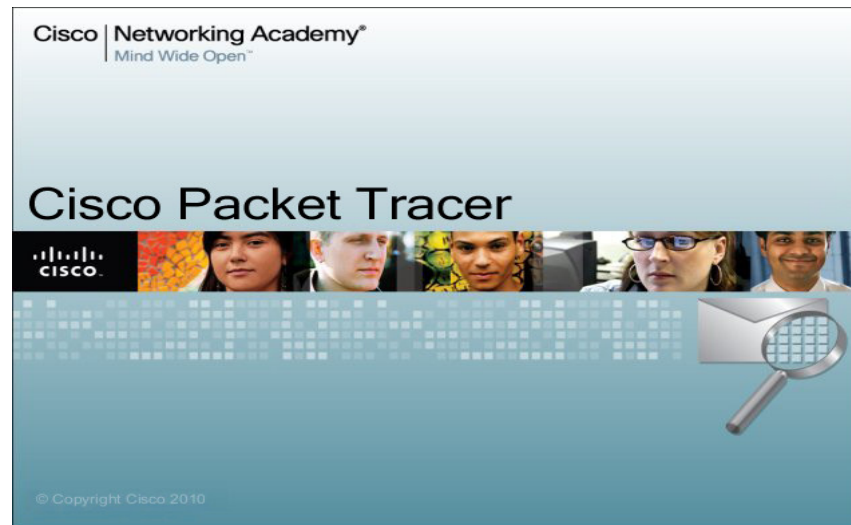
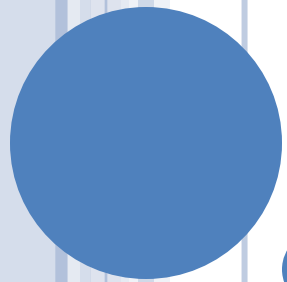


CISCO PACKET TRACER

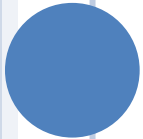
INTRODUÇÃO

- 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:

1. Escolha o tipo de dispositivo
2. Escolha o dispositivo
3. Clique na área de trabalho

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

Routers

1841 2620XM 2621XM 2811 Generic Generic

2620XM

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

Scenario 0 New Delete Toggle PDU List Window

PRINCIPAIS FERRAMENTAS

The image shows a screenshot of a network simulation software interface. The main workspace is titled "Logical [Root]" and contains several network devices: a "2620XM Router0", a "2950-24 Switch0", and a "PC-PT PC0". A toolbar on the right side of the workspace contains various tools. Five red boxes with arrows point to specific tools in the toolbar, each with a corresponding text label in a red-bordered box:

- Ferramenta de Seleção**: Points to the selection tool (a blue dashed box with a mouse cursor).
- Mover toda a topologia**: Points to the move tool (a hand icon).
- Notas**: Points to the notes tool (a yellow document icon).
- Excluir dispositivo ou conexão**: Points to the delete tool (a red 'X' icon).
- Redimensionar**: Points to the resize tool (a green dashed box with a green arrow).

At the bottom of the interface, there is a "Realtime" section with a "Power Cycle Devices" button and a "Scenario 0" dropdown menu. Below this, there are buttons for "New" and "Delete", and a "Toggle PDU List Window" button. A table with columns "Fire", "Last Status", "Source", "Destination", and "Type" is visible on the right side of the bottom section.

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.

Vermelho indica que o link está inativo

O estado padrão de um roteador é "shutdown".

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: 02:14:26", "Power Cycle Devices", and "Realtime". The bottom toolbar contains various tools for creating and managing network elements, including a "Connections" section and a "Toggle PDU List Window" button.

VISUALIZANDO PORTAS

The screenshot shows the Packet Tracer 5.0 Beta interface. The main workspace displays a network topology with three devices: a 2620XM Router0 at the top, a 2950-24 Switch0 in the middle, and a PC-PT PC0 at the bottom. They are connected in a vertical line. The connection between the router and the switch is highlighted with a red box and two red arrows pointing to it. A text box with a red border contains the text: "Passe o mouse sobre a conexão para ver quais portas foram selecionadas". 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". The bottom left panel contains "Connections" and "Automatically Choose Connection Type" options. The bottom right panel shows a "Scenario 0" dropdown and a table with columns for "Fire", "Last Status", "Source", "Destination", and "Type".

