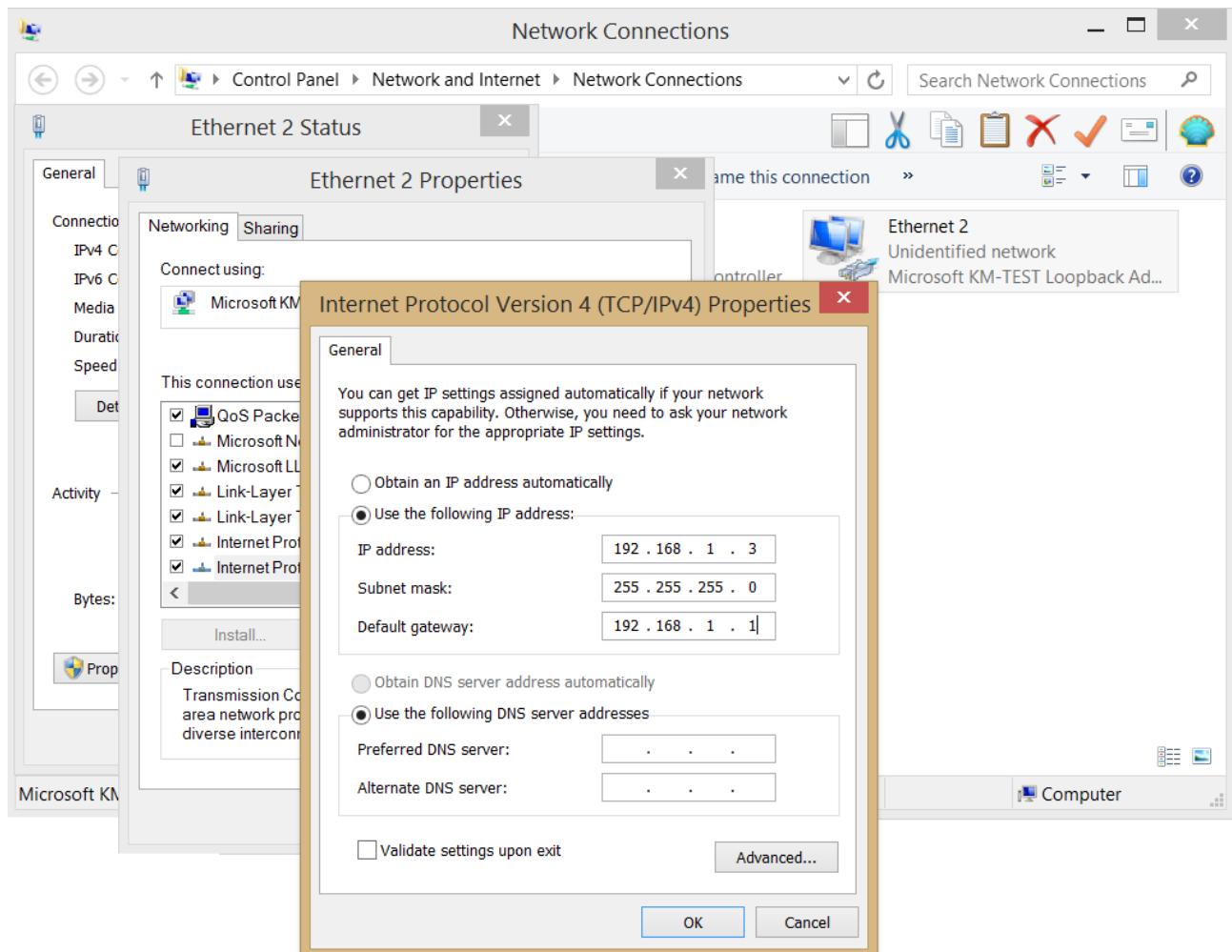


Setting IP address fa0/1 R1.

```
R1
Connected to Dynamips VM "R1" (ID 0, type c2691) - Console port
Press ENTER to get the prompt.

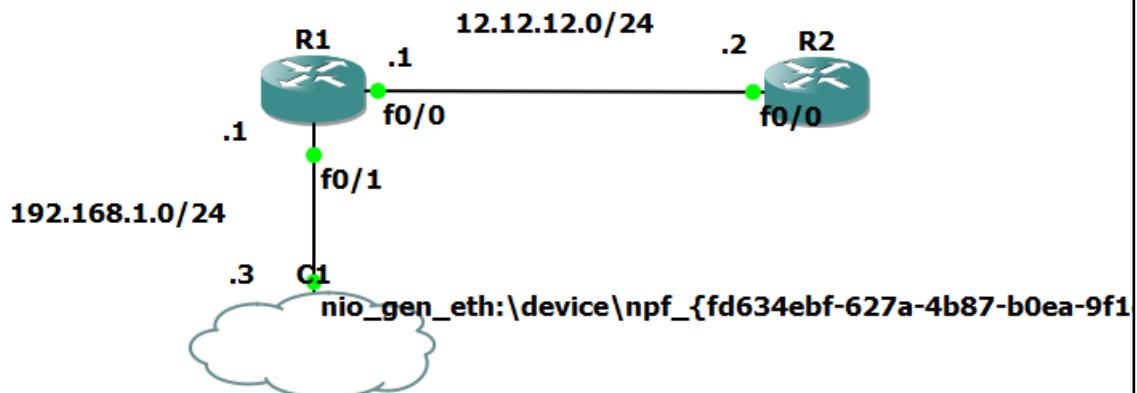
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int fa0/1
R1(config-if)#ip add 192.168.1.1 255.255.255.0
R1(config-if)#no sh
R1(config-if)#
*Mar 1 00:01:26.147: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:01:27.147: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
R1(config-if)#[REDACTED]
```

Setting IP address Loopback Adapter



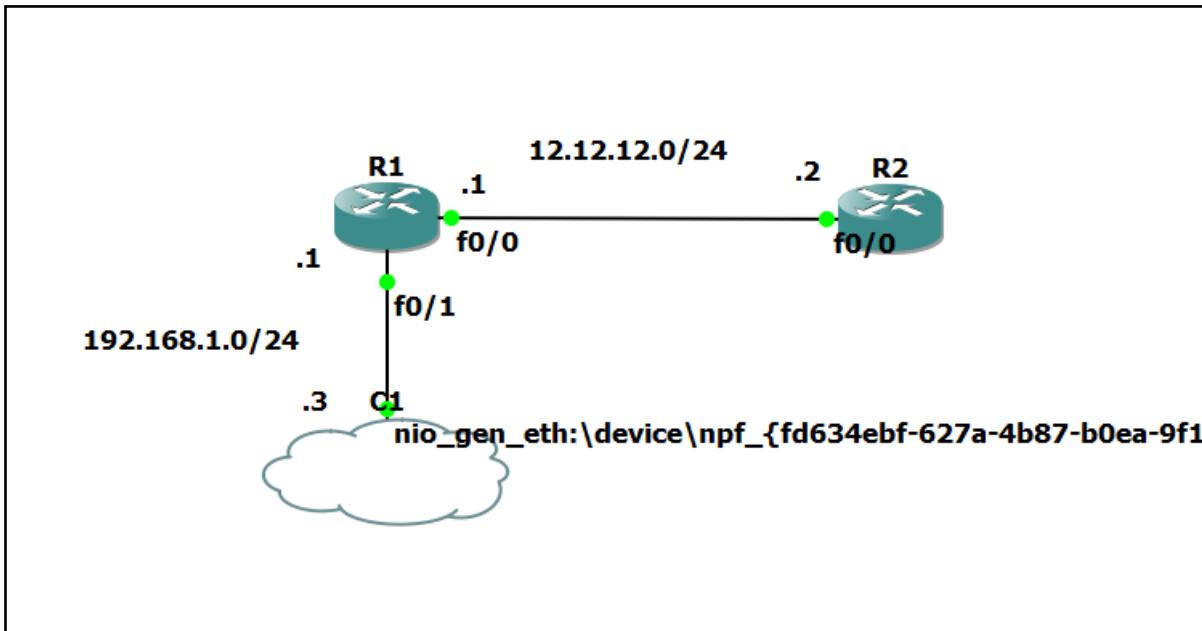
Klik OK untuk mengakhiri.

Topologi network secara keseluruhan. Terdapat dua network yaitu 12.12.12.0/24 dan 192.168.1.0/24.

