

Paulo Victor Souza Rodrigues – P8 de Informática

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:00cb: :0/64 |
| Rede de link R1 para R2 | 2001:db8:acad:00cc: :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.

The screenshot displays the Cisco Packet Tracer interface. On the left, a network topology is shown with four PCs (PC1, PC2, PC3, PC4) connected to two routers (R1 and R2). R1 is connected to PC1 and PC2, while R2 is connected to PC3 and PC4. A red line indicates the connection between R1 and R2. The network is labeled with the IPv6 address 2001:DB8:ACAD:00C8::/64.

On the right, the CLI window for router R1 is open, showing the following configuration commands:

```

R1>enable
R1#configure terminal
R1(config)#interface gigabitEt
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 shutdown

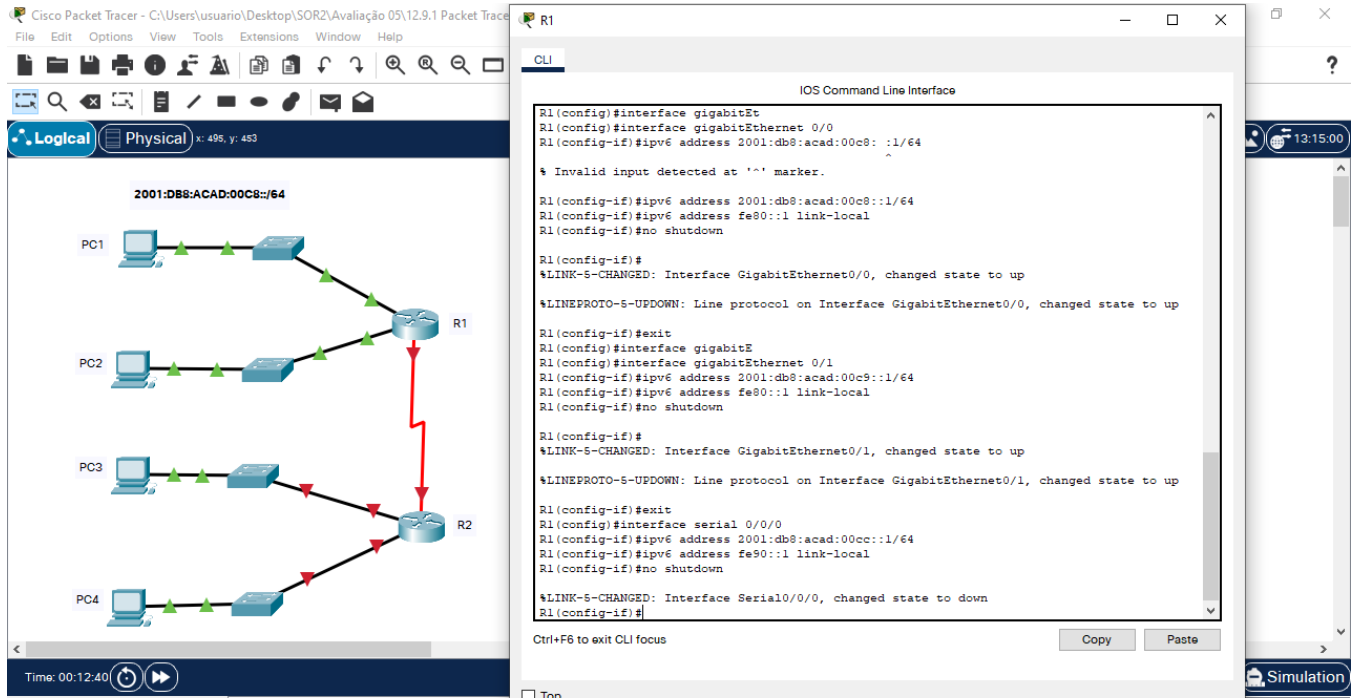
R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#interface gigabitE
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 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)#
  