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

2620XM Router0
Fa0/1
2950-24 Switch0
PC-PT PC0

Passe o mouse sobre a conexão para ver quais portas foram selecionadas

Time: 02:16:57 Power Cycle Devices Realtime

Connections
Automatically Choose Connection Type

Scenario 0
New Delete
Toggle PDU List Window

Fire	Last Status	Source	Destination	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 includes a 'Logical' view on the left, a 'Realtime' view on the right, and a 'Connections' panel at the bottom.

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 interface includes a top menu bar with 'New Cluster' highlighted, a toolbar on the right, and a bottom status bar with 'Time: 02:57:06' and 'Power Cycle Devices'. The bottom panel shows connection tools and a table for monitoring network activity.

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

CRIANDO CLUSTERS (SUBREDES) (2)

The screenshot displays a network management software interface. The main workspace is titled "Logical" and shows a central icon labeled "Cluster0" representing a network cluster. The interface includes a top menu bar with options like "New Cluster", "Move Object", "Set Tiled Background", and "Viewport". A right-hand toolbar contains various icons for navigation and editing. At the bottom, there is a "Realtime" section with a "Connections" panel, a "Scenario 0" dropdown menu, and a table with columns for "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

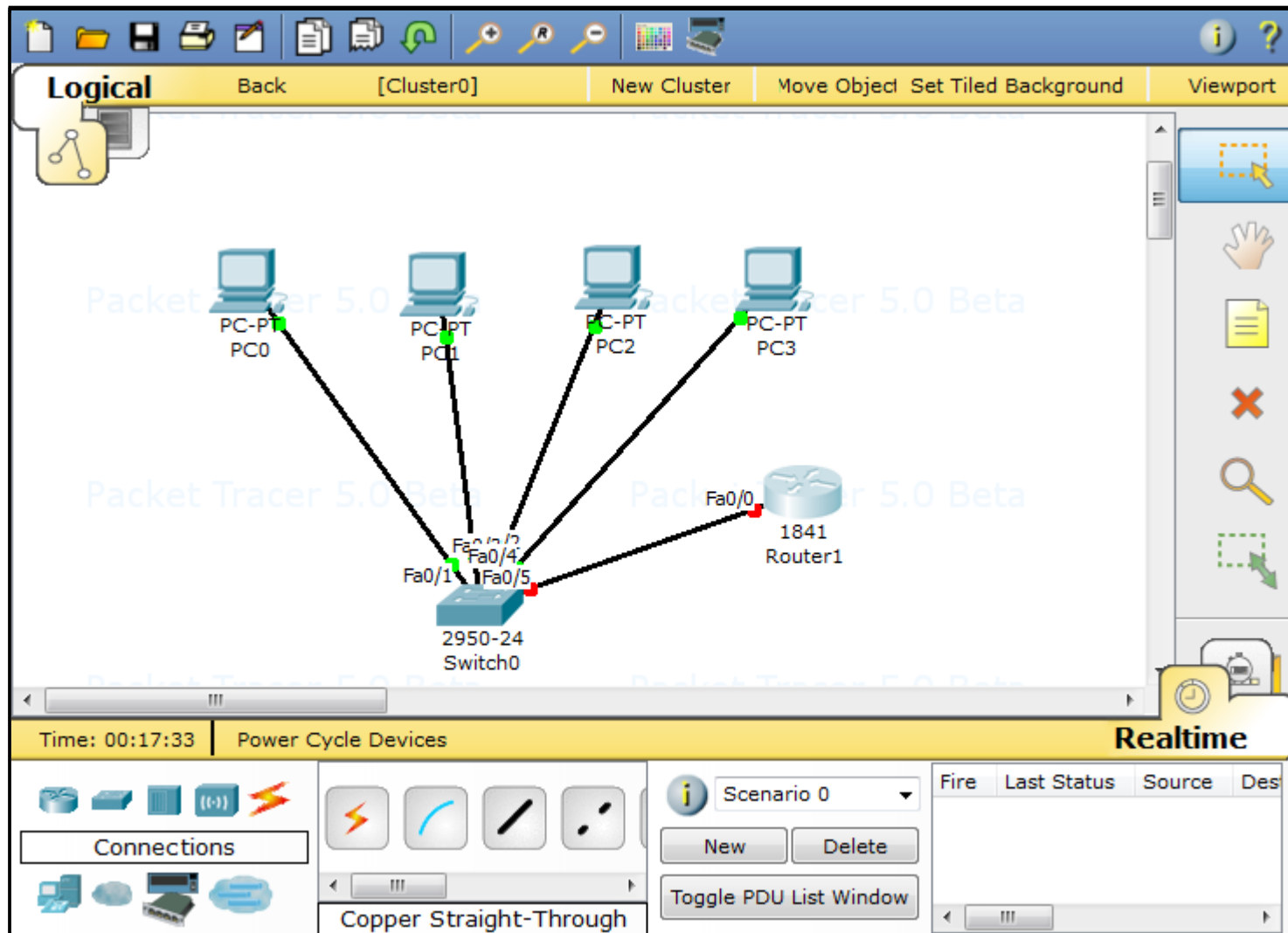
Scenario 0

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

Toggle PDU List Window

Automatically Choose Connection Type

ADICIONANDO UM DISPOSITIVO AO CLUSTER



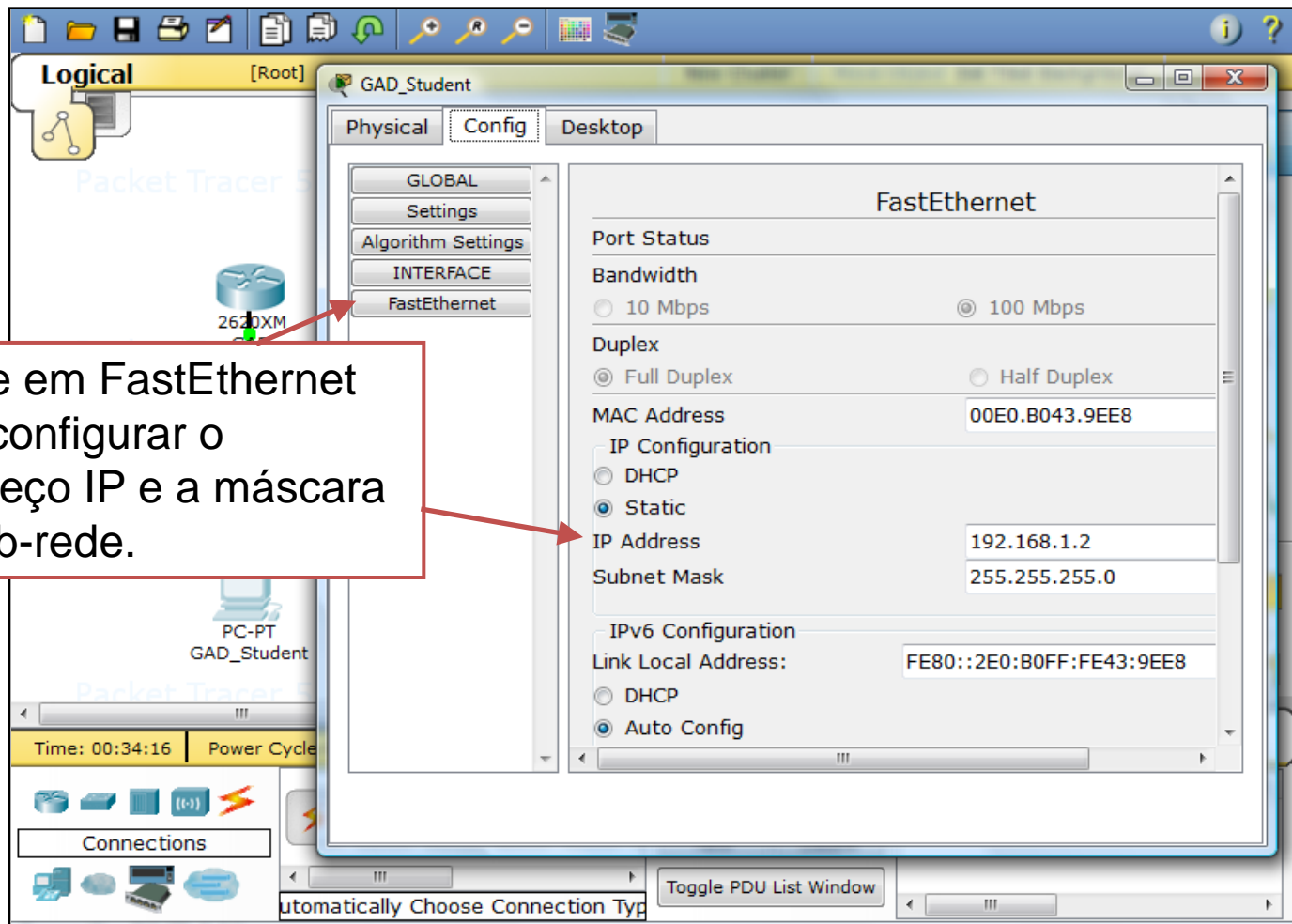
CONFIGURANDO O ENDEREÇO DO GATEWAY

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



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. At the top, the 'Logical' tab is active, showing a network diagram with a 2620XM GAD router connected to a 2950-24 Switch0, which is connected to a PC-PT GAD_Student. A red box with the text 'Click on Note para