

Computer Networks

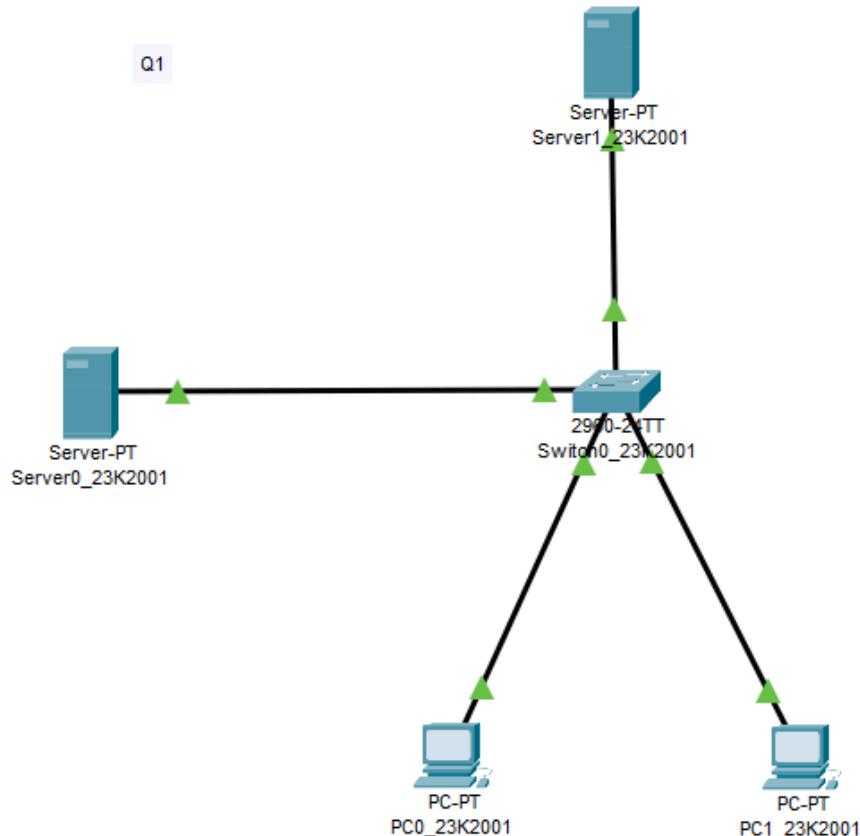
LAB#04



23K-2001

BCS-5J

Q1:



Q1

Server-PT Server0_23K2001

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DNS

DNS Service On Off

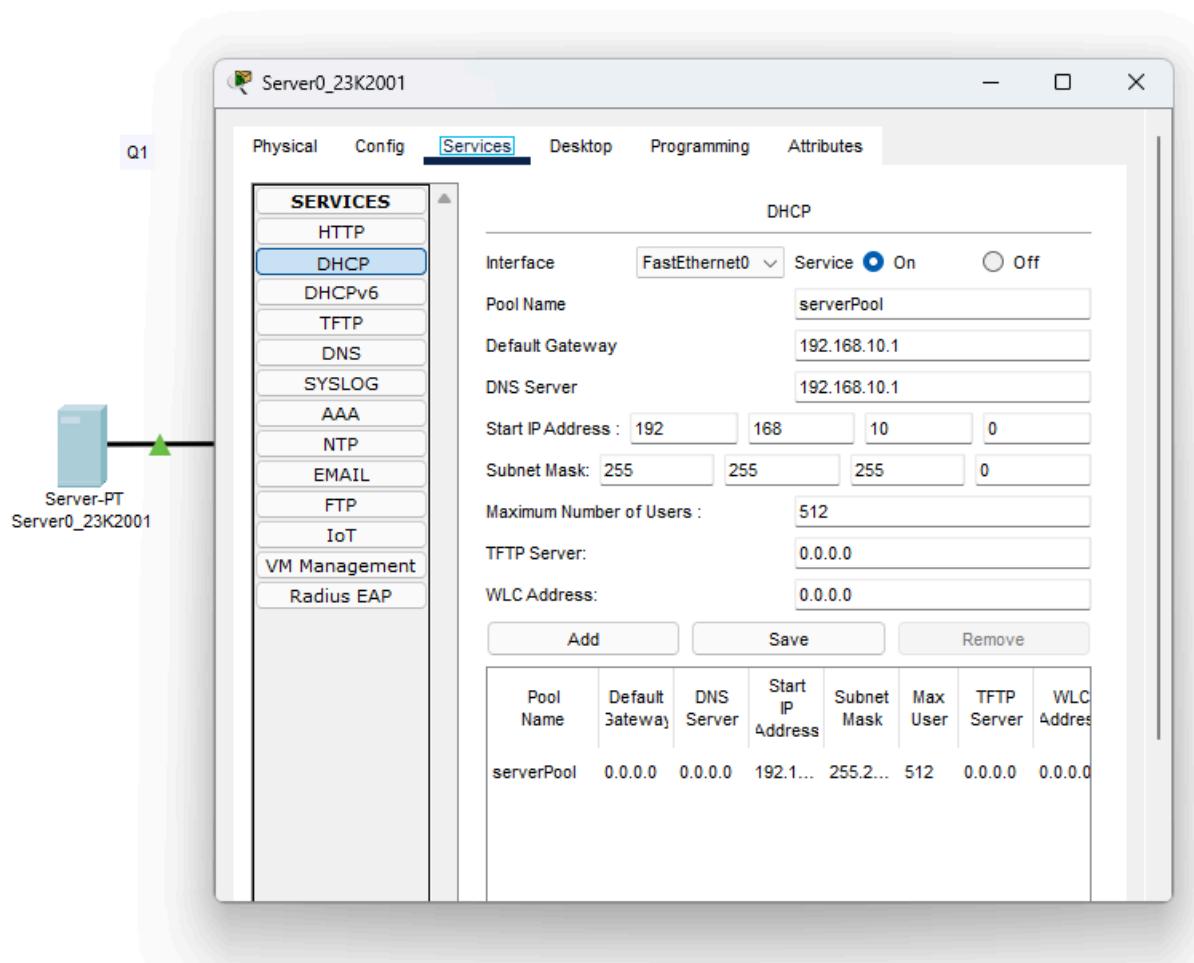
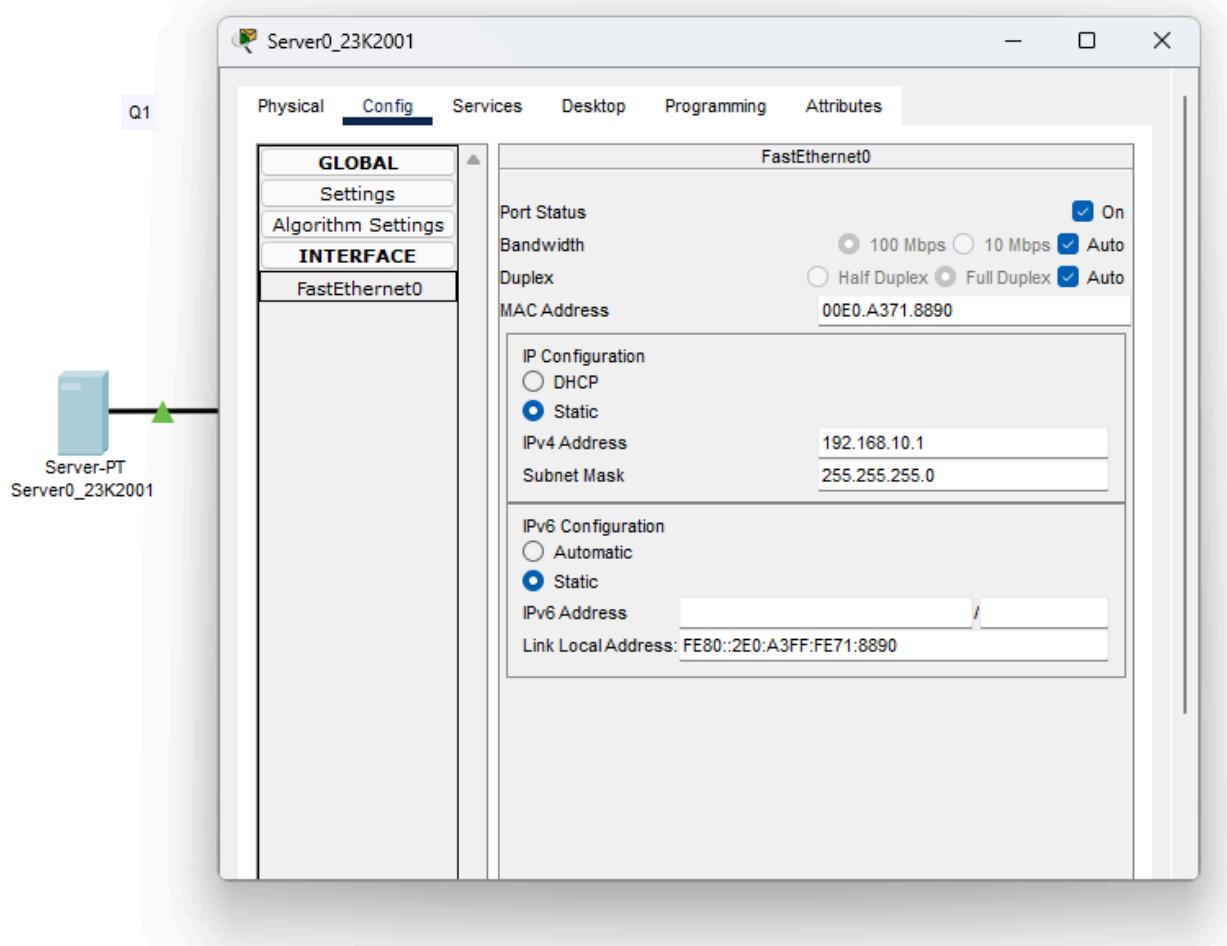
Resource Records