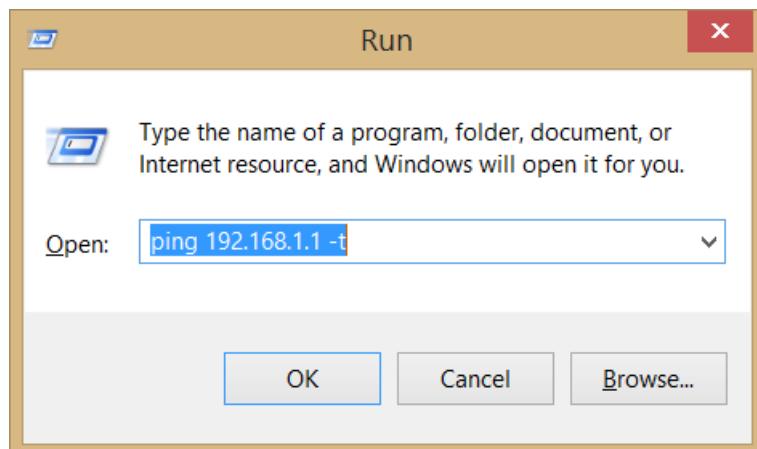


Chapter 13 - Static Routing

Topologi network melanjutkan chapter sebelumnya.



Lakukan tes ping dari C1 menuju fa0/1 R1 dan pastikan berhasil.



```
C:\Windows\system32\ping.exe

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=40ms TTL=255
Reply from 192.168.1.1: bytes=32 time=15ms TTL=255
Reply from 192.168.1.1: bytes=32 time=15ms TTL=255
```

Ping dari Loopback Adapter berhasil ke fa0/1 R1. Lakukan kembali ping dari CMD Windows menuju Fa0/0 R1. Pastikan berhasil.

```
C:\Windows\system32\cmd.exe

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

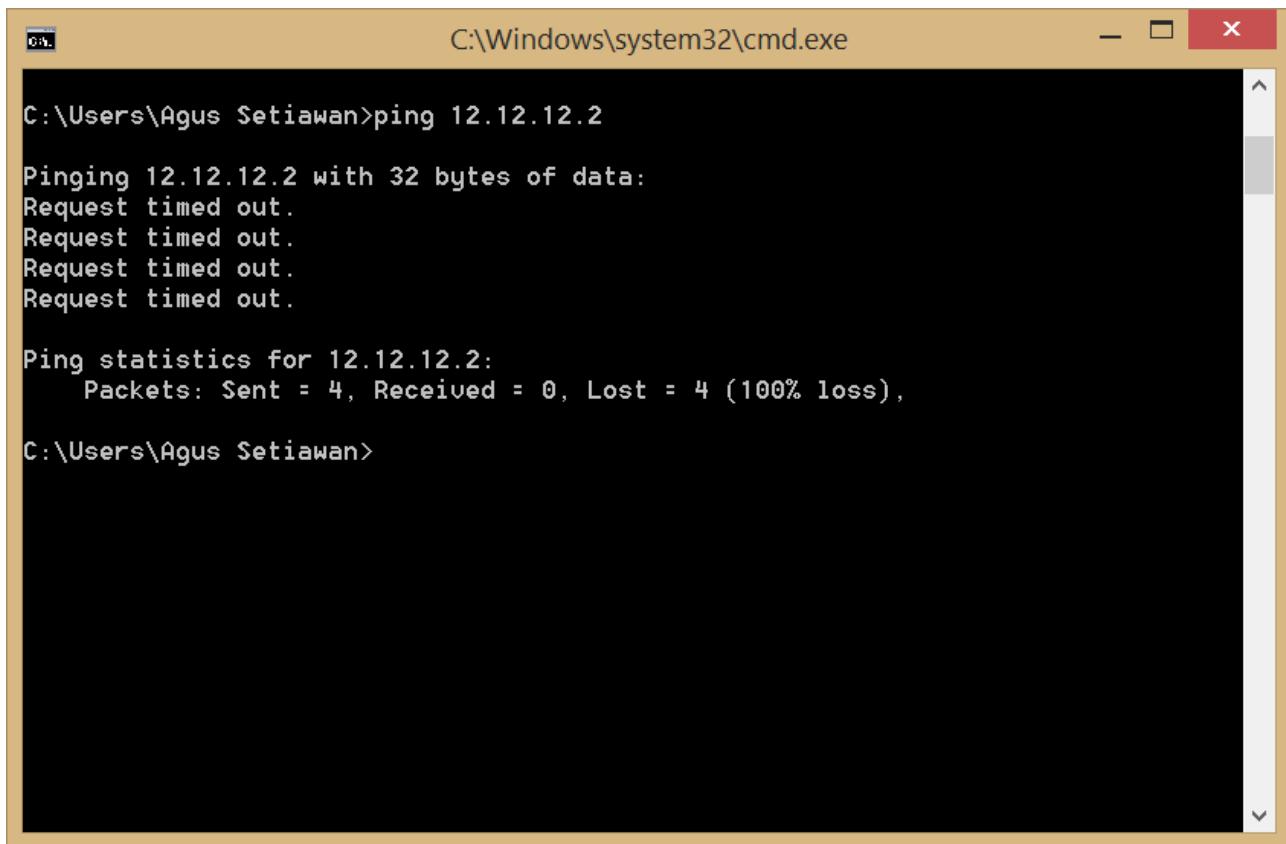
C:\Users\Agus Setiawan>ping 12.12.12.1

Pinging 12.12.12.1 with 32 bytes of data:
Reply from 12.12.12.1: bytes=32 time=34ms TTL=255
Reply from 12.12.12.1: bytes=32 time=15ms TTL=255
Reply from 12.12.12.1: bytes=32 time=15ms TTL=255
Reply from 12.12.12.1: bytes=32 time=15ms TTL=255

Ping statistics for 12.12.12.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 15ms, Maximum = 34ms, Average = 19ms

C:\Users\Agus Setiawan>
```

Sekarang, lakukan ping dari CMD Windows menuju 12.12.12.2. Apakah berhasil?

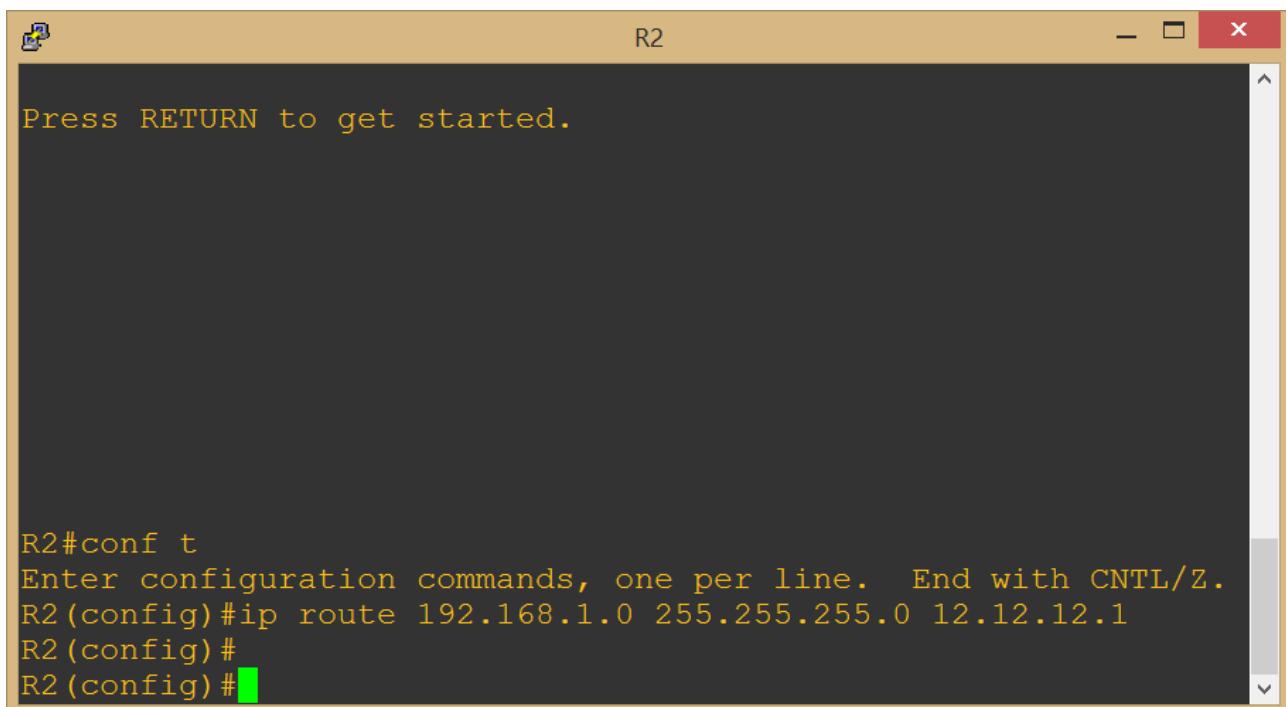


```
C:\Windows\system32\cmd.exe
C:\Users\Agus Setiawan>ping 12.12.12.2

Pinging 12.12.12.2 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 12.12.12.2:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\Users\Agus Setiawan>
```

