

Packet Tracer – Implementando um Esquema de Endereçamento IPv6 com Sub-Redes

Tabela de Endereçamento

Dispositivo	Interface	Endereço IPv6	Endereço Link-local
R1	G0/0	2001:db8:acad:00c8::1/64	fe80::1
	G0/1	2001:db8:acad:00c9::1/64	fe80::1
	S0/0/0	2001:db8:acad:00cc::1/64	fe80::1
R2	G0/0	2001:db8:acad:00ca::1/64	fe80::2
	G0/1	2001:db8:acad:00cb::1/64	fe80::2
	S0/0/0	2001:db8:acad:00cc::2/64	fe80::2
PC1	NIC	Configuração Automática	
PC2	NIC	Configuração Automática	
PC3	NIC	Configuração Automática	
PC4	NIC	Configuração Automática	

Objetivos

Etpa 1: Determinar as Sub-Redes IPv6 e o Esquema de Endereçamento

Etapa 2: Configurar o endereçamento IPv6 em roteadores e PCs.

Etapa 3: verificar a conectividade IPv6.

Histórico/Cenário

Os administradores de rede devem saber como implementar o IPv6 em suas redes. Você foi solicitado a configurar uma rede para uso pela equipe de vendas para uma demonstração de cliente. A rede usará uma série de sub-redes IPv6 consecutivas para quatro LANs. Seu trabalho é atribuir as sub-redes às LANs e configurar os roteadores e PCs com endereçamento IPv6. Certifique-se de configurar todos os componentes necessários para o roteamento IPv6 nos roteadores.

Instruções

Etapa 1: Determinar as Sub-Redes de IPv6 e o Esquema de Endereçamento

Você recebeu a sub-rede IPv6 **2001:db8:acad:00c8::/64** como sub-rede inicial. Você precisará de mais quatro sub-redes para cada rede necessária. Incrementar os endereços de sub-rede consecutivamente por um para chegar às quatro sub-redes necessárias. Preencha a tabela abaixo.

Tabela de Sub-Redes

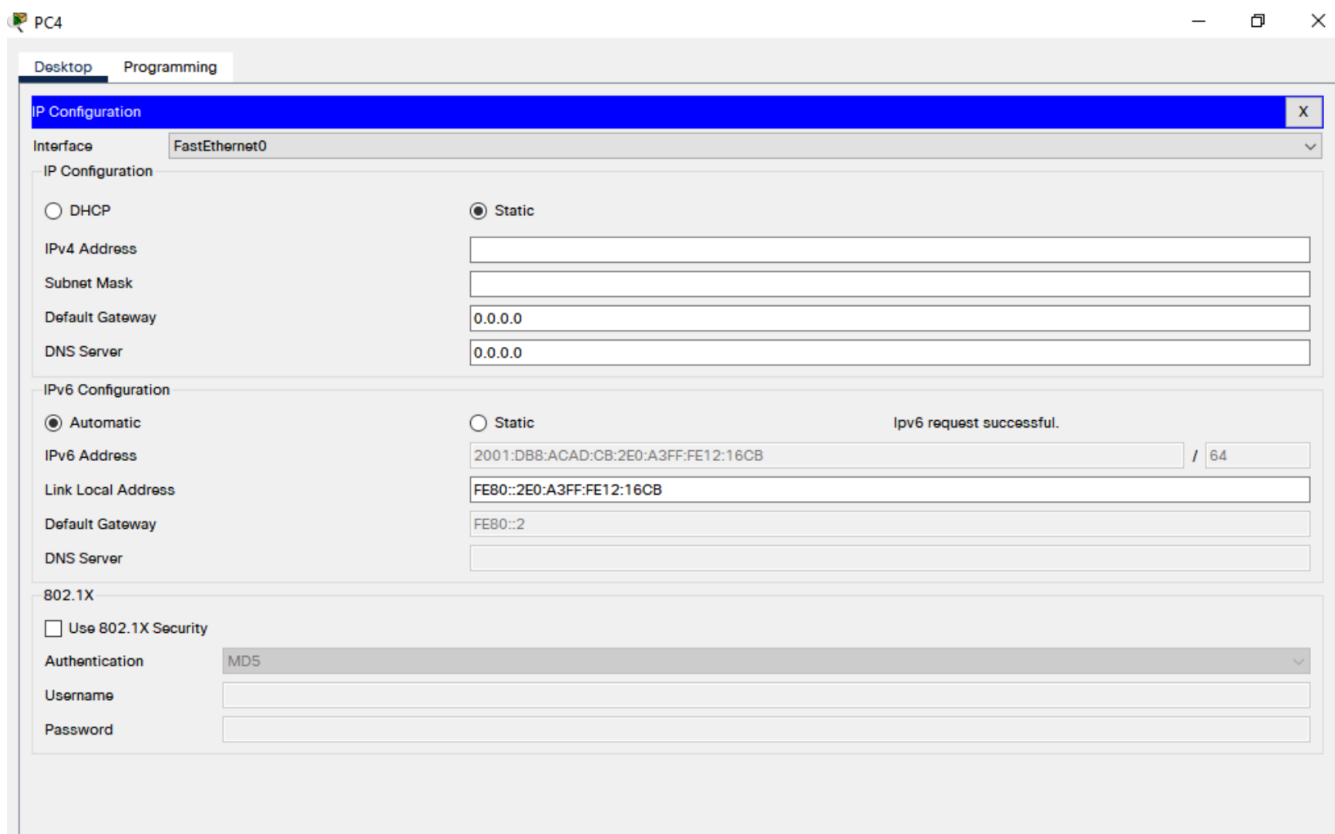
Sub-rede	Endereço
R1 G0/0/ LAN	2001:db8:acad:00c8: :0/64
LAN G0/1 de R1	2001:db8:acad:00c9::0/64
LAN G0/0 de R2	2001:db8:acad:00ca::0/64
LAN G0/1 de R2	2001:db8:acad:00cc::0/64
Rede de link R1 para R2	2001:db8:acad:00cb::0/64

