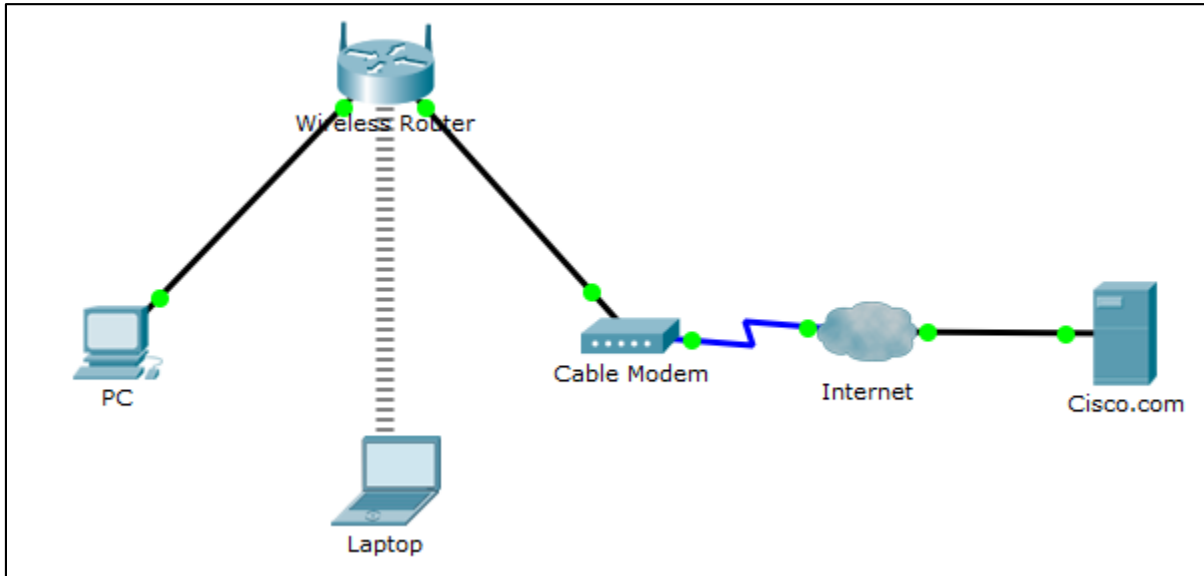


Packet Tracer – Explore Network Functionality Using PDUs

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
PC	Ethernet0	DHCP		192.168.0.1
Wireless Router	LAN	192.168.0.1	255.255.255.0	
	Internet	DHCP		
Cisco.com Server	Ethernet0	208.67.220.220	255.255.255.0	
Laptop	Wireless0	DHCP		

Objectives

- Part 1: Create a Simple PDU in Simulation Mode
- Part 2: View Contents of PDUs
- Part 3: Create a Complex PDU in Simulation Mode

Background / Scenario

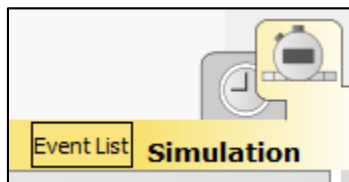
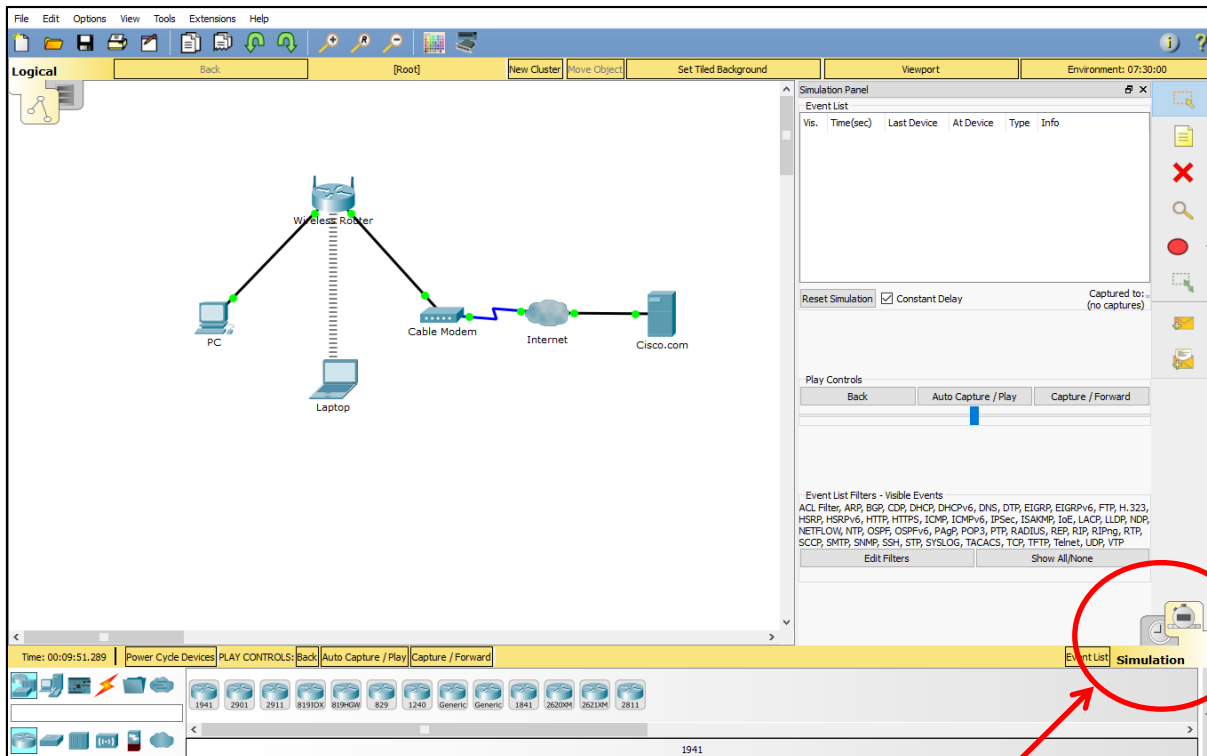
In this activity, you will open the saved Packet Tracer activity that was completed in Chapter 2, and use the Simulation mode to create PDUs to explore network functionality.