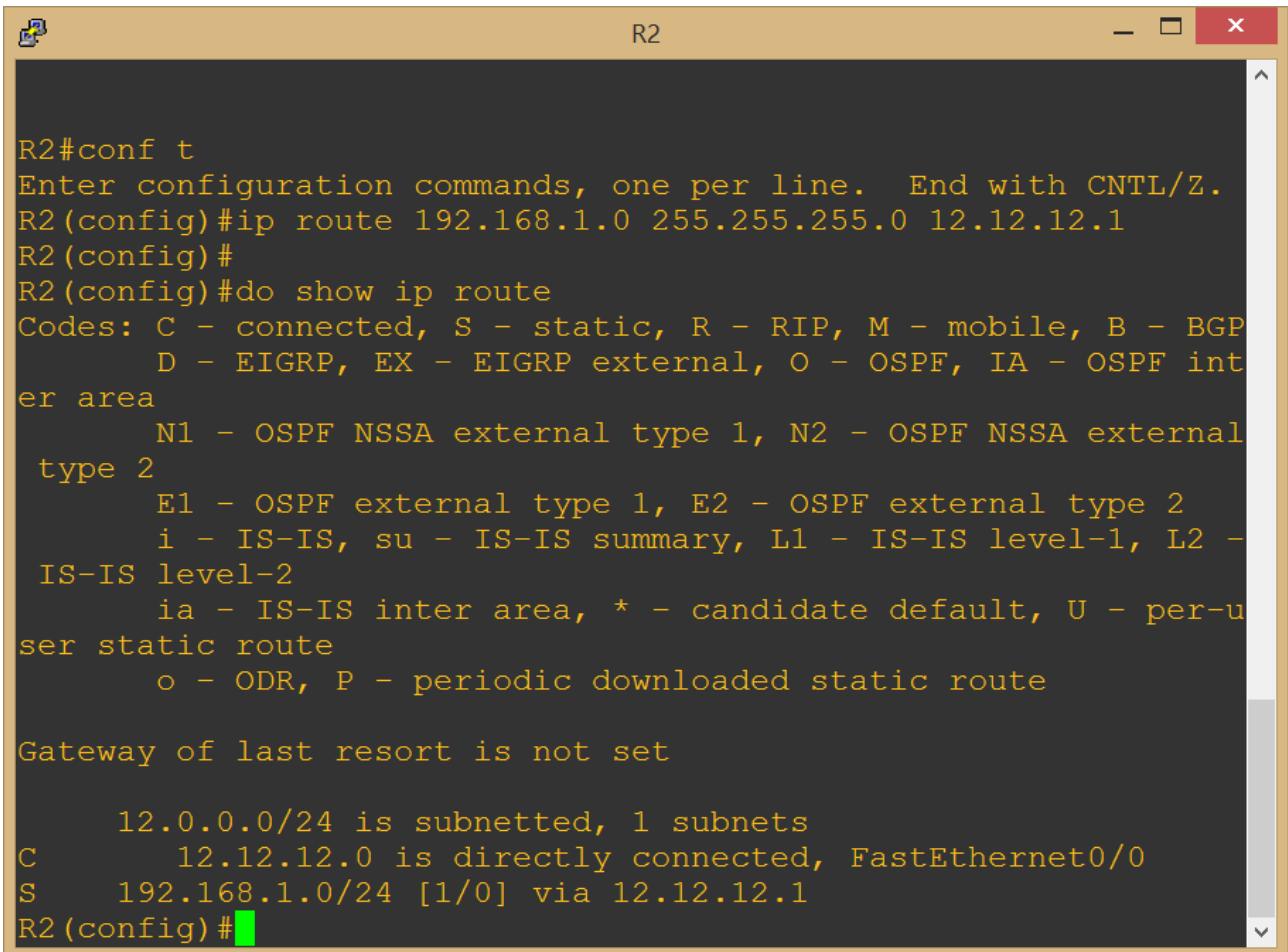
Ternyata ping dari Loopback Adapter (192.168.1.3) menuju 12.12.12.2 tidak berhasil, karena R2 belum ada routing ke network 192.168.1.0/24. Oleh karena itu, agar koneksi berhasil, lakukan setting static routing di R2.



```
R2
Press RETURN to get started.

R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.1.0 255.255.255.0 12.12.12.1
R2(config)#
R2(config) #
```

Cek tabel routing R2:



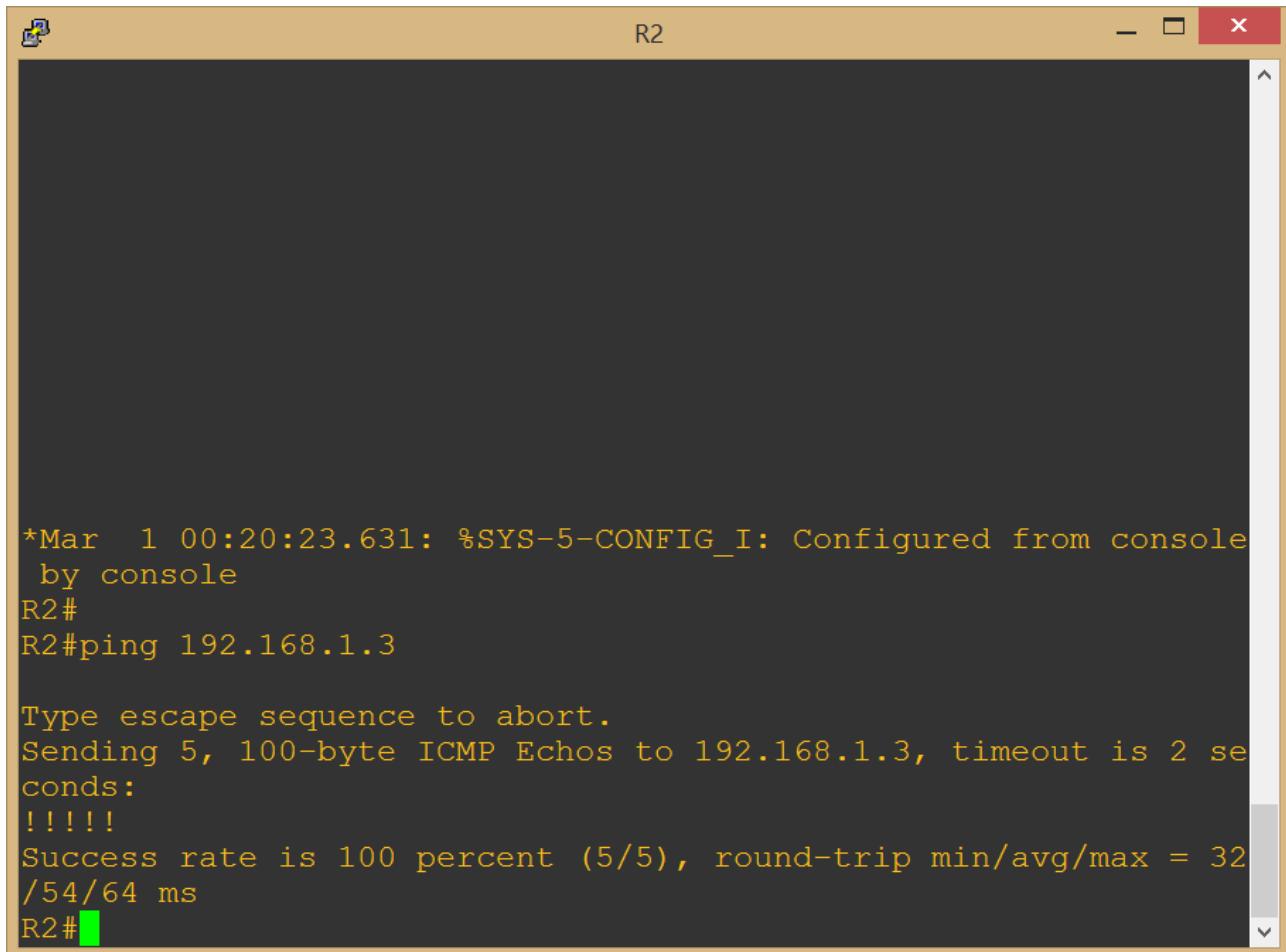
```
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.1.0 255.255.255.0 12.12.12.1
R2(config)#
R2(config)#do show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
          N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
          E1 - OSPF external type 1, E2 - OSPF external type 2
          i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
          ia - IS-IS inter area, * - candidate default, U - per-user static route
          o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

  12.0.0.0/24 is subnetted, 1 subnets
C        12.12.12.0 is directly connected, FastEthernet0/0
S        192.168.1.0/24 [1/0] via 12.12.12.1
R2(config)#[
```

R2 sekarang sudah memiliki routing table menuju network 192.168.1.0/24 menggunakan static routing.