```

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



The screenshot shows the Cisco Packet Tracer interface with a network topology. The network is configured with IPv6 subnets. The CLI window for R1 shows the configuration of interfaces GigabitEthernet 0/0, 0/1, and Serial 0/0/0.

```
R1(config)#interface gigabitEt
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ipv6 address 2001:db8:acad:00c8::1/64

% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 2001:db8:acad:00c8::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

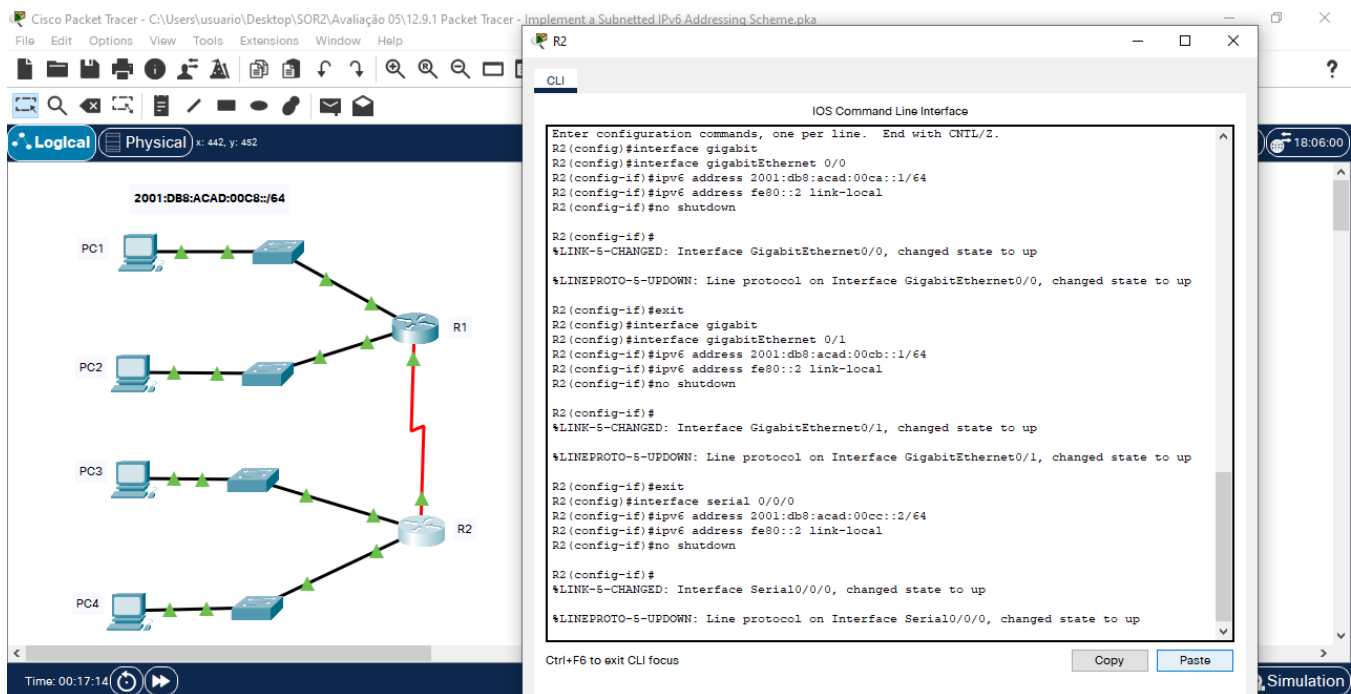
R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#interface gigabitE
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 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)#exit
R1(config)#interface serial 0/0/0
R1(config-if)#ipv6 address 2001:db8:acad:00cc::1/64
R1(config-if)#ipv6 address fe90::1 link-local
R1(config-if)#no shutdown

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



The screenshot shows the Cisco Packet Tracer interface with a network topology. The network is configured with IPv6 subnets. The CLI window for R2 shows the configuration of interfaces GigabitEthernet 0/0, 0/1, and Serial 0/0/0.

```
R2(config)#interface gigabit
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 shutdown

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 gigabit
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 shutdown

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::2/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shutdown