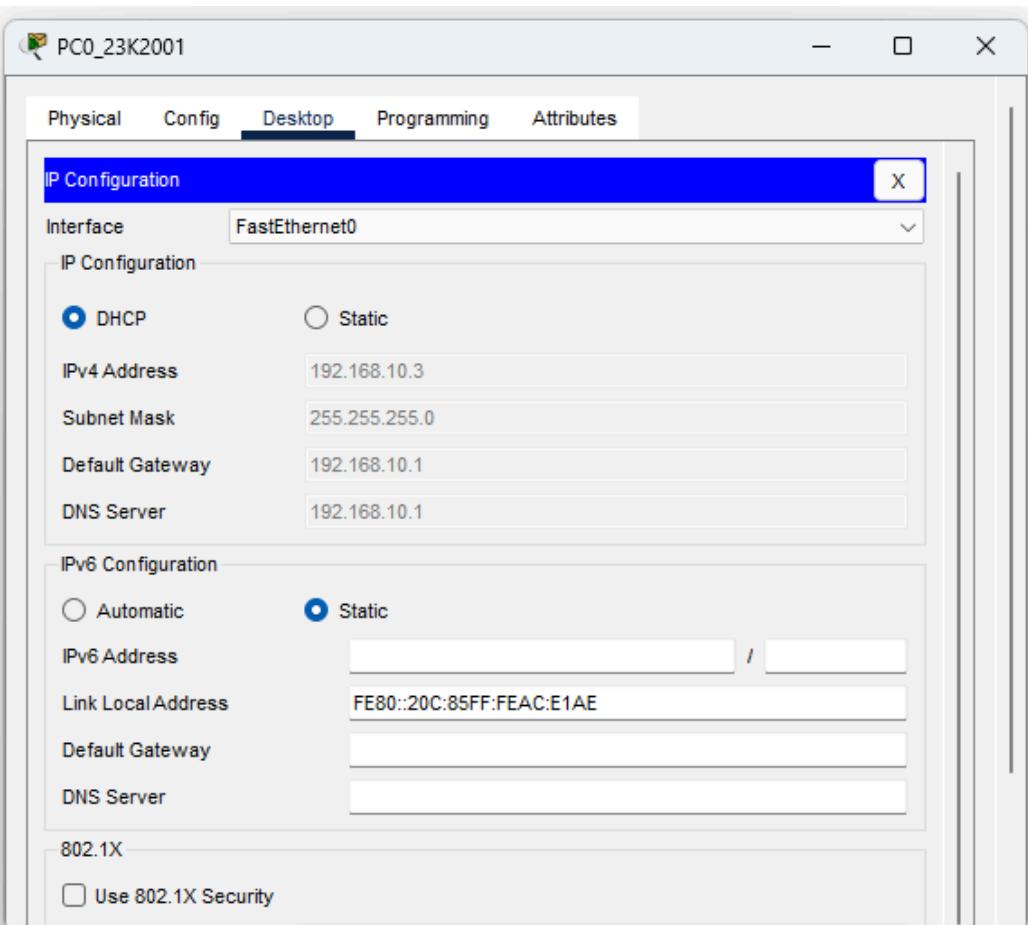
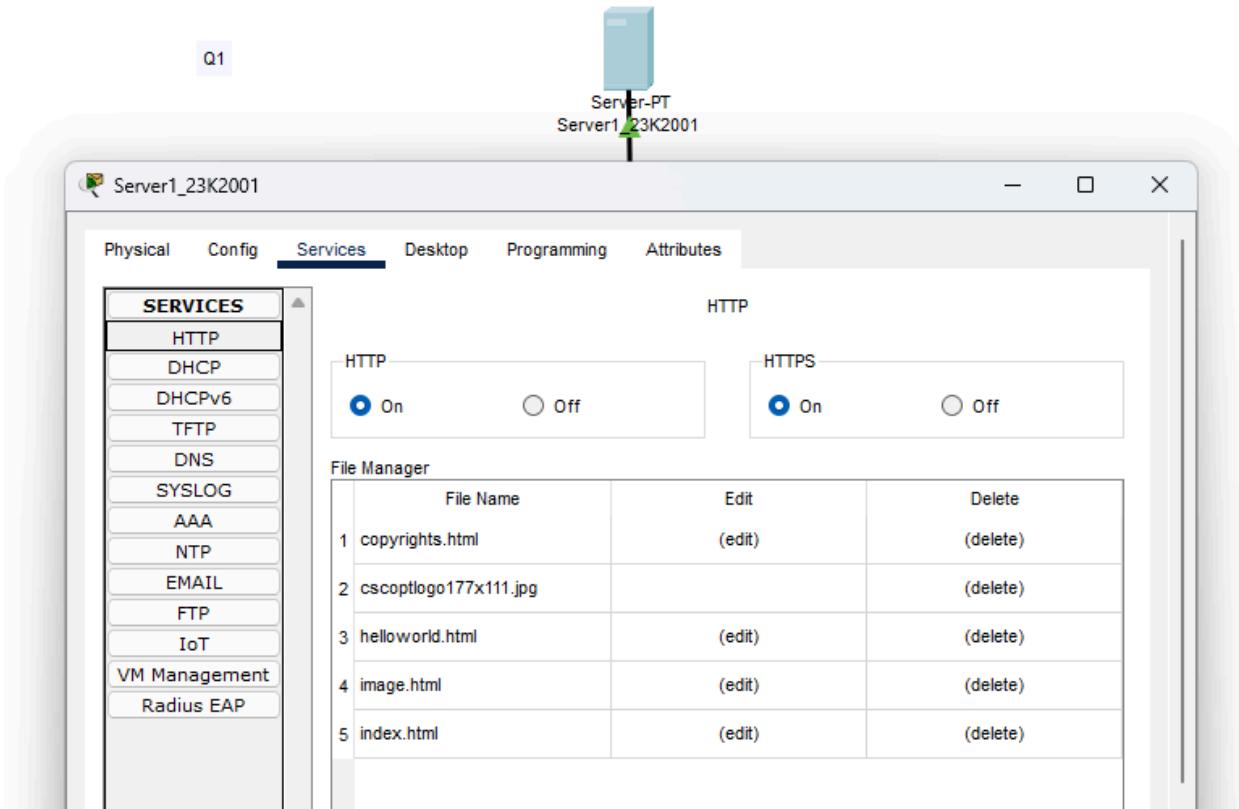
Name Type

Address

Add Save Remove

No.	Name	Type	Detail
0	www.google.com	A Record	192.168.10.2





PC0_23K2001



PC1_23K2001

```
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=7ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 1ms

C:\>ping www.google.com

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Top



