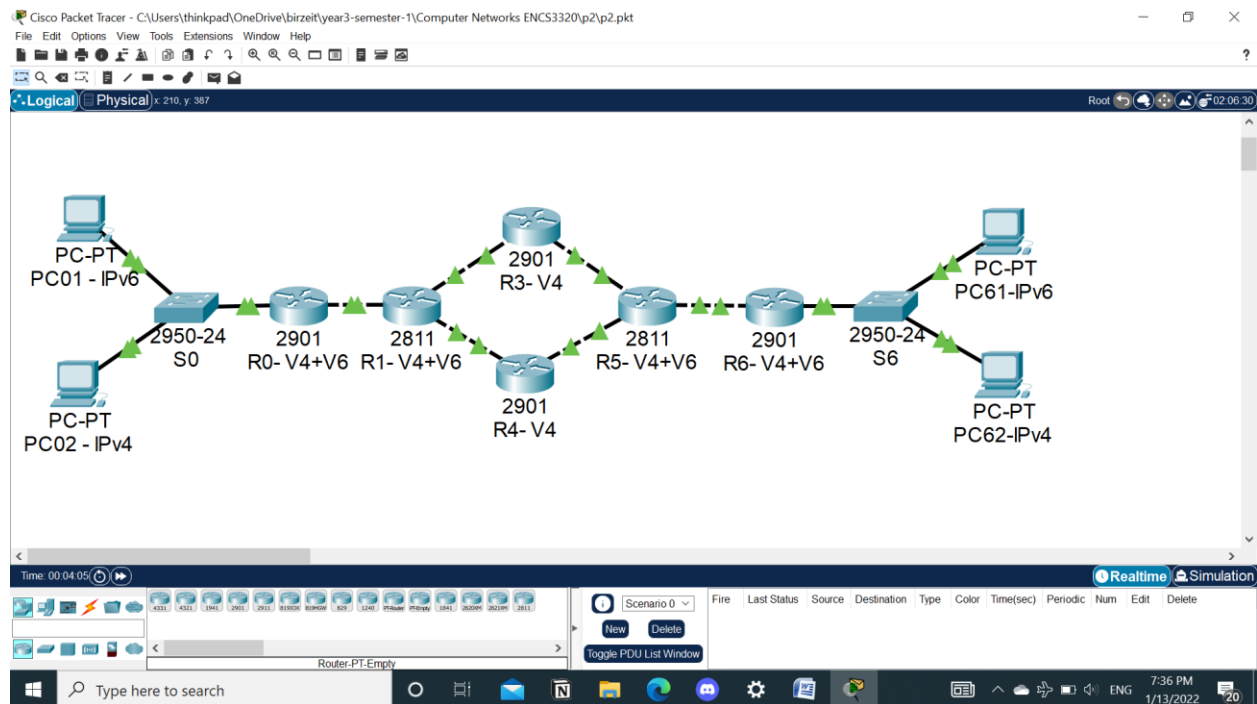


Part2:

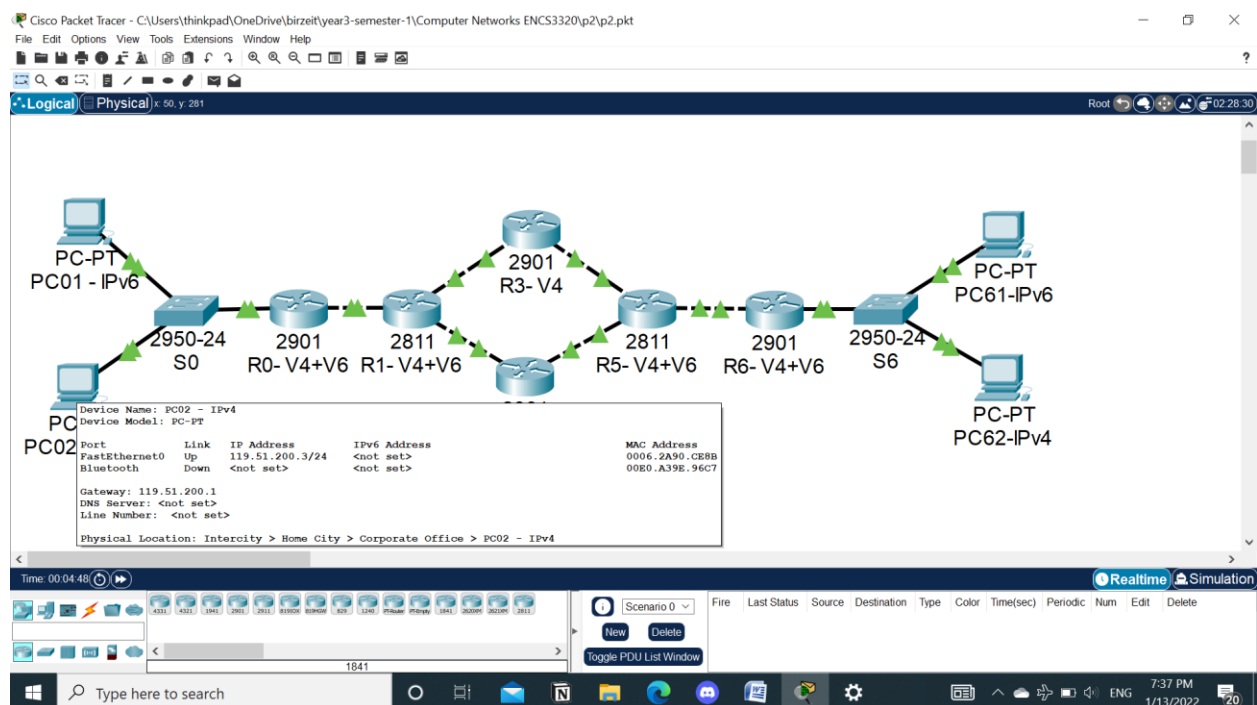
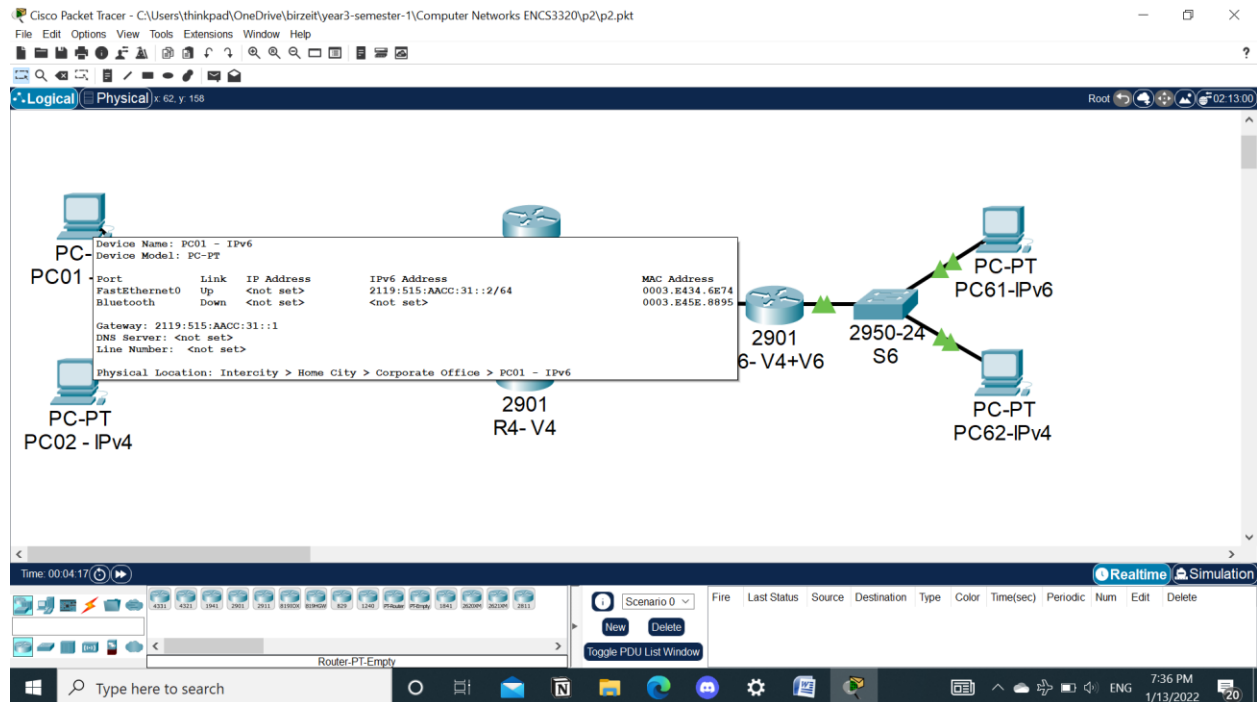
This is the network topology and IP addresses given according to the criteria mentioned on the project question sheets.