Ping dari R2 ke Loopback Adapter Windows. Pastikan berhasil.



```
*Mar 1 00:20:23.631: %SYS-5-CONFIG_I: Configured from console by console
R2#
R2#ping 192.168.1.3

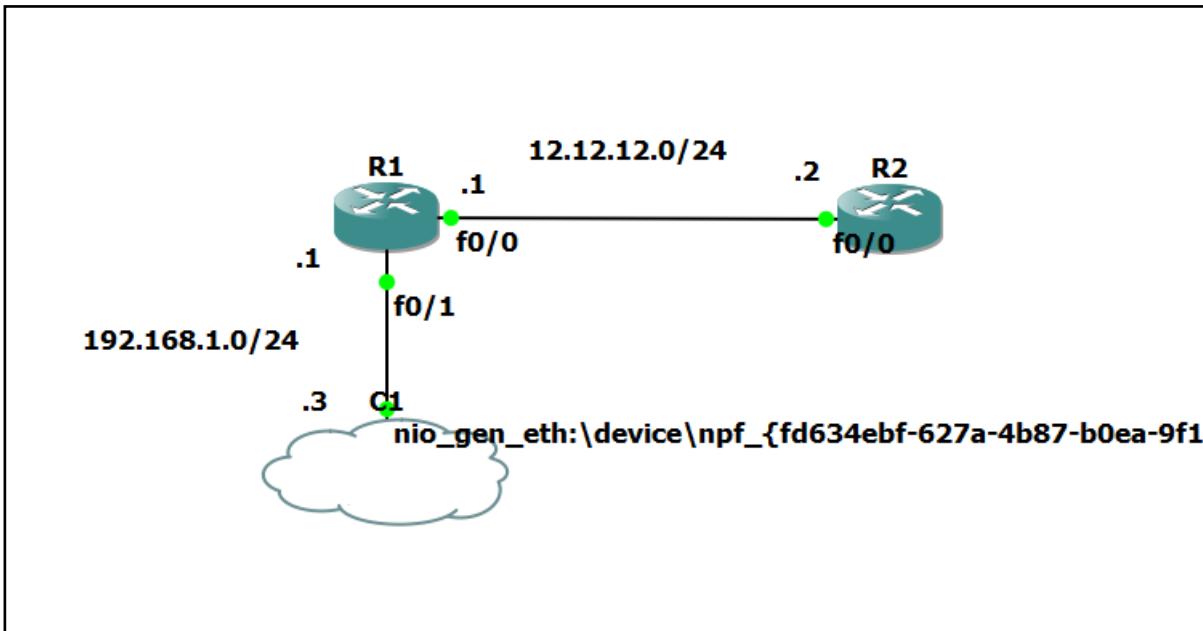
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/54/64 ms
R2#
```

Ping berhasil.

Apabila belum berhasil, coba matikan firewall di windows Anda.

Chapter 14 - OSPF

Topologi network



Untuk menghubungkan network diatas selain menggunakan static routing, bisa juga menggunakan OSPF. Hapus terlebih dahulu static routing untuk implementasi OSPF.

```
R2
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#no ip route 192.168.1.0 255.255.255.0 12.12.12.1
R2(config)#[
```

Setting OSPF di R1 dan R2 menggunakan area 0

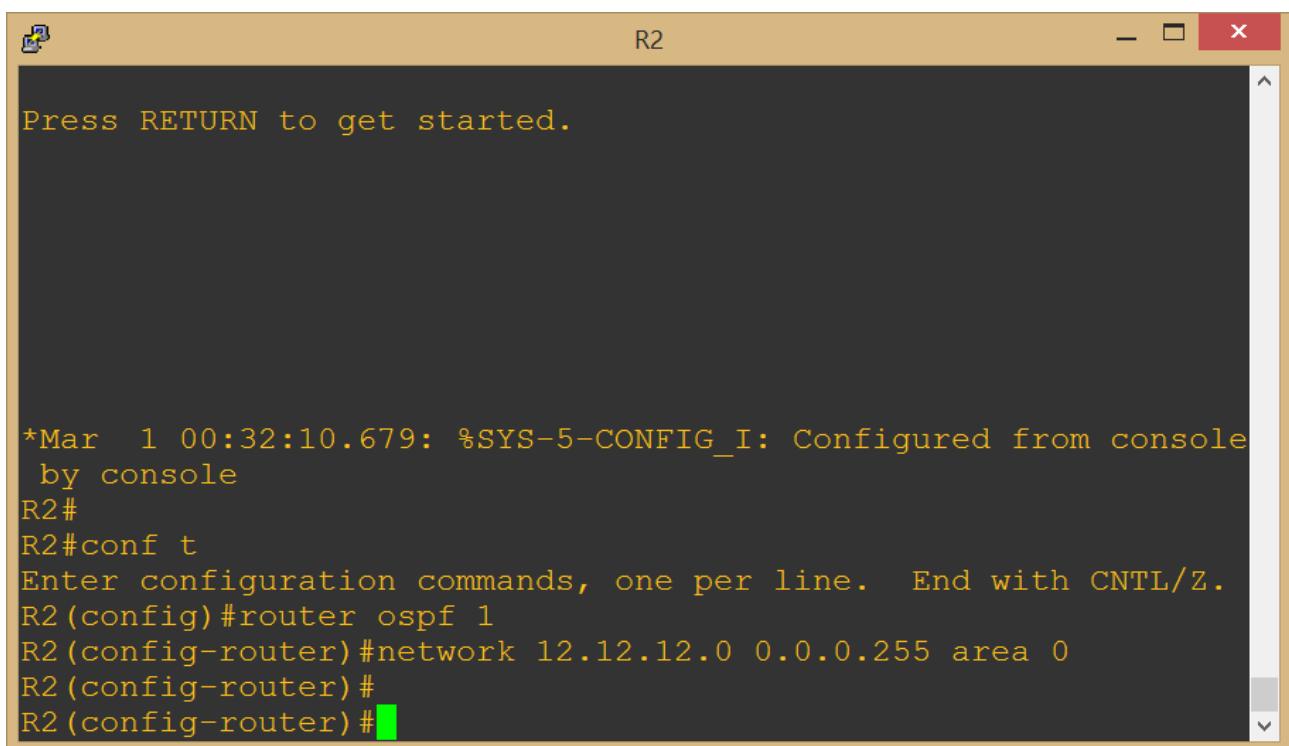


```
R1 con0 is now available

Press RETURN to get started.

R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#router ospf 1
R1(config-router)#network 192.168.1.0 0.0.0.255 area 0
R1(config-router)#network 12.12.12.0 0.0.0.255 area 0
R1(config-router)#
R1(config-router)#

