

Internetworking with Packet Tracer

Objectives

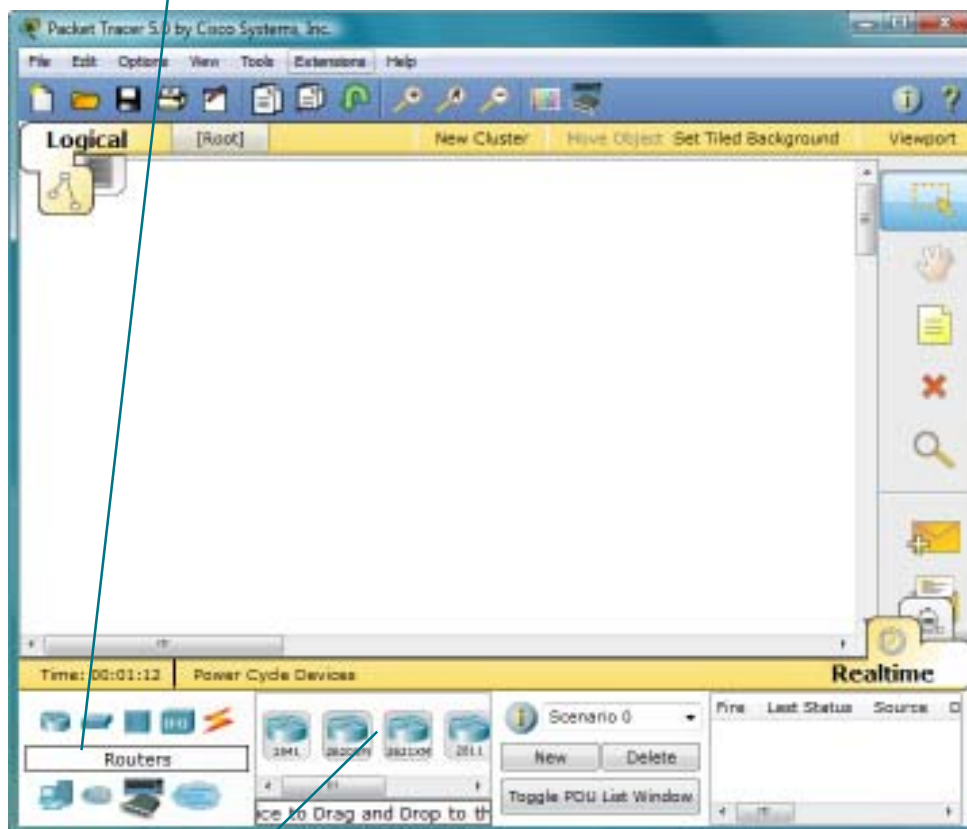
- Develop an understanding of the basic functions of Packet Tracer.
- Create/model two simple Ethernet networks connected by a switch.
- Observe traffic behavior on the network.
- Observe data flow of ARP broadcasts and pings between two connected networks.

Background/Preparation

- You need to have Packet Tracer 5.0 installed on your computer

Step 1 - Start Packet Tracer And have A Look At The Interface

The bottom left-hand corner of the Packet Tracer screen displays eight icons that represent device categories or groups, such as Routers, Switches, or End Devices.



Moving the cursor over the device categories will show the name of the category in the box. To select a device, first select the device category. Once the device category is selected, the options within that category appear in the box next to the category listings. Select the device option that is required.

Select End Devices from the options in the bottom left-hand corner. Drag and drop two generic PCs onto the design area.