In addition, the id addresses used is tow addresses:

Abdallah: 1190515 → on left, Mahmmoud: 1192519 → on right



Give IP addresses



Cisco Packet Tracer - C:\Users\thinkpad\OneDrive\birzeit\year3-semester-1\Computer Networks ENCS3320\p2\p2.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 222, y: 228

PC-PT PC01 - IPv6

PC-PT PC02 - IPv4

2950-24 S0

2901 R0- V

2901 R3- V4

PC-PT PC61-IPv6

2901 R1- V6

2950-24 S0

Device Name: R0- V4+V6
Device Model: 2901
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
GigabitEthernet0/0	Up	--	119.51.200.1/24	2119:515:AACC:31::1/64	0001.6481.C601
GigabitEthernet0/1	Up	--	119.51.201.1/30	2119:515:AACC:32::1/64	0001.6481.C602
Vlan1	Down	1	<not set>	<not set>	0040.0B98.3297

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R0- V4+V6

Time: 00:05:30

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

7:37 PM 1/13/2022

Cisco Packet Tracer - C:\Users\thinkpad\OneDrive\birzeit\year3-semester-1\Computer Networks ENCS3320\p2\p2.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 310, y: 230

PC-PT PC01 - IPv6

PC-PT PC02 - IPv4

2950-24 S0

2901 R0- V4+V6

2811 R1- V6

2901 R3- V4

2811 R1- V6

2901 R3- V4

2950-24 S0

PC-PT PC61-IPv6

Device Name: R1- V4+V6
Custom Device Model: 2811 I0815
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	--	119.51.201.2/30	2119:515:AACC:32::2/64	0000.0CE6.3001
FastEthernet0/1	Up	--	119.51.1.1/30	<not set>	0000.0CE6.3002
Ethernet1/0	Up	--	119.51.1.9/30	<not set>	0010.1105.15A9
Tunnel0	Up	--	<not set>	2119:515:AACC:35::1/64	000B.BE7C.E0B1
Vlan1	Down	1	<not set>	<not set>	000A.F3A0.E04A

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R1- V4+V6

Time: 00:05:39

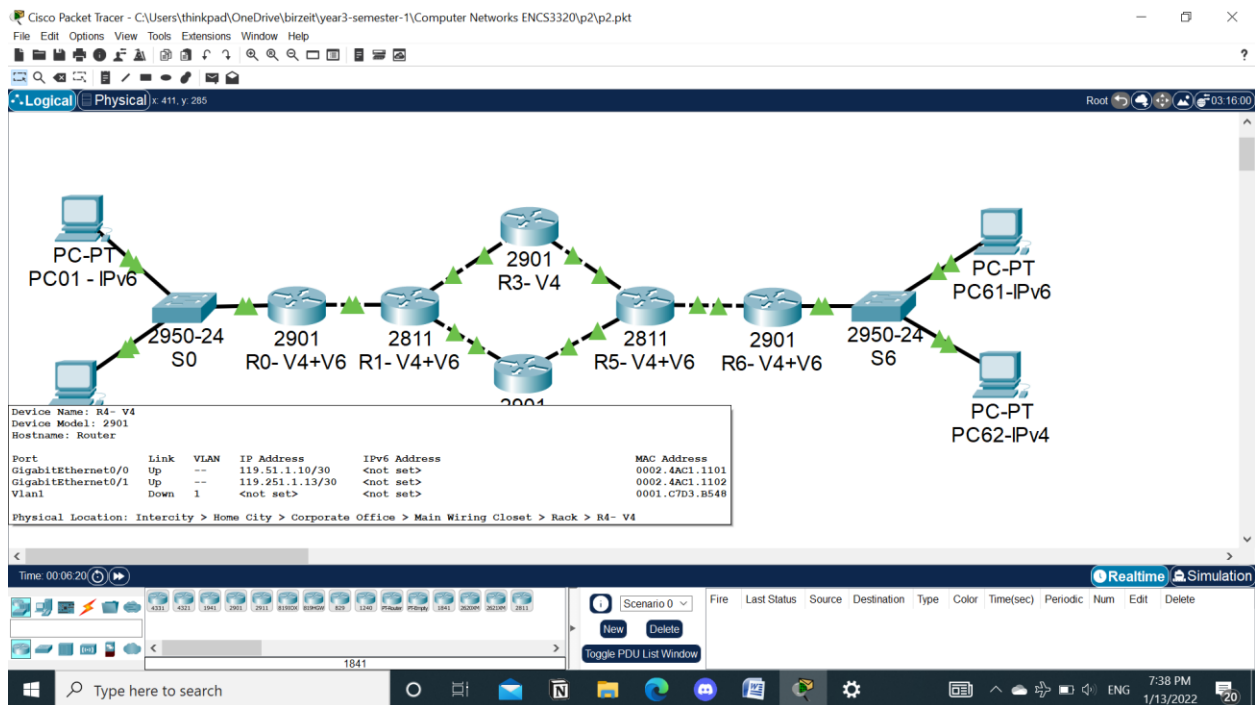
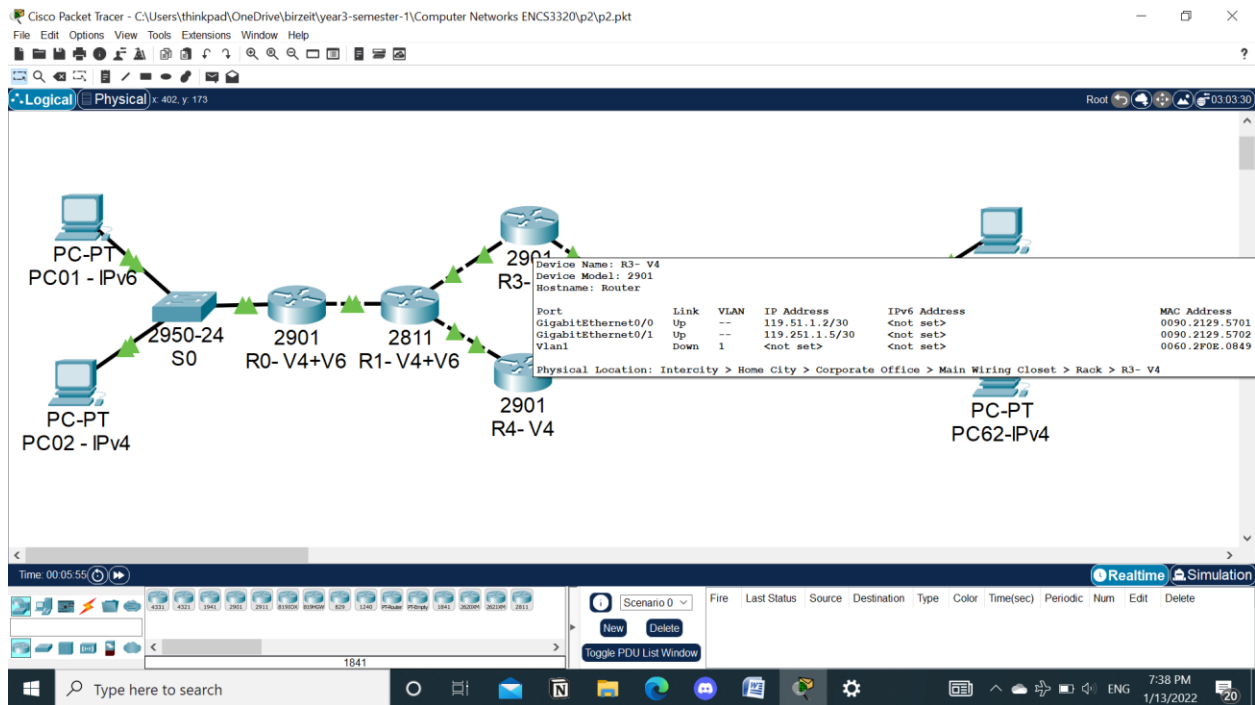
Scenario 0