adicionar notas' has two arrows: one pointing to a note icon in the right-hand toolbar and another pointing to a small white square next to the PC icon. The interface includes a top menu bar with options like 'New Cluster', 'Move Object', 'Set Tiled Background', and 'Viewport'. The bottom section shows a 'Realtime' status bar with a clock, a 'Power Cycle Devices' button, and a 'Connections' panel with various connection type icons. A table with columns 'Fire', 'Last Status', 'Source', and 'Destination' is also visible.

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

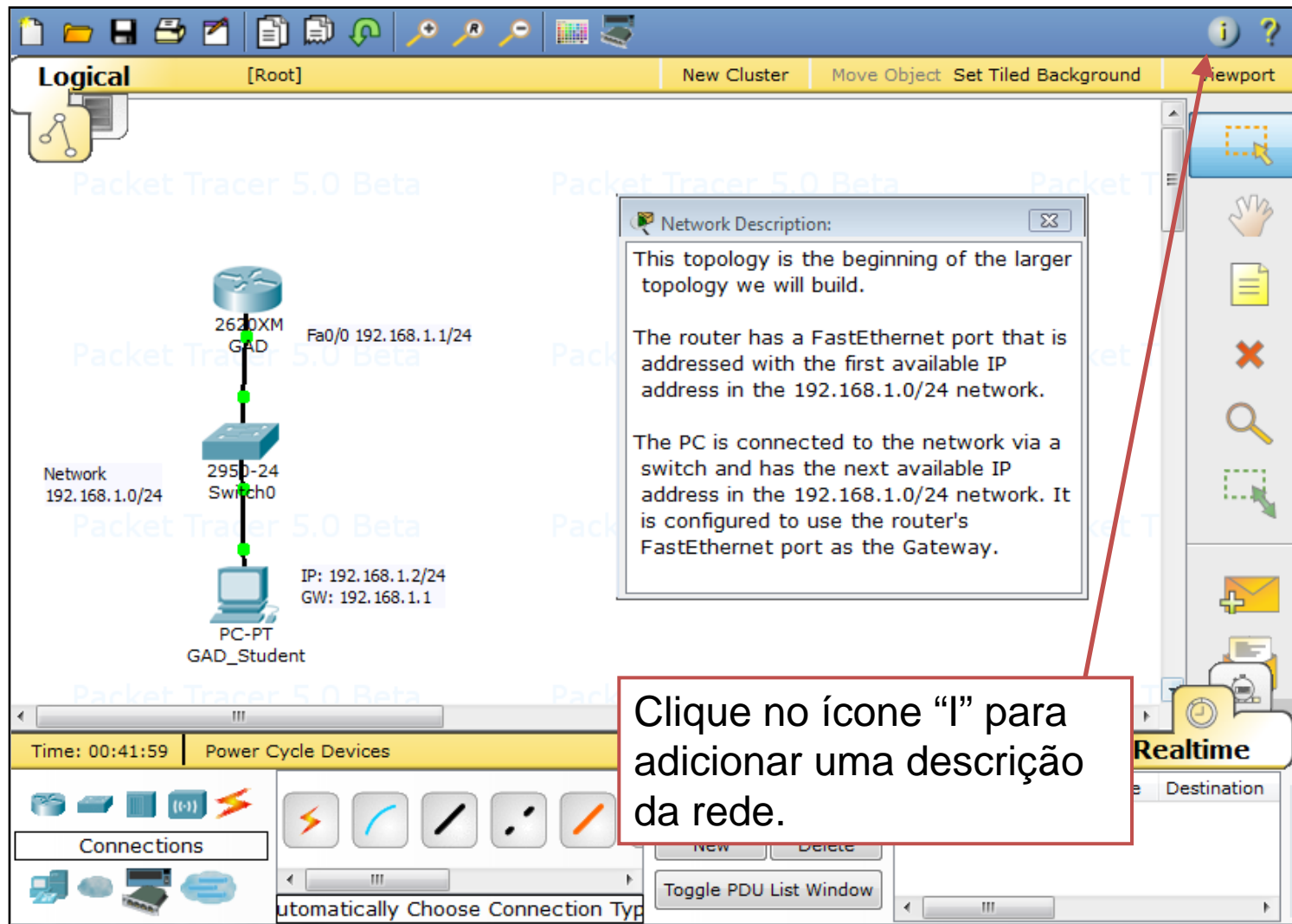
Scenario 0 Fire Last Status Source Destination

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:** 2620XM, Fa0/0 192.168.1.1/24
- Switch:** 2950-24 Switch0
- Network:** 192.168.1.0/24
- PC:** PC-PT, IP: 192.168.1.2/24, GW: 192.168.1.1

The 'Network Description' dialog box contains 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 box highlights the text: "Clique no ícone 'i' para adicionar uma descrição da rede."