```
PC0_23K2001
```

Physical Config Desktop Programming Attributes

Web Browser

< > URL http://www.google.com Go Stop

Cisco Packet Tracer

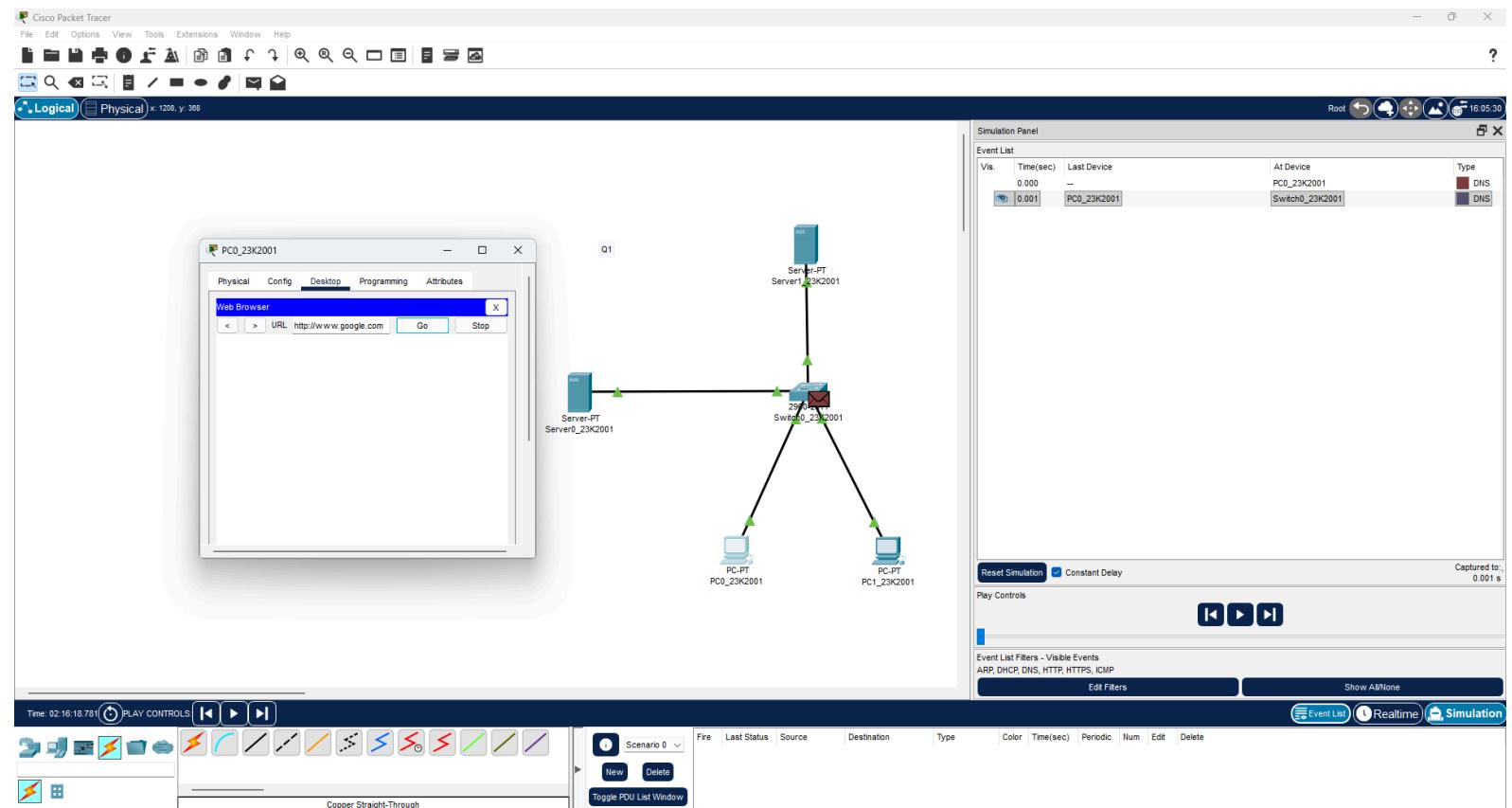
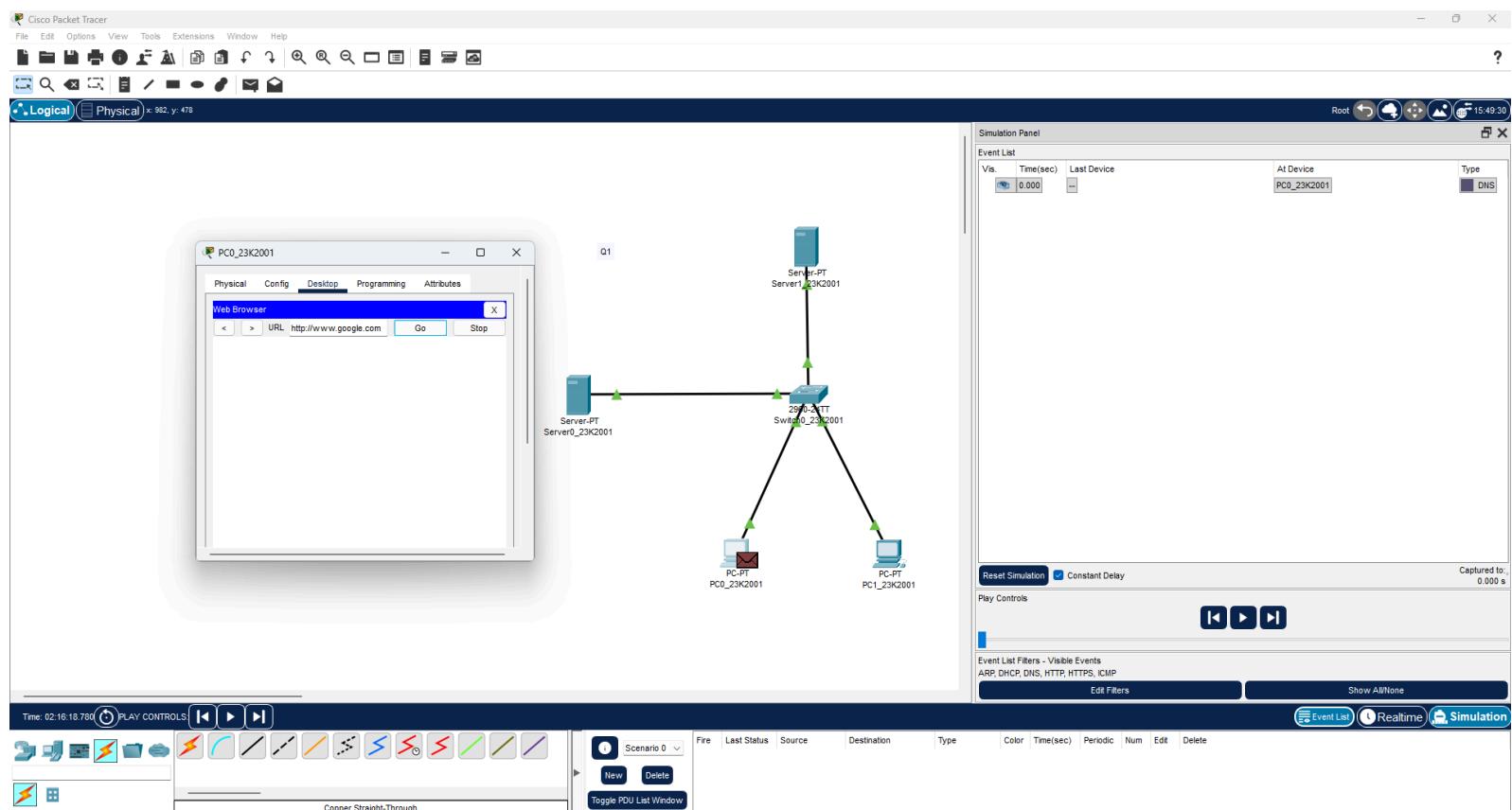
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

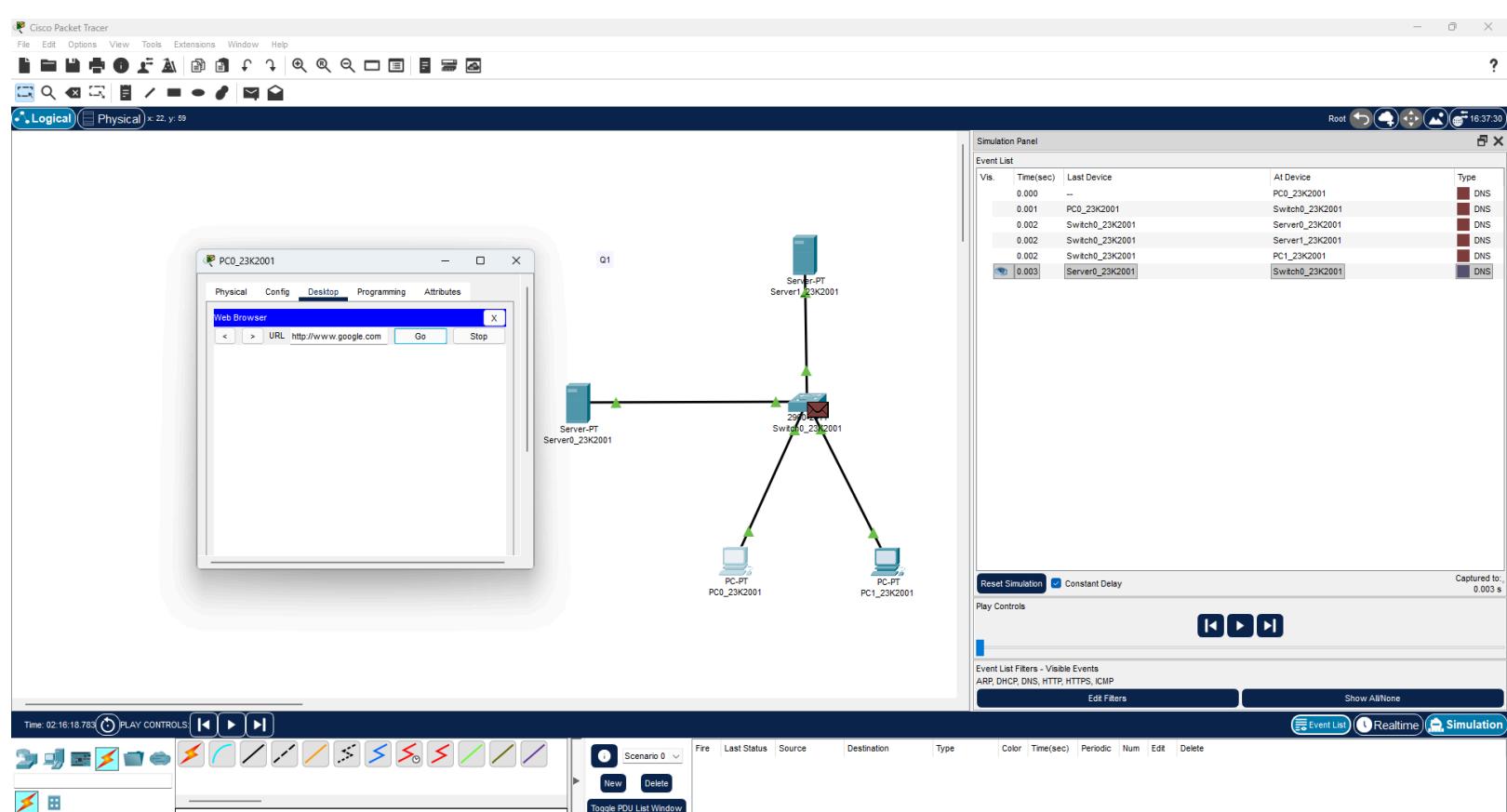
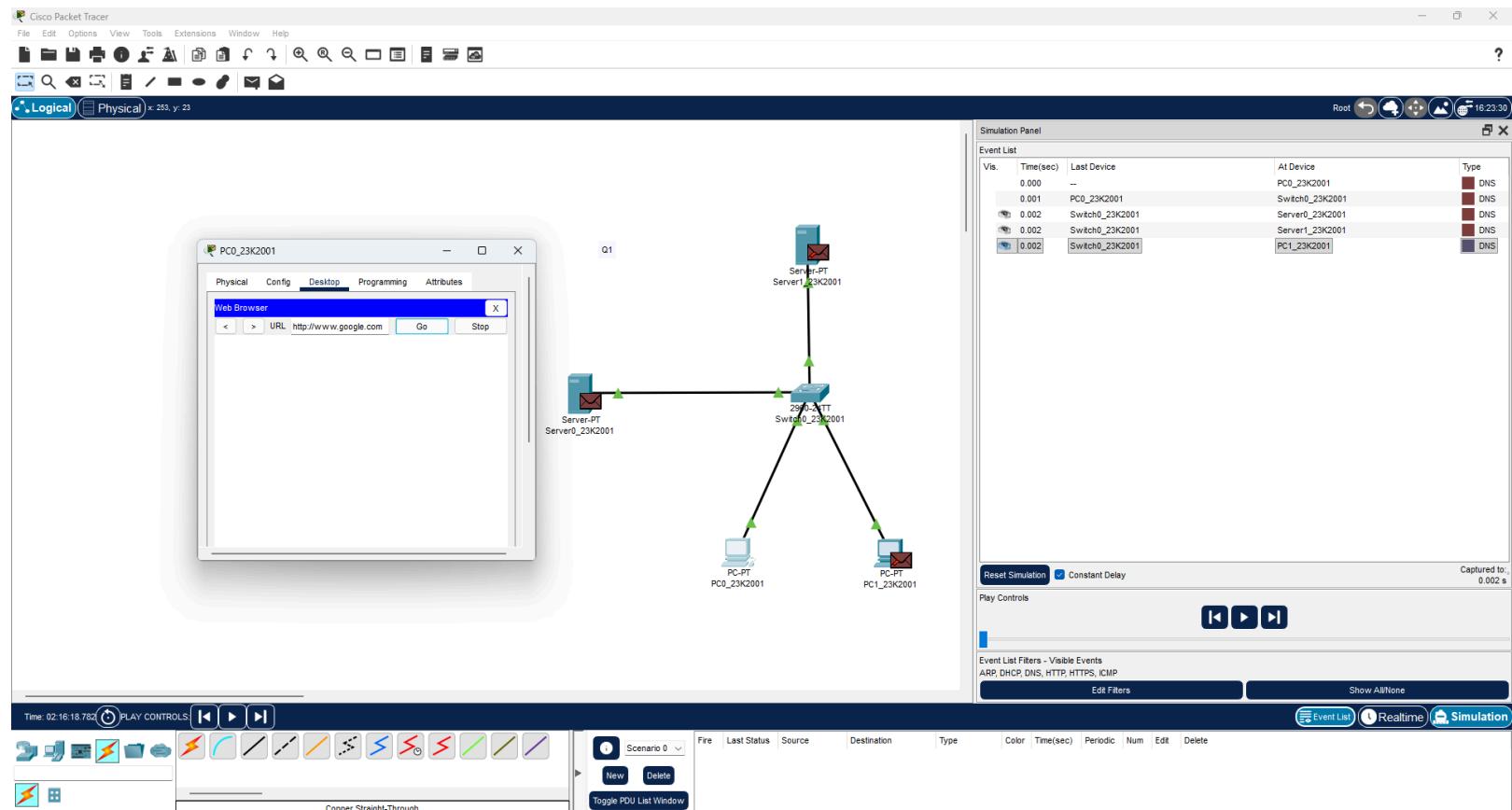
Quick Links:

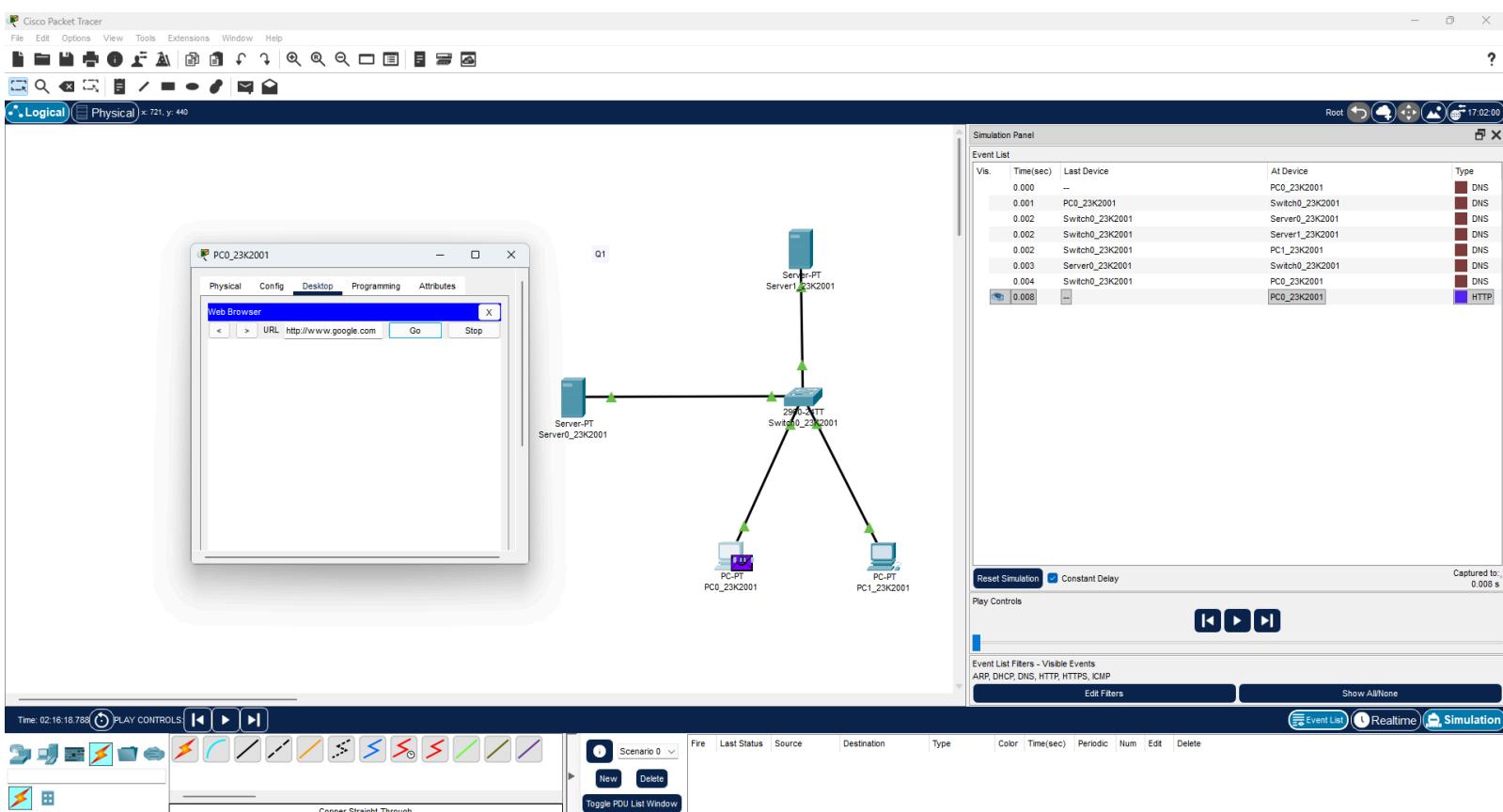
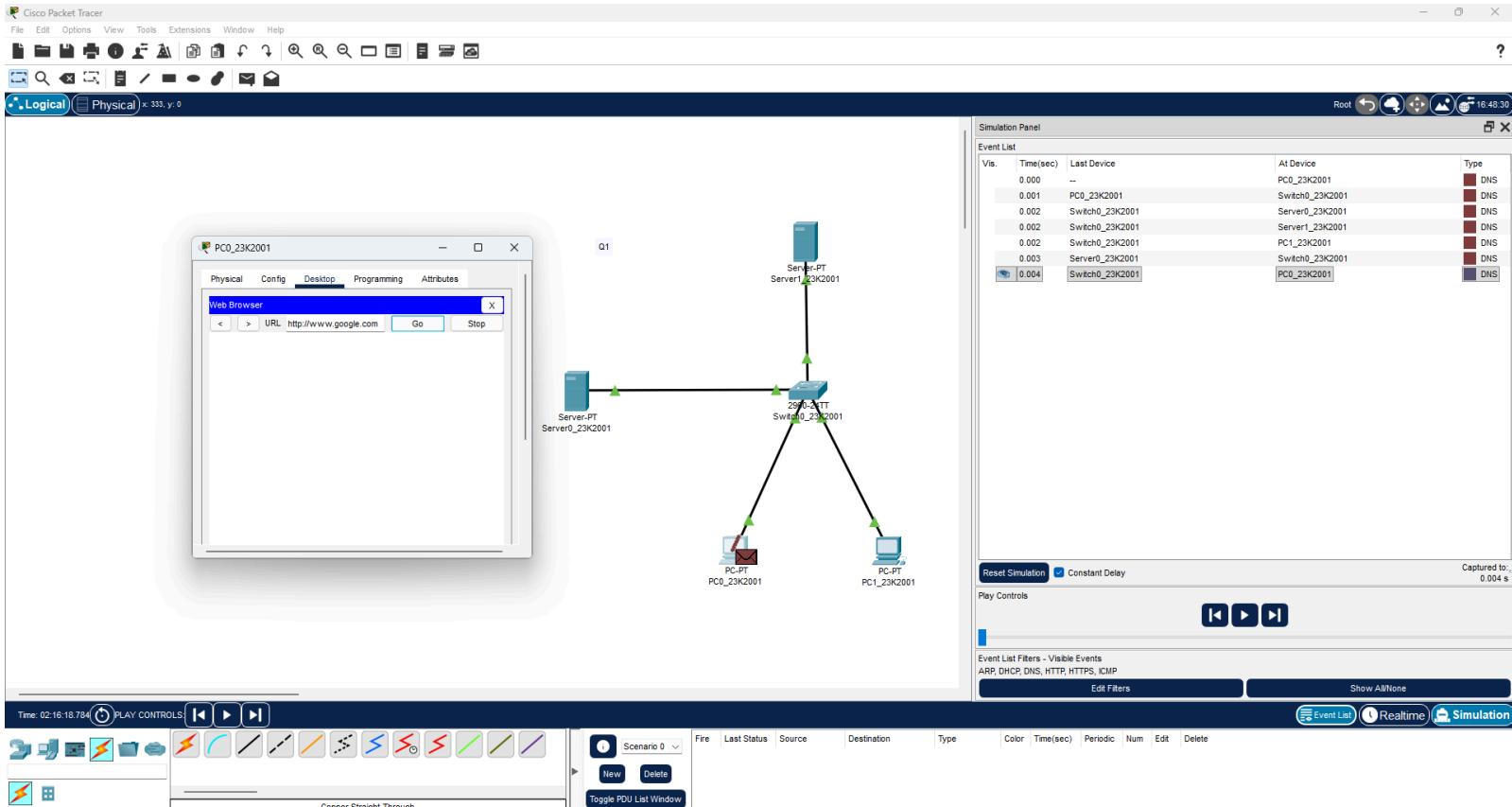
[A small page](#)
[Copyrights](#)
[Image page](#)
[Image](#)

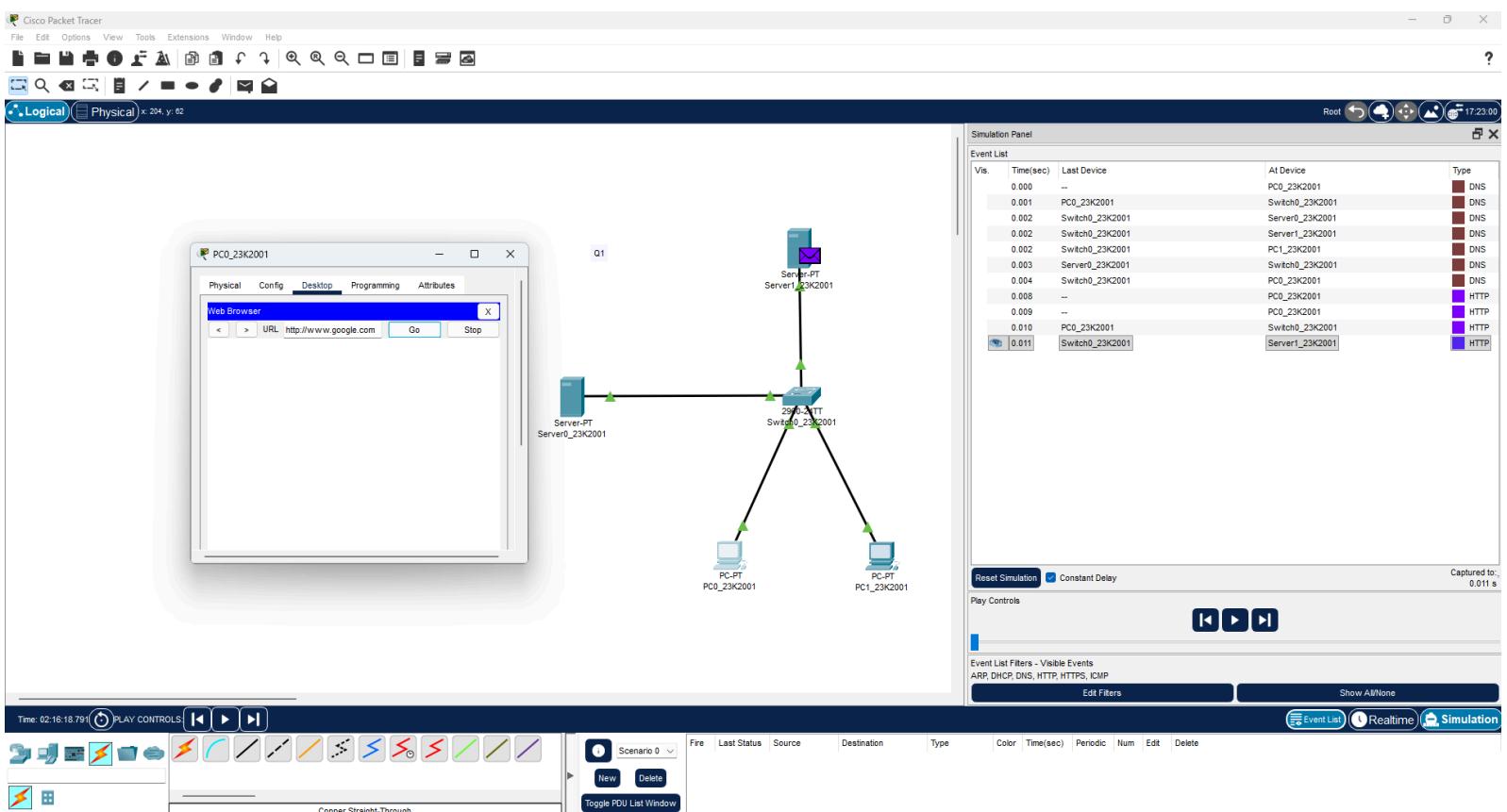