New Delete

Toggle PDU List Window

Type here to search

7:38 PM 1/13/2022



Cisco Packet Tracer - C:\Users\thinkpad\OneDrive\birzeit\year3-semester-1\Computer Networks ENCS3320\p2\p2.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 496, y: 232

Device Name: R5- V4+V6
Custom Device Model: 2811 IOS15
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
FastEthernet0/0	Up	--	119.251.1.6/30	<not set>	000C.856C.8B01
FastEthernet0/1	Up	--	119.251.1.14/30	<not set>	000C.856C.8B02
Ethernet1/0	Up	--	119.251.101.1/30	2119:2519:AACC:33::1/64	00E0.F798.0048
Tunnel0	Up	--	<not set>	2119:2519:AACC:36::1/64	0009.7CDE.490E
Vlan1	Down	1	<not set>	<not set>	00E0.F9C0.31E2

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R5- V4+V6

Time: 00:06:34

Scenario 0

New Delete

Toggle PDU List Window

Type here to search

7:38 PM 1/13/2022

Cisco Packet Tracer - C:\Users\thinkpad\OneDrive\birzeit\year3-semester-1\Computer Networks ENCS3320\p2\p2.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 577, y: 234

Device Name: R6- V4+V6
Device Model: 2901
Hostname: Router

Port	Link	VLAN	IP Address	IPv6 Address	MAC Address
GigabitEthernet0/0	Up	--	119.251.101.2/30	2119:2519:AACC:33::2/64	0001.43BE.C501
GigabitEthernet0/1	Up	--	119.251.100.1/24	2119:2519:AACC:34::1/64	0001.43BE.C502
Vlan1	Down	1	<not set>	<not set>	0001.4331.0709

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R6- V4+V6

Time: 00:06:41

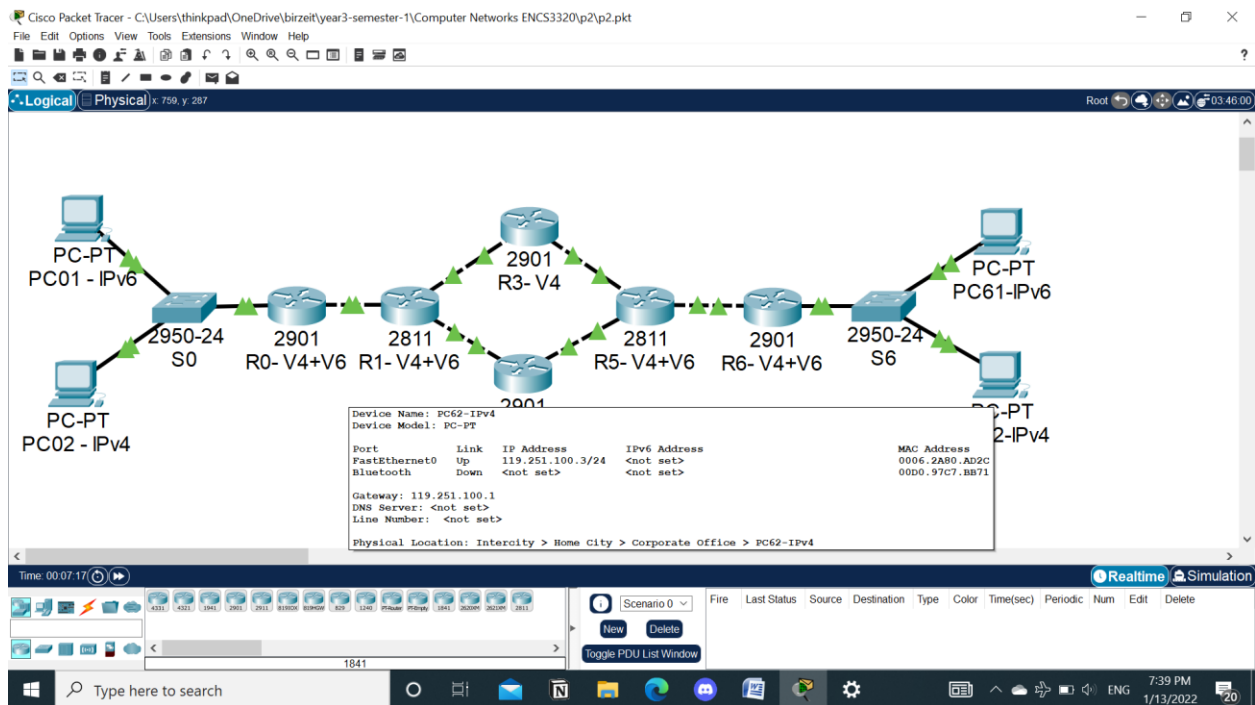
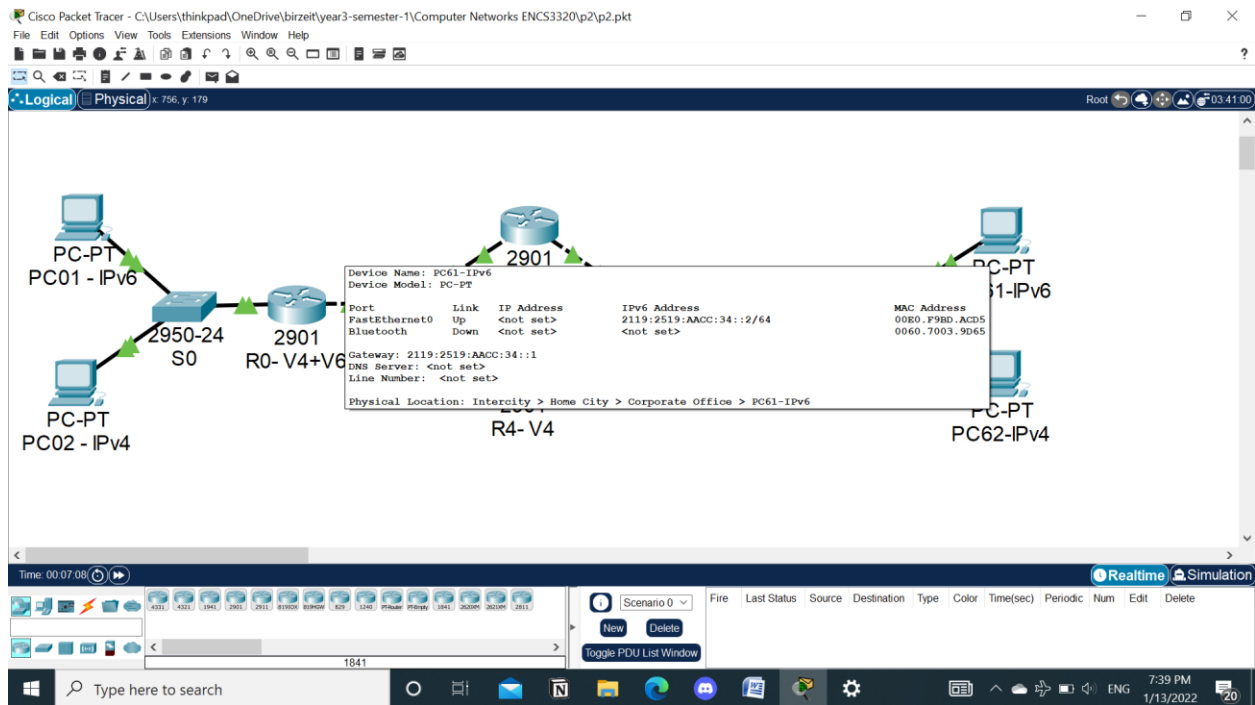
Scenario 0