```

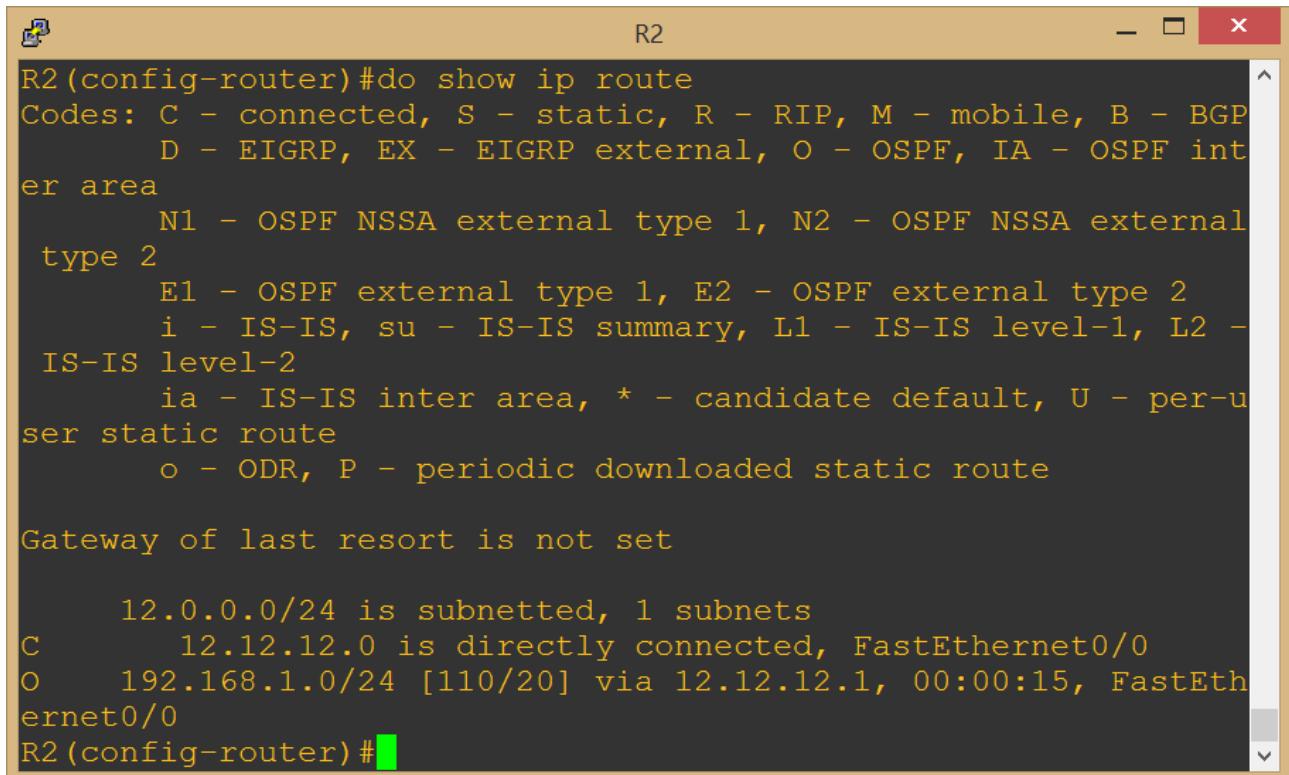


```
Press RETURN to get started.

*Mar  1 00:32:10.679: %SYS-5-CONFIG_I: Configured from console
by console
R2#
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router ospf 1
R2(config-router)#network 12.12.12.0 0.0.0.255 area 0
R2(config-router)#
R2(config-router)#

```

Cek routing table di R2

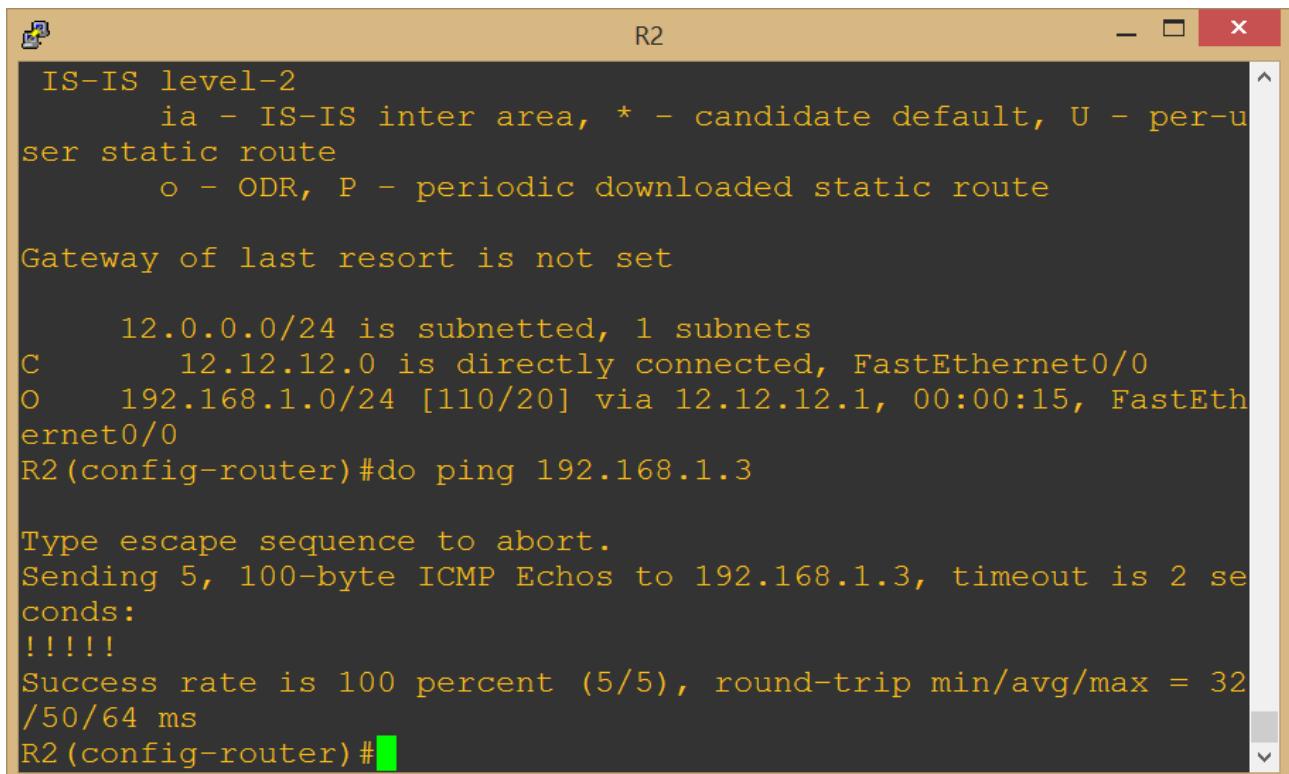


```
R2
R2(config-router)#do show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2
      i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
      ia - IS-IS inter area, * - candidate default, U - per-user static route
      o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

      12.0.0.0/24 is subnetted, 1 subnets
C        12.12.12.0 is directly connected, FastEthernet0/0
O        192.168.1.0/24 [110/20] via 12.12.12.1, 00:00:15, FastEthernet0/0
R2(config-router) #
```

