

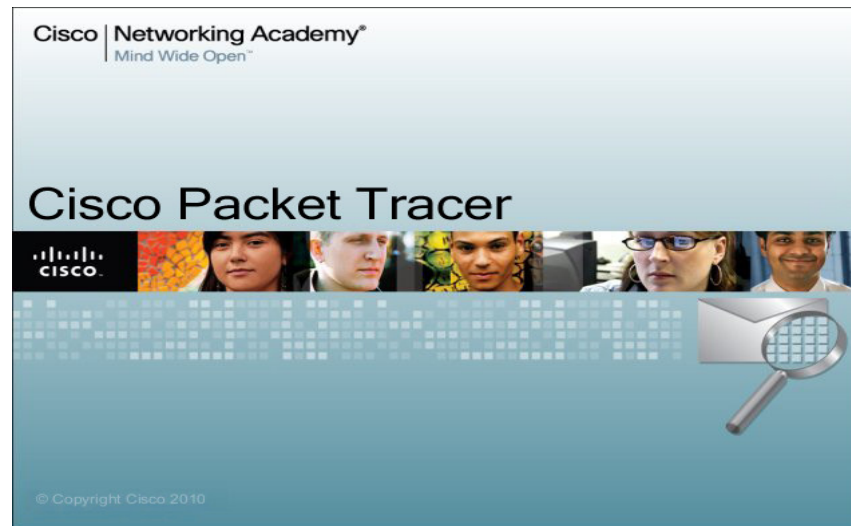


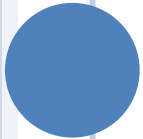
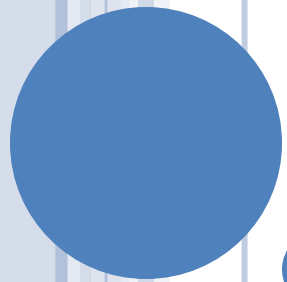
CISCO PACKET TRACER

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INTRODUÇÃO

- Packet Tracer v5.3 é um simulador de redes desenvolvido pela Cisco Systems®;
- Capaz de simular o funcionamento de uma rede ethernet de par trançado, wireless (802.11) ou de fibra óptica;





INTERFACE

INSERINDO DISPOSITIVOS

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta

2620XM Router0

Para inserir um dispositivo:

3. Clique na área de trabalho

1. Escolha o tipo de dispositivo

2. Escolha o dispositivo

Time: 00:02:59 Power Cycle Devices **Realtime**

Routers

1841 2620XM 2621XM 2811 Generic Generic

2620XM

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type
------	-------------	--------	-------------	------

PRINCIPAIS FERRAMENTAS

The image shows a screenshot of a network simulation software interface. The main workspace displays a logical topology with three devices: a 2620XM Router0, a 2950-24 Switch0, and a PC-PT PC0. The interface includes a top menu bar with options like 'New Cluster', 'Move Object', and 'Set Tiled Background'. A right-hand toolbar contains various tools, with five specific tools highlighted by red boxes and labeled with text in Portuguese. The bottom of the interface features a 'Realtime' status bar with a clock, a 'Power Cycle Devices' section, and a table for monitoring network events.

Logical [Root] New Cluster Move Object Set Tiled Background

2620XM Router0

2950-24 Switch0

PC-PT PC0

Time: 00:06:38 | Power Cycle Devices **Realtime**

End Devices

Generic Generic Generic Generic IPPhone

PC-PT

Fire	Last Status	Source	Destination	Type
------	-------------	--------	-------------	------

Ferramenta de Seleção

Mover toda a topologia

Notas

Excluir dispositivo ou conexão

Redimensionar

DICAS

- Você pode criar várias instâncias do mesmo dispositivo, mantendo pressionada a tecla CTRL ao selecionar o dispositivo para adicionar ao espaço de trabalho.
- Você pode cancelar a criação de vários dispositivos, clicando nele novamente ou outra ferramenta. Além disso, a tecla ESC irá cancelar qualquer ação.
- Vários dispositivos podem ser selecionados ao mesmo tempo usando a ferramenta de selecionar e arrastar em torno dos dispositivos desejados.



CONEXÕES

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

2620XM Router0

2950-24 Switch0

PC-PT PC0

1. Seleção (se necessário)

2. Escolha a conexão

3. Escolha o ícone smart

4. Clique no dispositivo

5. Clique no segundo dispositivo

Time: 01:59:02 Power Cycle Devices **Realtime**

Connections

Automatically Choose Connection Type

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type
------	-------------	--------	-------------	------

STATUS DA CONEXÃO

The screenshot shows the Packet Tracer 5.0 Beta Logical view. The network topology consists of three devices connected in a vertical line: a 2620XM Router0 at the top, a 2950-24 Switch0 in the middle, and a PC-PT PC0 at the bottom. The link between the Router0 and Switch0 is highlighted in red, indicating it is inactive. The link between the Switch0 and PC0 is green, indicating it is active. Two red boxes with arrows point to the red link and the Router0, respectively, containing explanatory text in Portuguese.

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Packet Tracer 5.0 Beta

2620XM Router0

2950-24 Switch0

PC-PT PC0

Vermelho indica que o link está inativo

O estado padrão de um roteador é "shutdown".