SALVANDO A TOPOLOGIA

The screenshot displays the Packet Tracer 5.0 Beta interface. The 'File' menu is open, with 'Save' (Ctrl+S) highlighted. A red box labeled 'Ctrl + S' points to this menu item. In the background, a network diagram shows a 2950-24 switch connected to a PC. The 'Global Settings' window for the switch is open, with the 'NVRAM' section selected and the 'Save' button highlighted. A red box labeled 'Salve as configurações do roteador, clicando NVRAM -> Save.' points to this button. The 'Commands' window at the bottom shows the prompt '[OK] GAD#'. The interface includes a menu bar (File, Edit, Options, View, Tools, Extensions, Help, Report a Bug), a toolbar, and a status bar at the bottom.

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

Global Settings

Display Name GAD

Hostname GAD

NVRAM Erase Save

Startup Config Load... Export...

Running Config Merge... Export...

Commands

[OK]
GAD#

Time: 00:44:44 Power Cycle Devices

Connections

Toggle PDU List Window

Ctrl + S

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



VERIFICAÇÃO EM TEMPO REAL

The screenshot displays a network management software interface. At the top, a yellow toolbar contains various icons and text: 'Logical', 'Back', '[Cluster0]', 'New Cluster', 'Move Object', 'Set Tiled Background', and 'Viewport'. Below this, a window titled 'PC3' is open, showing a 'Desktop' tab. The desktop area contains several icons: 'IP Configuration' (with '106' on a rack), 'Dial-up' (with a server icon), 'Terminal' (with a prompt '>'), 'Command Prompt' (with a 'run' button), and 'Web Browser' (with an 'http:' icon). A red arrow points from the 'Command Prompt' icon to a text box. Another red arrow points from the text box to a 'Realtime' button in the bottom right corner of the interface. The text box contains 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.

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

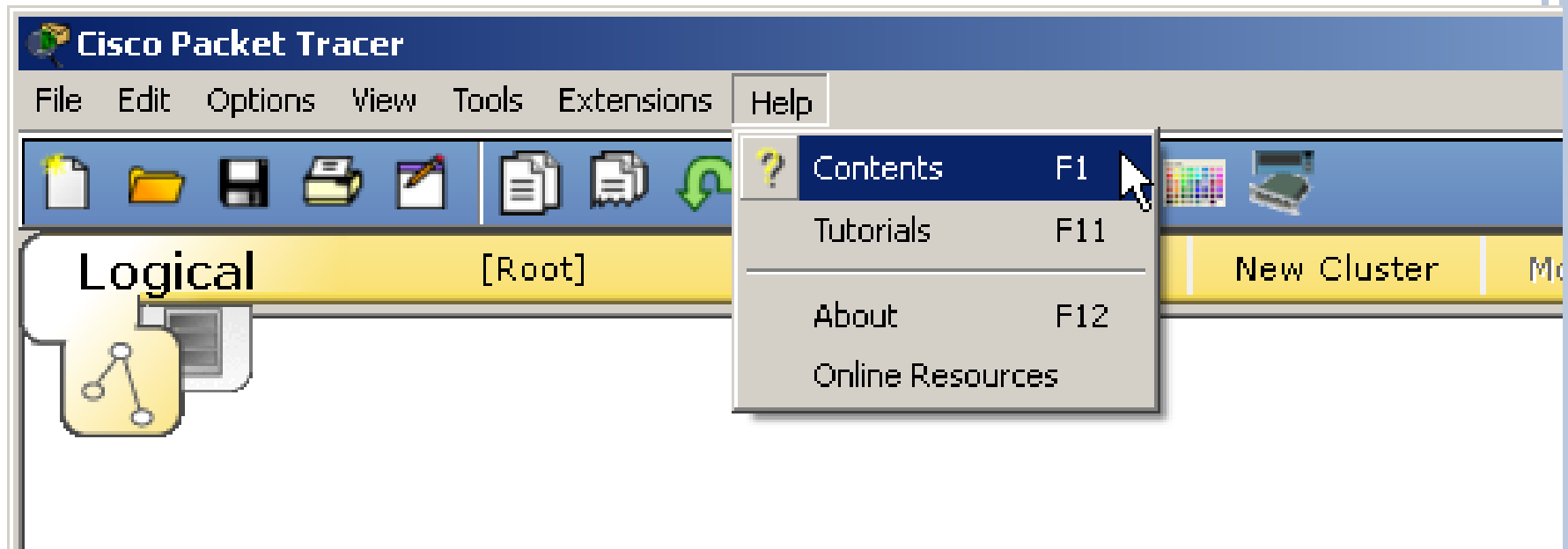
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 69ms, Maximum = 153ms, Average = 95ms