New Delete

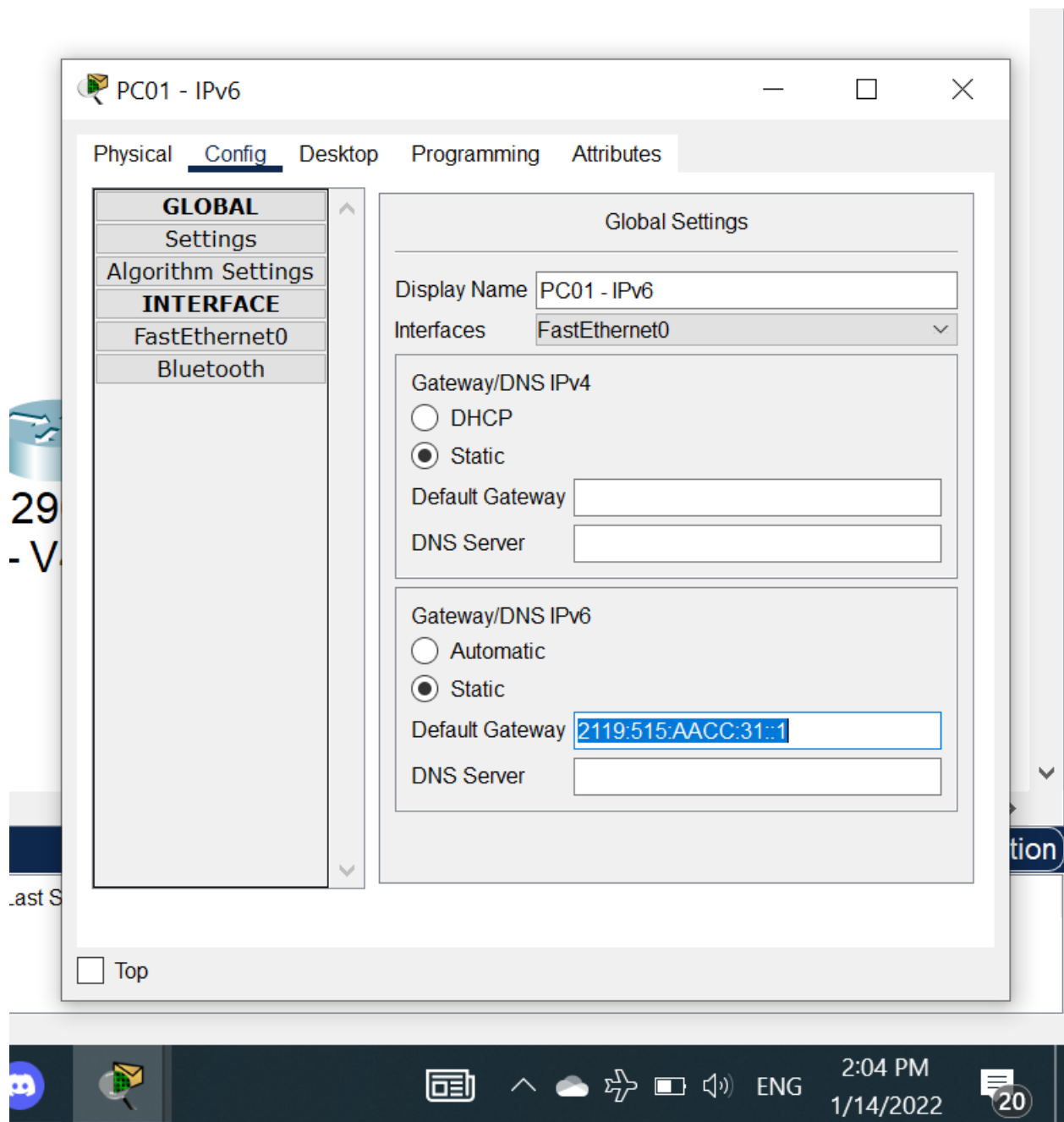
Toggle PDU List Window

Type here to search

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Set gateway for each PC, where gateway equals the IP for router interface in local network





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PC61-IPv6

PhysicalConfigDesktopProgrammingAttributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display NamePC61-IPv6

InterfacesFastEthernet0

Gateway/DNS IPv4

DHCP

Static

Default Gateway

DNS Server

Gateway/DNS IPv6

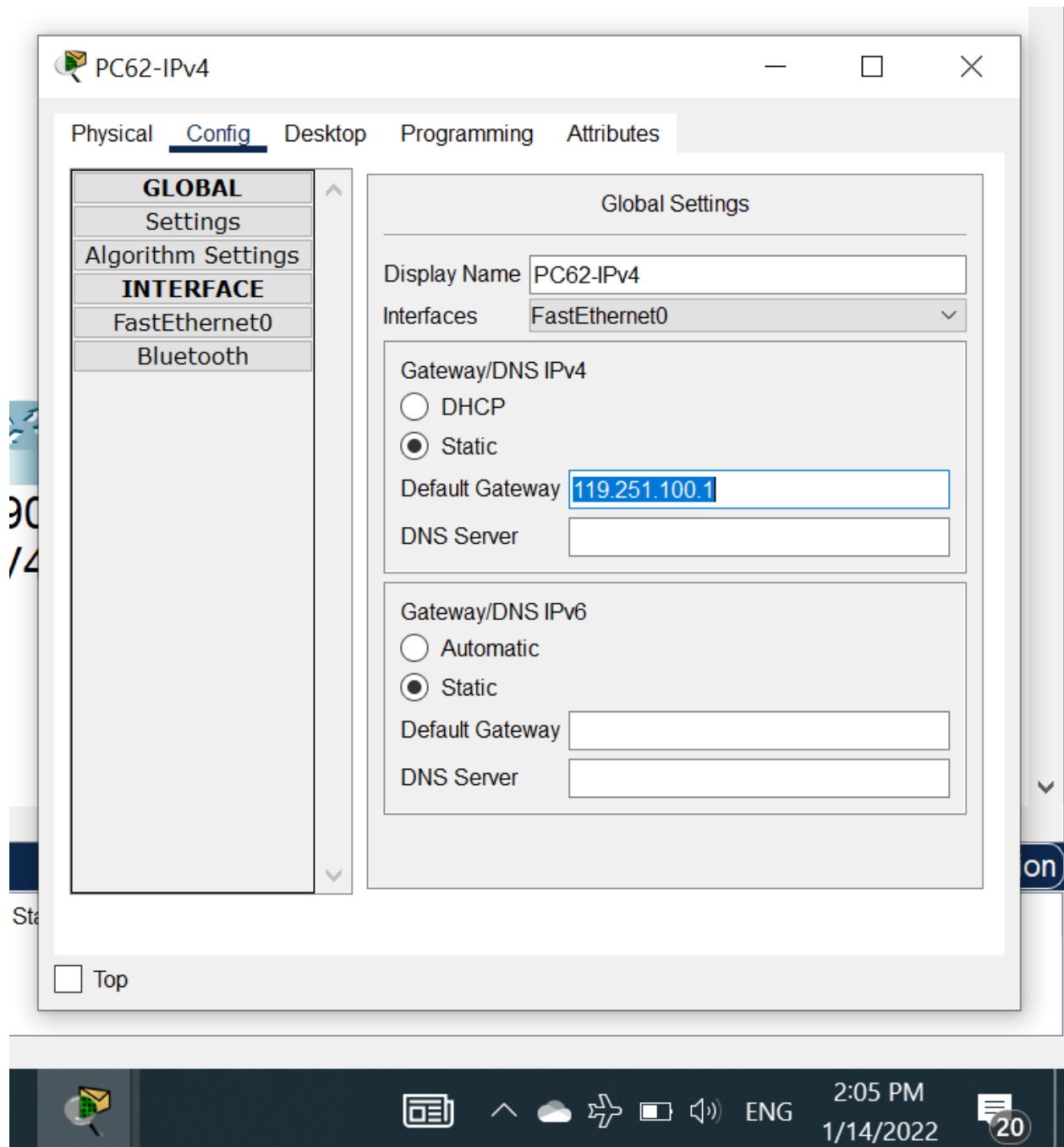
Automatic

Static

Default Gateway2119:2519:AACC:34::1

DNS Server

☐ Top



Then enable the 'OSP' on every router and set the network to one area.

