

Contrast TCP and UDP Protocols

Both TCP (transmission control protocol) and UDP (user datagram protocol) are a part of the IP (Internet Protocol) suite of protocols. Both these protocols convert data into segments to enable exchange across networked computers. However, the two are very dissimilar in their details of operation; and hence have very different application.

To better understand this technology, also refer to your course material or use your preferred search engine to research this topic in detail.

Learning Outcomes

After completing this exercise, you will be able to:

- Contrast TCP and UDP Protocols

Your Devices

You will be using the following devices in this lab. Please make sure these are powered on before proceeding.

- **PLABSA01** (Member Server)



Task 1 - Capture Packets

In this task, you will capture packets to identify the protocol being implemented.

To capture packets, perform the following steps:

Step 1

On **PLABSA01**, ensure that the **Wireshark** window is displayed

On the **Wireshark Network Analyzer** window displayed, select the **Ethernet** interface listed just below the **Start** link, and click **Start**.

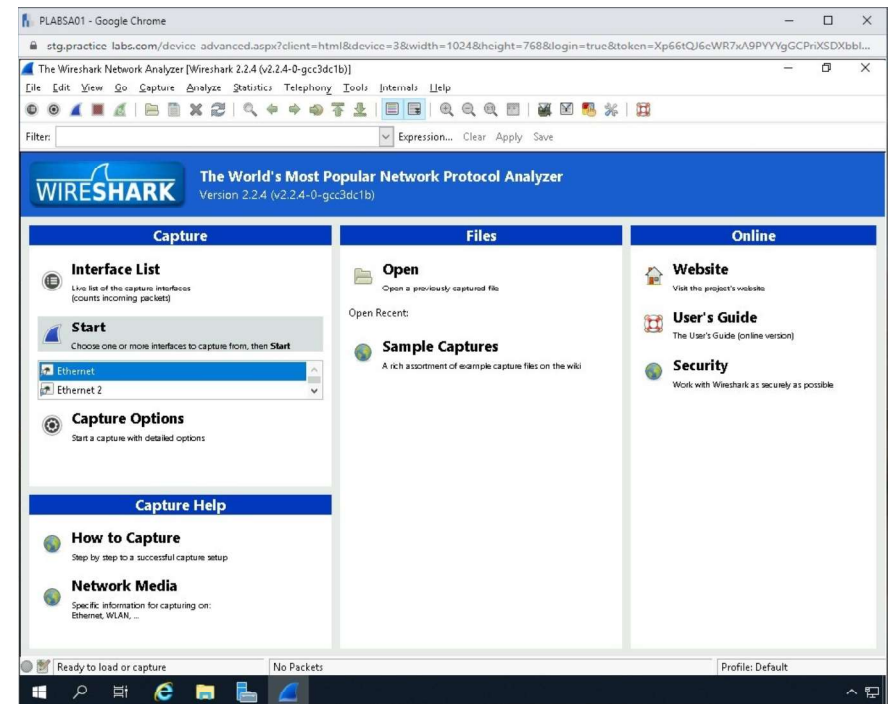


Figure 3.1 Screenshot of the PLABSA01 desktop: Wireshark interface is displayed showing the required selection performed and the Start link highlighted.

Step 2

Captured packets begin to appear in the top pane.

Wireshark window displays the details of data packets being exchanged among the devices. You might not see many packets at first because there is not much traffic on the network. However, they slowly begin to appear.