Part 1: Create a Simple PDU in Simulation Mode

Step 1: Open the .pka activity

- a. Navigate to the .pka activity that was completed in Chapter 2.

Navigate to the directory that contains the Packet Tracer Activity that was completed in Chapter 2. Open the activity and click the **Simulation** mode icon in the bottom-right corner of the Packet Tracer window to open the Simulation panel.



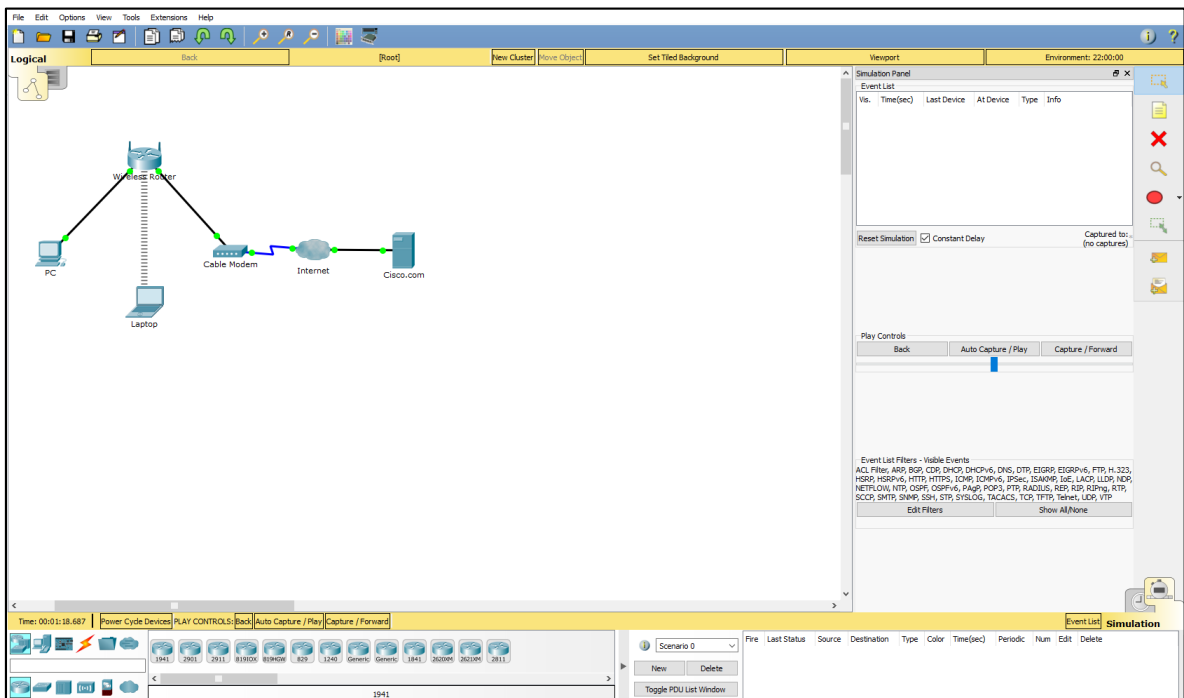
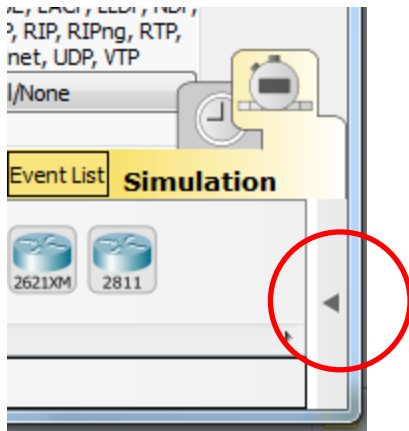
Step 2: Create a simple PDU.

- a. Create a simple PDU that sends a ping from the PC to the laptop

Click the **Add Simple PDU** icon (looks like a closed envelope) in the right pane of the Packet Tracer window. The cursor will change to an envelope with a plus sign. Click the PC first so it will become the source of the ping and then click the Laptop so that it will become the destination.