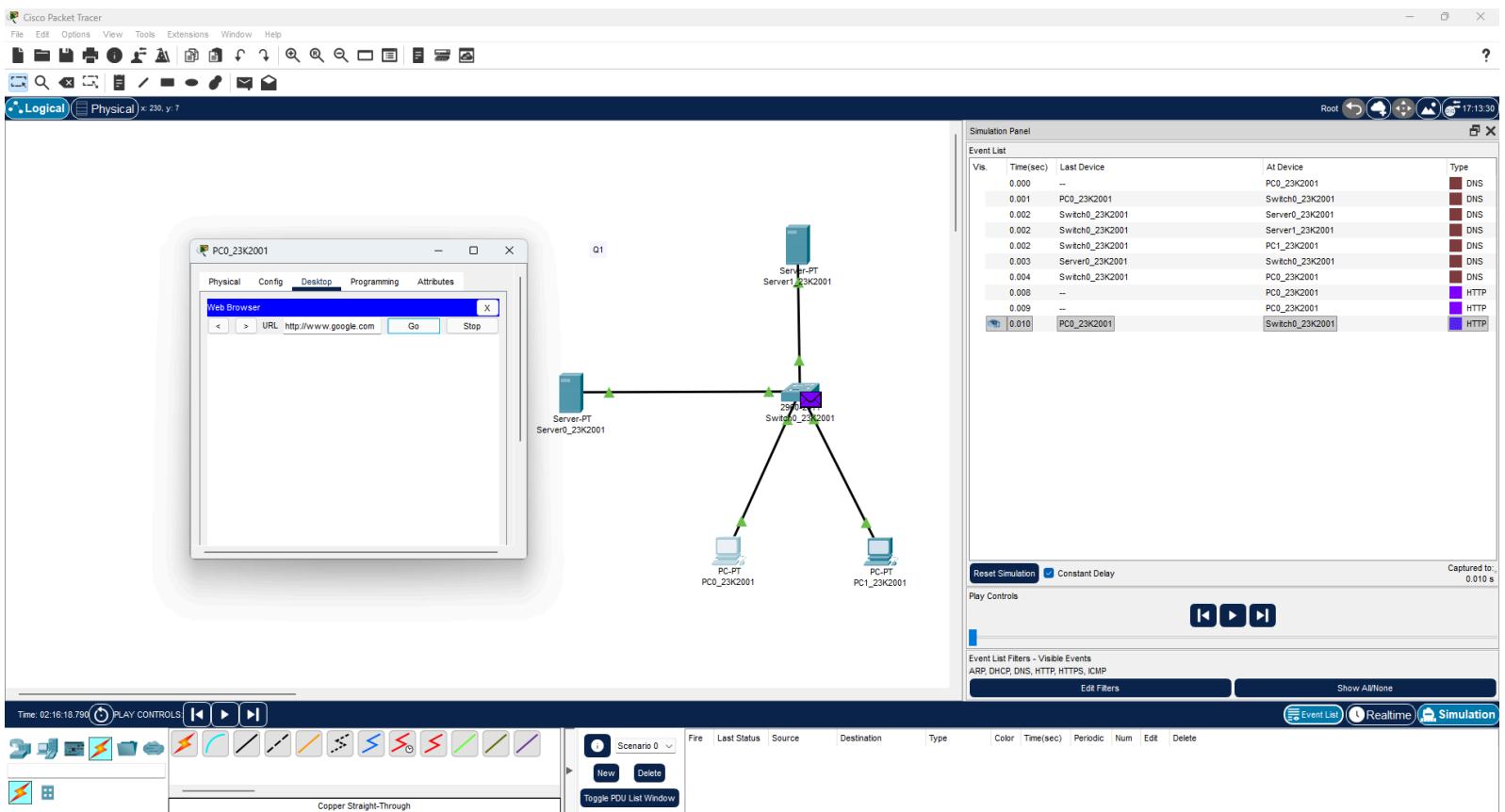


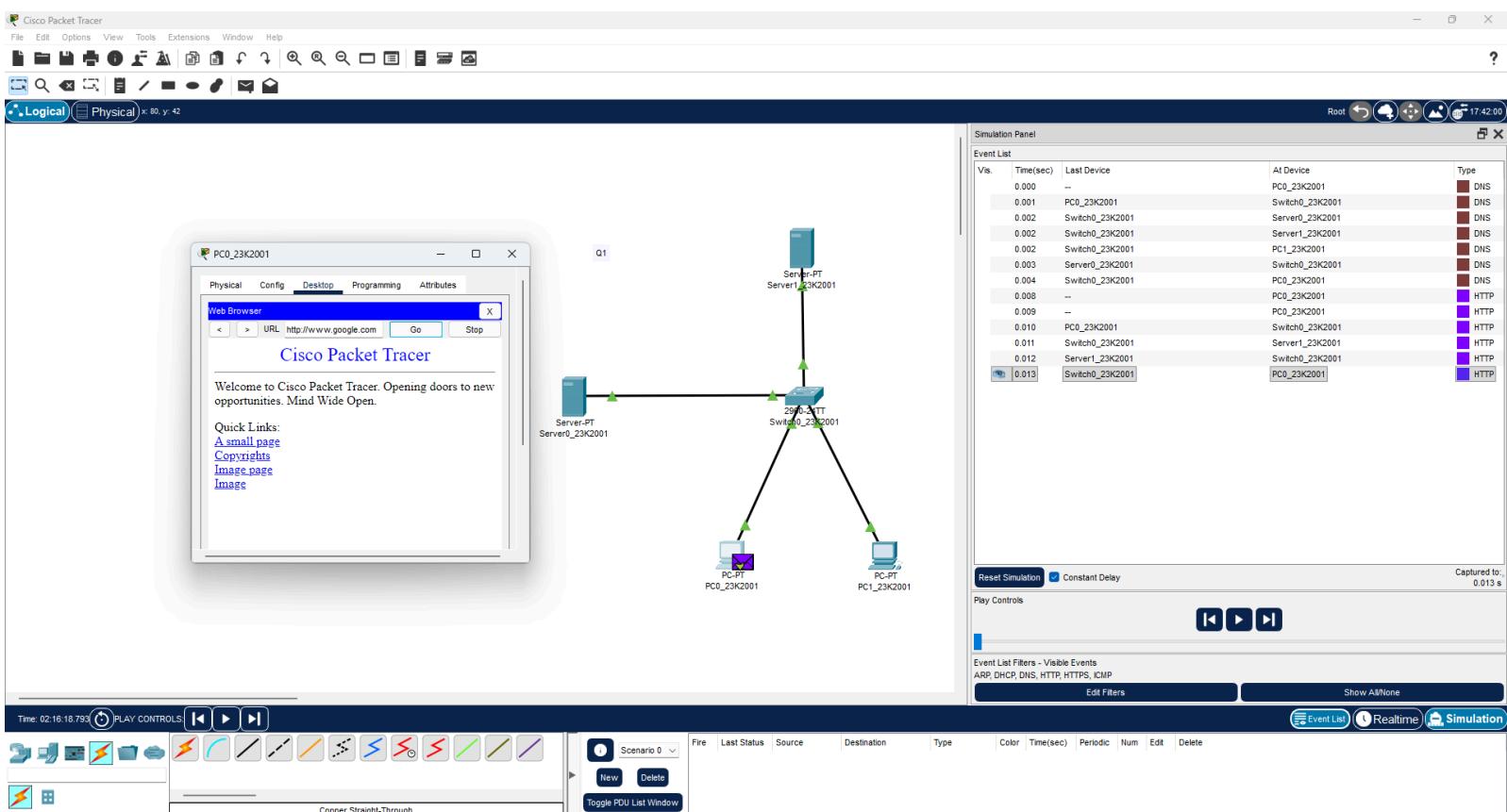
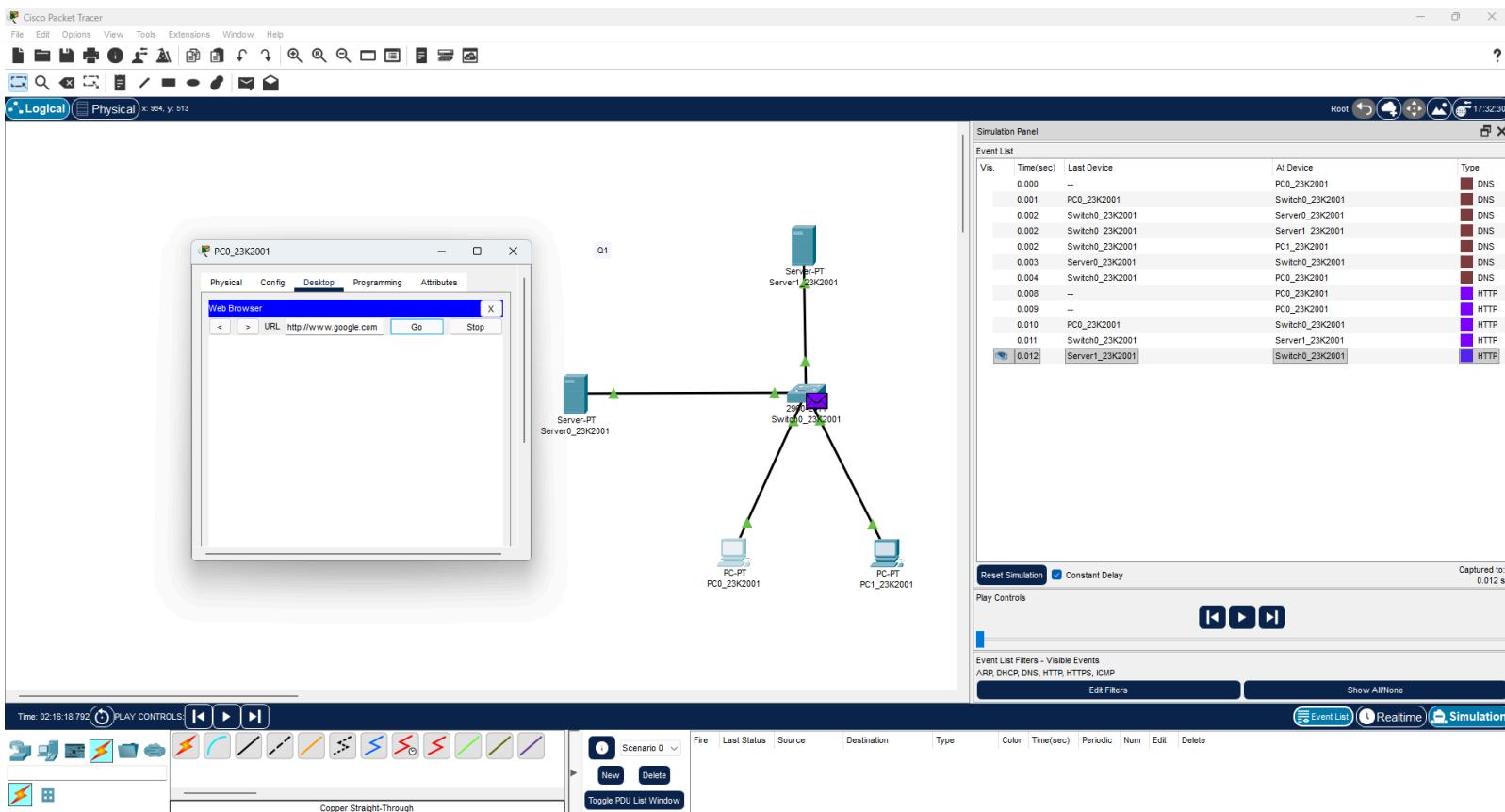
DNS Packet Simulation:



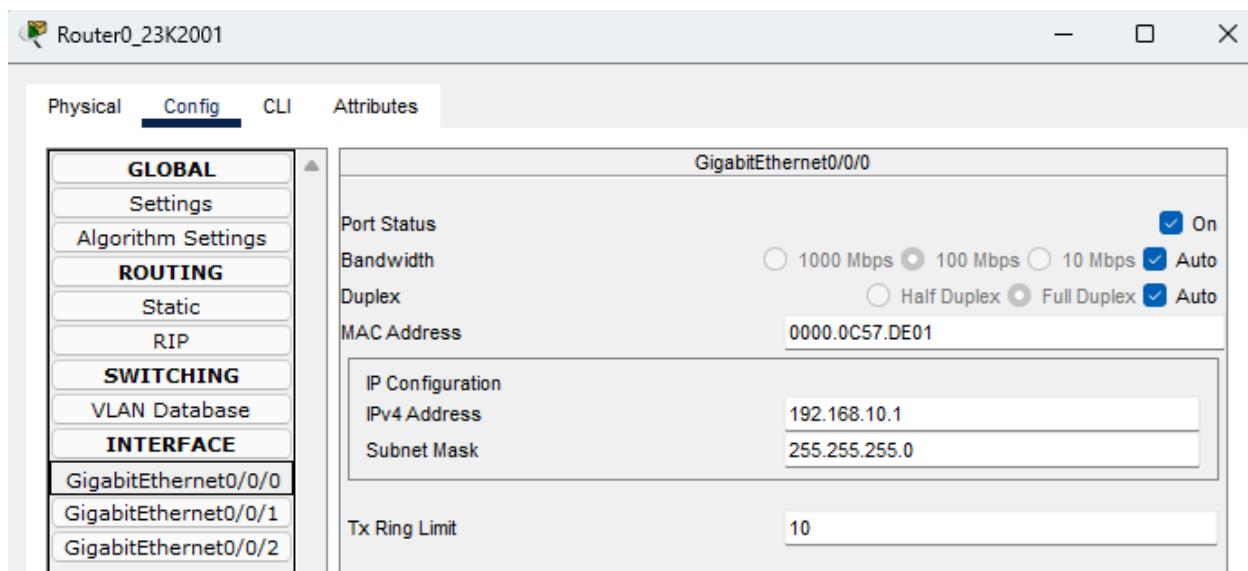
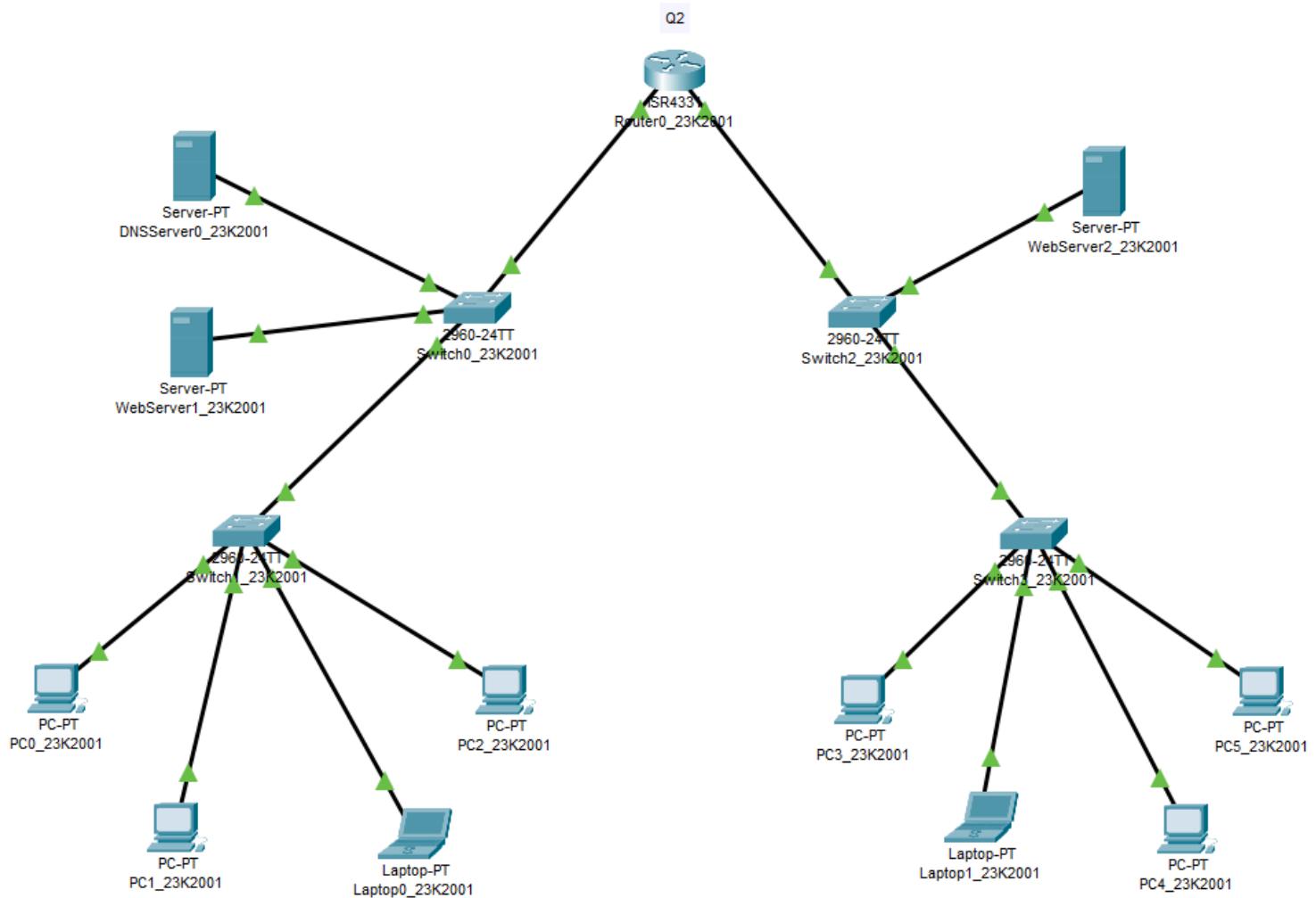








Q2:



Router0_23K2001

Physical Config CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

ROUTING

- Static
- RIP

SWITCHING

- VLAN Database

INTERFACE

- GigabitEthernet0/0/0
- GigabitEthernet0/0/1
- GigabitEthernet0/0/2

GigabitEthernet0/0/1

Port Status On

Bandwidth 1000 Mbps 100 Mbps 10 Mbps Auto

