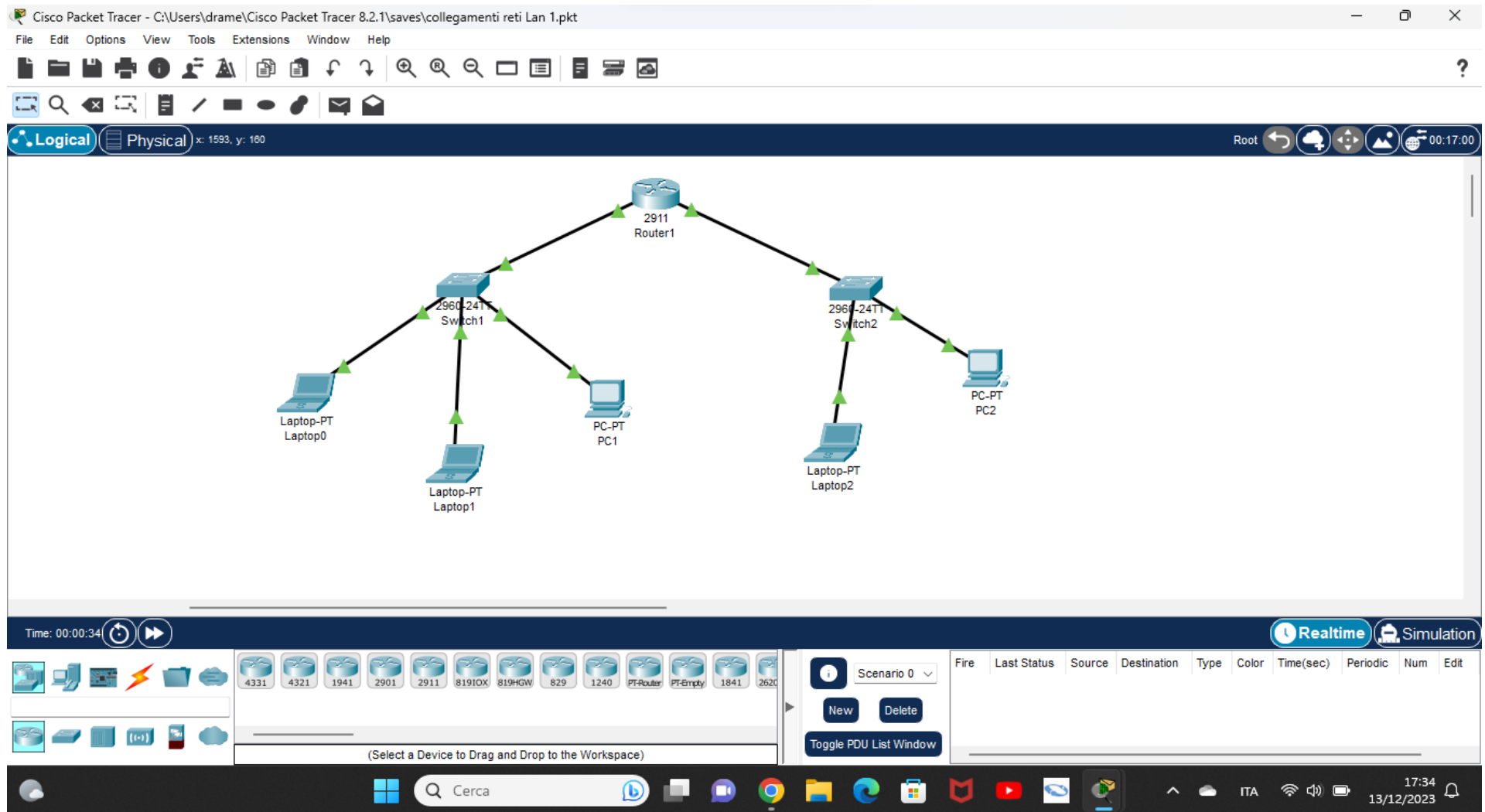


# Virtual LAB

Creazione di una rete di calcolatori con tool Cisco  
Packet Tracer

# Architettura Laboratorio



# Configurazione Router: Gigabit Ethernet 0

The screenshot displays the Cisco Packet Tracer interface with the Router1 configuration window open. The configuration is for the GigabitEthernet0/0 interface. The interface is set to be On, with a bandwidth of 1000 Mbps, 100 Mbps, or 10 Mbps, and a duplex of Half Duplex or Full Duplex. The MAC address is 00E0.8F37.DC01. The IP configuration shows an IPv4 address of 192.168.100.1 and a Subnet Mask of 255.255.255.0. The Tx Ring Limit is set to 10.

Equivalent IOS Commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

The background shows a network diagram with a Laptop-PT (Laptop0) connected to the router. The bottom status bar indicates the time is 00:01:02 and the simulation is running in Realtime mode.