The commands: router ospf 1, network 0.0.0.0 255.255.255.255 area 0

For ipv6 this command for each router: ipv6 unicast-routing

And for each interface: ipv6 ospf 1 area 0

Create the tunnel after that for R1 and R5:

By write this commands for both:-

Create the tunnel → interface tunnel 0

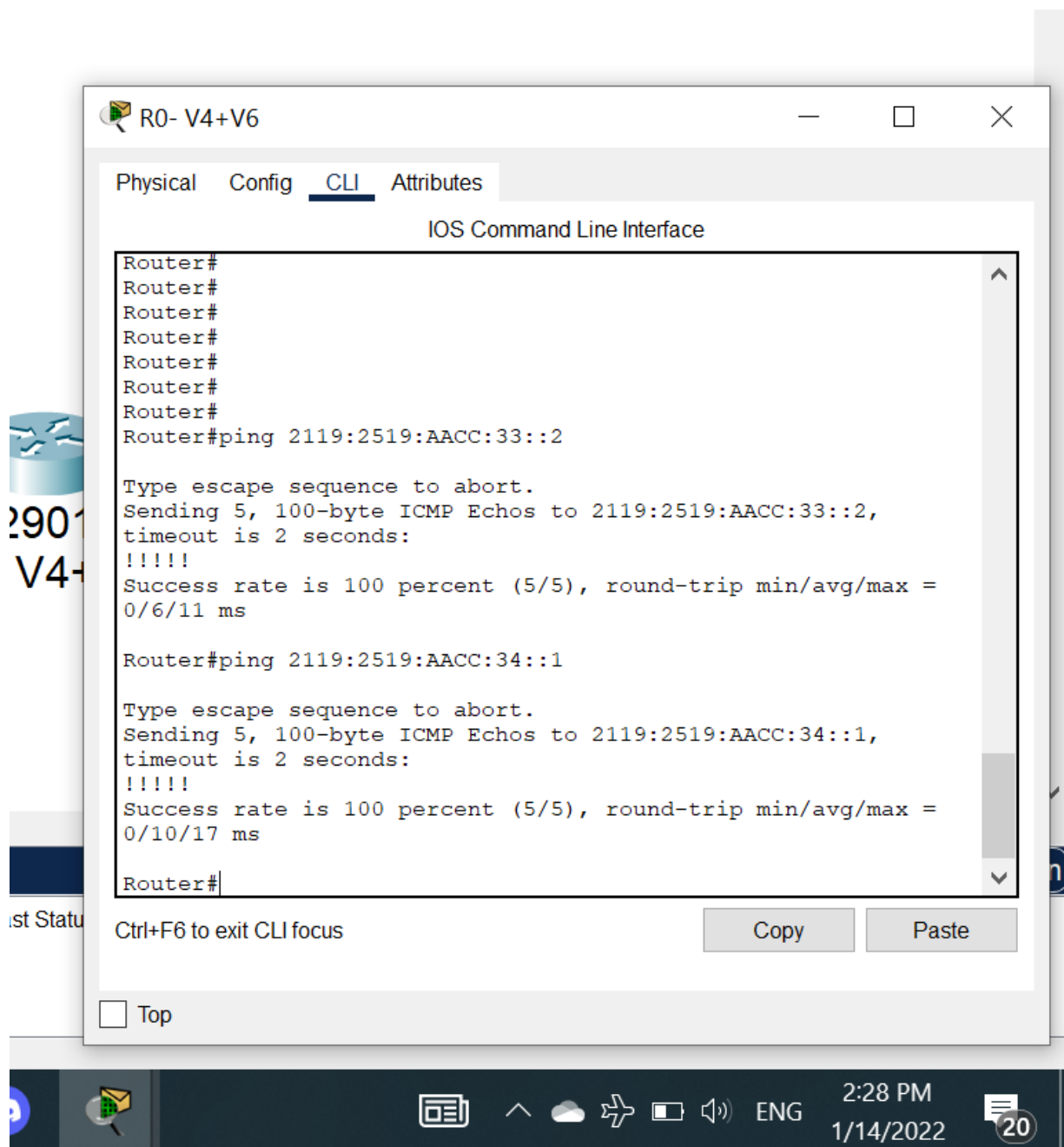
Set source → tunnel source 'ipv4 interface name on the router'

Set destination → tunnel destination 'ipv4 interface name on other
ipv6 router'

Tunnel mode → tunnel mode ipv6ip → "to convert from ipv6 to ipv4"

