CSE 421 ID: 21301069

Application Layer Protocols (HTTP.SMTP/POP) Examination Lab

Objectives:

Capture traffic and observe the PDUS for HTTP, SMTP, POP.

Task 1: Observe HTTP traffic exchange between a client and server.

Step 1 – Run the simulation and capture the traffic.

- Enter Simulation mode.
- Click on the PC1. Open the **Web Browser** from the **Desktop**.
- Enter www.bracu.ac.bd into the browser. Clicking on Go will initiate a web server request. Minimize the Web Client configuration window.
- Two packets appear in the Event List, a DNS request needed to resolve the URL to the IP address of the web server and an ARP request needed to resolve the IP address of the server to its hardware MAC address.
- Click the Auto Capture / Play button to run the simulation and capture events.
- Sit tight and observe the packets flowing through the network.



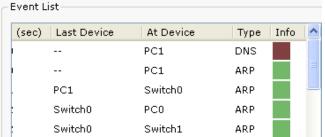
- When the above message appears Click "View Previous Events".
- Click on PC1. The web browser displays a web page appears.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe HTTP traffic.

	Last Device	At Device	Type
1.	PC1	Switch 0	HTTP
2	Local Web Server	Switch 1	HTTP

 Find the following packets given in the table above in the Event List, and click on the colored square in the Info column.



When you click on the Info square for a packet in the event list the PDU
 Information window opens. If you click on these layers, the algorithm used by the device (in this case, the PC) is displayed. View what is going on at each layer.

• Examine the PDU information for the remaining events in the exchange.

For packet 1::

What kind of HTTP packet is packet no. 1?

GET Method

Click onto "Inbound PDU details" tab. Scroll down at the end, what do you see?

It's showing details info about Ethernet, IP, TCP and HTTP REQUEST.

For packet 2:

Click onto "Inbound PDU details" tab. Scroll down at the end, what do you see? What kind of HTTP packet is this?

HTTP Data:Connection: close (The server closed the connection after the data is delivered)

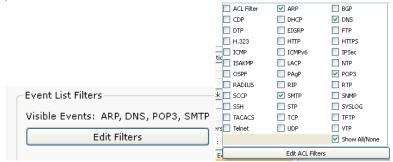
Content-Length: 151 (The responsize is 151 bytes)

Content-Type: text/html Server: PT-Server/5.2

Task 2: Observe email traffic exchange between a client and email server using SMTP and POP3.

Step 1 – Run the simulation and capture the traffic.

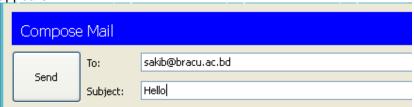
- On the Event List window click "Reset Simulation" button. All previous packets will disappear.
- At the bottom of the Event List window, there is a filter which filters the protocols that we want to see. Click Edit filters. Another window appears showing different protocols, unclick HTTP and click SMTP and POP3.



- Click a space anywhere outside the popup window, then it will disappear.
- Your Event List Filter should be as shown below:

Event List Filters				
Visible Events: ARP, DNS, POP3, SMTP				
Edit Filters	Show All			

 Now click on the PC1. Close the web browser window. Open the Email from the Desktop. A mail browser window will open. Click "compose", another window appears.



- Fill the window as shown and press send.
- Minimize the client window .
- Click the Auto Capture / Play button to run the simulation and capture events.
- Sit tight and observe the packets flowing through the network.
- This interaction is between the sender client and its email server.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe SMTP traffic.

	Last Device	At Device	Type
3.	PC1	Switch 0	DNS
4.	PC1	Switch 0	SMTP
5.	Bracu Email Server	Switch 1	SMTP

- Find the following packets given in the table above in the **Event List**, and click on the colored square in the **Info** column.
- Examine the PDU information.

For packet 4::

What is the purpose of this DNS packet?

The mail server of the receiver sends request to the DNS server because PC1 doesn't have the IP address of the mail server. After getting the IP address from the DNS server the SMTP connection will be established.

For packet 5& 6::

Explain why SMTP packet was sent to the email server and the server replied with an SMTP packet?

PC1 sends an SMTP packet to the email server to initiate the email delivery process with an acknowledgment of getting the request. The email server then responds, informing PC1 that its ready to receive any data.

Step 3 – Run the simulation and capture the traffic for POP.

- On the Event List window click "Reset Simulation" button. All previous packets will disappear.
- Now click on the PC0. Open the Email from the Desktop. A mail browser window will open. Click "receive", minimize the window.
- Click the Auto Capture / Play button to run the simulation and capture events.
- Sit tight and observe the packets flowing through the network.
- This interaction is between the sender client and its email server.

Step 2 – Examine the following captured traffic.

Our objective in this lab is only to observe POP traffic.

	Last Device	At Device	Type
6.	PC1	Switch 0	DNS
7.	PC1	Switch 0	POP3
8.	Bracu Email Server	Switch 1	POP3

- Find the following packets given in the table above in the **Event List**, and click on the colored square in the **Info** column.
- Examine the PDU information.

What is the purpose of this DNS packet?

For packet 6::

All ID - ddtd i th DNC	Co have the DNC request will get the ID address	

All IP address are stored in the DNS server. So here the DNS request will get the IP address of bracu.ac.bd domain and after that it will be ready to receive data.

For packet 7&8::

Explain why POP packet was sent to the email server and the server replied with a POP packet?

The POP packet is sent to retrieve emails from the server, and the server responds with a POP packet to provide the requested emails or acknowledge the retrieval attempt.

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