# Configurazione Router: Gibabit Ethernet 1

The screenshot displays the Cisco Packet Tracer interface with the Router1 configuration window open. The configuration is for the GigabitEthernet0/1 interface. The interface is set to be On, with a bandwidth of 100 Mbps, and Full Duplex mode. The MAC Address is 00E0.8F37.DC02. The IP Configuration shows an IPv4 Address of 192.168.200.1 and a Subnet Mask of 255.255.255.0. The Tx Ring Limit is set to 10. The Equivalent IOS Commands section shows the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
```

The background shows a network diagram with a Laptop-PT (Laptop0) connected to the router. The bottom status bar indicates the simulation is running in Realtime mode, with a time of 00:01:13. The system tray at the bottom shows the date and time as 17:35 on 13/12/2023.

# Configurazione Laptop0 PT0 1/2

The screenshot shows the Cisco Packet Tracer interface with the 'Laptop0' configuration window open. The 'Config' tab is selected, and the 'Global Settings' section is active. The configuration details are as follows:

- Display Name:** Laptop0
- Interfaces:** FastEthernet0
- Gateway/DNS IPv4:**
  - ☐ DHCP
  - ☒ Static
  - Default Gateway:** 192.168.100.1
  - DNS Server:** (empty)
- Gateway/DNS IPv6:**
  - ☐ Automatic
  - ☒ Static
  - Default Gateway:** (empty)
  - DNS Server:** (empty)

The background network diagram shows a laptop icon labeled 'Laptop-PT Laptop0' connected to a network. The bottom status bar indicates the time is 00:01:32 and the simulation is running in 'Realtime' mode.

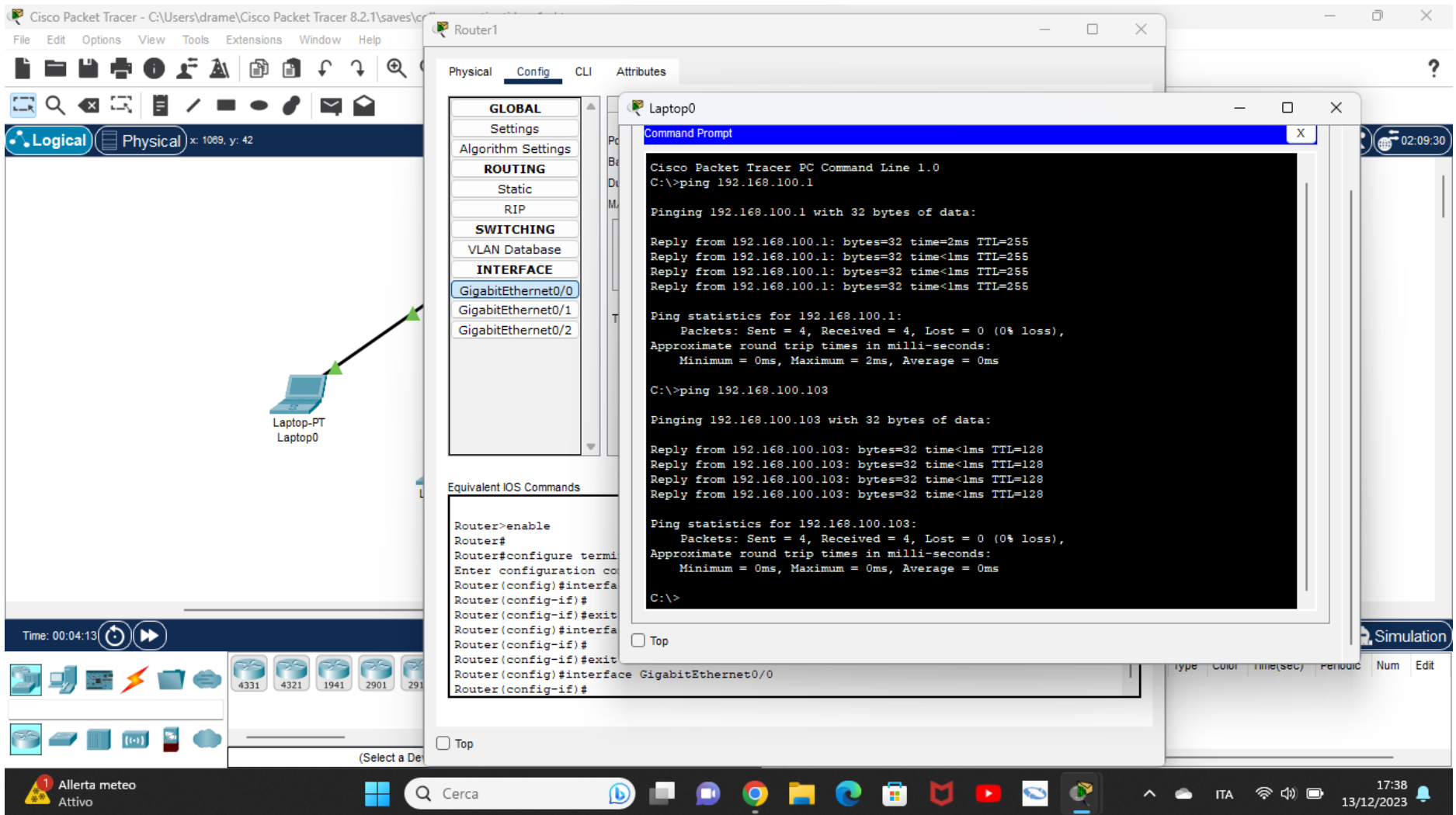
# Configurazione Laptop0 PT0 2/2

The screenshot shows the Cisco Packet Tracer interface with the configuration window for Laptop0 open. The configuration is as follows:

Section	Parameter	Value
FastEthernet0	Port Status	<input checked="" type="checkbox"/> On
	Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
	Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
	MAC Address	0090.21B4.859B
IP Configuration	<input type="radio"/> DHCP	
	<input checked="" type="radio"/> Static	
Static IP	IPv4 Address	192.168.100.100
	Subnet Mask	255.255.255.0
IPv6 Configuration	<input type="radio"/> Automatic	
	<input checked="" type="radio"/> Static	
Static IPv6	IPv6 Address	
	Link Local Address	FE80::290:21FF:FE84:859B

The background shows the Packet Tracer workspace with a laptop icon labeled "Laptop-PT Laptop0". The bottom status bar indicates the time is 00:01:47 and the simulation is in Realtime mode.

# Verifica Funzionamento tra Laptop0 PT0 e Router



The screenshot displays the Cisco Packet Tracer interface. In the background, a network diagram shows a laptop labeled 'Laptop-PT Laptop0' connected to a router labeled 'Router1'. The router's configuration window is open, showing the 'INTERFACE' section with 'GigabitEthernet0/0' selected. Below this, the 'Equivalent IOS Commands' section shows the following configuration:

```
Router>enable
Router#
Router#configure terminal
Router(config)#interface
Router(config-if)#
Router(config-if)#exit
Router(config)#interface
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

In the foreground, a 'Command Prompt' window is open on the laptop. It shows the results of a ping command to 192.168.100.1 and 192.168.100.103. The ping results show 0% loss and successful replies.

```
C:\>ping 192.168.100.1

Pinging 192.168.100.1 with 32 bytes of data:

Reply from 192.168.100.1: bytes=32 time=2ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 192.168.100.103

Pinging 192.168.100.103 with 32 bytes of data:

Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

# Configurazione Laptop2 PT2

The screenshot shows the Cisco Packet Tracer interface with the configuration window for Laptop2 open. The configuration is as follows:

Section	Parameter	Value
FastEthernet0	Port Status	<input checked="" type="checkbox"/> On
	Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
	Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
	MAC Address	00D0.97E2.8BA3
IP Configuration	Configuration Type	<input checked="" type="radio"/> Static <input type="radio"/> DHCP
	IPv4 Address	192.168.200.100
	Subnet Mask	255.255.255.0
IPv6 Configuration	Configuration Type	<input checked="" type="radio"/> Static <input type="radio"/> Automatic
	IPv6 Address	
	Link Local Address	FE80::2D0:97FF:FEE2:8BA3

The background shows a network diagram with a laptop icon labeled "Laptop-PT Laptop0". The bottom status bar indicates the time is 00:04:34 and the simulation is in Realtime mode.



# Verifica connessione Laptop0 PT0 Laptop2 PT2

The screenshot displays the Cisco Packet Tracer 8.2.1 interface. The main workspace shows a network diagram with a laptop icon labeled "Laptop-PT Laptop0". A Command Prompt window is open on the laptop, showing the results of several ping commands. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected.

**Command Prompt Output:**

```
Reply from 192.168.100.1: bytes=32 time=2ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 192.168.100.103

Pinging 192.168.100.103 with 32 bytes of data:

Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.200.100

Pinging 192.168.200.100 with 32 bytes of data:

Request timed out.
Reply from 192.168.200.100: bytes=32 time<1ms TTL=127
Reply from 192.168.200.100: bytes=32 time<1ms TTL=127
Reply from 192.168.200.100: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.200.100:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

The interface also shows a bottom status bar with the time 00:05:21, a temperature of 8°C, and the date 13/12/2023. The taskbar at the bottom includes the Windows Start button, a search bar, and various application icons.

# CONSIDERAZIONI

Eseguendo la simulazione sul tool Packet Tracer di Cisco possiamo evidenziare il lavoro svolto al livello data della comunicazione, dove notiamo un continuo cambiamento dell'indirizzo MAC al momento della trasmissione, mentre resta invariato l'indirizzo IP.