Duplex Half Duplex Full Duplex Auto

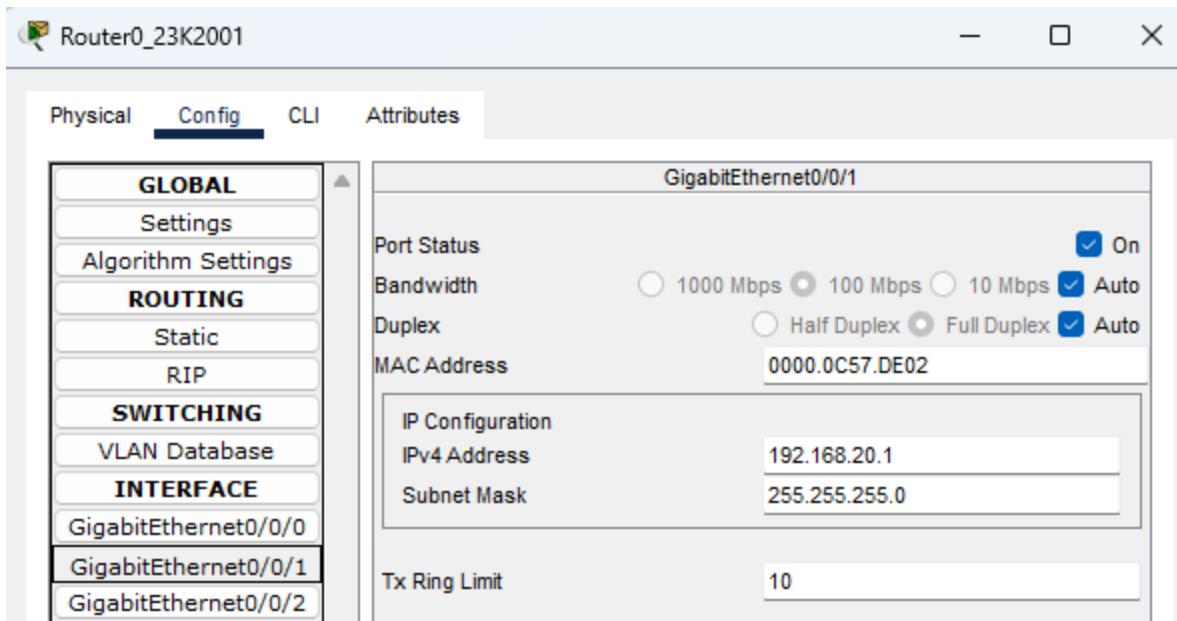
MAC Address 0000.0C57.DE02

IP Configuration

IPv4 Address 192.168.20.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10



DNSServer0_23K2001

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

DHCP Static

IPv4 Address 192.168.10.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

IPv6 Configuration

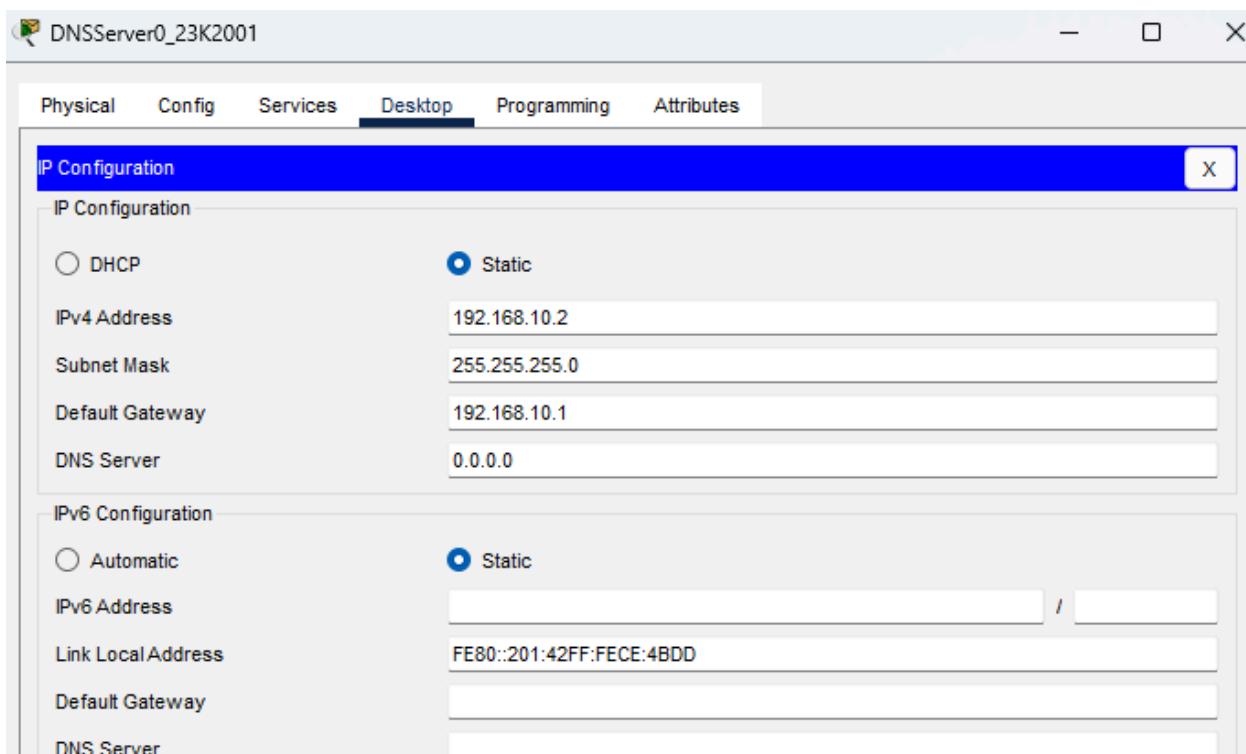
Automatic Static

IPv6 Address /

Link LocalAddress FE80::201:42FF:FECE:4BDD

Default Gateway

DNS Server