Time: 02:14:26 Power Cycle Devices **Realtime**

Connections

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type
------	-------------	--------	-------------	------

Automatically Choose Connection Type

VISUALIZANDO PORTAS

The screenshot shows the Packet Tracer 5.0 Beta interface in the 'Logical' view. The network topology consists of three devices connected in a vertical line: a 2620XM Router0 at the top, a 2950-24 Switch0 in the middle, and a PC-PT PC0 at the bottom. The connection between the router and the switch is highlighted with a red dot at the router's Fa0/1 port. A red-bordered text box with the text 'Passe o mouse sobre a conexão para ver quais portas foram selecionadas' (Move the mouse over the connection to see which ports were selected) has two red arrows pointing to the connection line and the Fa0/1 port label. The interface includes a top menu bar with options like 'New Cluster', 'Move Object', 'Set Tiled Background', and 'Viewport'. The bottom status bar shows 'Time: 02:16:57', 'Power Cycle Devices', and 'Realtime' mode. The bottom toolbar contains icons for connections, a 'Connections' panel, and a 'PDU List Window' with columns for 'Fire', 'Last Status', 'Source', 'Destination', and 'Type'.

OPÇÕES DOS DISPOSITIVOS

The image shows the Packet Tracer 5.0 interface with the 'Options' dialog box open. The dialog box is divided into several tabs: 'Interface', 'Administrative', 'Hide', and 'Font'. The 'Interface' tab is selected, and the 'Customize User Experience' section is highlighted with a red box. The options in this section are:

- Animation
- Sound
- Show Link Lights
- Hide Device Label
- Port Labels Always Shown
- Don't show port labels when mouse over
- Hide QoS Stamps on Packets

Other sections in the dialog box include:

- Logging:** Enable Logging, with 'View Log' and 'Export Log' buttons.
- Simulation - Buffer Full Action:** Prompt, Auto Clear Event List, Auto View Previous Events.
- Accessibility:** Enable Screen Reader Support.
- Select Language:** A list box showing 'Languages', 'default.ptl', and 'english en.ptl', with a 'Change Language' button.

The background shows a network diagram with a Router0 (26Fa0/0) connected to a PC0 (250-24 Fa0/24) via a switch (250-24 Fa0/24). The interface also shows a 'Logical' view on the left and a 'Realtime' view on the right.

CRIANDO CLUSTERS (SUBREDES)

The screenshot displays the Packet Tracer 5.0 Beta interface. At the top, the 'Logical' tab is active, showing a network diagram. A dashed box highlights a cluster containing four PC-PT devices (PC0, PC1, PC2, PC4) connected to a central 2950-24 Switch0. The 'New Cluster' button in the top toolbar is highlighted with a red box. The interface also shows a 'Realtime' tab at the bottom right, a 'Connections' panel at the bottom left, and a 'Power Cycle Devices' button. The status bar at the bottom indicates the time is 02:57:06.

Logical [Root] **New Cluster** Move Object Set Tiled Background Viewport

Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta

PC-PT PC0 PC-PT PC1 PC-PT PC2 PC-PT PC4

2950-24 Switch0

Time: 02:57:06 Power Cycle Devices **Realtime**

Connections

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination
------	-------------	--------	-------------

Automatically Choose Connection Type

CRIANDO CLUSTERS (SUBREDES) (2)

The screenshot displays a network management software interface. At the top, a yellow header bar contains the text "Logical" on the left, "[Root]" in the center, and "New Cluster", "Move Object", "Set Tiled Background", and "Viewport" on the right. Below the header, a central workspace shows a single icon labeled "Cluster0" with a small network diagram. To the right of the workspace is a vertical toolbar with icons for selection, pan, zoom, and other functions. At the bottom, a yellow bar shows "Time: 03:11:25" and "Power Cycle Devices" on the left, and "Realtime" on the right. Below this bar, there are several panels: a "Connections" panel with various device icons, a panel with drawing tools (lightning bolt, blue line, black line, grey line, orange line), a panel with "Scenario 0" and "New" and "Delete" buttons, and a table with columns "Fire", "Last Status", "Source", and "Destination".