Packet Tracer – Explore Network Functionality Using PDUs

Expand the **Event Simulation** pane by clicking the gray arrow at the bottom right of the Packet Tracer Window.



- b. Observe traffic moving through the network.

Click the **Capture/Forward** button and observe the traffic move through the network each time the button is clicked. Notice also that each time the **Capture/Forward** button is clicked, sent packets are displayed in the **Event List** window. Continue clicking the **Capture/Forward** button until the return ICMP packet makes it back to the PC.

Vis.	Time(sec)	Last Device	At Device	Type	Info
	0.000	--	PC	ICMP	
	0.000	--	PC	ARP	
	0.001	PC	Wireless ...	ARP	
	0.006	--	Wireless ...	ARP	
	0.007	Wireless Ro...	Laptop	ARP	
	0.012	--	Laptop	ARP	
	0.013	Laptop	Wireless ...	ARP	
	0.014	Wireless Ro...	PC	ARP	
	0.014	--	PC	ICMP	

Part 2: View Contents of PDUs

Step 1: Use event list to see PDU information

- View the information of the first ICMP PDU packet from the PC.

In the Event List window, click the green square under the **Info** column for the first ICMP PDU at the top of the list. This will open the **PDU Information at Device: PC** window.

PDU Information at Device: PC

OSI Model Outbound PDU Details

At Device: PC
Source: PC
Destination: Laptop

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

Layer 3: IP Header Src. IP: 192.168.0.101, Dest. IP: 192.168.0.100 ICMP Message Type: 8

- The Ping process starts the next ping request.
- The Ping process creates an ICMP Echo Request message and sends it to the lower process.
- The source IP address is not specified. The device sets it to the port's IP address.
- The device sets TTL in the packet header.
- The destination IP address is in the same subnet. The device sets the next-hop to destination.

Challenge Me << Previous Layer Next Layer >>

Observe the information in the **OSI Model** tab. Notice that this is an outbound Layer 3 PDU and the source and destination IPv4 address is shown.

Packet Tracer – Explore Network Functionality Using PDUs

PDU Information at Device: PC

OSI Model Outbound PDU Details

At Device: PC
Source: PC
Destination: Laptop

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.0.101, Dest. IP: 192.168.0.100 ICMP Message Type: 8
Layer 2:
Layer1

1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The device sets TTL in the packet header.
5. The destination IP address is in the same subnet. The device sets the next-hop to destination.

Challenge Me << Previous Layer Next Layer >>

Next, click the **Outbound PDU Details** tab. Notice that this tab shows details of the protocol headers.

PDU Information at Device: PC

OSI Model Outbound PDU Details

PDU Formats

IP

0	4	8	16	19	31Bits
4	IHL	DSCP: 0x0	TL: 28		
	ID: 0x5	0x0	0x0		
	TTL: 255	PRO: 0x1	CHKSUM		
	SRC IP: 192.168.0.101				
	DST IP: 192.168.0.100				
	OPT: 0x0		0x0		
	DATA (VARIABLE LENGTH)				

ICMP

0	8	16	31Bits
	TYPE: 0x8	CODE: 0x0	CHECKSUM
	ID: 0x3	SEQ NUMBER: 2	

- b. Explore the contents of other PDUs listed in the Simulation Panel and review the information that is available in each.

Step 2: Delete the simple PDU

- c. Delete the simple PDU using the **Event Simulation** pane.

Click the **Delete** button in the **Event Simulation** pane at the bottom of the Packet Tracer window. Notice that this removes the simple PDU and clears out all PDUs from the Simulation Panel Event List.

Part 3: Create a Complex PDU in Simulation Mode

Step 1: Create a complex PDU

- a. Add a complex PDU to send pings from the PC to the laptop.

Click the **Add Complex PDU** icon, the one that looks like an open envelope, in the right pane of the Packet Tracer window. The cursor will change to an envelope with a plus sign. Click the PC first so it will be the source device of the pings and then click the Laptop so that it will be the destination.

The Create Complex PDU window will display.

- b. Configure complex PDU settings to send the pings every 5 seconds.

In the Create Complex PDU window, there are many settings which can be customized. To send a ping every 5 seconds from the PC to the laptop, the **Destination IP Address** field must have the IPv4 address of the laptop, 192.168.0.100. The Source IP Address field should be the IP address of the PC, 192.168.0.101. At the bottom in the **Simulation Settings** section click **Periodic** and set the **Interval** to 5 seconds.

- c. Observe traffic moving through the network.

Click the **Auto Capture / Play** button and watch the traffic move through the network and notice the PDUs populating the Simulation Panel Event List. Because we set the complex PDU to an Interval of 5 seconds, a new PDU will be created every 5 seconds. Click the **Auto Capture / Play** button again to stop the simulation.

To delete the complex PDU, click the **Delete** button in the **Event Simulation** pane at the bottom of the Packet Tracer window.