DNSServer0_23K2001

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCIPv6
- TFTP
- DNS

SYSLOG

- AAA
- NTP
- EMAIL
- FTP
- IoT

VM Management

- Radius EAP

DNS

DNS Service On Off

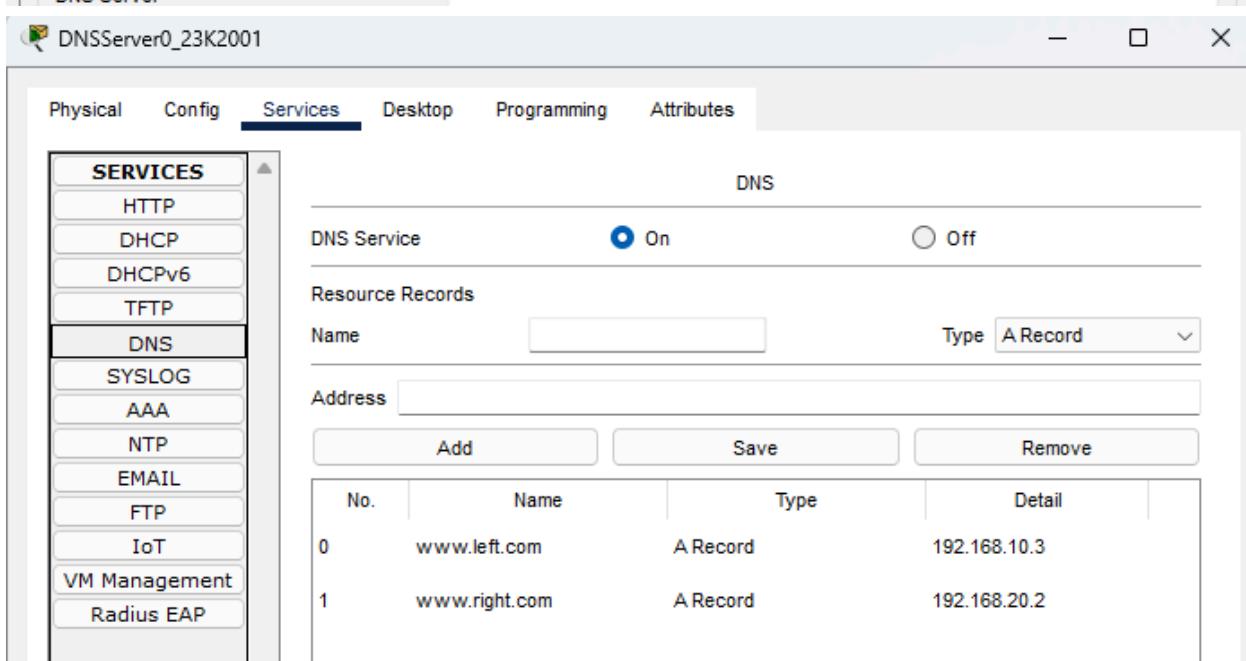
Resource Records

Name Type

Address

Add Save Remove

No.	Name	Type	Detail
0	www.left.com	A Record	192.168.10.3
1	www.right.com	A Record	192.168.20.2



WebServer1_23K2001

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP**
- DHCP
- DCHPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

File Name: index.html