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Cluster0

Time: 03:11:25 Power Cycle Devices Realtime

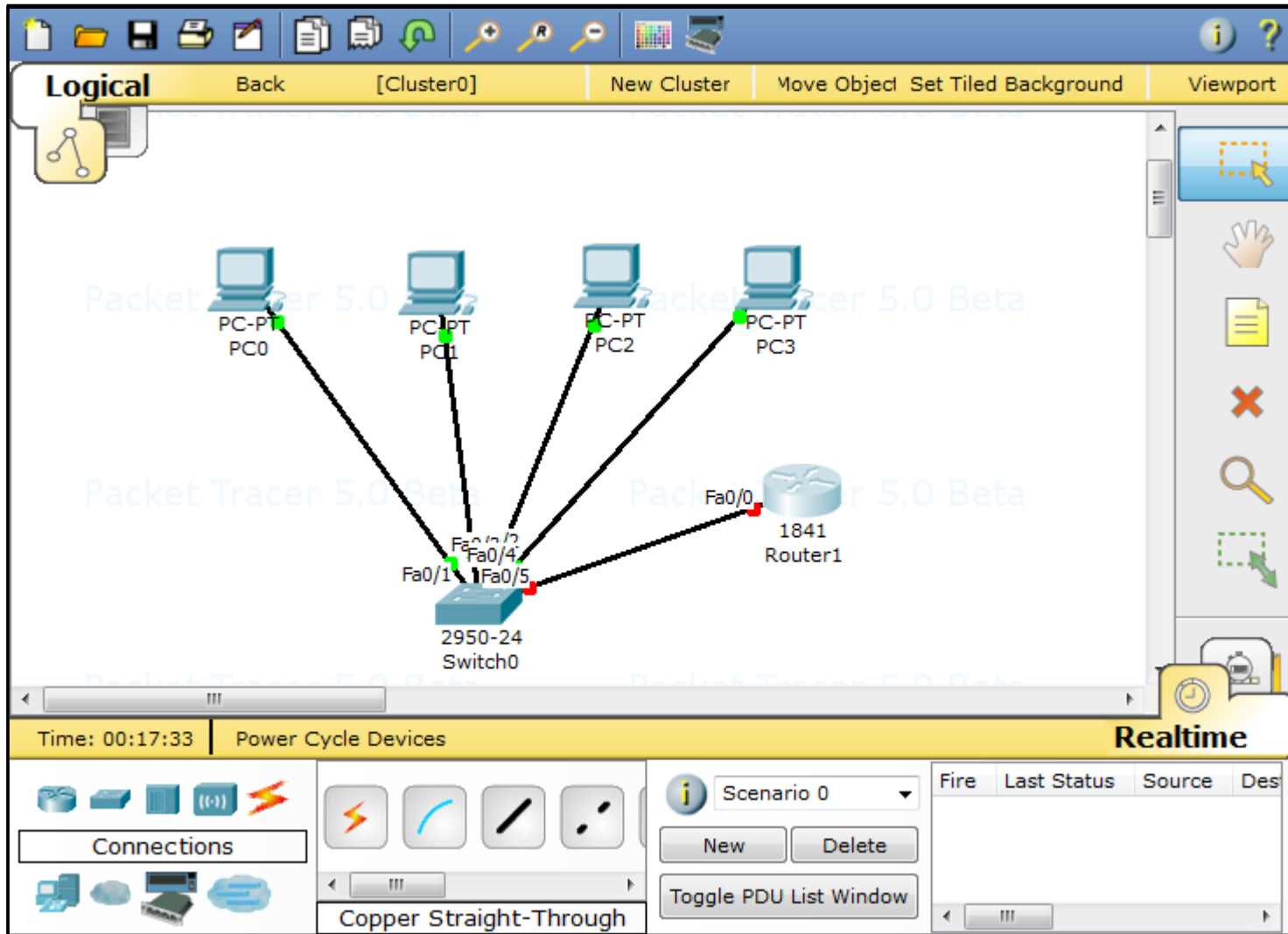
Connections

Scenario 0

Fire	Last Status	Source	Destination
------	-------------	--------	-------------

Automatically Choose Connection Type

ADICIONANDO UM DISPOSITIVO AO CLUSTER



CONFIGURANDO O ENDEREÇO DO GATEWAY

Clique em um PC e então clique na guia **Config** para configurá-lo.

Em Configurações Globais, você pode alterar o nome do PC e digitar o endereço IP do gateway.



CONFIGURE O ENDEREÇO IP DO PC

The screenshot displays the Packet Tracer interface. The main window shows a network diagram with a router labeled '2620XM' and a PC labeled 'PC-PT GAD_Student'. The configuration window for the PC is open, showing the 'Config' tab. The 'FastEthernet' interface is selected, and the 'IP Configuration' section is expanded. The 'Static' option is selected, and the IP Address is set to '192.168.1.2' and the Subnet Mask is set to '255.255.255.0'. The 'IPv6 Configuration' section is also visible, with the 'Auto Config' option selected.

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet

FastEthernet

Port Status

Bandwidth
 10 Mbps 100 Mbps

Duplex
 Full Duplex Half Duplex

MAC Address 00E0.B043.9EE8

IP Configuration
 DHCP
 Static
IP Address 192.168.1.2
Subnet Mask 255.255.255.0

IPv6 Configuration
Link Local Address: FE80::2E0:B0FF:FE43:9EE8
 DHCP
 Auto Config

Time: 00:34:16 Power Cycle

Connections

Toggle PDU List Window

Automatically Choose Connection Type

Clique em FastEthernet para configurar o endereço IP e a máscara de sub-rede.



ADICIONANDO NOTAS

The screenshot displays the Packet Tracer 5.0 Beta interface. The main workspace shows a network topology with a 2620XM GAD router connected to a 2950-24 Switch0, which is connected to a PC-PT GAD_Student. A callout box with the text "Click on Note para adicionar notas" has two red arrows: one pointing to a note icon in the right-hand toolbar and another pointing to a small white square on the PC-PT GAD_Student object.