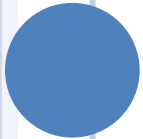
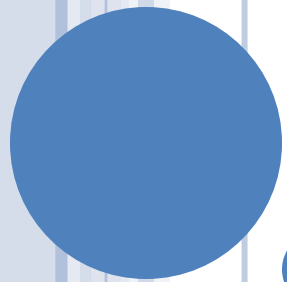
PC>
```

Ping para o gateway.

EM CASO DE DÚVIDA ...

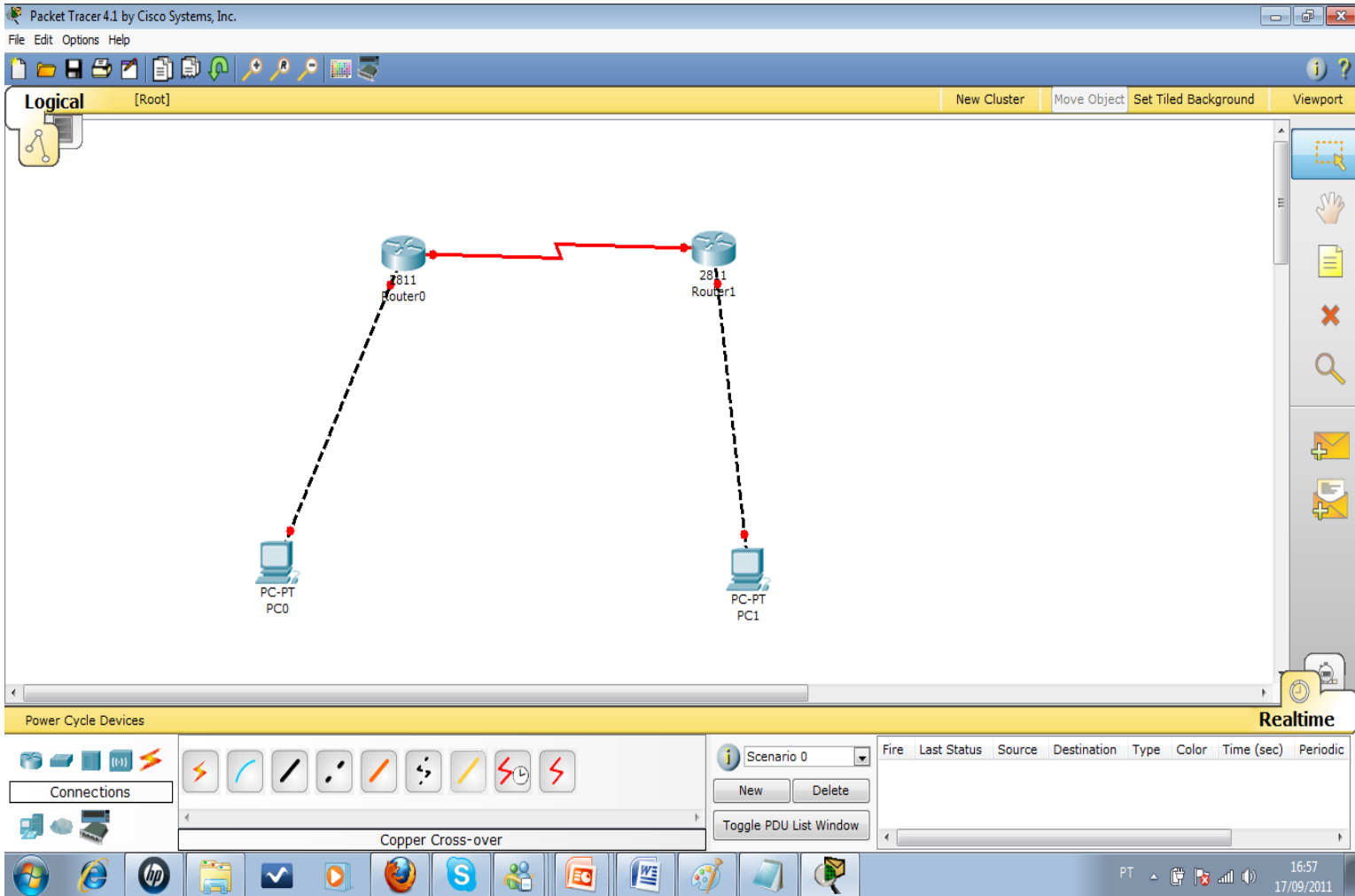
- Ajuda (F1)
- Tutoriais (F11)
- Recursos Online (Online Resources)





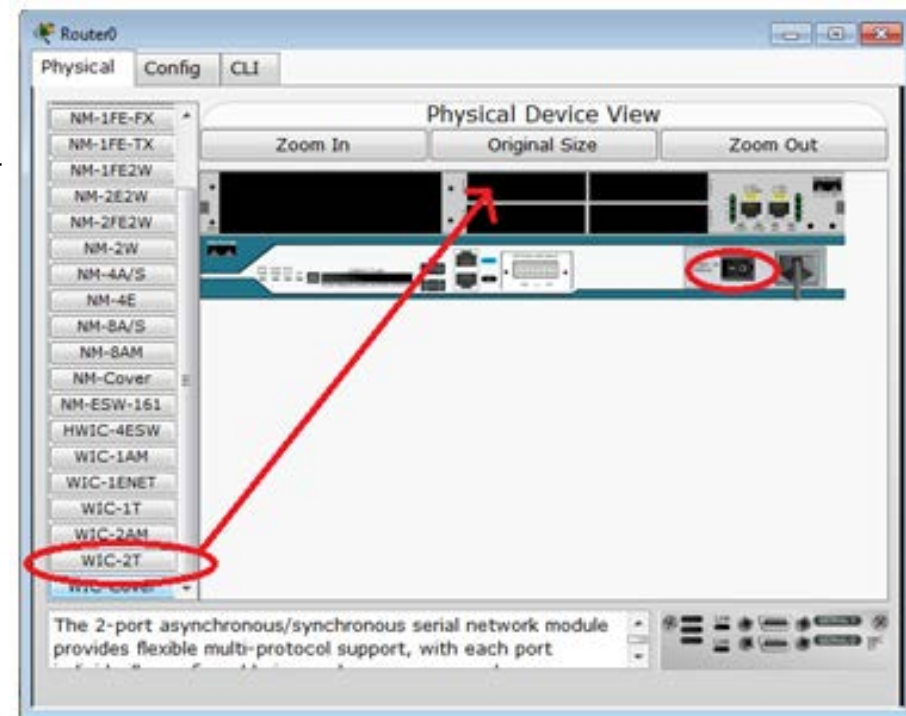
TUTORIAL RIP

TOPOLOGIA



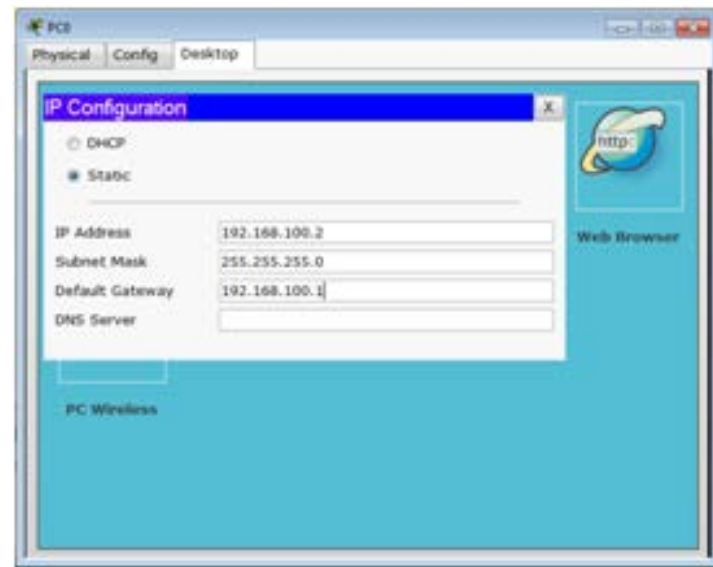
ROTEADORES