Tes ping dari R2 ke Loopback Adapter.



```
R2
IS-IS level-2
      ia - IS-IS inter area, * - candidate default, U - per-user static route
      o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

      12.0.0.0/24 is subnetted, 1 subnets
C        12.12.12.0 is directly connected, FastEthernet0/0
O        192.168.1.0/24 [110/20] via 12.12.12.1, 00:00:15, FastEthernet0/0
R2(config-router) #do ping 192.168.1.3

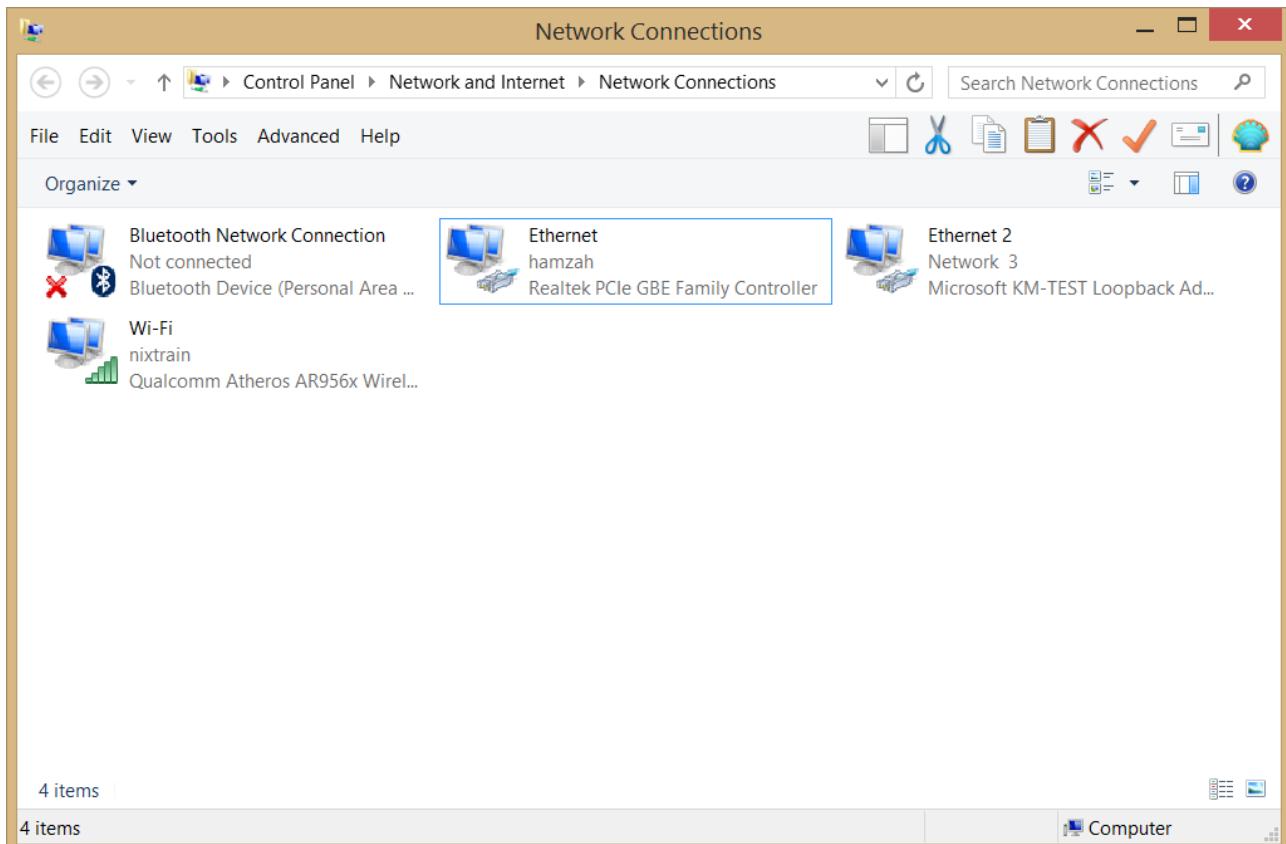
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/50/64 ms
R2(config-router) #
```

Ping berhasil dari R2 ke Loopback Adapter.

Chapter 15 - Menghubungkan GNS3 ke Real Network

Pada topologi kali ini, saya akan menghubungkan topologi eksisting ke Cloud (bridging ke interface Ethernet Laptop) agar terhubung ke modem router lalu request IP DHCP. Satu hal penting yang Anda butuhkan adalah koneksi interface Ethernet Laptop menggunakan kabel UTP ke switch / router yang memiliki akses internet.

Pastikan Ethernet sudah enabled.



Ping google dari CMD Laptop.

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Agus Setiawan>ping 8.8.8.8

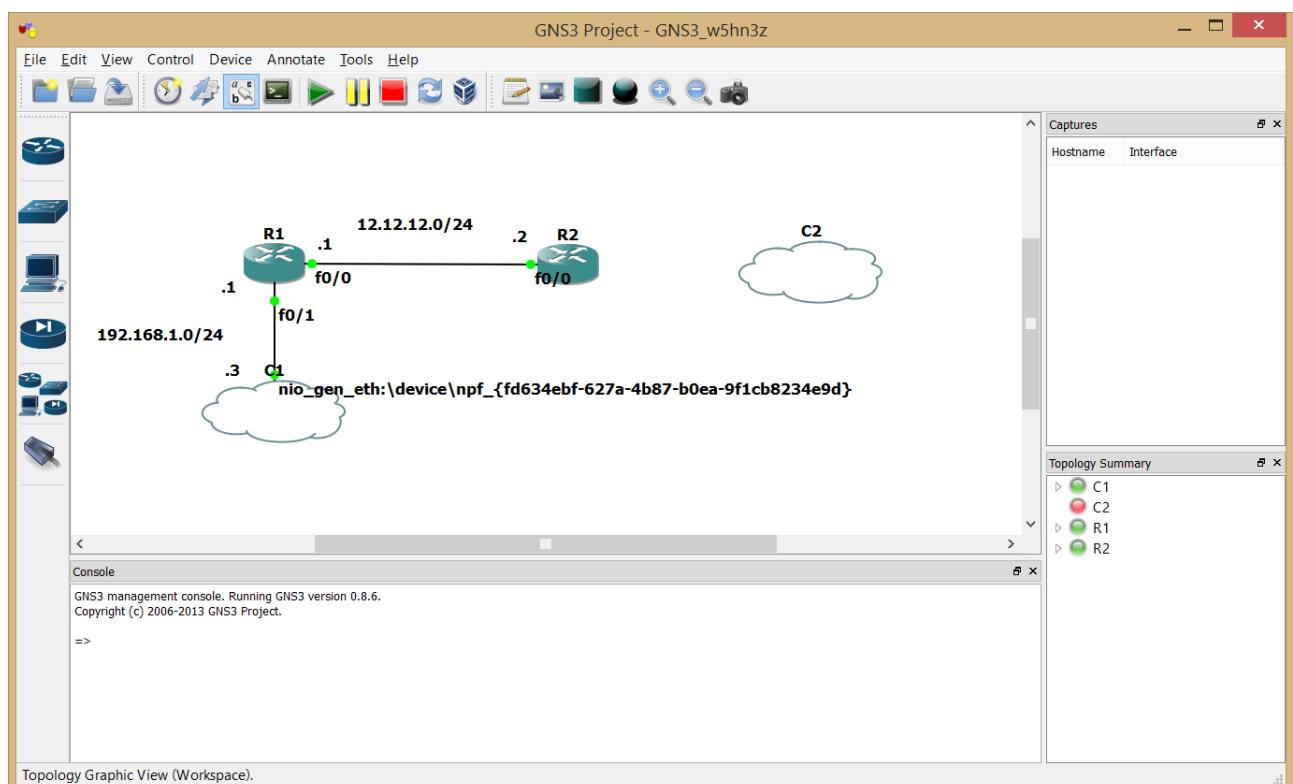
Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=1438ms TTL=55
Reply from 8.8.8.8: bytes=32 time=1481ms TTL=55
Reply from 8.8.8.8: bytes=32 time=1532ms TTL=55
Reply from 8.8.8.8: bytes=32 time=1241ms TTL=55

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1241ms, Maximum = 1532ms, Average = 1423ms