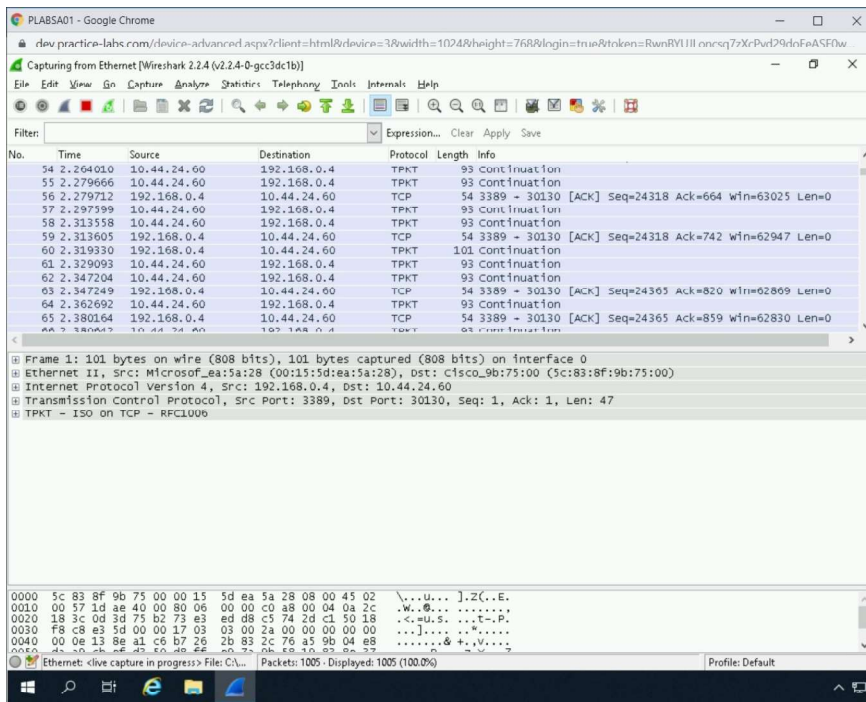


Figure 3.2 Screenshot of the PLABSA01 desktop: Wireshark capture window is displayed listing the captured data packets.

Task 2 - Identify TCP Packets

In this task, you will identify packets implementing TCP protocol and the ports used.

To identify TCP packets and the ports used, perform the following steps:

Step 1

From Wireshark window, enter **tcp** in the Filter drop-down text box and click the **Apply** option listed to the right of the box.

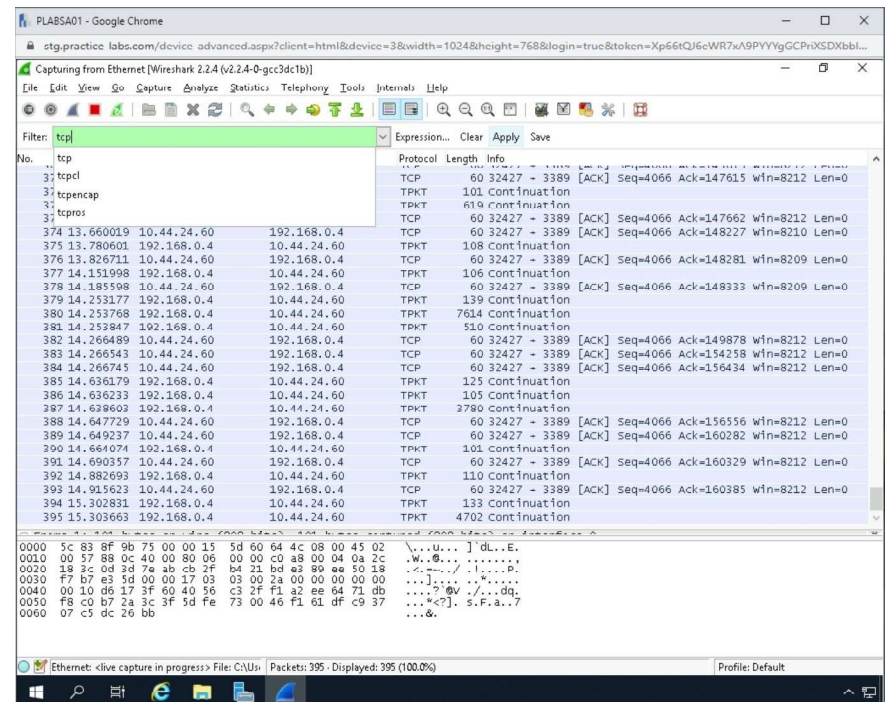


Figure 3.3 Screenshot of the PLABSA01 desktop: Wireshark capture window is displayed showing the required filter name typed-in and the Apply option highlighted.

Step 2

Only the data packets implementing **TCP** protocol are now being displayed.

Note that there are several application protocols that use TCP such as HTTP and FTP for example. Any such protocols are also included and labeled as such in the list of captured packets since they use TCP.

Select a packet with the source of **192.168.0.4** and the destination of **10.44.24.60** from the list displayed.

The second pane shows details of the selected packet.

