

Packet Tracer - Configure Router Interfaces-Brett Rainiel Espiritu

Addressing Table

| Device | Interface | IP Address/Prefix | Default Gateway |
|--------|-----------|------------------------|-----------------|
| R1 | G0/0 | 172.16.20.1 /25 | N/A |
| | G0/1 | 172.16.20.129 /25 | N/A |
| | S0/0/0 | 209.165.200.225 /30 | N/A |
| PC1 | NIC | 172.16.20.10 /25 | 172.16.20.1 |
| PC2 | NIC | 172.16.20.138 /25 | 172.16.20.129 |
| R2 | G0/0 | 2001:db8:c0de:12::1/64 | N/A |
| | G0/1 | 2001:db8:c0de:13::1/64 | N/A |
| | S0/0/1 | 2001:db8:c0de:11::1/64 | N/A |
| | | fe80::2 | N/A |
| PC3 | NIC | 2001:db8:c0de:12::a/64 | fe80::2 |
| PC4 | NIC | 2001:db8:c0de:13::a/64 | fe80::2 |

Objectives

Part 1: Configure IPv4 Addressing and Verify Connectivity

Part 2: Configure IPv6 Addressing and Verify Connectivity

Background

Routers R1 and R2 each have two LANs. Your task is to configure the appropriate addressing on each device and verify connectivity between the LANs.

Note: The user EXEC password is **cisco**. The privileged EXEC password is **class**.

Instructions

Part 1: Configure IPv4 Addressing and Verify Connectivity

Step 1: Assign IPv4 addresses to R1 and LAN devices.

Referring to the **Addressing Table**, configure IP addressing for **R1** LAN interfaces, **PC1** and **PC2**. The serial interface has already configured.

```
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int
R1(config)#interface g0/0
R1(config-if)#ip ad
R1(config-if)#ip address 172.16.20.1 255.255.255.128
R1(config-if)#no shut
```

```
R1(config-if)#exit
R1(config)#int
R1(config)#interface g
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ip add 172.16.20.129 255.255.255.128
R1(config-if)#no shut
R1(config-if)#no shutdown

R1(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

R1(config-if)#
```

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 172.16.20.10

Subnet Mask 255.255.255.128

Default Gateway 172.16.20.1

DNS Server 0.0.0.0

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 172.16.20.138

Subnet Mask 255.255.255.128

Default Gateway 172.16.20.129

DNS Server 0.0.0.0

Step 2: Verify connectivity.

PC1 and **PC2** should be able to ping each other and the **Dual Stack Server**.

```
Pinging 64.100.1.10 with 32 bytes of data:

Reply from 64.100.1.10: bytes=32 time=10ms TTL=126
Reply from 64.100.1.10: bytes=32 time=9ms TTL=126
Reply from 64.100.1.10: bytes=32 time=8ms TTL=126
Reply from 64.100.1.10: bytes=32 time=6ms TTL=126

Ping statistics for 64.100.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 10ms, Average = 8ms

C:\>
```

 PC2

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 64.100.1.10

Pinging 64.100.1.10 with 32 bytes of data:

Reply from 64.100.1.10: bytes=32 time=14ms TTL=126
Reply from 64.100.1.10: bytes=32 time=8ms TTL=126
Reply from 64.100.1.10: bytes=32 time=9ms TTL=126
Reply from 64.100.1.10: bytes=32 time=8ms TTL=126

Ping statistics for 64.100.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 14ms, Average = 9ms

C:\>
```

Part 2: Configure IPv6 Addressing and Verify Connectivity

Step 1: Assign IPv6 addresses to R2 and LAN devices.

Referring to the **Addressing Table**, configure IP addressing for **R2 LAN interfaces**, **PC3** and **PC4**. The serial interface is already configured.