Etapa 2: Configure o endereçamento IPv6 em roteadores e PCs.

Preencha a tabela de endereçamento acima para usar como guia para configurar os dispositivos.

- Atribua o primeiro endereço IP na sub-rede às interfaces LAN do roteador.
- Atribua os endereços de link local conforme designado na tabela de endereçamento.
- Para a conexão entre os roteadores, atribua o primeiro endereço na sub-rede a R1.
- Para a conexão entre os roteadores, atribua o segundo endereço na sub-rede ao R2.
- Defina todos os quatro hosts para configurar automaticamente com endereços IPv6.

Prints da Etapa 2:



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PC3

Desktop Programming

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 request successful.

IPv6 Address: 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9 / 64

Link Local Address: FE80::201:C9FF:FE72:E2D9

Default Gateway: FE80::2

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

PC2

Desktop Programming

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 request successful.

IPv6 Address: 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9 / 64

Link Local Address: FE80::201:C7FF:FE66:86E9

Default Gateway: FE80::1

DNS Server:

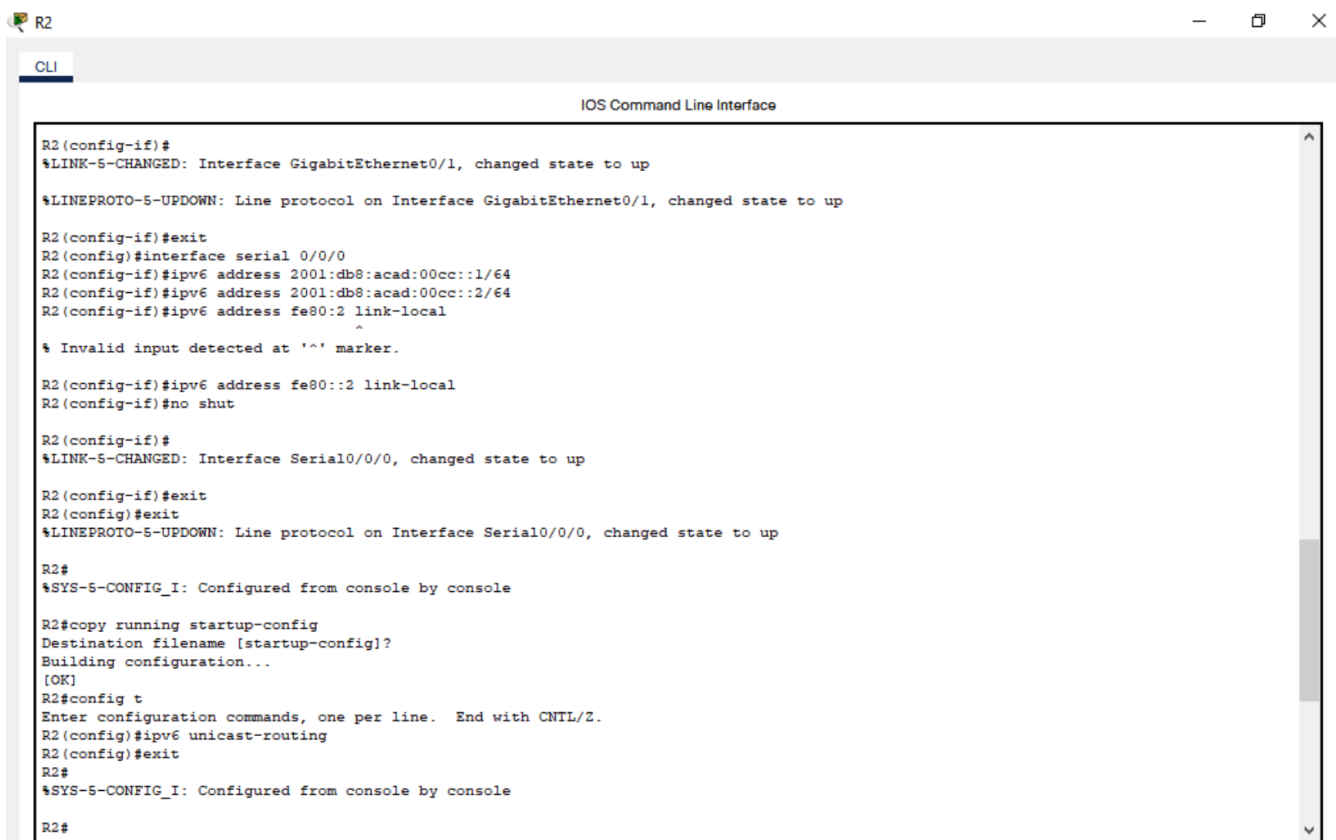
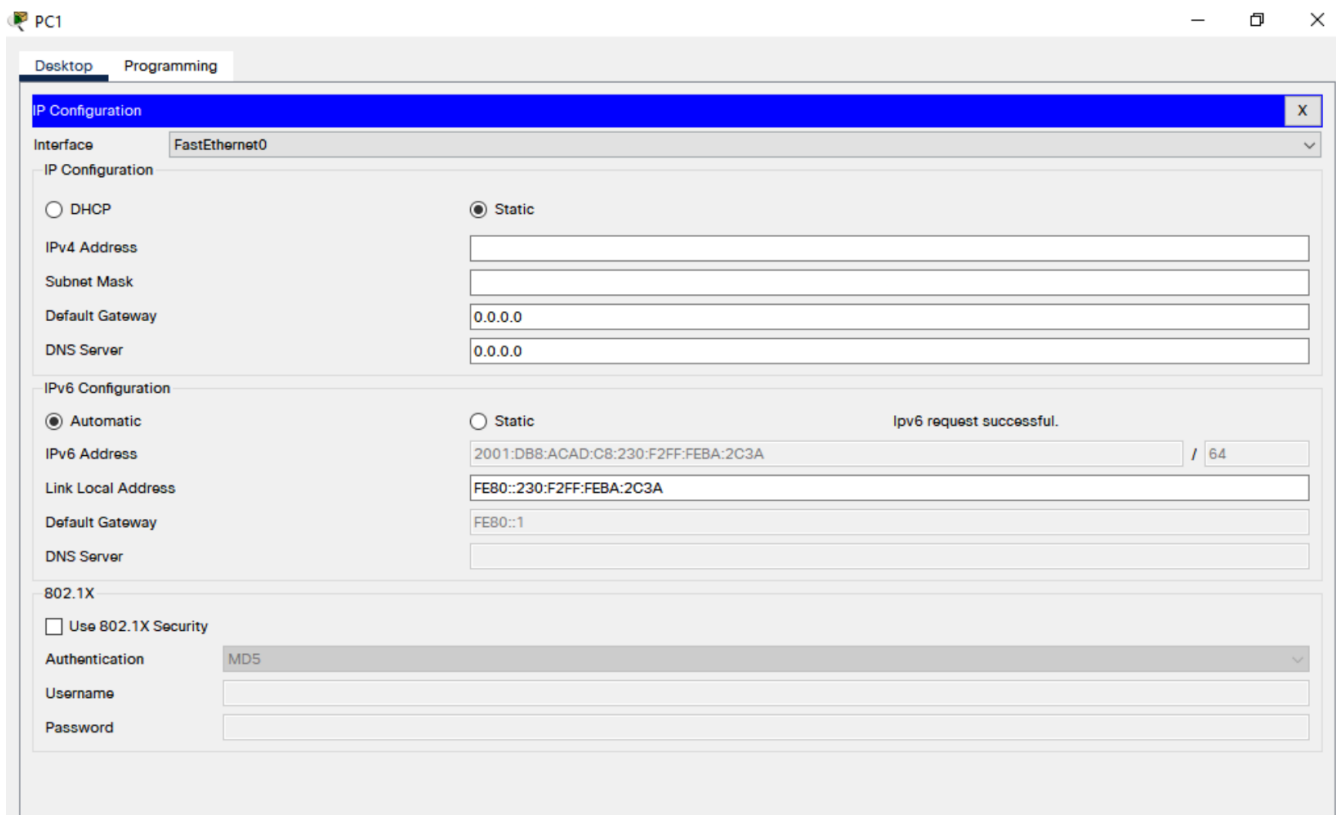
802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:



R2

CLI

IOS Command Line Interface

```
R2>enable
R2#config t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface g
R2(config)#interface gigabitEthernet 0/0
R2(config-if)#ipv6 address 2001:db8:acad:00ca::1/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shut

R2(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

R2(config-if)#exit
R2(config)#interface g
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ipv6 address 2001:db8:acad:00cb::1/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shut

R2(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

R2(config-if)#exit
R2(config)#interface serial 0/0/0
R2(config-if)#ipv6 address 2001:db8:acad:00cc::1/64
R2(config-if)#ipv6 address 2001:db8:acad:00cc::2/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shut

% Invalid input detected at '^' marker.

R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shut

R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

R1

CLI

IOS Command Line Interface

```
R1(config-if)#no shut

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)#exit
R1(config)#interface serial 0/0
%Invalid interface type and number
R1(config)#interface serial 0/0/0
R1(config-if)#ipv6 address 2001:db8:acad:00cc::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down

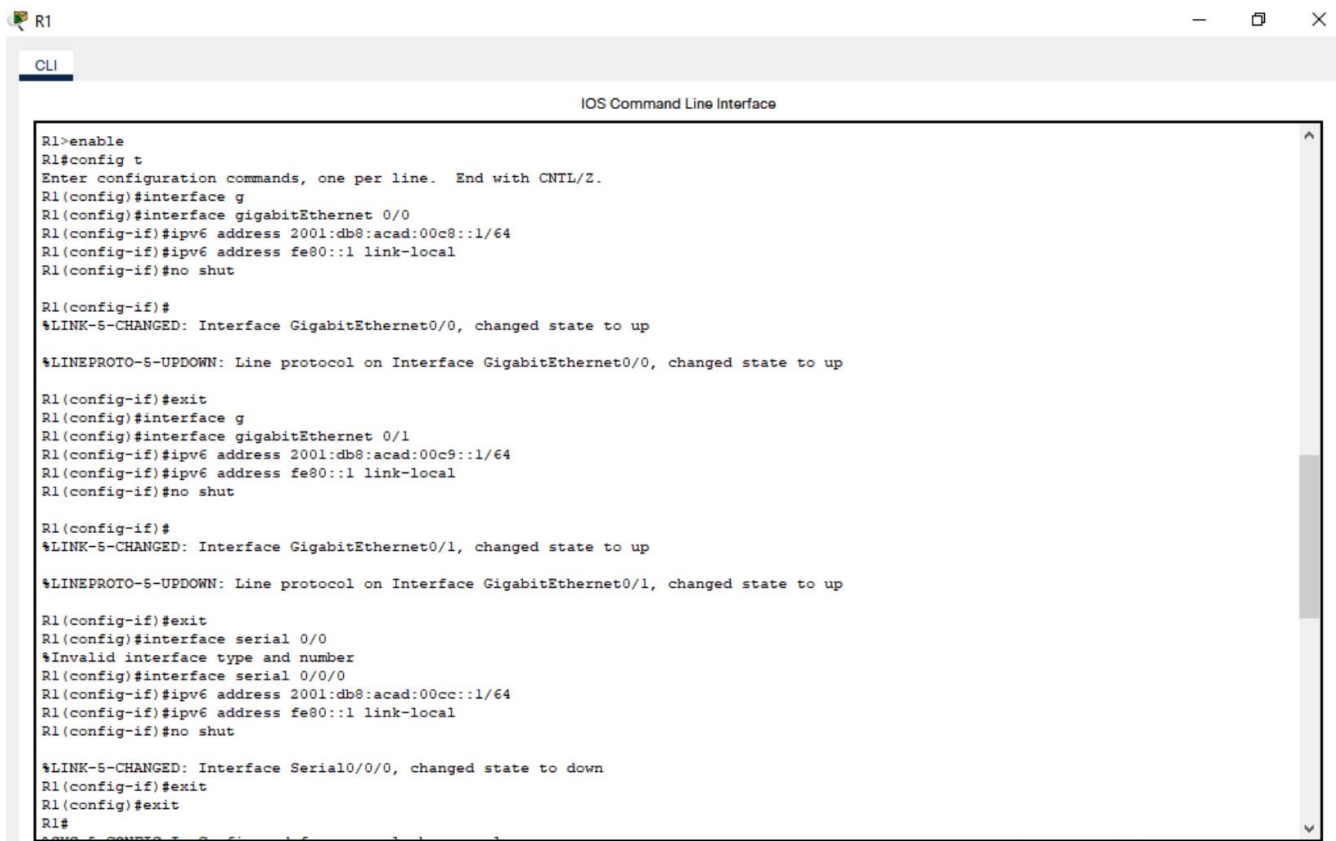
R1(config-if)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy running startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

R1#config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ipv6 unicast-routing
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#
```



```
R1>enable
R1#config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface g
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ipv6 address 2001:db8:acad:00c8::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shut

R1(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

R1(config-if)#exit
R1(config)#interface g
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ipv6 address 2001:db8:acad:00c9::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shut