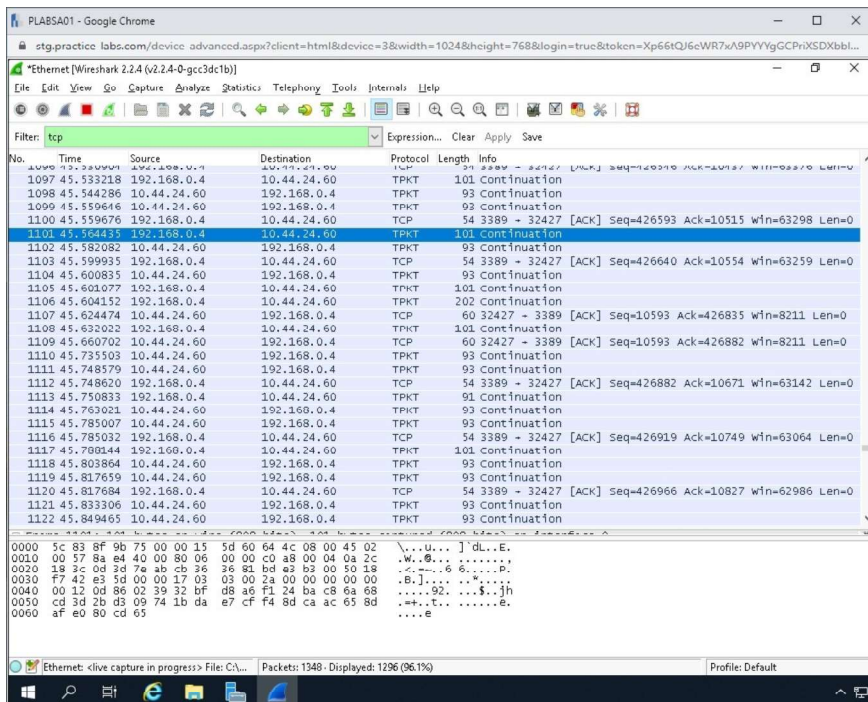


Figure 3.4 Screenshot of the PLABSA01 desktop: Details of the selected data packet are displayed in the middle pane of the Wireshark capture window.

Step 3

Expand the **Transmission Control Protocol** section in the second pane.

Notice that the **Source port (3389)** is and the **Destination port (32427)**.

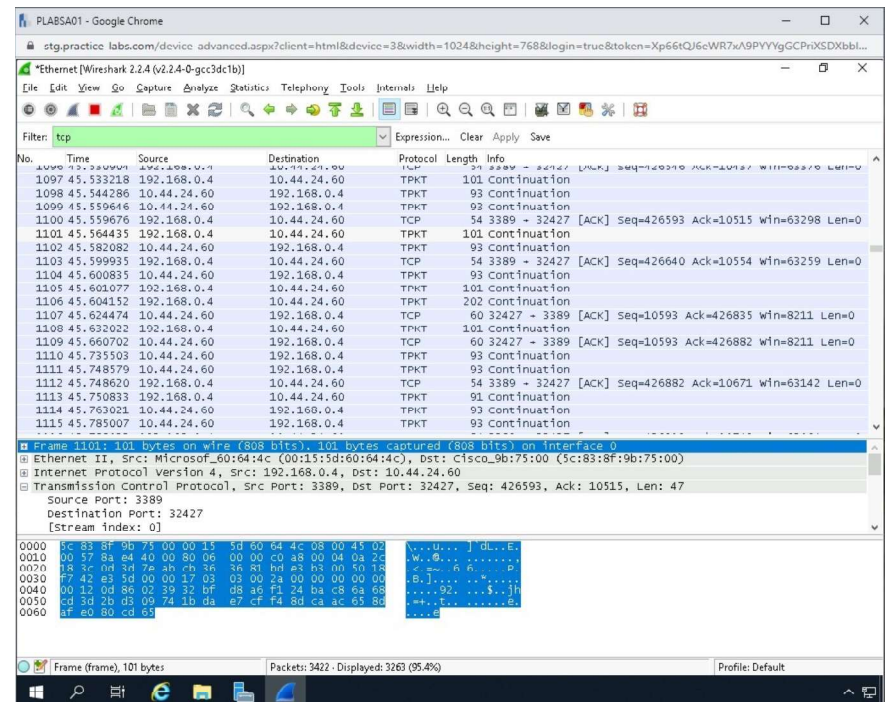


Figure 3.5 Screenshot of the PLABSA01 desktop: TCP details of the specified data packet are listed on the middle pane of the Wireshark capture window.

Task 3 - Identify UDP Packets

In this task, you will identify packets implementing UDP protocol and the ports used.

To identify **UDP** packets and the ports used, perform the following steps:

Step 1

In the Filter box, type **udp**. Click the **Apply** option to the right of the field to apply the filter.