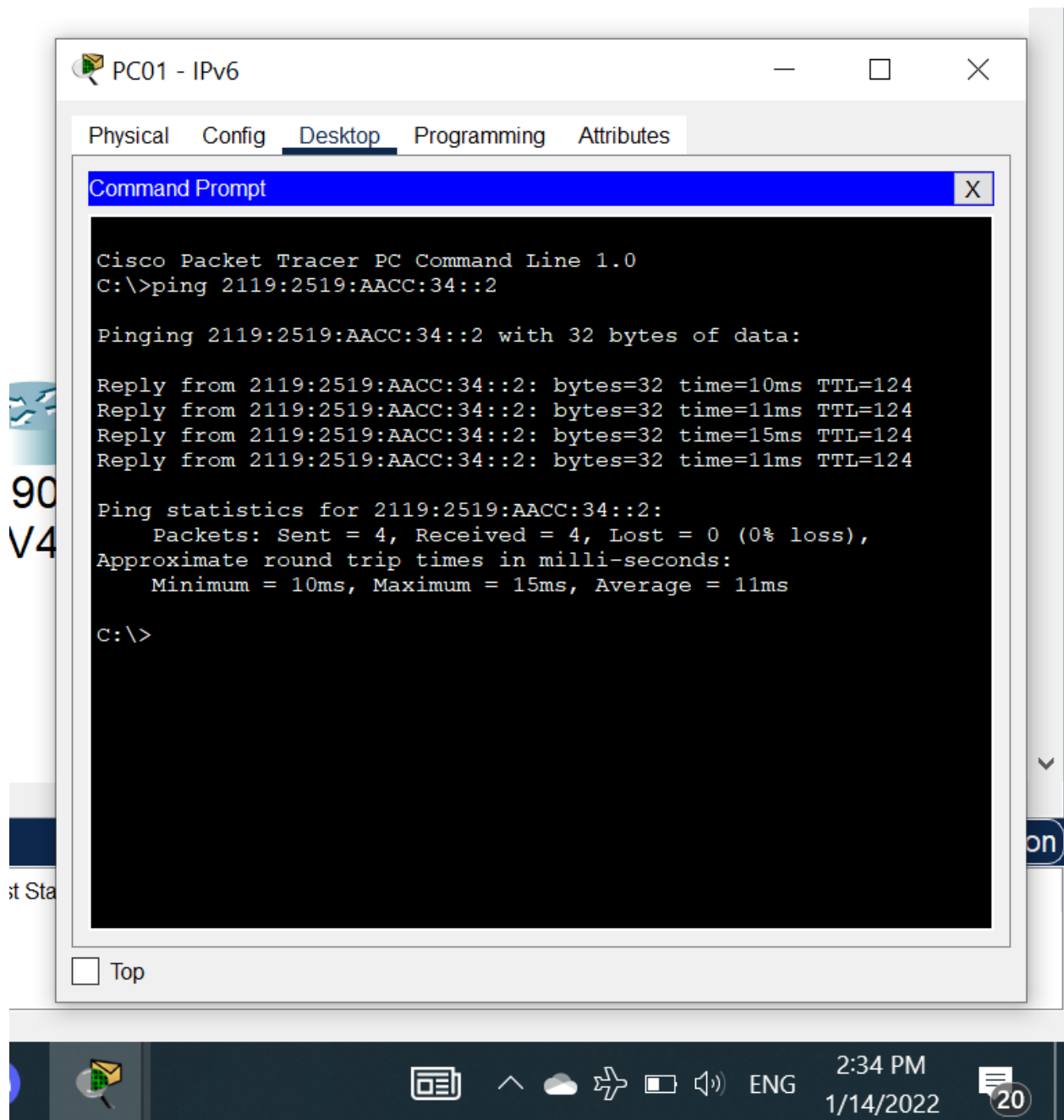
Set OSP for tunnel → ipv6 ospf 1 area 0

Ping from R0 to IPv6 addresses on R6 interfaces:



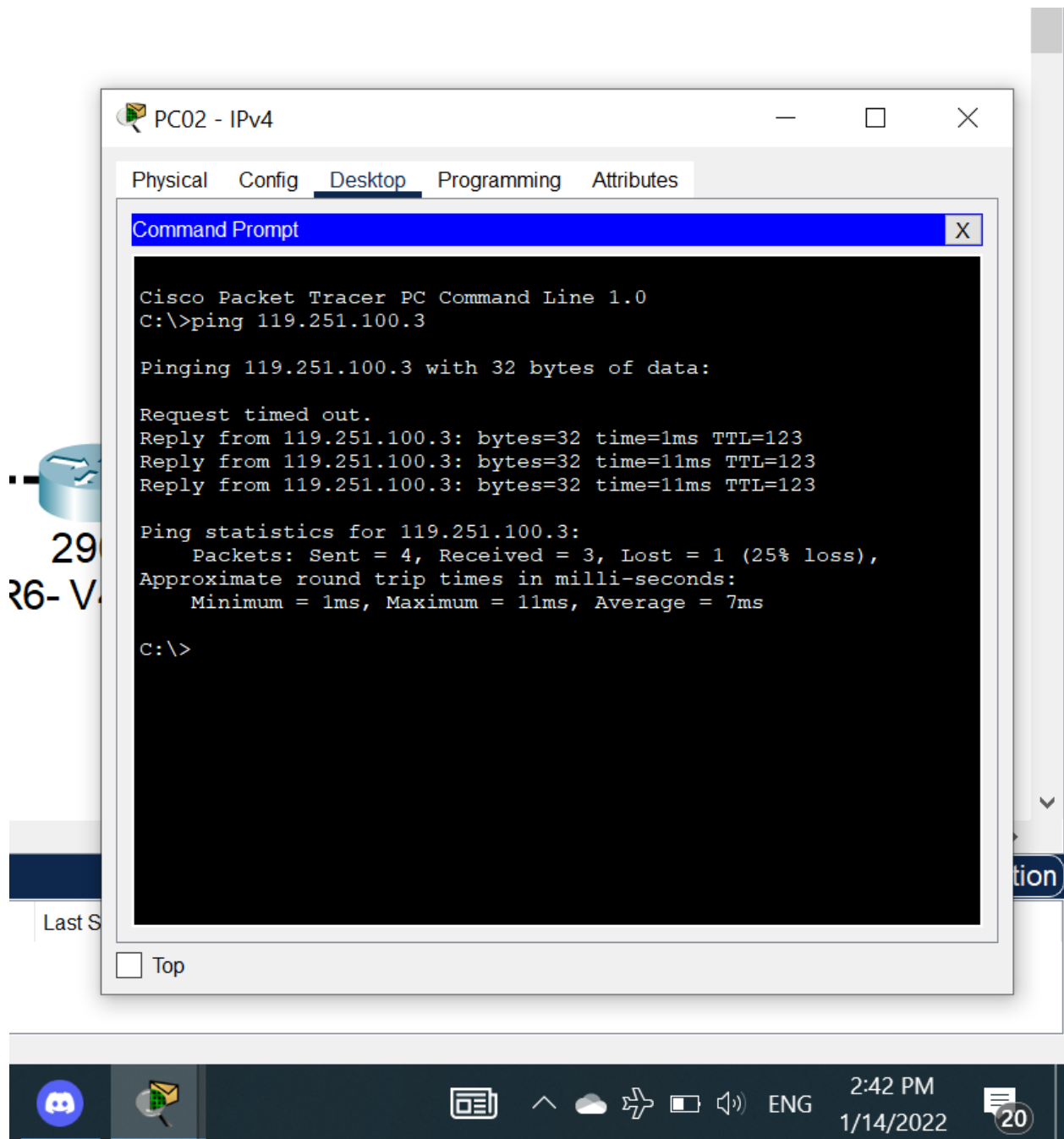
The success of ping “round-trip time didn’t give time out” is an evidence shows that the tunnel works properly.

Ping from PC01 to PC61:

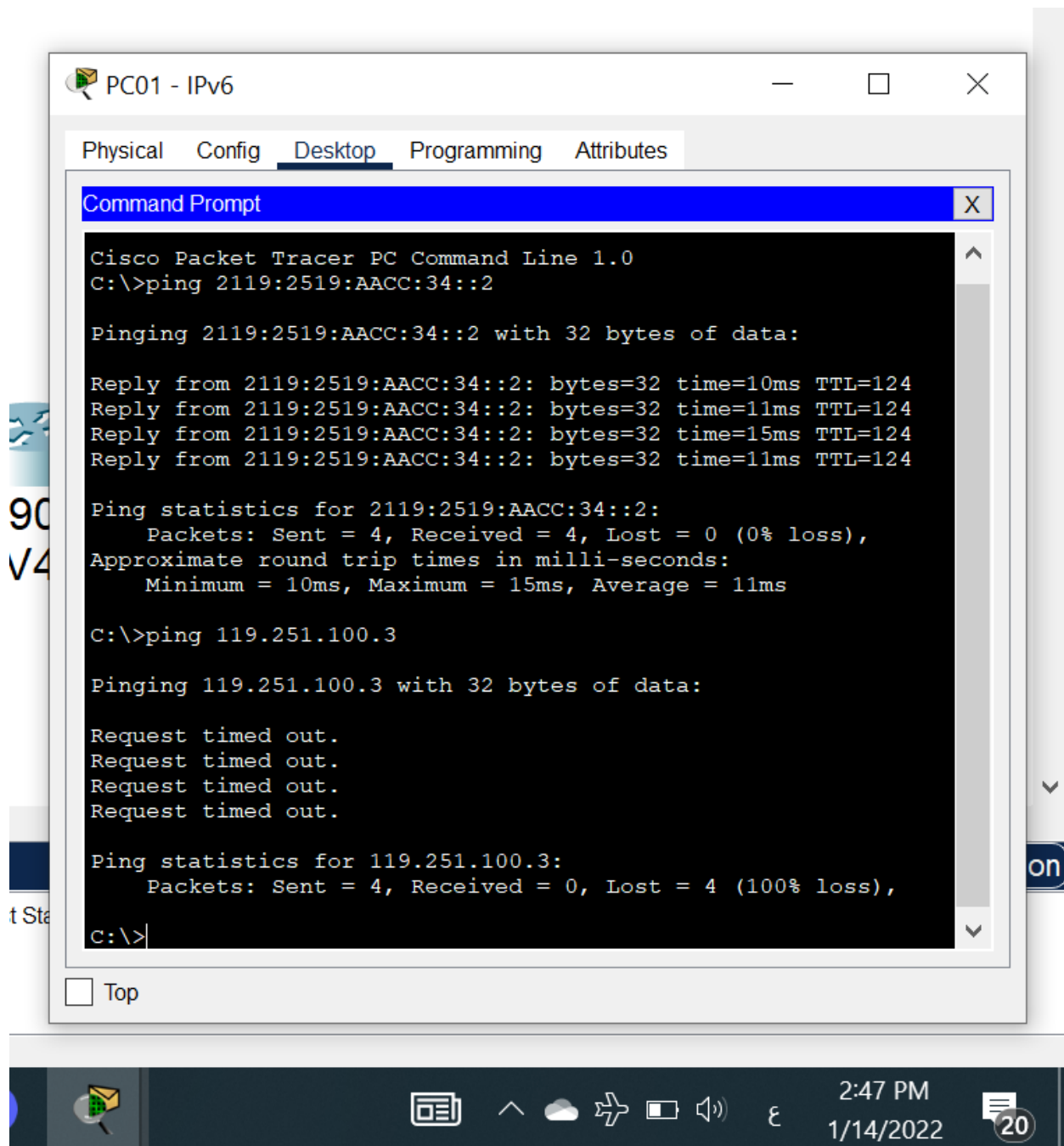


Also this is an evidence to shows that the tunnel works properly, where these PS's use IPv6.

Ping from PC02 to PC62:



Ping from PC01 to PC62:



Cannot ping from PC01 to PC62 where the first one use just ipv6 and the second one use just ipv4.

4

Router0

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#ipv6 en
Router(config-if)#ipv6 add 2119:0515:AACC:31::1/64
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#ipv6 en
Router(config-if)#ipv6 add 2119:515:AACC:32::2/64
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