Step 2 - Create A Logical Network Diagram

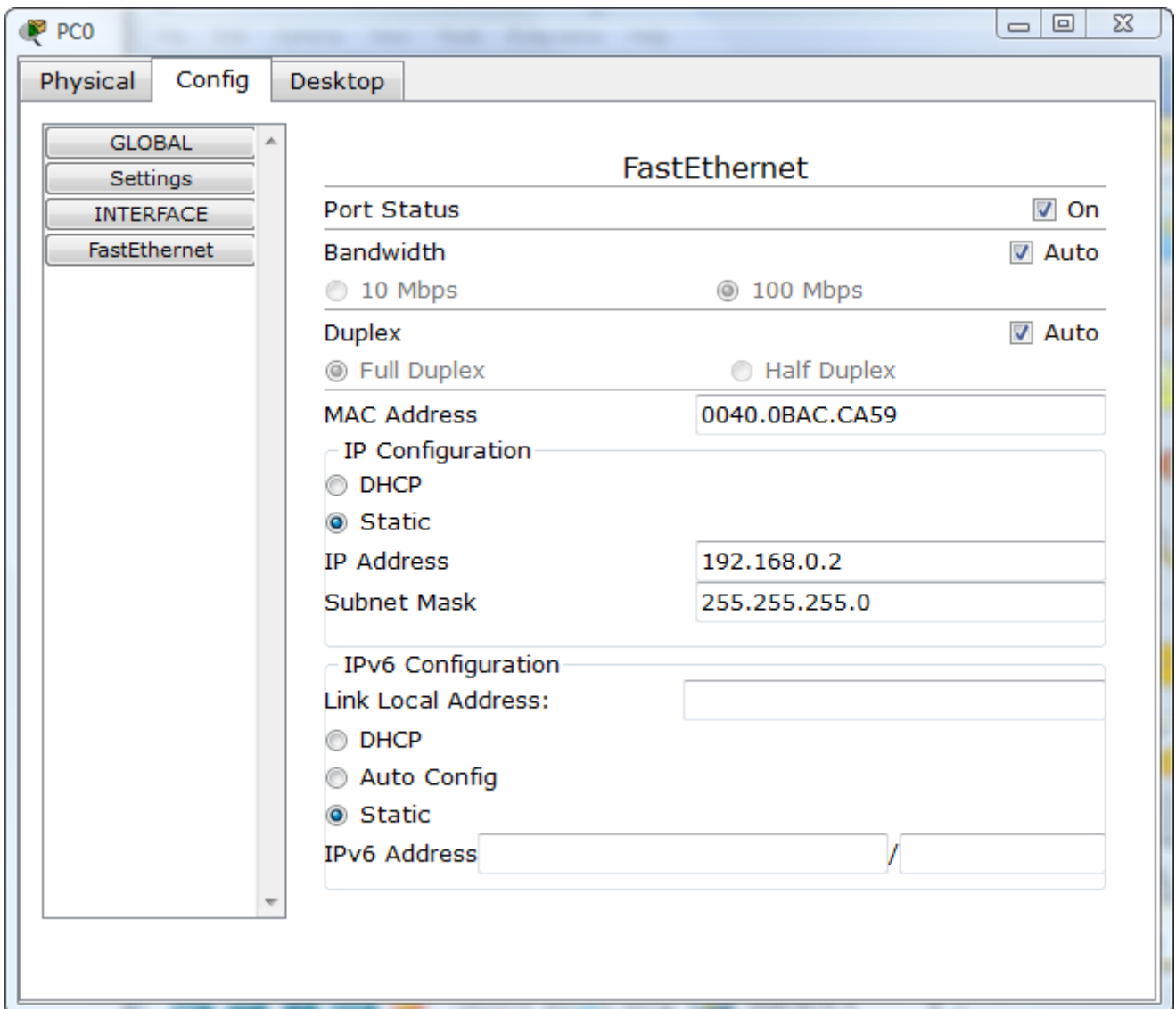
- Select PCs, Switches and Routers from the options in the bottom left-hand corner. Add the devices to the prototype network by dragging and dropping them onto the design area according to the picture.
- Select Connections from the bottom left-hand corner. Choose a Copper Straight-through cable type.
- Add the following connections with Copper Straight-Through Cable:

PC0	fastethernet	-->	Switch0	fa1/1
PC1	fastethernet	-->	Switch0	fa2/1
PC2	fastethernet	-->	Switch1	fa1/1
PC3	fastethernet	-->	Switch1	fa2/1
Router0	fa0/0	-->	Switch0	fa0/1
Router0	fa1/0	-->	Switch1	fa0/1

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Step 3 - Configure The Hosts Attached To The Switches