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

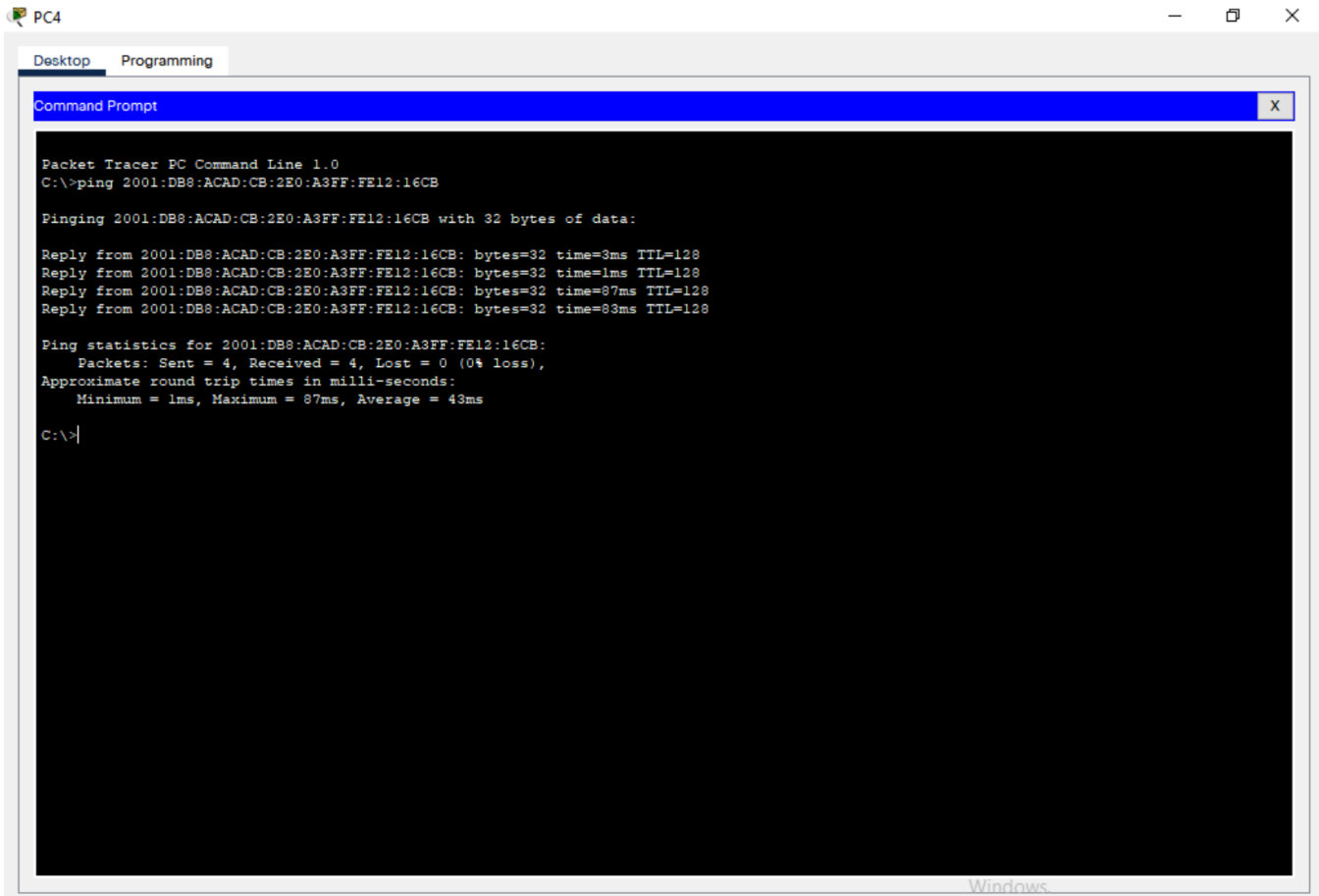
R1(config-if)#exit
R1(config)#interface serial 0/0
%Invalid interface type and number
R1(config)#interface serial 0/0/0
R1(config-if)#ipv6 address 2001:db8:acad:00cc::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shut