R2(config-if)#
%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
```

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

Cisco Packet Tracer - C:\Users\usuario\Desktop\SOR2\Avaliação 05\12.9.1 Packet Tracer - Implement a Subnetted IPv6 Addressing Scheme.pka

File Edit Options View Tools Extensions Window Help

Logical Physical x: 155, y: 86

2001:DB8:ACAD:00C8::/64

PC1 PC2 PC3 PC4 R1 R2

Time: 00:21:12

PC1

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:C8:230:F2FF:FEBA:2C3A / 64
 Link Local Address: FE80::230:F2FF:FEBA:2C3A
 Default Gateway: FE80::1
 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MDS
 Username:
 Password:

Simulation

Cisco Packet Tracer - C:\Users\usuario\Desktop\SOR2\Avaliação 05\12.9.1 Packet Tracer - Implement a Subnetted IPv6 Addressing Scheme.pka

File Edit Options View Tools Extensions Window Help

Logical Physical x: 110, y: 186

2001:DB8:ACAD:00C8::/64

PC1 PC2 PC3 PC4 R1 R2

Time: 00:21:43

PC2

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:

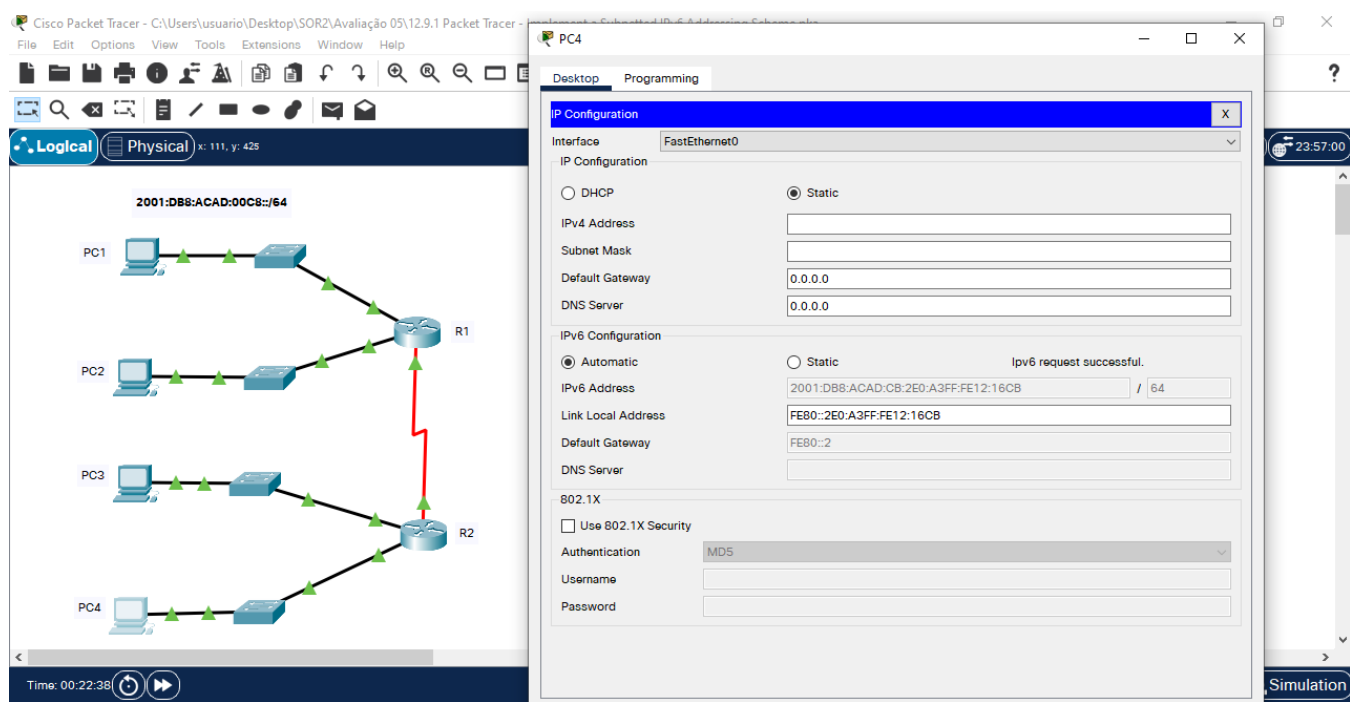
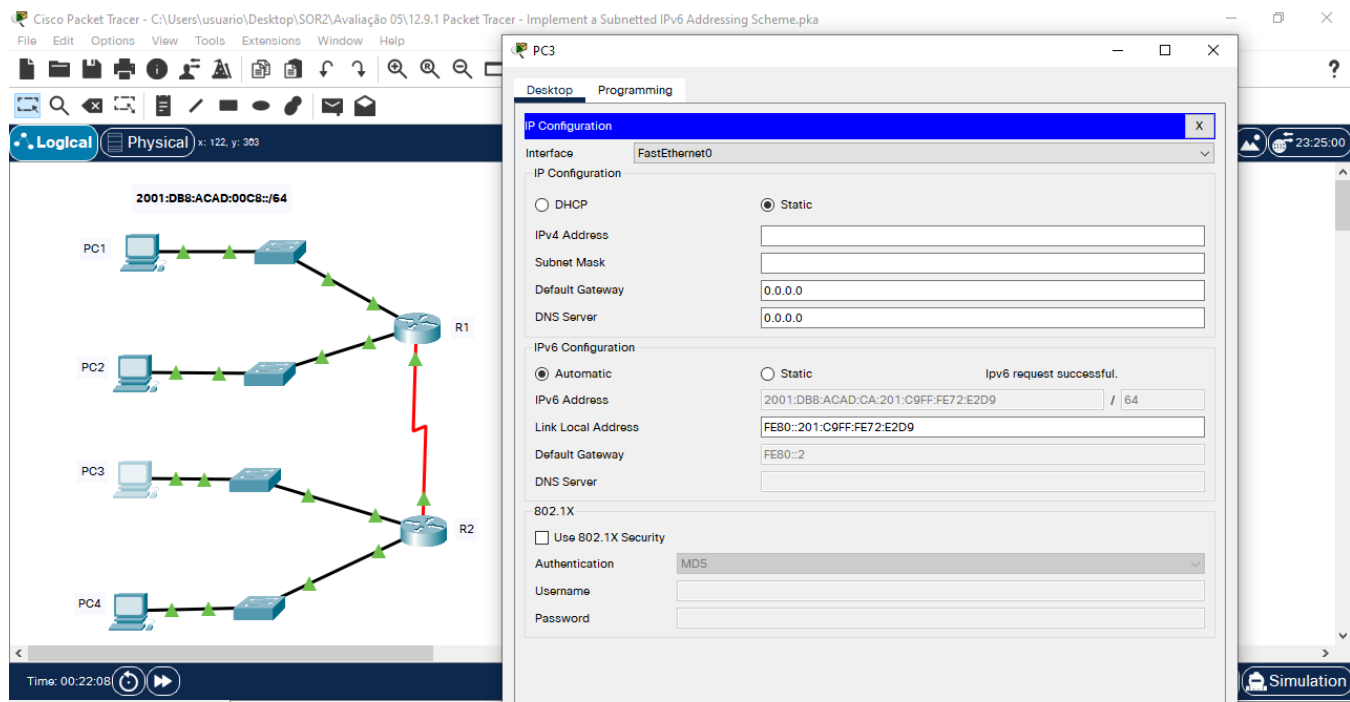
