Packet Tracer - TCP and UDP Communication

Part 1: Generate Network Traffic in Simulation Mode and View

Multiplexing Step 7: Examine multiplexing as the traffic crosses the

network.

b. Click **Capture/Forward** six times and watch the PDUs from the different hosts as they travel on the network. Note that only one PDU can cross a wire in each direction at any given time.
What is this called?
Ans: **conversation multiplexing**

A variety of PDUs appears in the event list in the Simulation Panel. What is the meaning of the different colors?
Ans. They represent different protocols.

Part 2: Examine Functionality of the TCP and UDP Protocols

Step 1: Examine HTTP traffic as the clients communicate with the server.

d. Click **Capture/Forward** until you see a PDU appear for HTTP. Note that the color of the envelope in the topology window matches the color code for the HTTP PDU in the Simulation Panel.
Why did it take so long for the HTTP PDU to appear?

Ans. **Because TCP must first establish the connection so that the HTTP traffic can begin.**

e. Click the PDU envelope to show the PDU details. Click the **Outbound PDU Details** tab and scroll down to the second to the last section.
What is the section labeled? Ans. **TCP**

Are these communications considered to be

reliable? Ans. **Yes, TCP is in use**

Record the **SRC PORT**, **DEST PORT**, **SEQUENCE NUM**, and **ACK NUM** values.

Ans. **1029 (value could vary), 80, 1, 1**

f.Look at the value in the Flags field, which is located next to the Window field. The values to the right of the "b" represent the TCP flags that are set for this stage of the data conversation. Each of the six places corresponds to a flag. The presence of a "1" in any place indicates that the flag is set. More than one flag can be set at a time. The values for the flags are shown below.

Flag Place	**6**	**5**	**4**	**3**	**2**	**1**
Value	URG	ACK	PSH	RST	SYN	FIN

Question:
Which TCP flags are set in this PDU?

Ans. ACK and PSH

h.Click the PDU envelope and select **Inbound PDU Details**.
How are the port and sequence numbers different than before?

Ans. **The source and destination ports are reversed, and the acknowledgement number is**
1. The flags have changed to SYN+ACK.

i.Click the HTTP PDU which **HTTP Client** has prepared to send to **MultiServer**.
This is the beginning of the HTTP communication. Click this second PDU envelope and select **Outbound PDU Details**.
What information is now listed in the TCP section? How are the port and sequence numbers different from the previous two PDUs?

Ans. **The source and destination ports are reversed, both sequence number is 1, the acknowledgement number is 103 (value my vary), and the flags are PSH and ACK** j.Reset the simulation.

Step 2: Examine FTP traffic as the clients communicate with the server.

c.Click **Capture/Forward**. Click the second PDU envelope to open it.

Click the **Outbound PDU Details** tab and scroll down to the TCP section.
Are these communications considered to be reliable?

Ans . **Yes**

d.Record the **SRC PORT**, **DEST PORT**, **SEQUENCE NUM**, and **ACK NUM** values.
What is the value in the flag field?

Ans. **1025, 21, 0, 0. SYN**

f.Click the PDU envelope and select **Inbound PDU Details**.
How are the port and sequence numbers different than before?

Ans. **21, 1025, 0, 1. SYN+ACK. The source and destination ports are reversed, and the acknowledgement number is 1**

g. Click the **Outbound PDU Details** tab.
How are the port and sequence numbers different from the previous results?

Ans. **1025, 21, 1, 1. The source and destination ports are reversed, and both sequence and acknowledgement numbers are 1.**

i. Open the PDU and select **Inbound PDU Details**. Scroll down past the TCP section.
What is the message from the server?

Ans. "**Welcome to PT Ftp server**"

Step 3: Examine DNS traffic as the clients communicate with the server.

d. Look at the OSI Model details for the

outbound PDU. Question:
What is the Layer 4
protocol? Ans. **UDP**
Are these communications considered to be reliable?
Ans**. No**

e. Open the Outbound PDU Details tab and find the UDP section of the PDU formats. Record the **SRC PORT** and **DEST PORT** values.

Why are there no sequence and acknowledgement numbers?

Ans. **1025 (value may vary) and 53. Because UDP does not need to establish a reliable connection.**

g. Click the PDU envelope and select **Inbound PDU Details**.

How are the port and sequence numbers different than before? Ans. **53, 1025. The source and destination ports are reversed.**

What is the last section of the **PDU** called? What is the IP address for the name **multiserver.pt.ptu**?

Ans. **DNS ANSWER, 192.1681.254**

Step 4: Examine email traffic as the clients communicate with the server.

d. Click the **Outbound PDU Details** tab and scroll down to the last section.

What transport layer protocol does email traffic use? Ans. **TCP**

Are these communications considered to be reliable? Ans**. Yes**

e. Record the **SRC PORT**, **DEST PORT**, **SEQUENCE NUM**, and **ACK NUM** values. What is the flag field value?

Ans. **1025 (value may vary), 25, 0, 0. SYN**

g. Click the TCP PDU envelope and select **Inbound PDU Details**.

How are the port and sequence numbers different than before?

Ans. **25, 1025, 0, 1. SYN+ACK. The source and destination ports are reversed, and the acknowledgement number is 1.**

How are the port and sequence numbers different from the previous two results?

Ans. **1025, 25, 1, 1. ACK. The source and destination ports are reversed, and both sequence and acknowledgement numbers are 1. ACK**

i. There is a second **PDU** of a different color that **E-Mail Client** has prepared to send to **MultiServer**. This is the beginning of the email communication. Click this second PDU envelope and select **Outbound PDU Details**.

How are the port and sequence numbers different from the previous two **PDU**s?

Ans. **1025, 25, 1, 1. PSH+ACK. The source and destination ports are reversed, and both sequence and acknowledgement numbers are 1.**

What email protocol is associated with TCP port 25? What protocol is associated with TCP port 110?

Ans. **SMTP. POP3**