```
<html>
<center><font size='2' color='blue'>Cisco Packet Tracer</font></center>
<hr>Welcome to Left Side Browser
<p>Quick Links:
<br><a href='helloworld.html'>A small page</a>
<br><a href='copyrights.html'>Copyrights</a>
<br><a href='image.html'>Image page</a>
<br><a href='cscopthologo177x111.jpg'>Image</a>
</html>
```

WebServer2_23K2001

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP**
- DHCP
- DCHPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

File Name: index.html

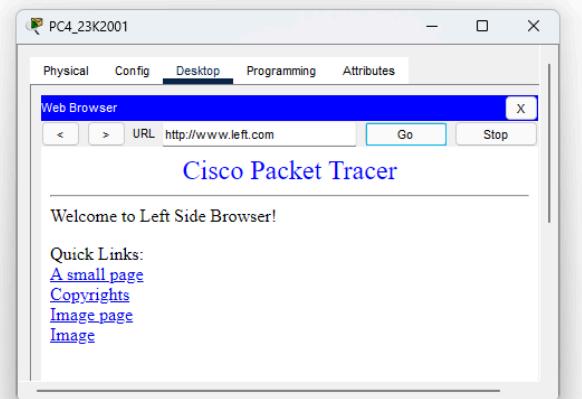
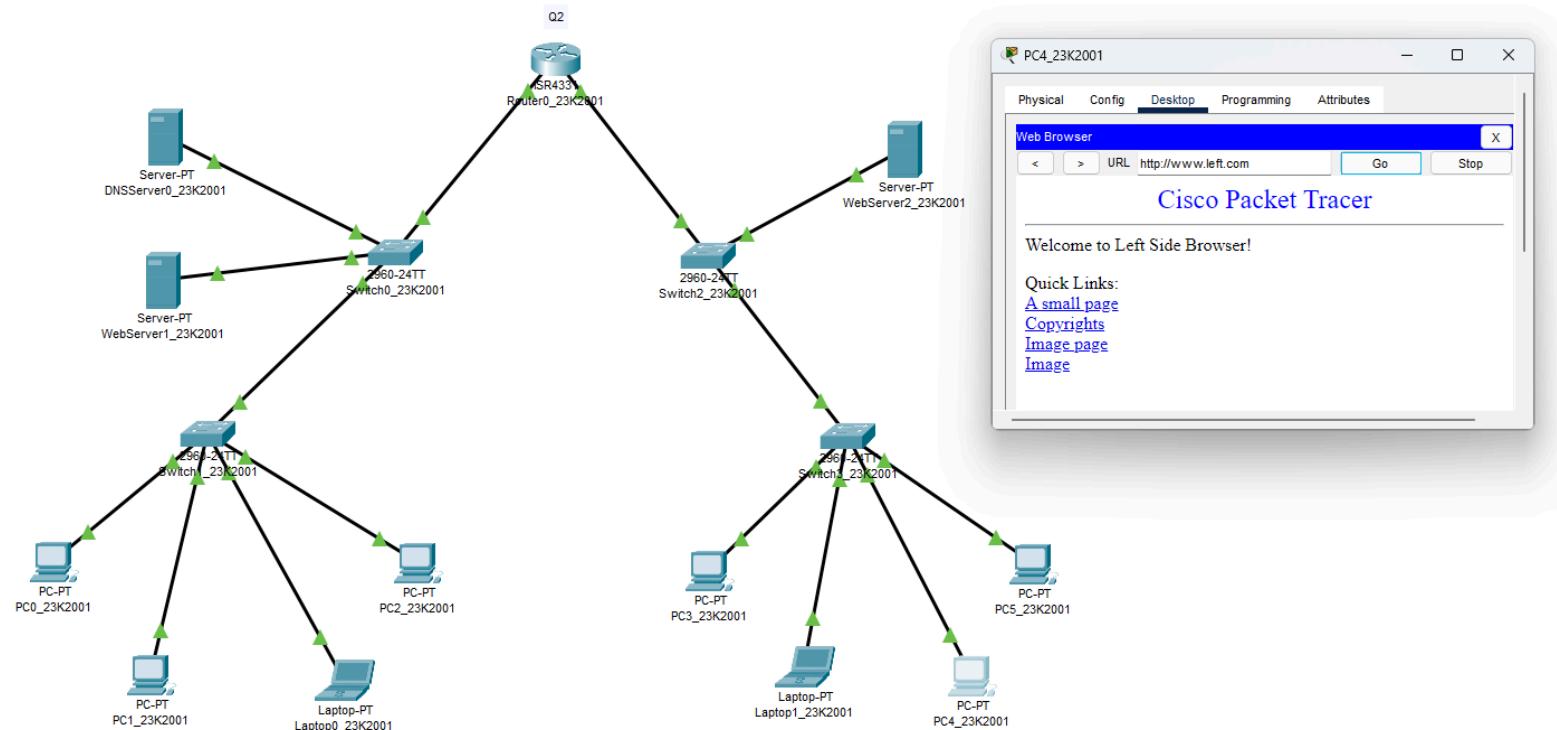
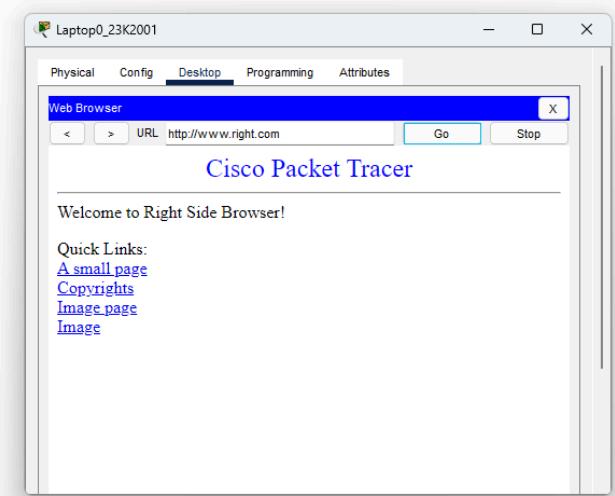
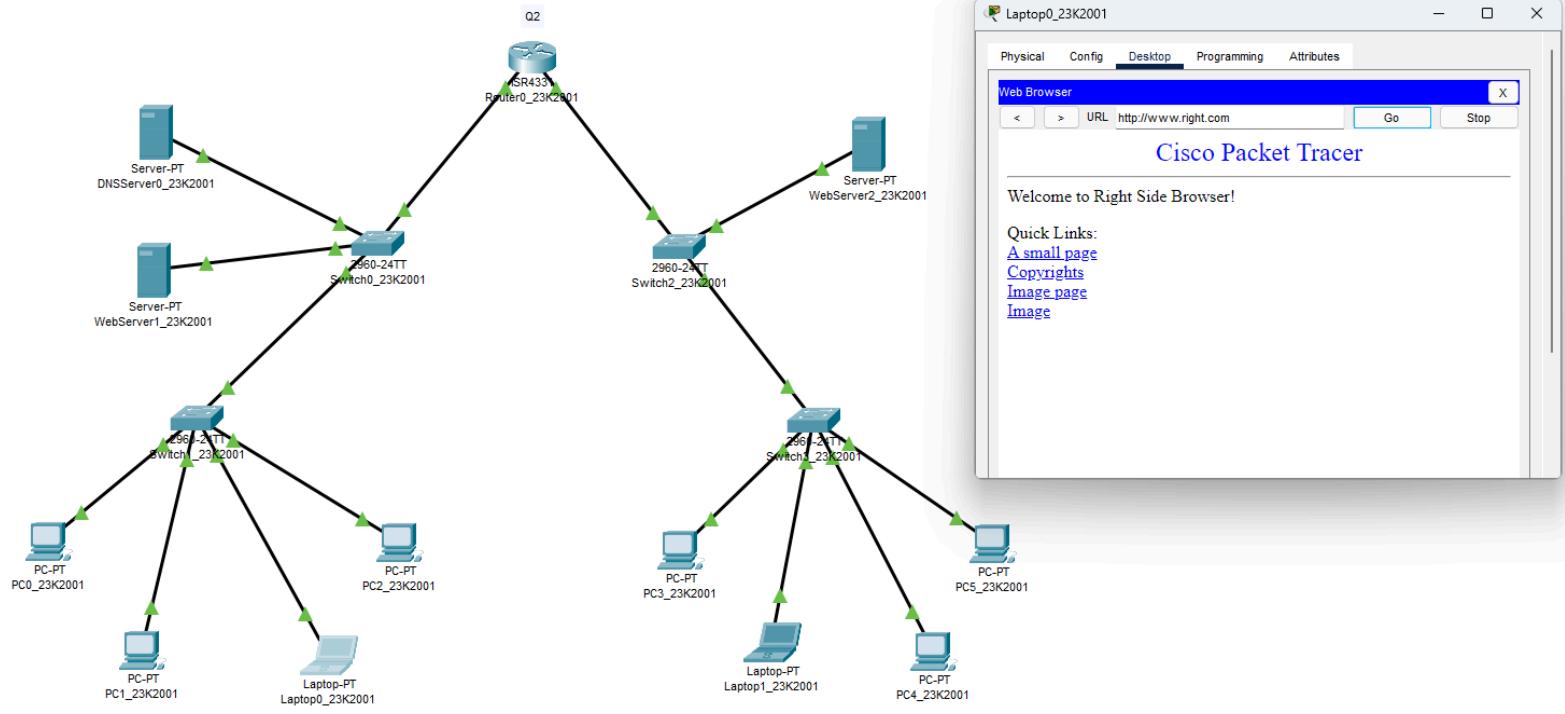
```
<html>
<center><font size='2' color='blue'>Cisco Packet Tracer</font></center>