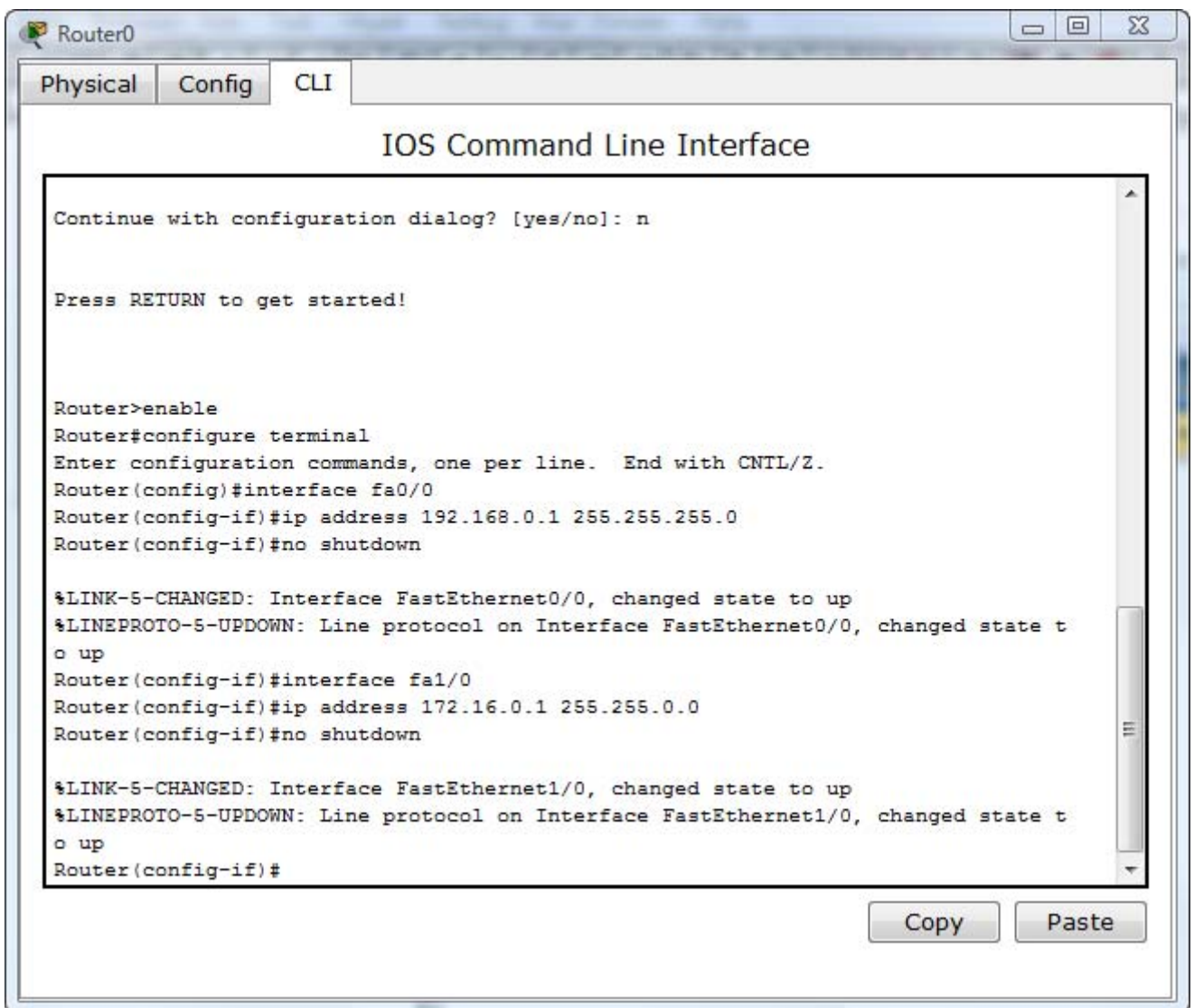
- Configure host names and IP addresses on the PCs by clicking the PC0-icon.
- From the PC0 window, select the Config tab.
- Select the FastEthernet tab on the left and add the IP address of 192.168.0.2 and subnet mask of 255.255.255.0.
- Close the PC-0 configuration window by selecting the x in the upper right-hand corner.



- Continue and configure PC1 by clicking on the PC1-icon.
- Select the Config tab.
- Select the FastEthernet tab on the left and add the IP address of 192.168.0.3 and subnet mask of 255.255.255.0.
- Continue and configure PC2 by clicking on the PC2-icon.
- Select the Config tab.
- Select the FastEthernet tab on the left and add the IP address of 172.16.0.2 and subnet mask of 255.255.0.0.
- Continue and configure PC3 by clicking on the PC3-icon.
- Select the Config tab.
- Select the FastEthernet tab on the left and add the IP address of 172.16.0.3 and subnet mask of 255.255.0.0.

Step 4 - Configure The Router

- From the Router window, select the CLI tab.
- Answer no on the question if you want to have a configuration dialog
- Press Return to get started
- Follow the command in the picture to set IP-addresses on the router interfaces and to start the interfaces
- If you take a look at the connections they should all be green after a while (50 seconds)



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Router0
Physical Config CLI
IOS Command Line Interface

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

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip address 192.168.0.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#interface fa1/0
Router(config-if)#ip address 172.16.0.1 255.255.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#
  