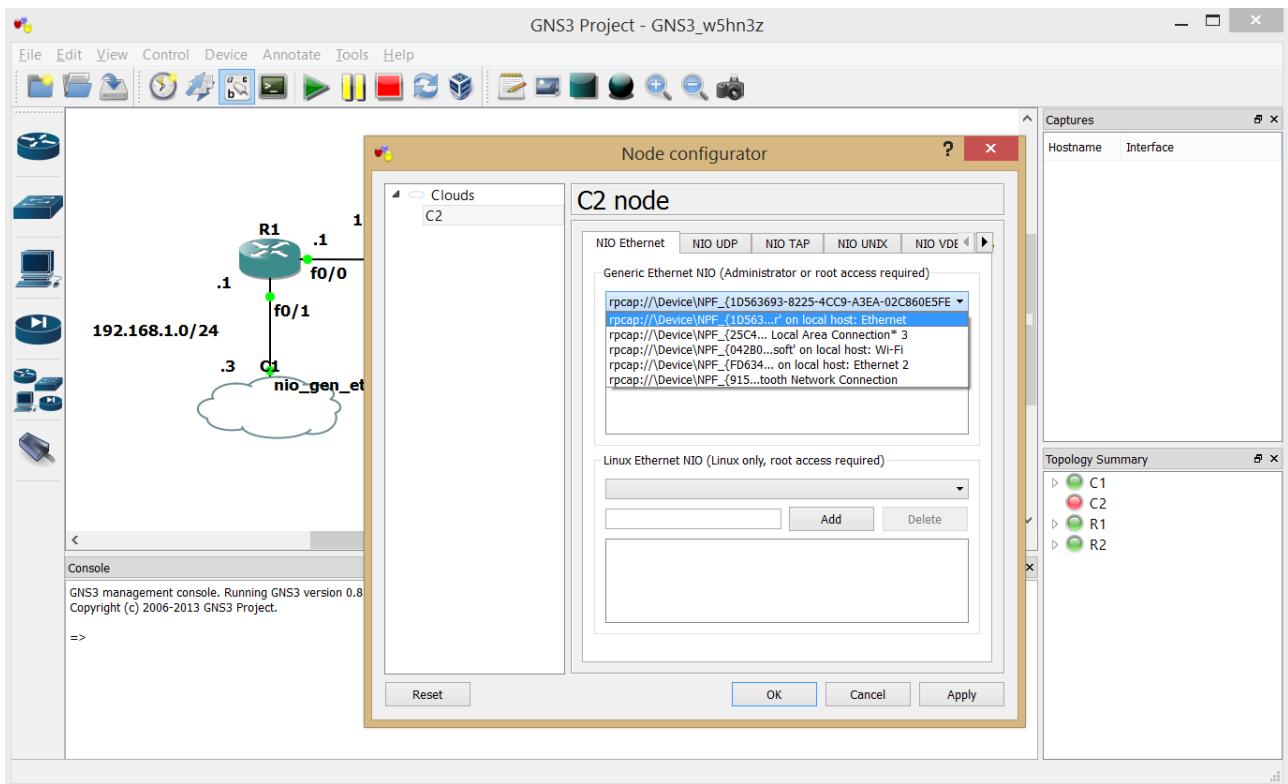
C:\Users\Agus Setiawan>
```

Ping google berhasil.

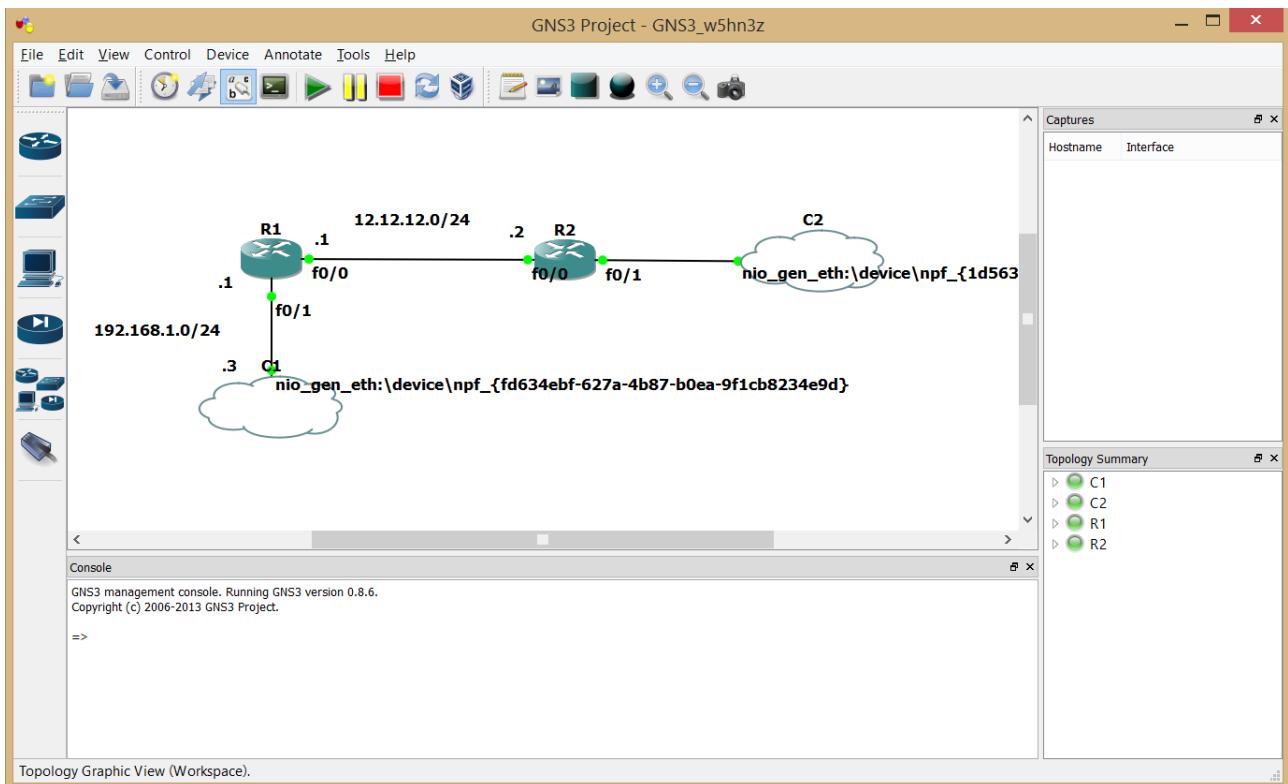
Tambahkan C2



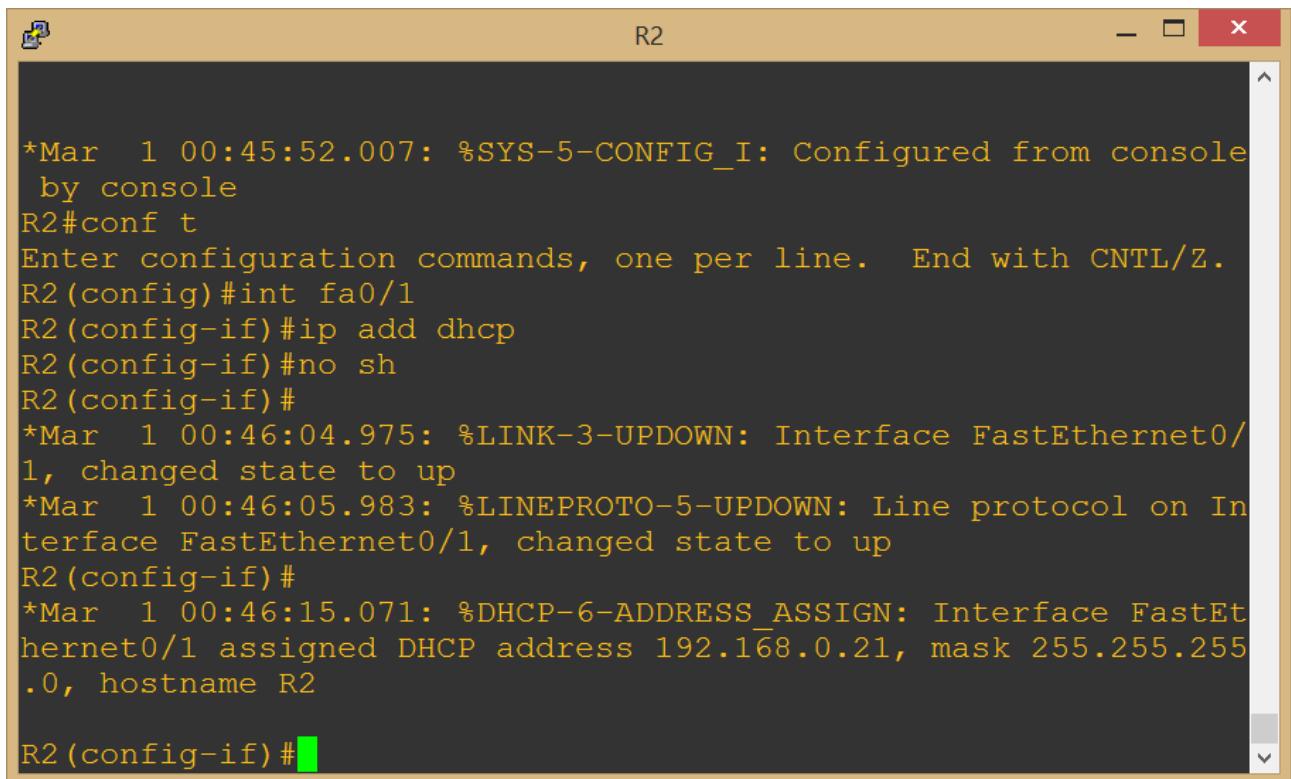
Klik Configure dan bridging ke Ethernet.



Klik OK. Lalu tambahkan koneksi cabling dari fa0/1 R2 ke C2.



Setting IP DHCP untuk fa0/1 R2.

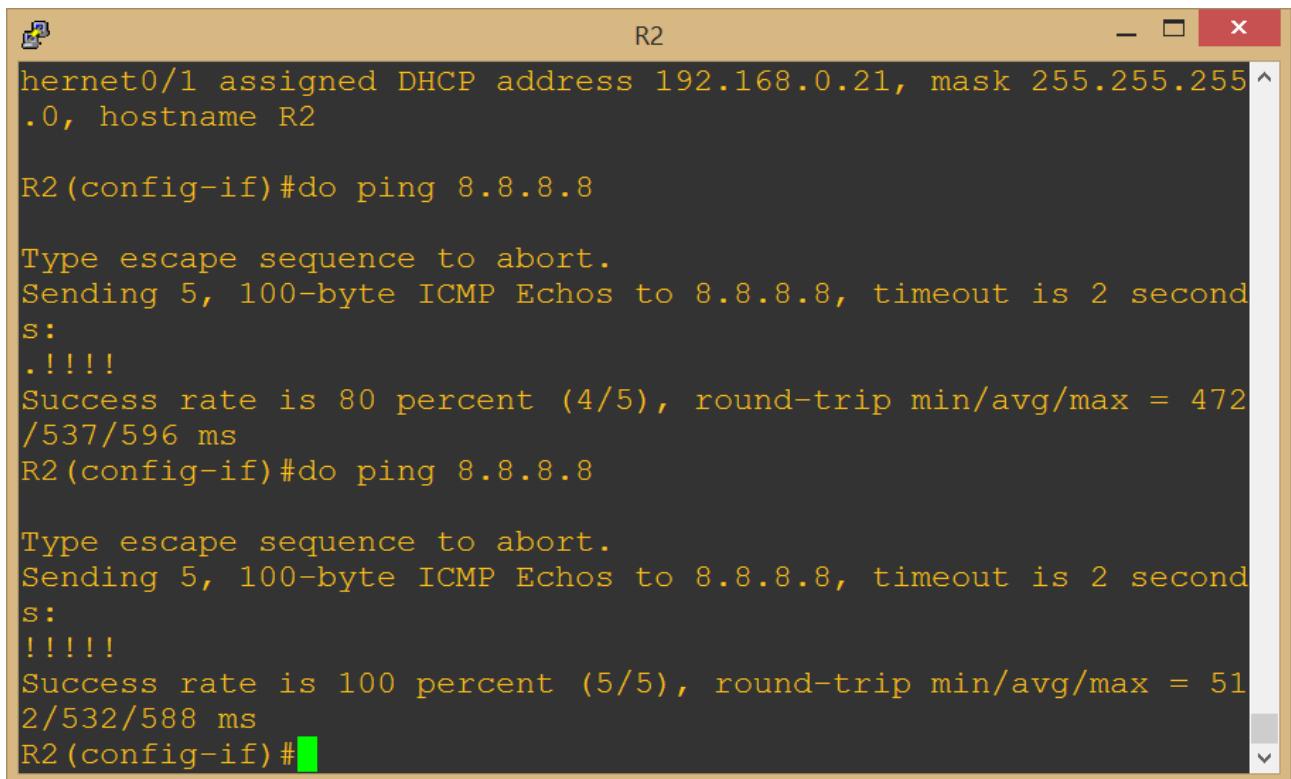