Copy

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☐ Top

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PC0

Physical

Config

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display Name

Interfaces

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

☐ Top

811
uter

ire

PC0

Physical Config Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.96E8.1E05

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

Subnet Mask

IPv6 Configuration

☐ Automatic

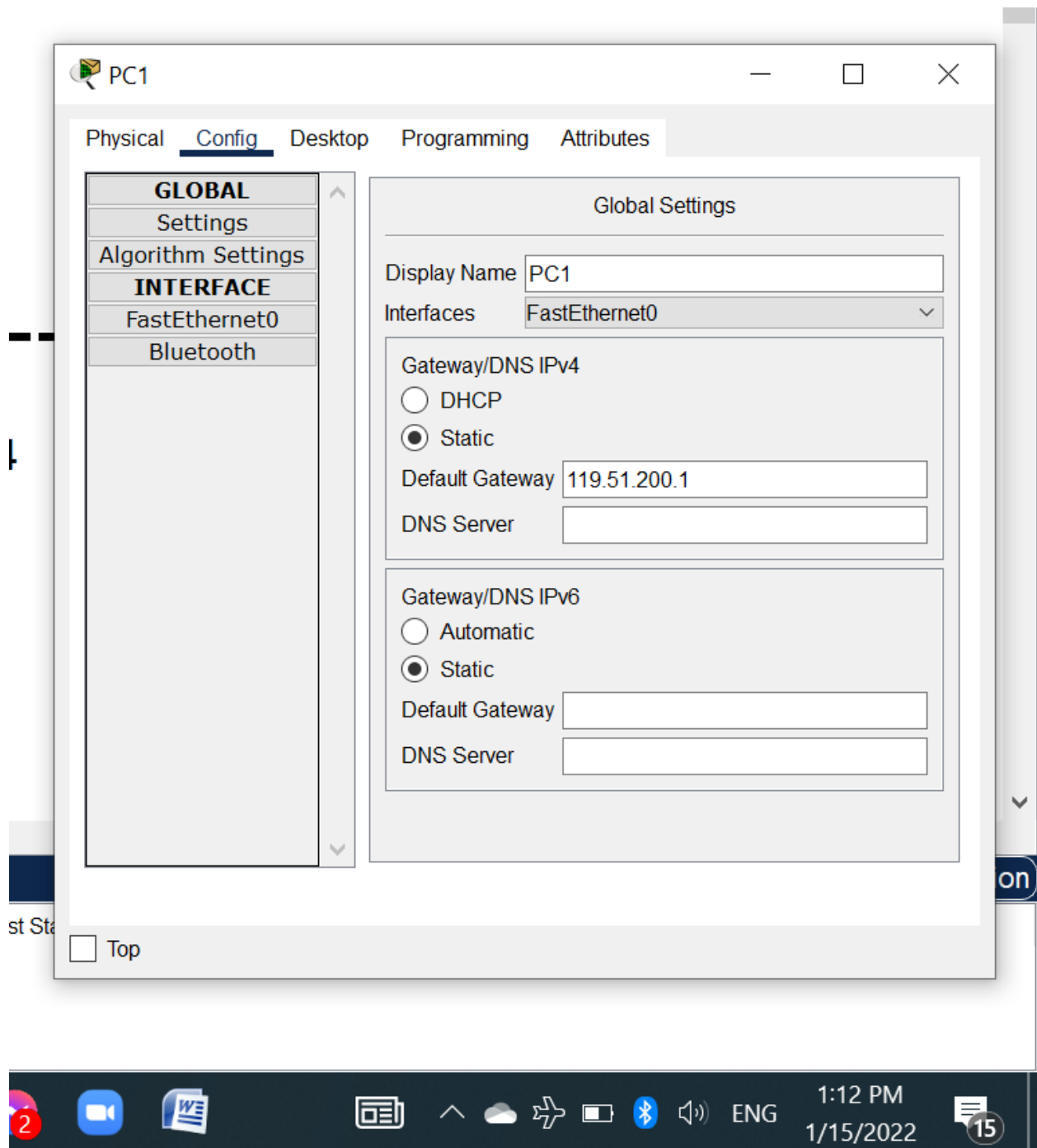
☒ Static

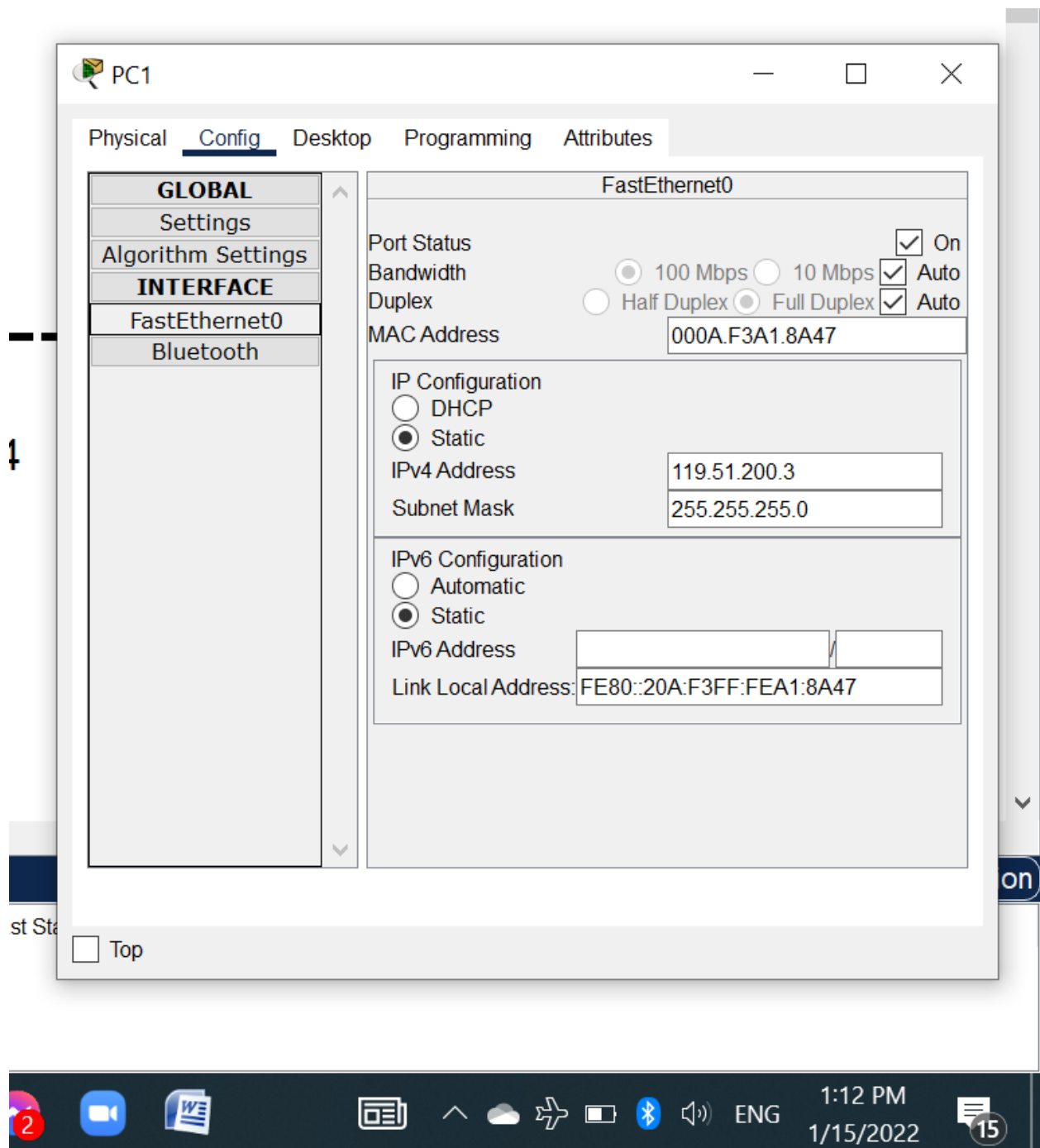
IPv6 Address 2119:515:AACC:31::2 /64

Link Local Address FE80::201:96FF:FEE8:1E05

☐ Top

ulation





Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/1

GigabitEthernet0/1

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0040.0B56.CB02

IP Configuration

IPv4 Address 119.51.201.2

Subnet Mask 255.255.255.252

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 119.51.201.2 255.255.255.252
Router(config-if)#
```

☐ Top

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 119.51.201.1 255.0.0.0
Router(config-if)#ip address 119.51.201.1 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/0, changed state to up

Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#ipv6 en
Router(config-if)#ipv6 add 2119:515:AACC:32::1/64
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

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☐ Top

Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/0

Port Status

☒ On

Bandwidth

☐ 1000 Mbps☐ 100 Mbps☒ 10 Mbps

Duplex

☐ Half Duplex☒ Full Duplex

MAC Address0001.C7AD.9001

IP Configuration

IPv4 Address119.51.1.10

Subnet Mask255.255.255.252

Tx Ring Limit10

Equivalent IOS Commands

Router(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

☐ Top

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/1

Port Status

☒ On

Bandwidth

☐ 1000 Mbps

☒ 100 Mbps

☐ 10 Mbps

☒ Auto

Duplex

☐ Half Duplex

☒ Full Duplex

☒ Auto

MAC Address

0040.0B56.CB02

IP Configuration

IPv4 Address

119.51.201.2

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router(config-if) #

Router(config-if) #exit

Router(config) #interface GigabitEthernet0/0

Router(config-if) #

Router(config-if) #exit

Router(config) #interface GigabitEthernet0/1

Router(config-if) #

☐ Top

4

Router5

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 119.251.100.1 255.255.255.252
Router(config-if)#ip address 119.251.100.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state
to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/1, changed state to up

Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#ipv6 enable
Router(config-if)#ipv6 address 2119:2519:AACC:34::1/64
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 119.251.100.1 255.255.255.0
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config)#
Router(config)#
Router(config)#interface GigabitEthernet0/0
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#router ospf 1
Router(config-router)#network 0.0.0.0 255.255.255.255 area 0
Router(config-router)#exit
Router(config)#ipv6 unicast-routing
Router(config)#
Router(config)#
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ipv6 ospf 1 area 0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ipv6 ospf 1 area 0
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Router1

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int tunnel 0

Router(config-if)#
%LINK-5-CHANGED: Interface Tunnel0, changed state to up

Router(config-if)#tunnel source FastEthernet0/0
Router(config-if)#tunnel destination 119.251.1.6
Router(config-if)#tunnel source FastEthernet0/1
Router(config-if)#tunnel mode ipv6ip
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#
01:23:11: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from LOADING to FULL, Loading Done

01:23:51: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.13 on Ethernet1/0 from LOADING to FULL, Loading Done

Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 119.51.1.1 255.255.255.252
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to down

01:26:45: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from FULL to DOWN, Neighbor Down: Interface down or detached

%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

01:26:46: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from LOADING to FULL, Loading Done

Router(config-if)#
Router(config-if)#exit
Router(config)#int tunnel 0
Router(config-if)#ipv6 enable
Router(config-if)#ipv6 add 2119:0515:AACC:35::1/64
Router(config-if)#exit
```

Ctrl+F6 to exit CLI focus

Copy

Paste

☐ Top

Router1

Physical Config CLI Attributes

IOS Command Line Interface

Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#ospf
^
% Invalid input detected at '^' marker.

Router(config)#router ospf 1
Router(config-router)#network 0.0.0.0 255.255.255.255 area 0
Router(config-router)#
01:00:03: %OSPF-5-ADJCHG: Process 1, Nbr 119.51.201.2 on
FastEthernet0/0 from LOADING to FULL, Loading Done

Router(config-router)#
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#exit
Router(config)#ipv6 unicast-routing
Router(config)#
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ipv6 ospf 1 area 0
Router(config-if)#
01:02:25: %OSPFv3-5-ADJCHG: Process 1, Nbr 119.51.201.2 on
FastEthernet0/0 from LOADING to FULL, Loading Done

Router(config-if)#

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

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1/15/2022

15

Router4

Physical Config CLI Attributes

IOS Command Line Interface

```
FULL, Loading Done

Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Ethernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 119.251.1.6 255.255.255.252
Router(config-if)#
01:19:02: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/0 from LOADING to
FULL, Loading Done

01:19:47: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.13 on FastEthernet0/1 from LOADING
to FULL, Loading Done

Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#exit
Router(config)#interface tunnel 0

Router(config-if)#
%LINK-5-CHANGED: Interface Tunnel0, changed state to up

Router(config-if)#tunnel source FastEthernet0/0
Router(config-if)#tunnel destination 119.51.1.1
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#
Router(config-if)#exi
Router(config)#int tunnel 0
Router(config-if)#ipv6 en
Router(config-if)#ipv6 add 2119:2519:AACC:36::1/64
Router(config-if)#exit
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int tunnel 0

Router(config-if)#
%LINK-5-CHANGED: Interface Tunnel0, changed state to up

Router(config-if)#tunnel source FastEthernet0/0
Router(config-if)#tunnel destination 119.251.1.6
Router(config-if)#tunnel source FastEthernet0/1
Router(config-if)#tunnel mode ipv6ip
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#
01:23:11: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from LOADING to FULL, Loading Done

01:23:51: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.13 on Ethernet1/0 from LOADING to FULL, Loading Done

Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 119.51.1.1 255.255.255.252
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to down

01:26:45: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from FULL to DOWN, Neighbor Down: Interface down or detached

%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

01:26:46: %OSPF-5-ADJCHG: Process 1, Nbr 119.251.1.5 on FastEthernet0/1 from LOADING to FULL, Loading Done

Router(config-if)#
Router(config-if)#exit
Router(config)#int tunnel 0
Router(config-if)#ipv6 enable
Router(config-if)#ipv6 add 2119:0515:AACC:35::1/64
Router(config-if)#exit
```

Ctrl+F6 to exit CLI focus

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