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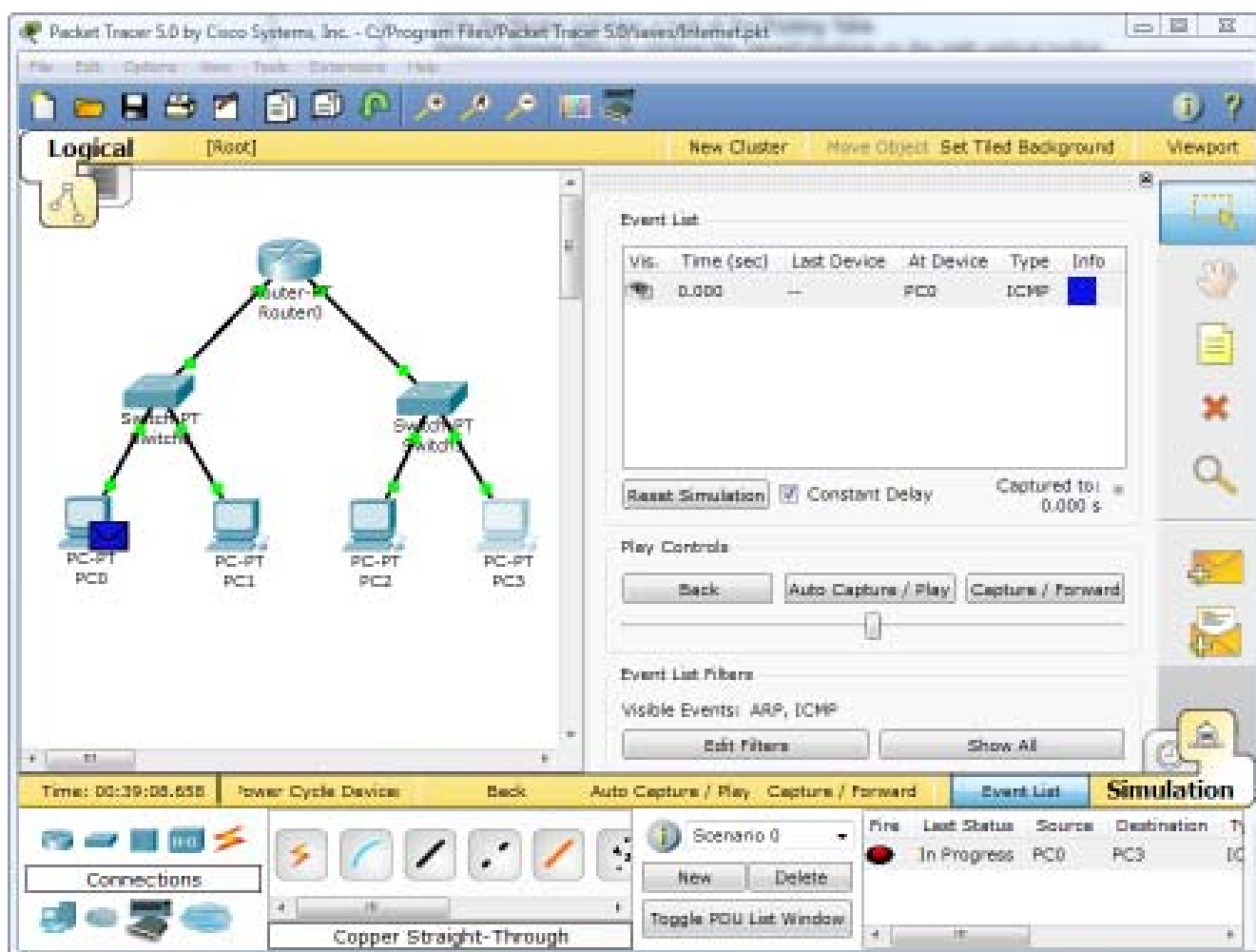
Step 5 - Configure Default Gateway For The Hosts

- Configure the Default Gateway PC0-icon.
- From the PC0 window, select the Config tab.
- Select the Settings tab on the left and add the Default Gateway addresss 192.168.0.1
- Configure PC1 in exactly the same way
- Configure PC2 and PC3 the same way but the Default Gateway-address is 172.16.0.1

Step 6 - Run A Simulation Of ICMP-communication (ping)

- Switch to Simulation mode by selecting the tab that is partially hidden behind the Realtime tab in the bottom right-hand corner. The tab has the icon of a stopwatch on it.
- Click the Edit Filters button in the Event List Filters area. Clicking the Edit Filters button will create a pop-up window.
- In the pop-up window, click the Show All/None box to deselect every filter. Select just the ARP and ICMP filters.
- Select the magnifying glass on the right vertical tool bar.
- Click Switch0. The ARP table for the switch will appear.
- Click the Router and have a look at the Routing Table
- Select a Simple PDU by clicking the closed envelope on the right vertical toolbar.
- Move your cursor to the display area of your screen. Click PC0 to establish the source.
- Move your cursor to PC2 and click to establish the destination.

**Notice that two envelopes are now positioned beside PC0 One envelope is ICMP, while the other is ARP. The Event List in the Simulation Panel will identify exactly which envelope represents ICMP and



Step 7 - Present Your Solution

- Save your simulation by the name **Router.pkt**.
- Send your file Router.pkt as an attachment in an email to your teacher.