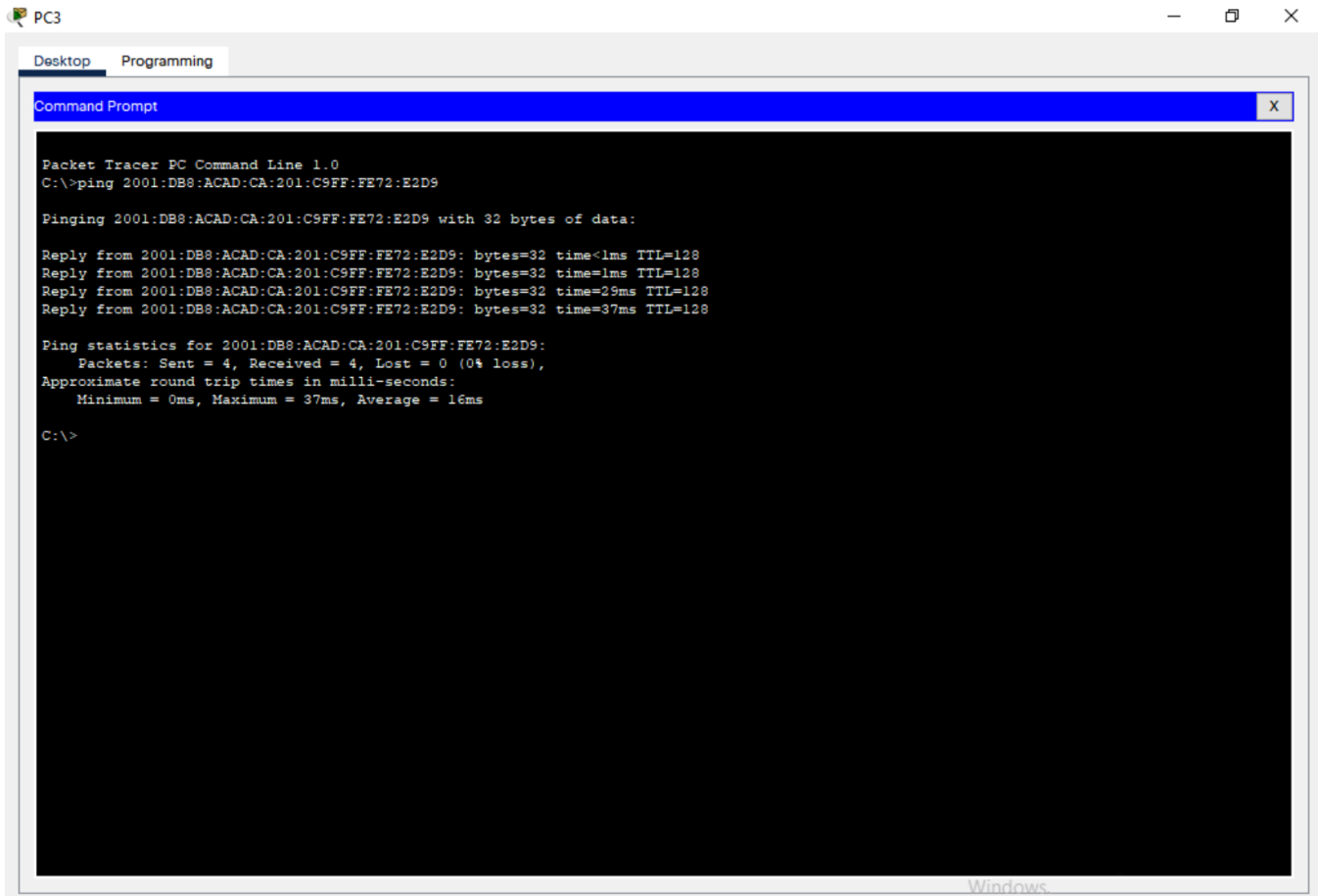
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R1(config-if)#exit
R1(config)#exit
R1#
```

Etapa 3: Verifique a conectividade IPv6.

Os PCs devem ser capazes de efetuar ping uns aos outros se o endereçamento tiver sido configurado corretamente.

Prints da Etapa 3:





The screenshot shows a Packet Tracer PC window for PC3. The 'Command Prompt' tab is active, displaying the output of a ping command. The command executed is `C:\>ping 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9`. The output shows four successful replies with 32 bytes of data, each taking less than 1ms. The ping statistics indicate 4 packets sent, 4 received, and 0% loss, with an average round trip time of 16ms.

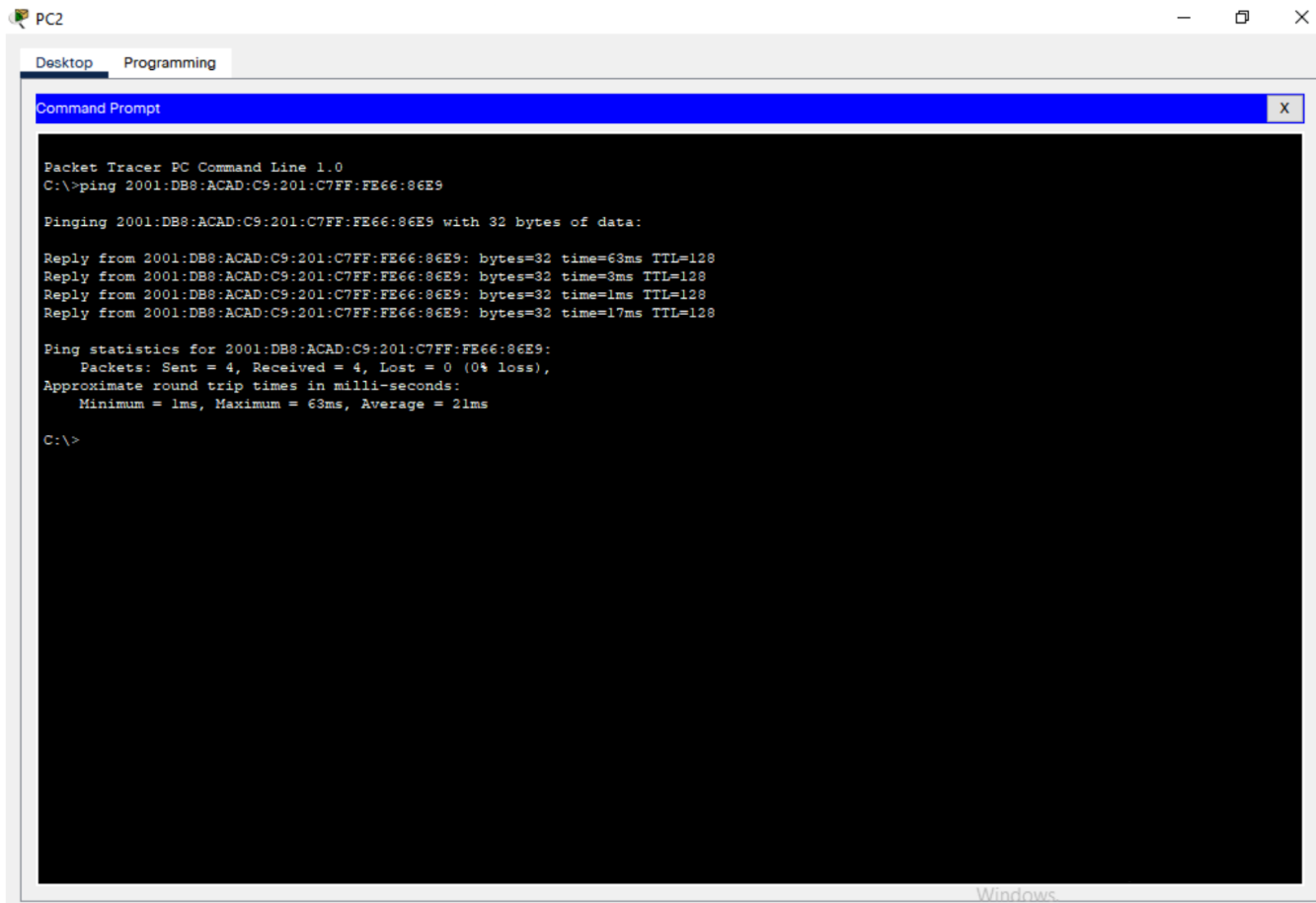
```
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9

Pinging 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9 with 32 bytes of data:

Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time=29ms TTL=128
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time=37ms TTL=128

Ping statistics for 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 37ms, Average = 16ms

C:\>
```

The screenshot shows a Packet Tracer interface with a PC2 icon in the top left. The main window has two tabs: 'Desktop' and 'Programming'. The 'Programming' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the execution of a ping command to an IPv6 address. The output indicates successful connectivity with four replies and no packet loss.

```
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9

Pinging 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9 with 32 bytes of data:

Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time=63ms TTL=128
Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time=3ms TTL=128
Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time=1ms TTL=128
Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time=17ms TTL=128

Ping statistics for 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 63ms, Average = 21ms

C:\>
```