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta Packet Tracer 5.0 Beta

2620XM GAD Fa0/0 192.168.1.1/24

2950-24 Switch0

PC-PT GAD_Student

Click on Note para adicionar notas

Time: 00:37:34 Power Cycle Devices Realtime

Connections

Scenario 0 Fire Last Status Source Destination

New Delete

Toggle PDU List Window

Automatically Choose Connection Type

DESCRIÇÃO DA REDE

The screenshot displays the Packet Tracer 5.0 Beta interface. The main workspace shows a network topology with the following components:

- Router:** 2621XM GAD, Fa0/0 192.168.1.1/24
- Switch:** 2950-24 Switch0
- PC:** PC-PT GAD_Student, IP: 192.168.1.2/24, GW: 192.168.1.1
- Network:** 192.168.1.0/24

A 'Network Description' dialog box is open, providing the following text:

Network Description:

This topology is the beginning of the larger topology we will build.

The router has a FastEthernet port that is addressed with the first available IP address in the 192.168.1.0/24 network.

The PC is connected to the network via a switch and has the next available IP address in the 192.168.1.0/24 network. It is configured to use the router's FastEthernet port as the Gateway.

A red arrow points from the 'Network Description' dialog box to the information icon ('i') in the top right corner of the Packet Tracer interface. A red-bordered text box at the bottom right contains the instruction: "Clique no ícone 'i' para adicionar uma descrição da rede."

The interface also shows a 'Logical' tab, a 'Realtime' tab, and various toolbars and panels, including 'Connections' and 'Power Cycle Devices'.

SALVANDO A TOPOLOGIA

File Edit Options View Tools Extensions Help Report a Bug

- New Ctrl+N
- Open ... Ctrl+O
- Open Samples ... Ctrl+Shift+T
- Save Ctrl+S
- Save As ... Ctrl+Shift+S
- Save As Pkz ... Ctrl+Shift+Z
- Print ... Ctrl+P
- Recent Files
- Exit Alt+F4

Ctrl + S

Global Settings

Display Name GAD

Hostname GAD

NVRAM Erase Save

Startup Config Load... Export...

Running Config Merge... Export...

Salve as configurações do roteador, clicando NVRAM -> Save.

Time: 00:44:44 Power Cycle Devices

Connections

Toggle PDU List Window



VERIFICAÇÃO EM TEMPO REAL

The screenshot shows a software interface for network management. At the top, there's a toolbar with icons for file operations and navigation. Below that, a yellow header bar contains the text "Logical" and several menu options: "Back", "[Cluster0]", "New Cluster", "Move Object", "Set Tiled Background", and "Viewport".

The main window is titled "PC3" and has three tabs: "Physical", "Config", and "Desktop". The "Desktop" tab is active, showing a grid of icons on a blue background. The icons are labeled as follows:

- IP Configuration (with a rack icon and the number 106)
- Dial-up (with a modem icon)
- Terminal (with a terminal window icon containing a greater-than sign >)
- Command Prompt (with a terminal window icon containing the word "run")
- Web Browser (with a globe icon and the text "http:")
- PC Wireless (with a wireless antenna icon)

A red-bordered text box is overlaid on the "Command Prompt" icon, containing the following text:

Em **Realtime** selecione **Desktop** a partir da interface com guias. Clique no ícone **Command Prompt** para abrir um prompt de comando do PC.

Red arrows point from the text box to the "Desktop" tab and the "Command Prompt" icon. Another red arrow points from the text box to a "Realtime" button located in the bottom right corner of the interface.

PING PARA O GATEWAY

The screenshot shows the Packet Tracer interface. On the left, the 'Logical' view displays a network topology with three devices: a 2620XM Gateway (GAD), a 2950-24 Switch (Switch0), and a PC-PT (GAD_Student). The PC is connected to the switch, and the switch is connected to the gateway. A red arrow points from a text box to the Command Prompt window.

The Command Prompt window shows the following output:

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=153ms TTL=120
Reply from 192.168.1.1: bytes=32 time=78ms TTL=120
Reply from 192.168.1.1: bytes=32 time=69ms TTL=120
Reply from 192.168.1.1: bytes=32 time=80ms TTL=120