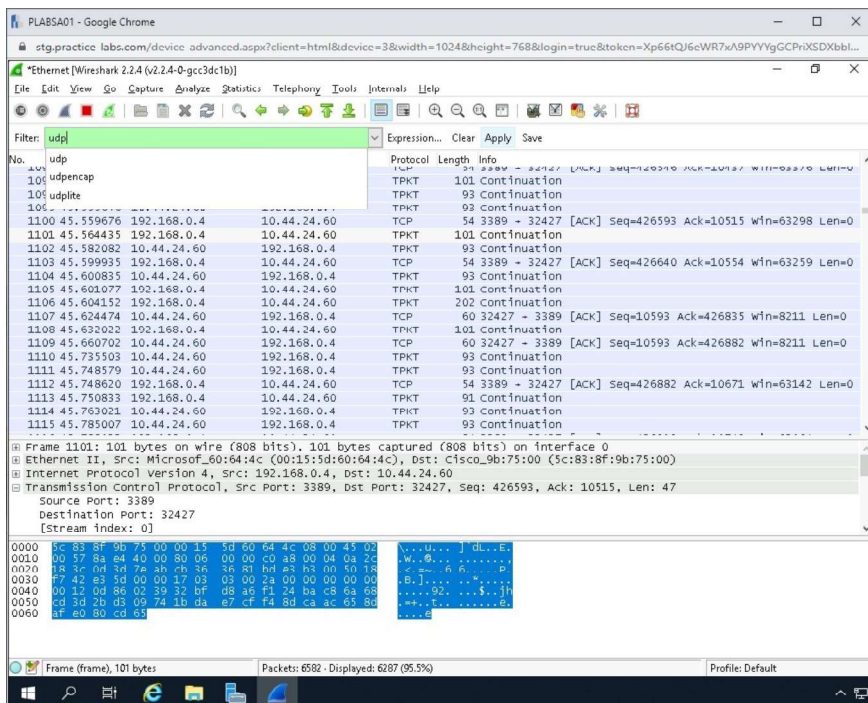


Figure 3.6 Screenshot of the PLABSA01 desktop: Wireshark capture window is displayed showing the required filter name typed-in and the Apply option highlighted.

Note that UDP is used by several application layer protocols such as DHCP and DNS. Such protocols are also included in this filtered list since they use UDP.

Step 2

Again, notice the change in the color-coding of the data packets. Only the data packets implementing **UDP** protocol are now being displayed.

Select a **UDP** packet from the list displayed. For example, select a **DHCP** packet.

Expand the link **User Datagram Protocol** section in the middle pane. Notice that the Source port is **68** and the Destination port is **67**.

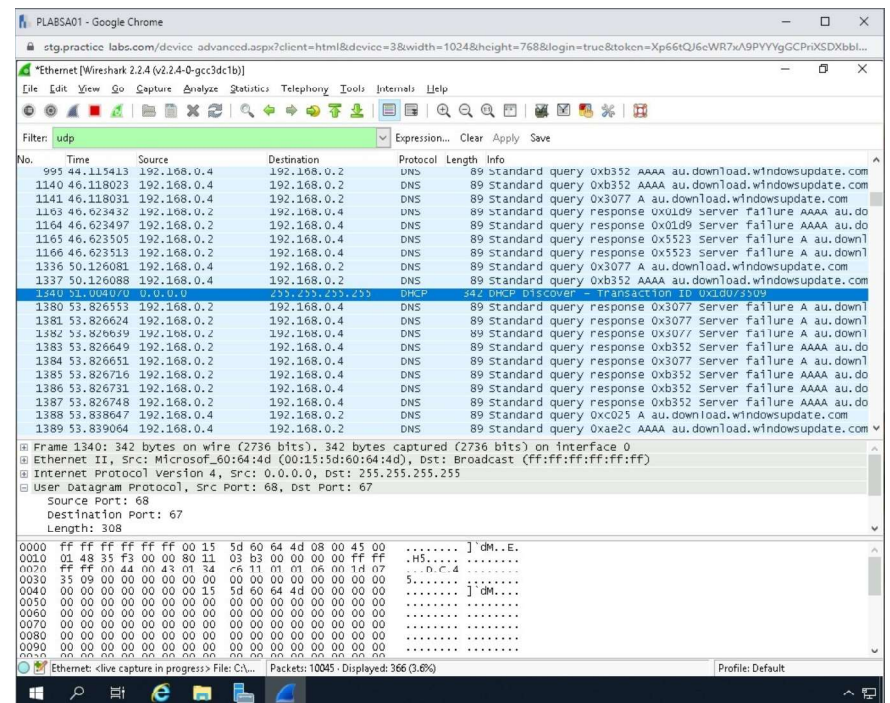


Figure 3.7 Screenshot of the PLABSA01 desktop: UDP details of the specified data packet are listed on the middle pane of the Wireshark capture window.

Close the **WireShark** window. Click **Stop and Quit without saving**.

Leave all devices powered on in their current state and proceed to the next exercise.