```

!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address FE80::2 link-local
ipv6 address 2001:DB8:CODE:12::1/64
ipv6 enable
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
ipv6 address FE80::2 link-local
ipv6 address 2001:DB8:CODE:13::1/64
ipv6 enable
!
interface Serial0/0/0
no ip address
clock rate 128000
shutdown
!
interface Serial0/0/1
no ip address
ipv6 address 2001:DB8:CODE:11::1/64
ipv6 enable
--More--

```

Copy

Paste

Top

PC3

Physical

Config

Desktop

Programming

Attributes

IP Configuration

Interface

FastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

Subnet Mask

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

2001:DB8:CODE:12::A

/ 64

Link Local Address

FE80::2E0:B0FF:FE66:2D40

Default Gateway

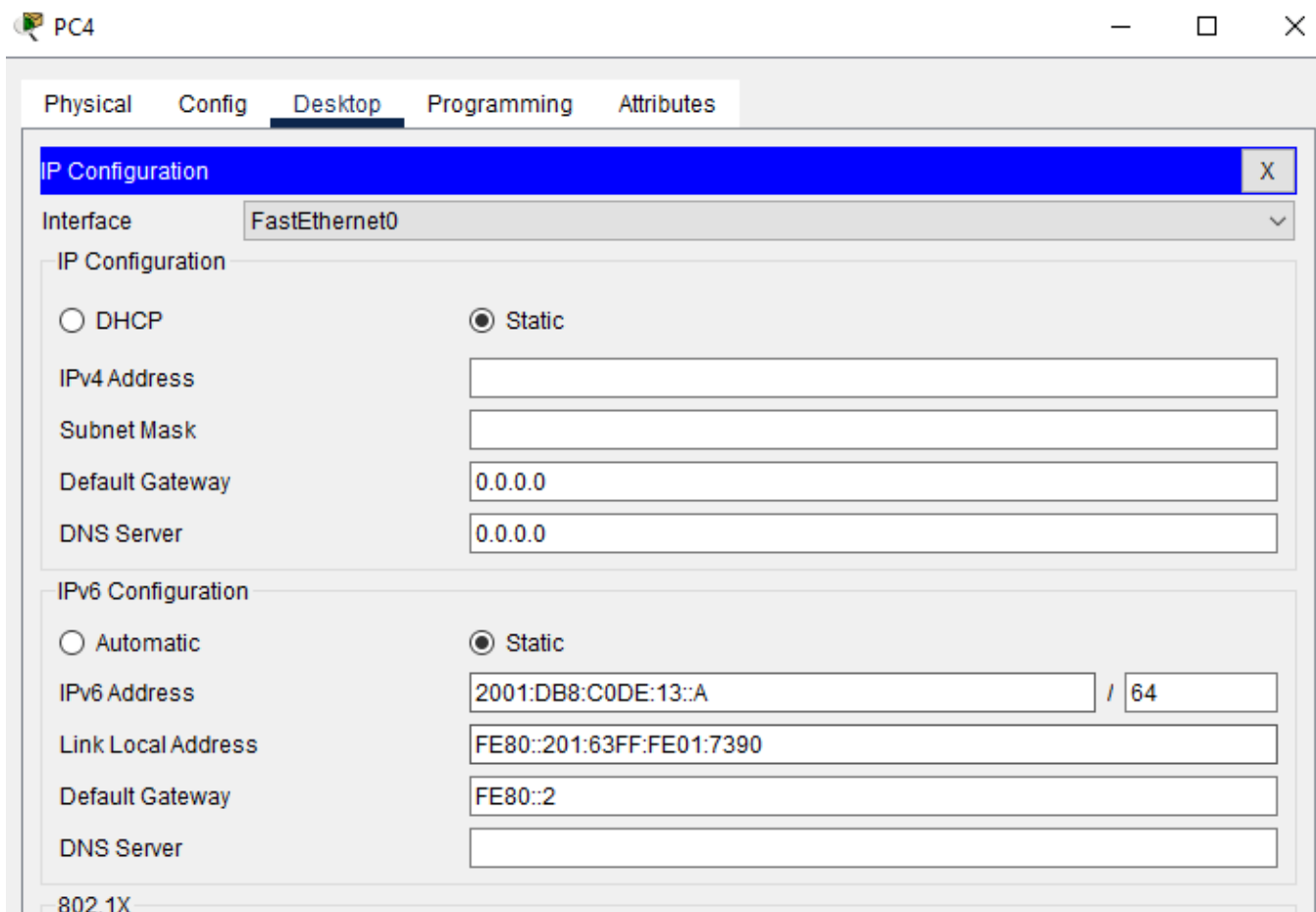
FE80::2

DNS Server

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PC4

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address:

Subnet Mask:

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: 2001:DB8:C0DE:13::A / 64

Link Local Address: FE80::201:63FF:FE01:7390

Default Gateway: FE80::2

DNS Server:

802.1X

Step 2: Verify connectivity.

PC3 and PC4 should be able to ping each other and the **Dual Stack Server**.

```
C:\>ping 2001:db8:100:1::a

Pinging 2001:db8:100:1::a with 32 bytes of data:

Reply from 2001:DB8:100:1::A: bytes=32 time=9ms TTL=126
Reply from 2001:DB8:100:1::A: bytes=32 time=7ms TTL=126
Reply from 2001:DB8:100:1::A: bytes=32 time=3ms TTL=126
Reply from 2001:DB8:100:1::A: bytes=32 time=6ms TTL=126

Ping statistics for 2001:DB8:100:1::A:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 9ms, Average = 6ms

C:\>
```

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The image displays the Cisco Packet Tracer interface. The main workspace shows a network topology with the following components:

- PC1:** 172.16.20.0/25, connected to SW1 via Fa0/1.
- SW1:** Connected to R1 via Gig0/1.
- PC2:** 172.16.20.128/25, connected to SW2 via Fa0/1.
- SW2:** Connected to R1 via Gig0/1.
- R1:** Connected to R2 via Gig0/0 (209.165.200.224/30) and Gig0/1 (225).
- R2:** Connected to a Dual Stack Server via Fa0/1 (2001:db8:c0de:11::64) and Fa0/0 (2001:db8:100:1::a).
- Dual Stack Server:** 64.100.1.10, 2001:db8:100:1::a.

A Command Prompt window is open for PC4, showing the following output:

```
C:\>ping 2001:db8:100:1::a

Pinging 2001:db8:100:1::a with 32 bytes of data:
Reply from 2001:db8:100:1::a: bytes=32 time=7ms TTL=126
Reply from 2001:db8:100:1::a: bytes=32 time=7ms TTL=126
Reply from 2001:db8:100:1::a: bytes=32 time=7ms TTL=126
Reply from 2001:db8:100:1::a: bytes=32 time=7ms TTL=126

Ping statistics for 2001:db8:100:1::a:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 10ms, Average = 6ms

C:\>
```

The interface also shows a toolbar at the bottom with various icons for network devices and a status bar at the bottom right indicating the time as 11:32 PM on 1/29/2025.