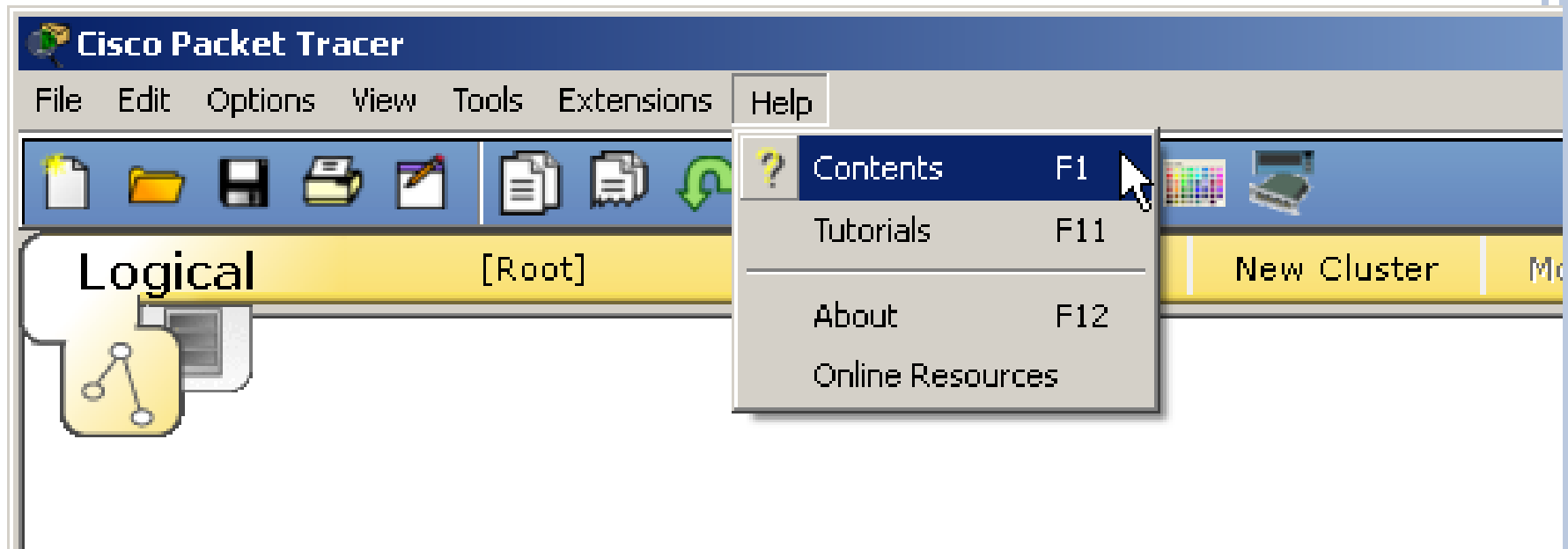
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 69ms, Maximum = 153ms, Average = 95ms