```
*Mar 1 00:45:52.007: %SYS-5-CONFIG_I: Configured from console by console
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int fa0/1
R2(config-if)#ip add dhcp
R2(config-if)#no sh
R2(config-if)#
*Mar 1 00:46:04.975: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:46:05.983: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
R2(config-if)#
*Mar 1 00:46:15.071: %DHCP-6-ADDRESS_ASSIGN: Interface FastEthernet0/1 assigned DHCP address 192.168.0.21, mask 255.255.255.0, hostname R2

R2(config-if)#[
```

Apabila IP DHCP sudah berhasil didapatkan, berarti GNS3 sudah terhubung ke real network.

Lakukan tes ping ke 8.8.8.8 dan pastikan berhasil.



```
hernet0/1 assigned DHCP address 192.168.0.21, mask 255.255.255.0, hostname R2

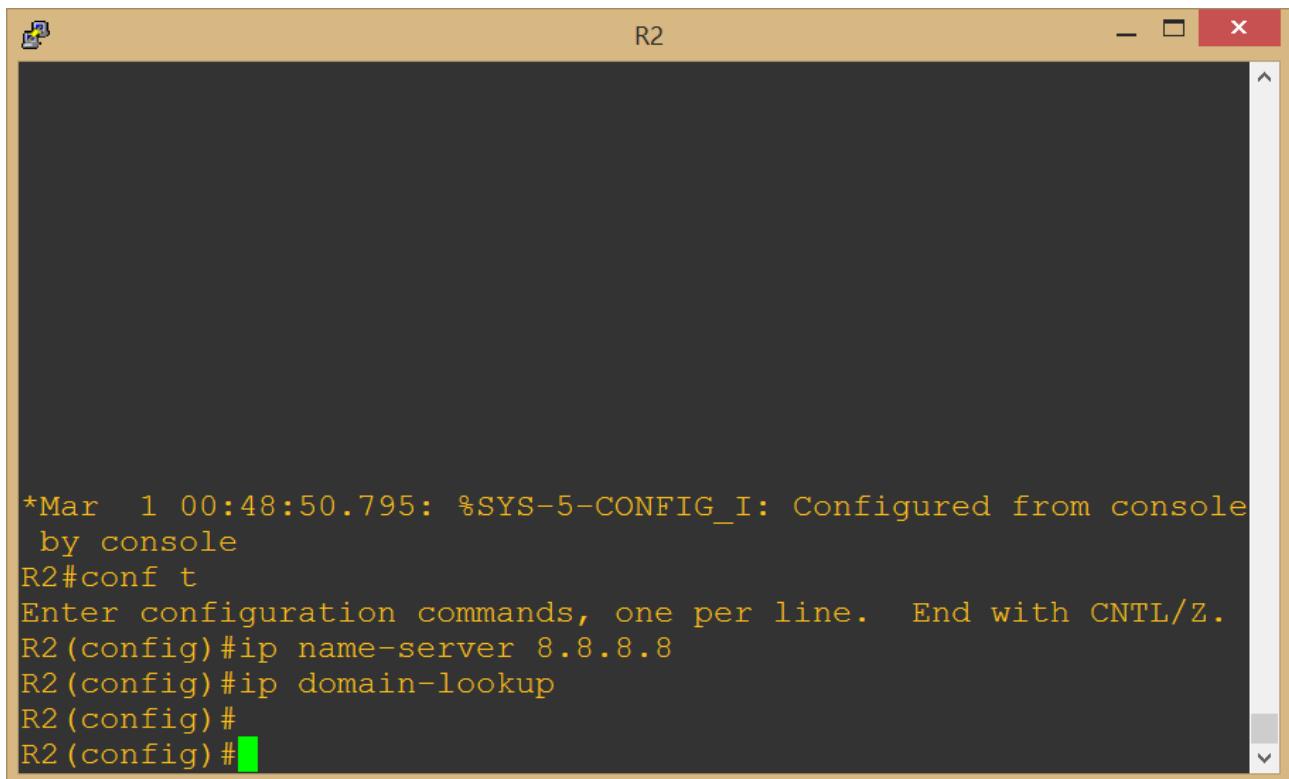
R2(config-if)#do ping 8.8.8.8

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 472/537/596 ms
R2(config-if)#do ping 8.8.8.8

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
.!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 512/532/588 ms
R2(config-if)#[
```

GNS3 telah terhubung ke real network.

Tambahkan DNS server di R2.



```
*Mar 1 00:48:50.795: %SYS-5-CONFIG_I: Configured from console by console
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip name-server 8.8.8.8
R2(config)#ip domain-lookup
R2(config)#
R2(config)#[
```

Tes ping ke www.facebook.com, apabila berhasil resolver DNSnya, maka akan tampil IP Public www.facebook.com



```
*Mar 1 00:48:50.795: %SYS-5-CONFIG_I: Configured from console by console
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip name-server 8.8.8.8
R2(config)#ip domain-lookup
R2(config)#
R2(config)#+do ping www.facebook.com

Translating "www.facebook.com"...domain server (202.73.99.2) [OK]

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 31.13.79.220, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 40/136/284 ms
R2(config)#[
```

Resolver DNS berhasil, IP Public www.facebook.com yang didapatkan 31.13.79.220.