- 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

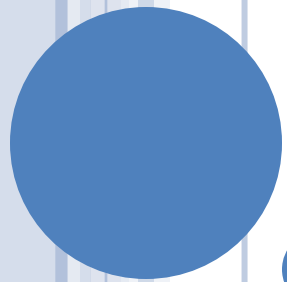
Gateway of last resort is not set

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

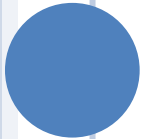
```
C 192.168.100.0/24 is directly connected, FastEthernet0/0
```

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

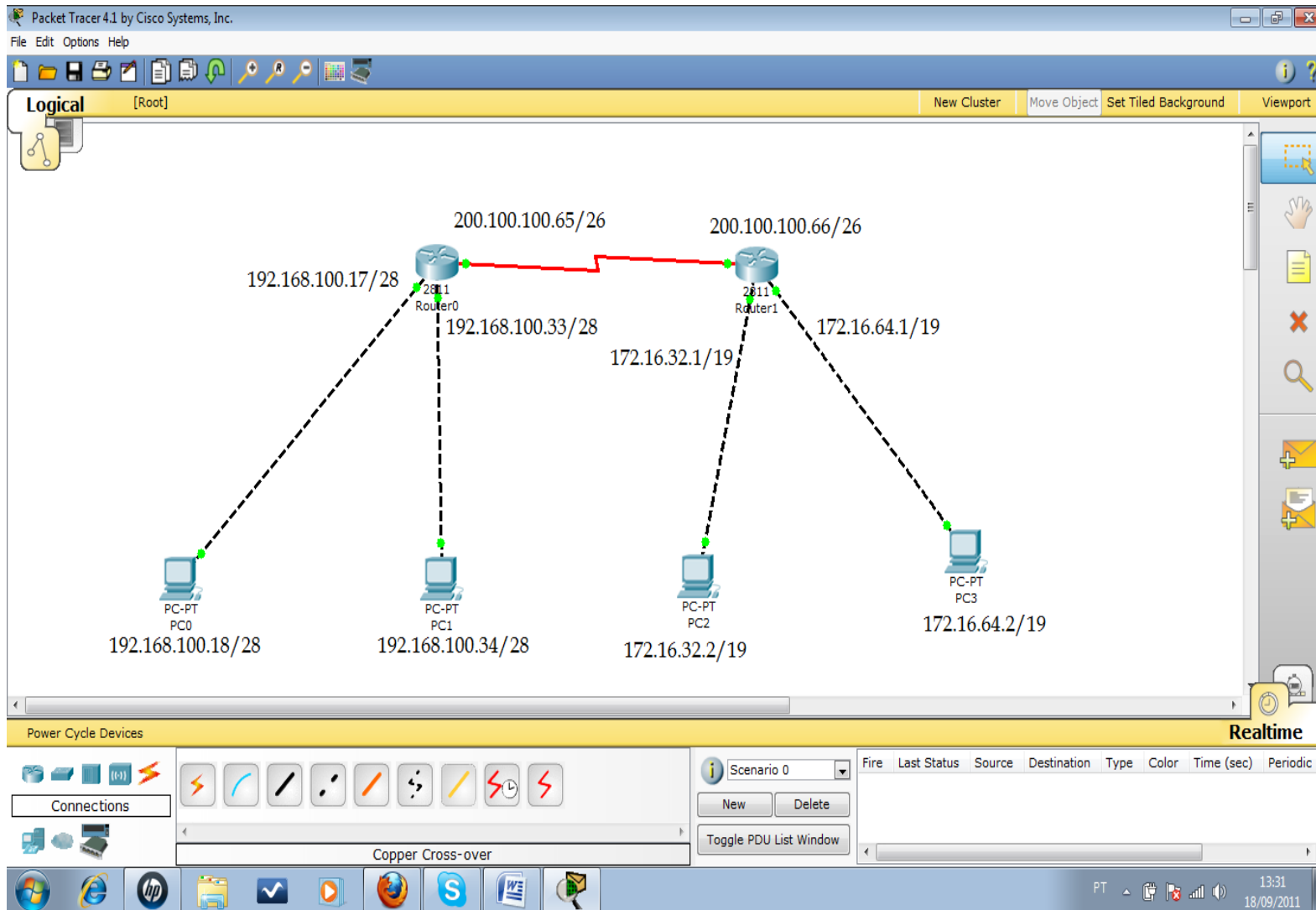




TUTORIAL OSPF



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 ifro
```

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

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



COMANDOS (8)

#Abrir prompt no PC0 e digitar:

```
telnet 200.100.100.66
```

```
password: ifro
```

```
Router>enable
```

```
password: ifro
```

#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
```