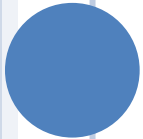
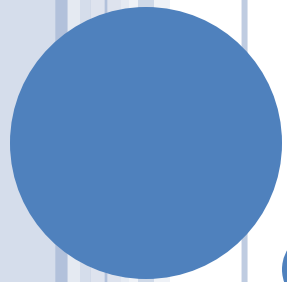
PC>
```

Ping para o gateway.

EM CASO DE DÚVIDA ...

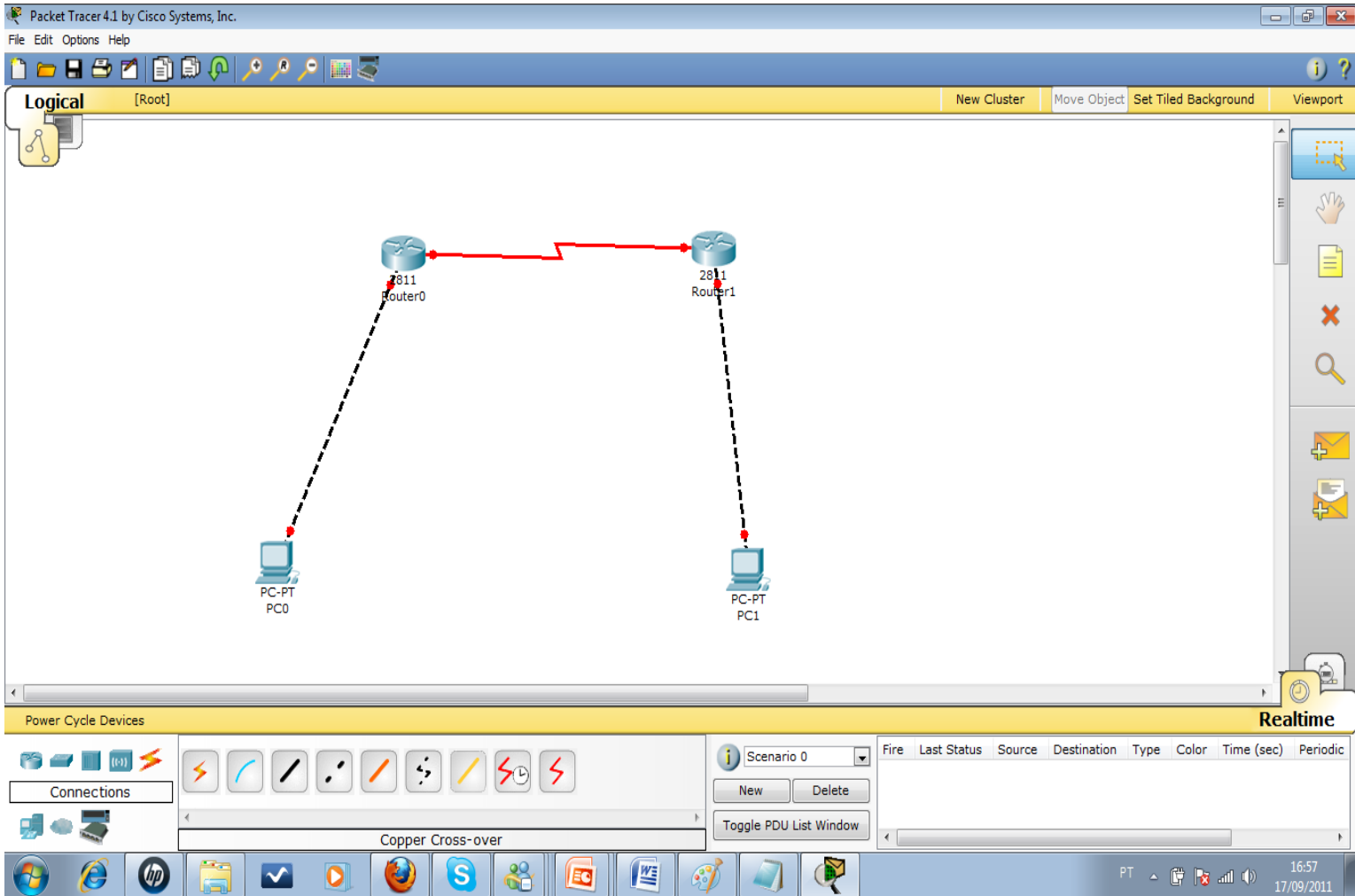
- Ajuda (F1)
- Tutoriais (F11)
- Recursos Online (Online Resources)





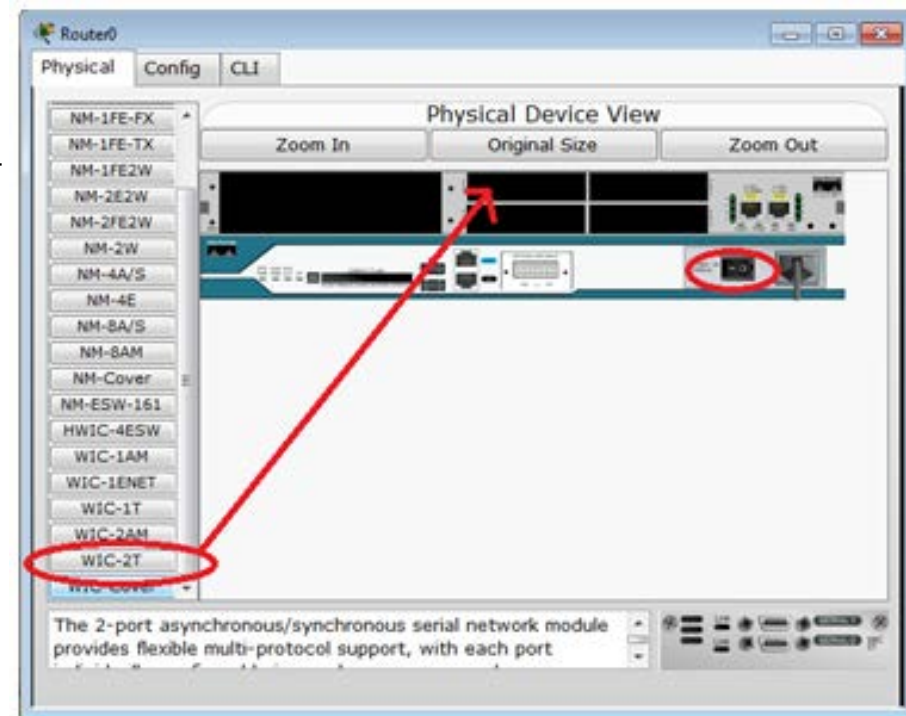
TUTORIAL RIP

TOPOLOGIA



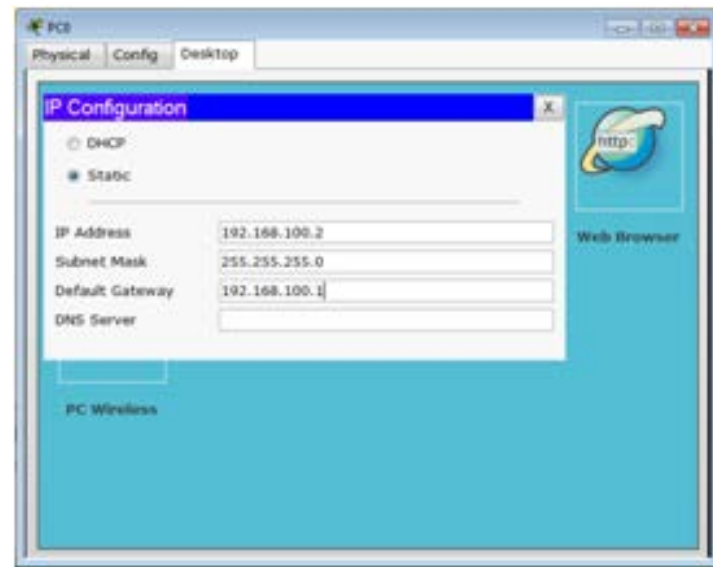
ROTEADORES

- Dois cliques em cima do Router0
- Desligar o roteador da tomada
- Escolher a placa WIC-2T (clica e arrasta) para o slot vazio
- Ligar roteador na tomada.
- Repetir processo no router 1



CONFIGURAÇÕES

- PC0:
 - IP: 192.168.100.2
 - netmask: 255.255.255.0
 - gateway: 192.168.100.1
- PC1:
 - IP : 172.16.0.2,
 - netmask: 255.255.0.0
 - gateway: 172.16.0.1



CONFIGURANDO OS ROTEADORES

- No Router0:

Continue with configuration dialog? [yes/no]: no