802.1X

☐ Use 802.1X Security

Authentication: MDS
 Username:
 Password:

Simulation

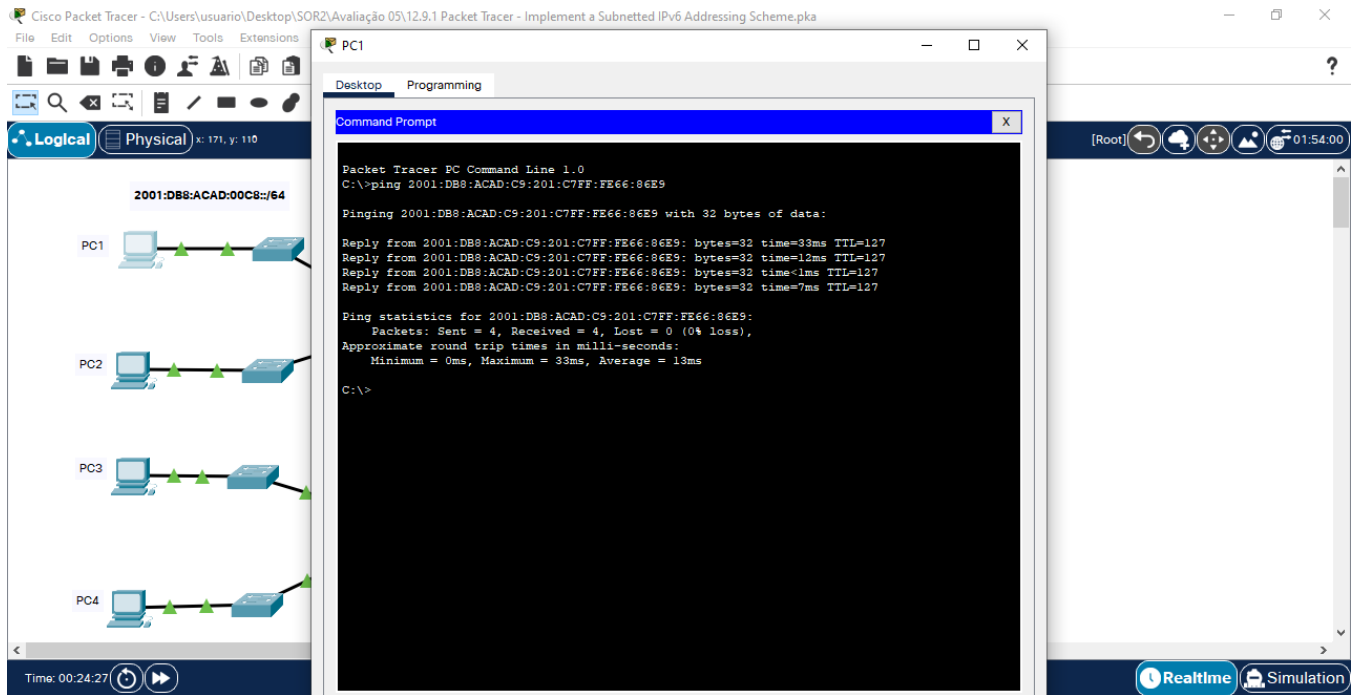
Packet Tracer – Implementando um Esquema de Endereçamento IPv6 com Sub-Redes



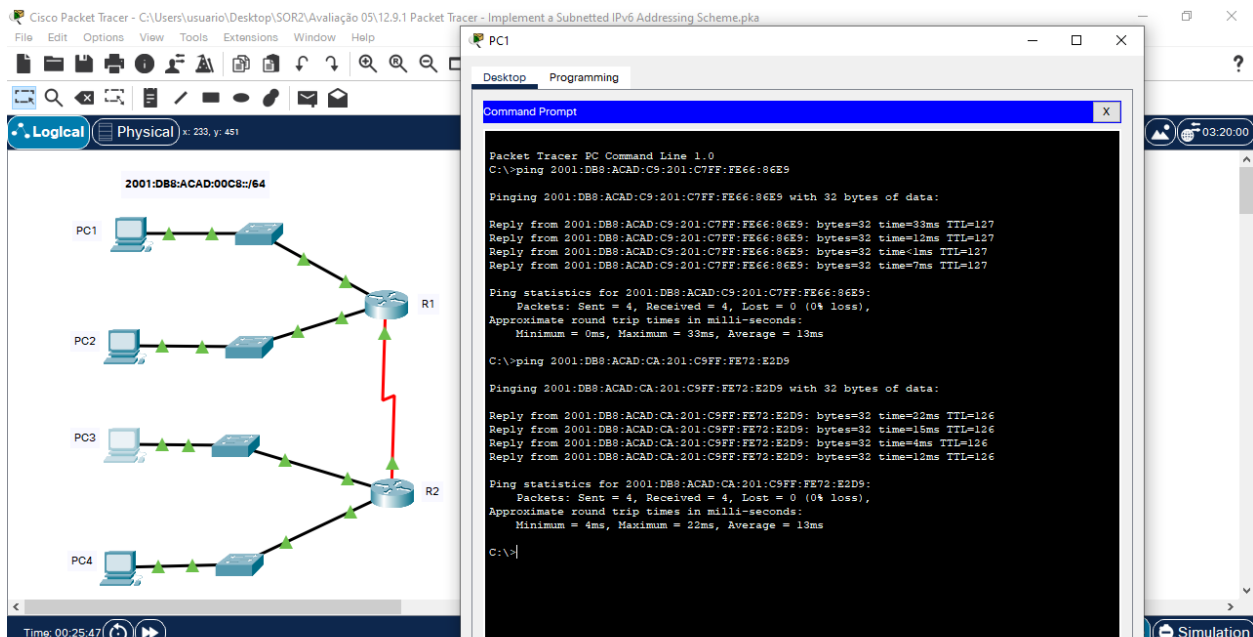
Etapa 3: Verifique a conectividade IPv6.

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

CONEXÃO AO PC 2



CONEXÃO AO PC 3



CONEXÃO AO PC 4

The screenshot displays the Cisco Packet Tracer interface. On the left, the 'Logical' tab shows a network topology with four PCs (PC1, PC2, PC3, PC4) connected to two routers (R1, R2). A red line indicates a connection path from R1 to R2. The network address '2001:DB8:ACAD:00CB::/64' is visible at the top. On the right, the 'Command Prompt' window for PC1 shows the following commands and output:

```
Command Prompt
C:\>ping 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9:
Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time<1ms TTL=127
Reply from 2001:DB8:ACAD:C9:201:C7FF:FE66:86E9: bytes=32 time=7ms TTL=127

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 = 0ms, Maximum = 33ms, Average = 13ms

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=22ms TTL=126
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time=15ms TTL=126
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time=4ms TTL=126
Reply from 2001:DB8:ACAD:CA:201:C9FF:FE72:E2D9: bytes=32 time=12ms TTL=126

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 = 4ms, Maximum = 22ms, Average = 13ms

C:\>ping 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB
Pinging 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB with 32 bytes of data:

Reply from 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB: bytes=32 time=22ms TTL=126
Reply from 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB: bytes=32 time=12ms TTL=126
Reply from 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB: bytes=32 time=10ms TTL=126
Reply from 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB: bytes=32 time=13ms TTL=126

Ping statistics for 2001:DB8:ACAD:CB:2E0:A3FF:FE12:16CB:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 22ms, Average = 14ms

C:\>
```