```
Router>enable
```

```
Router#configure terminal
```

```
Router(config)#interface FastEthernet0/0
```

```
Router(config-if)#ip address 192.168.100.1  
255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#exit
```



CONFIGURANDO OS ROTEADORES (2)

- No Router0:

```
Router(config)#interface Serial0/3/0
```

```
Router(config-if)#ip address 200.100.100.1  
255.255.255.0
```

```
Router(config-if)#clock rate 500000
```

```
Router(config-if)#no shutdown
```



CONFIGURANDO OS ROTEADORES (3)

- Idem no Router1:

Continue with configuration dialog? [yes/no]: no

Router>enable

Router#configure terminal

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 172.16.0.1 255.255.0.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/3/0

Router(config-if)#ip address 200.100.100.2
255.255.255.0

Router(config-if)#no shutdown



TESTANDO A REDE

- Clicar no PC0 e escolher aba “Desktop”
- No prompt digitar: ping 172.16.0.2 (PC1)
- O comando irá falhar!



CONFIGURANDO RIP

- No Router0:

```
Router(config-if)#exit
```

```
Router(config)#router rip
```

```
Router(config-router)#network 200.100.100.0
```

```
Router(config-router)#network 192.168.100.0
```

- No Router1:

- Router(config-if)#exit

- Router(config)#router rip

- Router(config-router)#network 200.100.100.0

- Router(config-router)#network 172.16.0.0



CONFIGURANDO RIP

- Verificando:

```
Router(config-if)#exit
```

```
Router(config)#exit
```

```
Router>show ip route
```

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

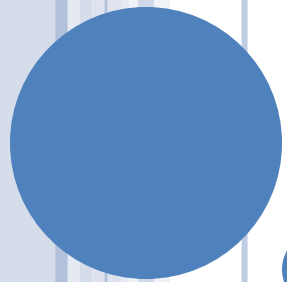
Gateway of last resort is not set

```
R 172.16.0.0/16 [120/1] via 200.100.100.2, 00:00:02, Serial0/3/0
```

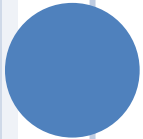
```
C 192.168.100.0/24 is directly connected, FastEthernet0/0
```

```
C 200.100.100.0/24 is directly connected, Serial0/3/0
```

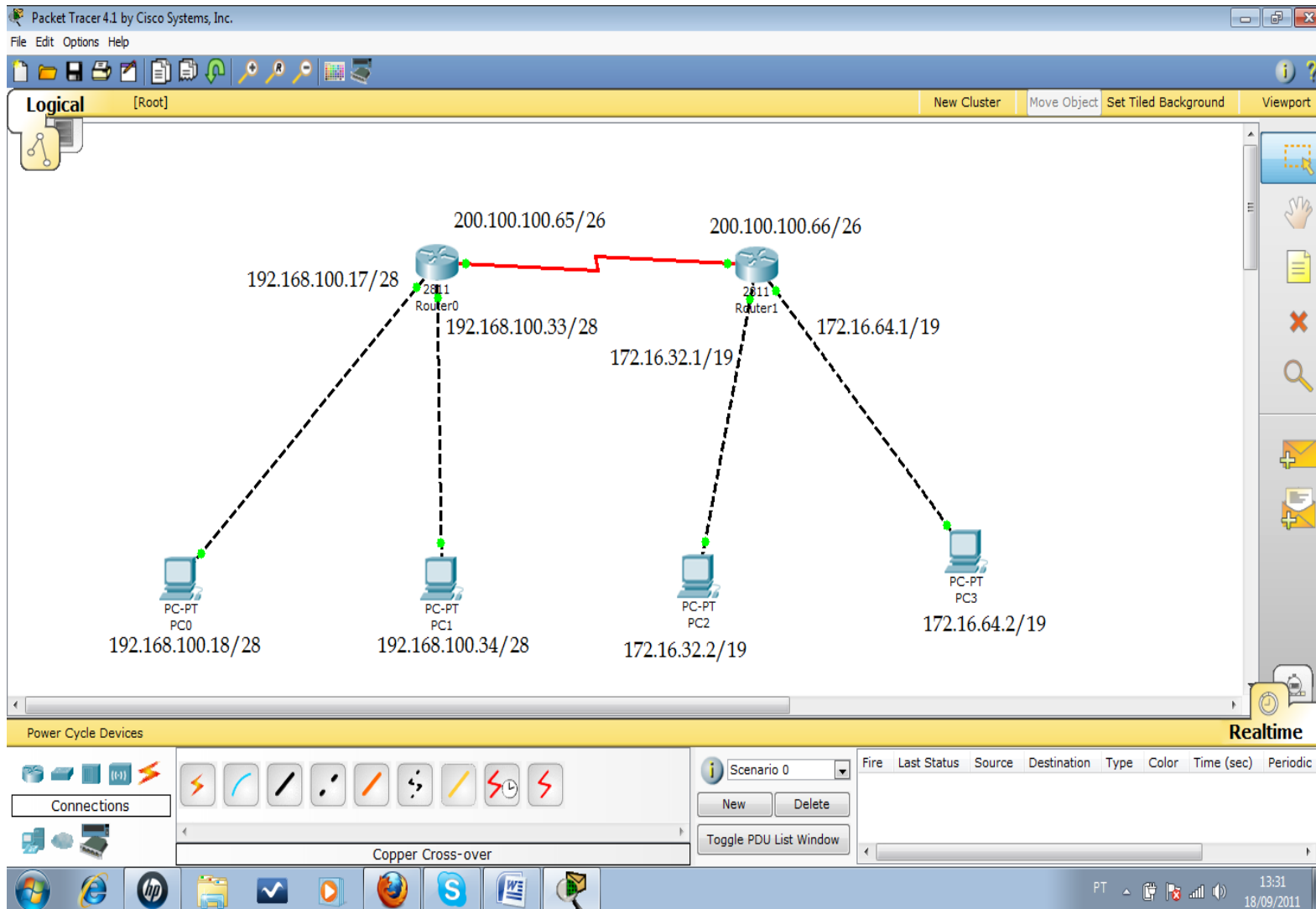




TUTORIAL OSPF



TOPOLOGIA



TOPOLOGIA (2)

○ PC0:

- IP: 192.168.100.18
- netmask: 255.255.255.240 (/28)
- gateway: 192.168.100.17

○ PC1:

- IP: 192.168.100.34
- netmask: 255.255.224.0
- gateway: 192.168.100.33

○ Interfaces serias:

- Router0: 200.100.100.65, 255.255.255.192 (/26)
- Router1: 200.100.100.66, 255.255.255.192



TOPOLOGIA (3)

○ PC3:

- IP: 172.16.32.2
- netmask: 255.255.255.240 (/19)
- gateway: 172.16.32.2

○ PC4:

- IP: 172.16.64.2
- netmask: 255.255.255.240
- gateway: 172.16.64.1



CONFIGURANDO OS ROTEADORES

```
# Router0
```

```
Router>enable
```

```
Router#configure terminal
```

```
Router(config)#interface FastEthernet0/0
```

```
Router(config-if)#ip address 192.168.100.17  
255.255.255.240
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#
```

```
Router(config-if)#exit
```

```
Router(config)#interface FastEthernet0/1
```

```
Router(config-if)#ip address 192.168.100.33  
255.255.255.240
```

```
Router(config-if)#no shutdown
```



CONFIGURANDO OS ROTEADORES (2)

```
# Router0
```

```
Router(config-if)#exit
```

```
Router(config)#interface Serial0/3/0
```

```
Router(config-if)#ip address 200.100.100.65  
255.255.255.192
```

```
Router(config-if)#clock rate 500000
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#exit
```



CONFIGURANDO OS ROTEADORES (3)

Continue with configuration dialog? [yes/no]: no

Router1

Router>enable

Router#configure terminal

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 172.16.32.1 255.255.224.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#ip address 172.16.64.1 255.255.224.0

Router(config-if)#no shutdown

Router(config-if)#exit



CONFIGURANDO OS ROTEADORES (4)

Router1

Router(config)#interface Serial0/3/0

Router(config-if)#ip address 200.100.100.66
255.255.255.192

Router(config-if)#clock rate 500000

Router(config-if)#no shutdown



CONFIGURANDO O OSPF

```
# Configurando OSPF no router0
```

```
Router(config-if)#exit
```

```
Router(config)#router ospf 1
```

```
Router(config-router)#network 200.100.100.64  
0.0.0.63 area 0
```

```
Router(config-router)#network 192.168.100.16  
0.0.0.15 area 0
```

```
Router(config-router)#network 192.168.100.32  
0.0.0.15 area 0
```



COMANDOS (6)

Configurando OSPF no router1

Router(config-if)#exit

Router(config)#router ospf 1

Router(config-router)#network 200.100.100.64
0.0.0.63 area 0

Router(config-router)#network 172.16.32.0
0.0.31.255 area 0

Router(config-router)#network 172.16.64.0
0.0.31.255 area 0



COMANDOS (7)

#Teste de conectividade.

#No PC0 digite:

```
ping 172.16.32.2
```

#Configurando conexãoTelnet

#Faremos o PC0 ter acesso as configurações no router1

#Digitar no router1:

```
Router(config-router)# exit
```

```
Router(config)#enable password ufpe
```

```
Router(config)#line vty 0 4
```

```
Router(config-line)#password ufpe
```



COMANDOS (8)

#Abrir prompt no PC0 e digitar:

```
telnet 200.100.100.66
```

```
password: ufpe
```

```
Router>enable
```

```
password: ufpe
```

#Usar ACL para barrar o acesso ao telnet

#Digitar no router1

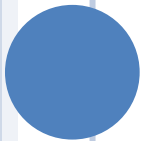
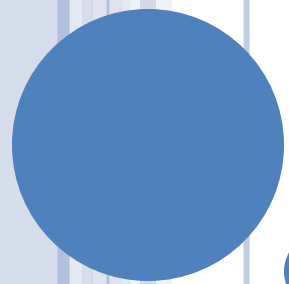
```
Router(config-line)#exit
```

```
Router(config)#access-list 111 deny tcp 192.168.100.16  
0.0.0.31 200.100.100.64 0.0.0.63 eq 23
```

```
Router(config)#interface Serial0/3/0
```

```
Router(config-if)#ip access-group 111 in
```





OBRIGADO! PERGUNTAS?