<hr>Welcome to Right Side Browser
<p>Quick Links:
<br><a href='helloworld.html'>A small page</a>
<br><a href='copyrights.html'>Copyrights</a>
<br><a href='image.html'>Image page</a>
<br><a href='cscopthologo177x111.jpg'>Image</a>
</html>
```

Laptop0_23K2001

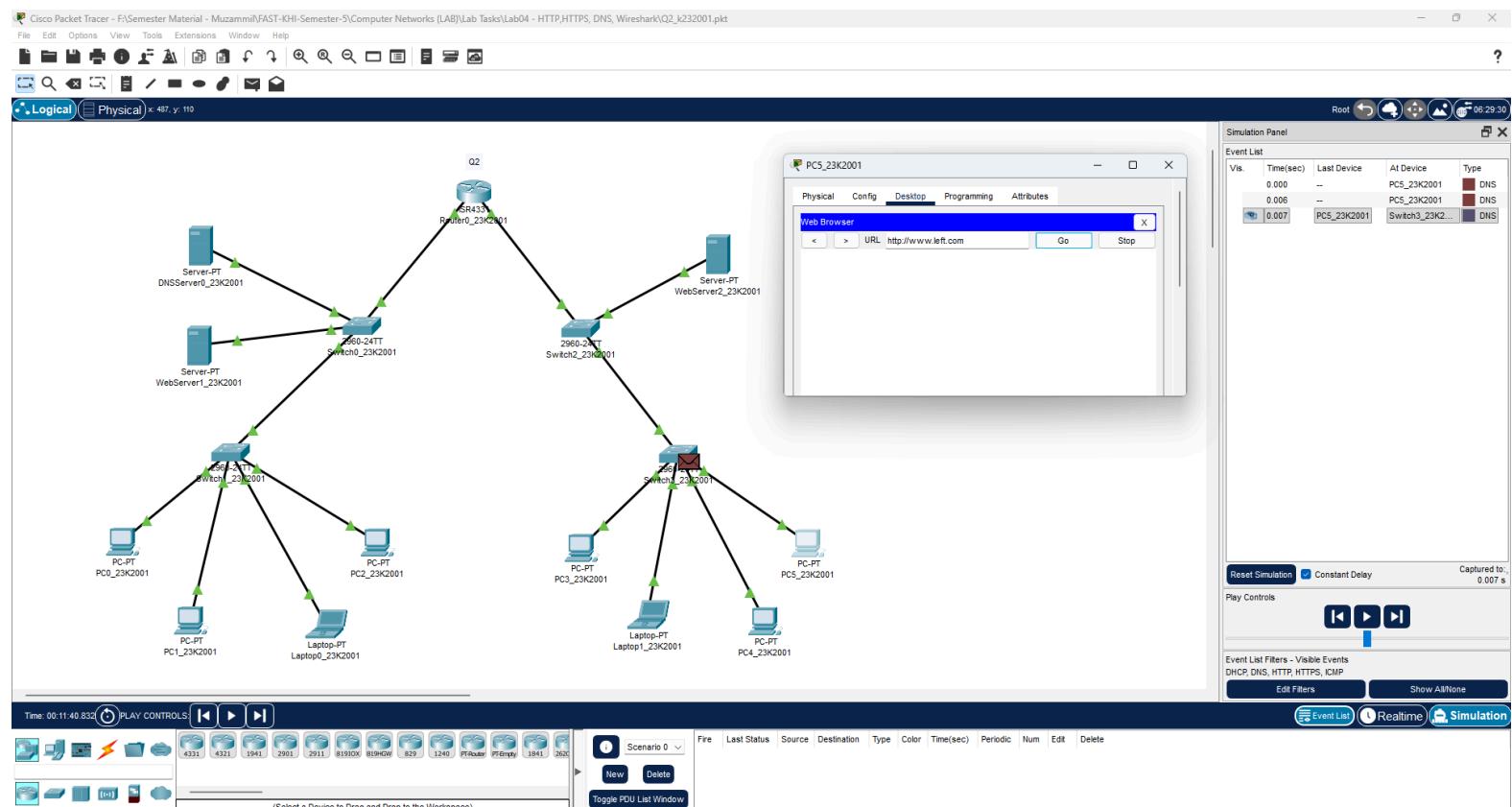
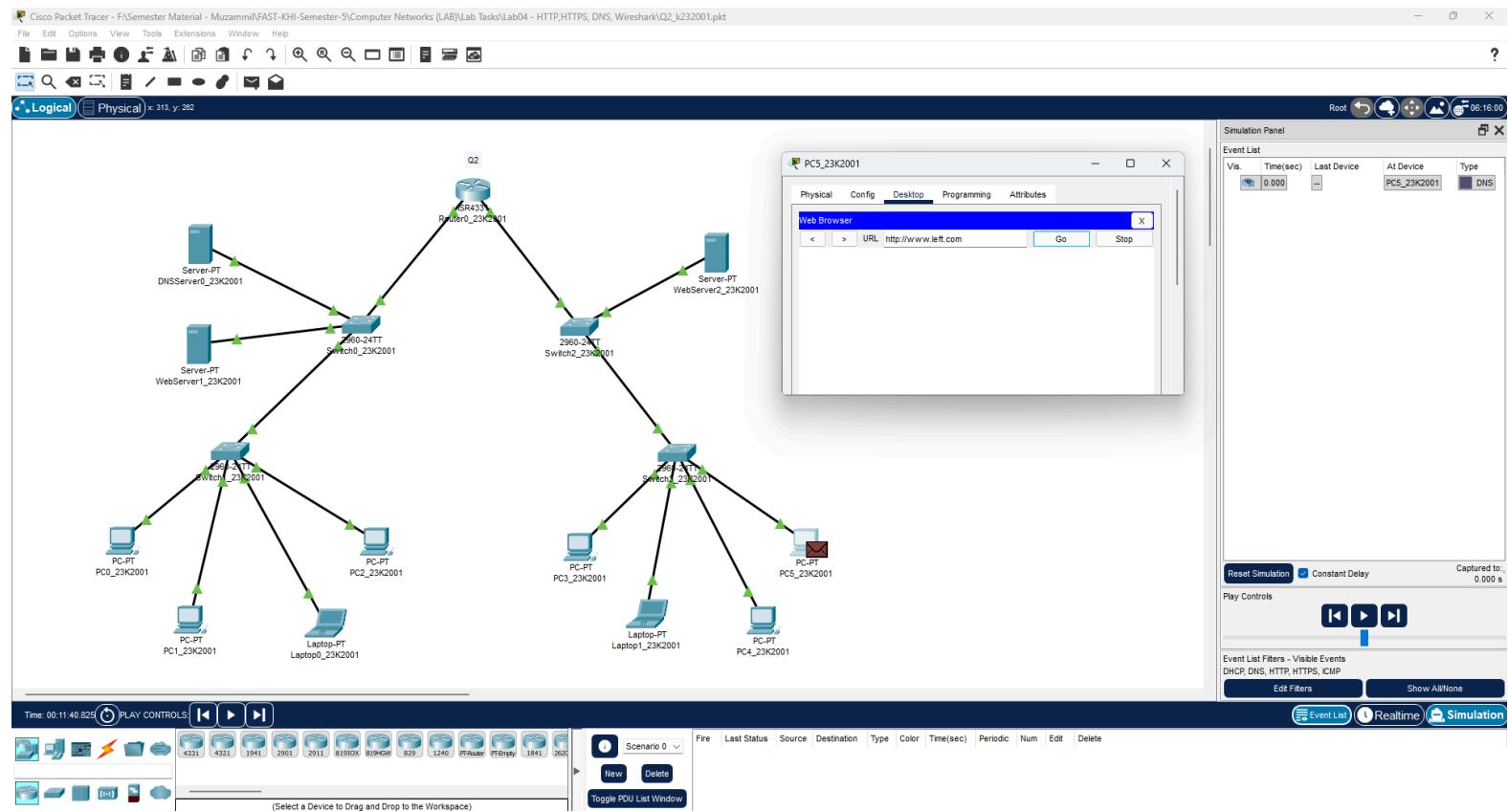
Physical Config Desktop Programming Attributes

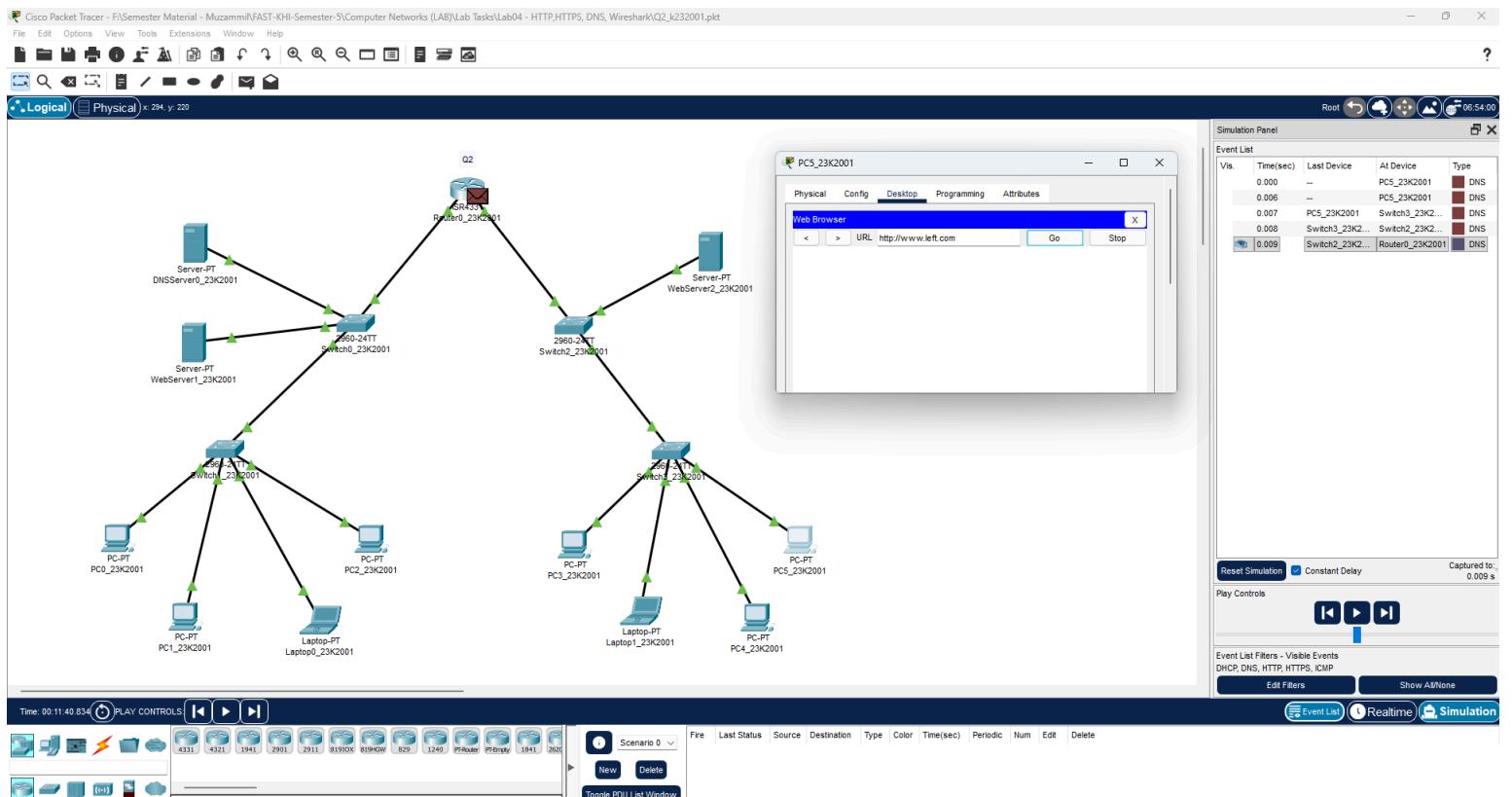
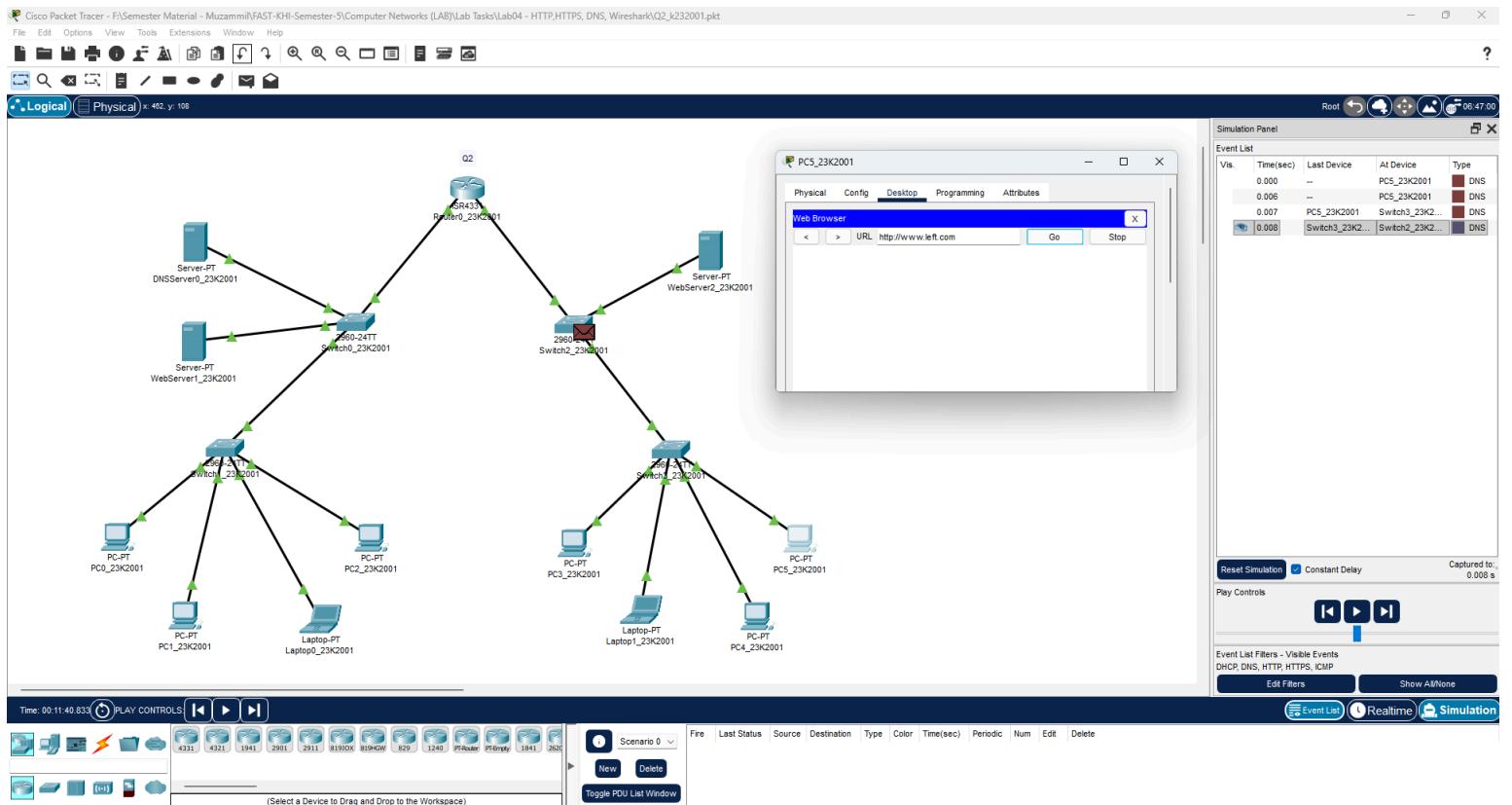
IP Configuration

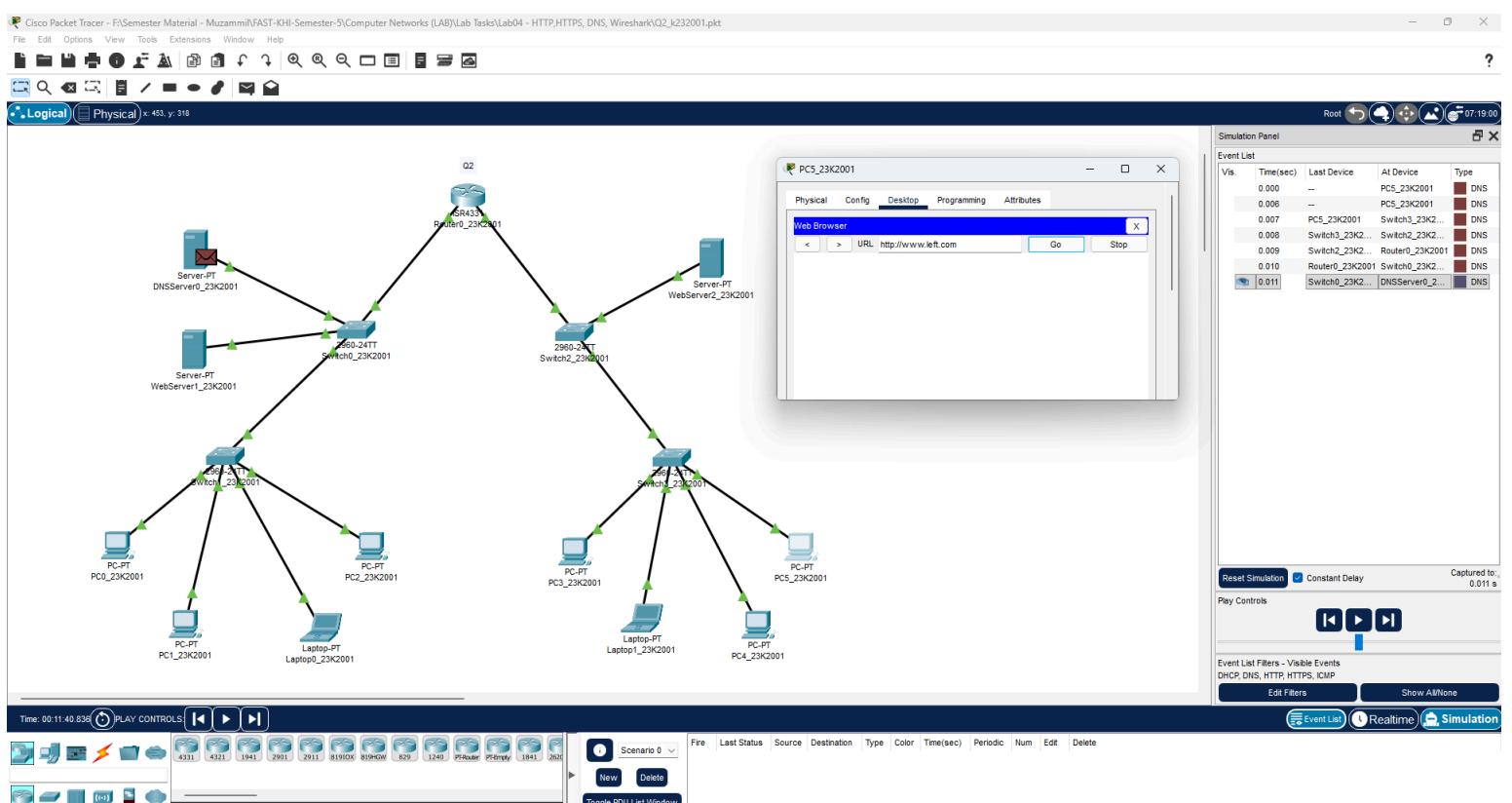
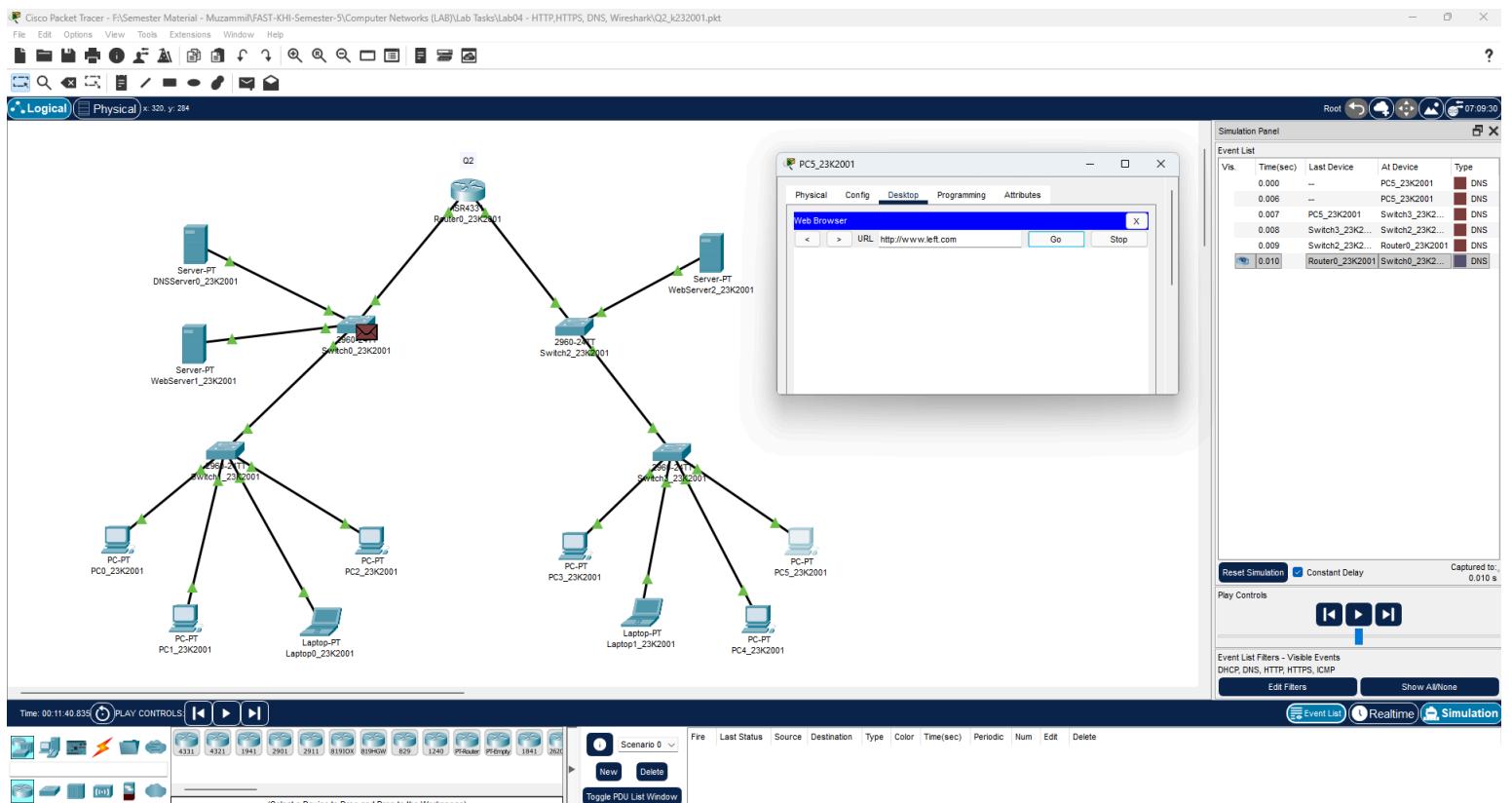
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.12
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	192.168.10.2

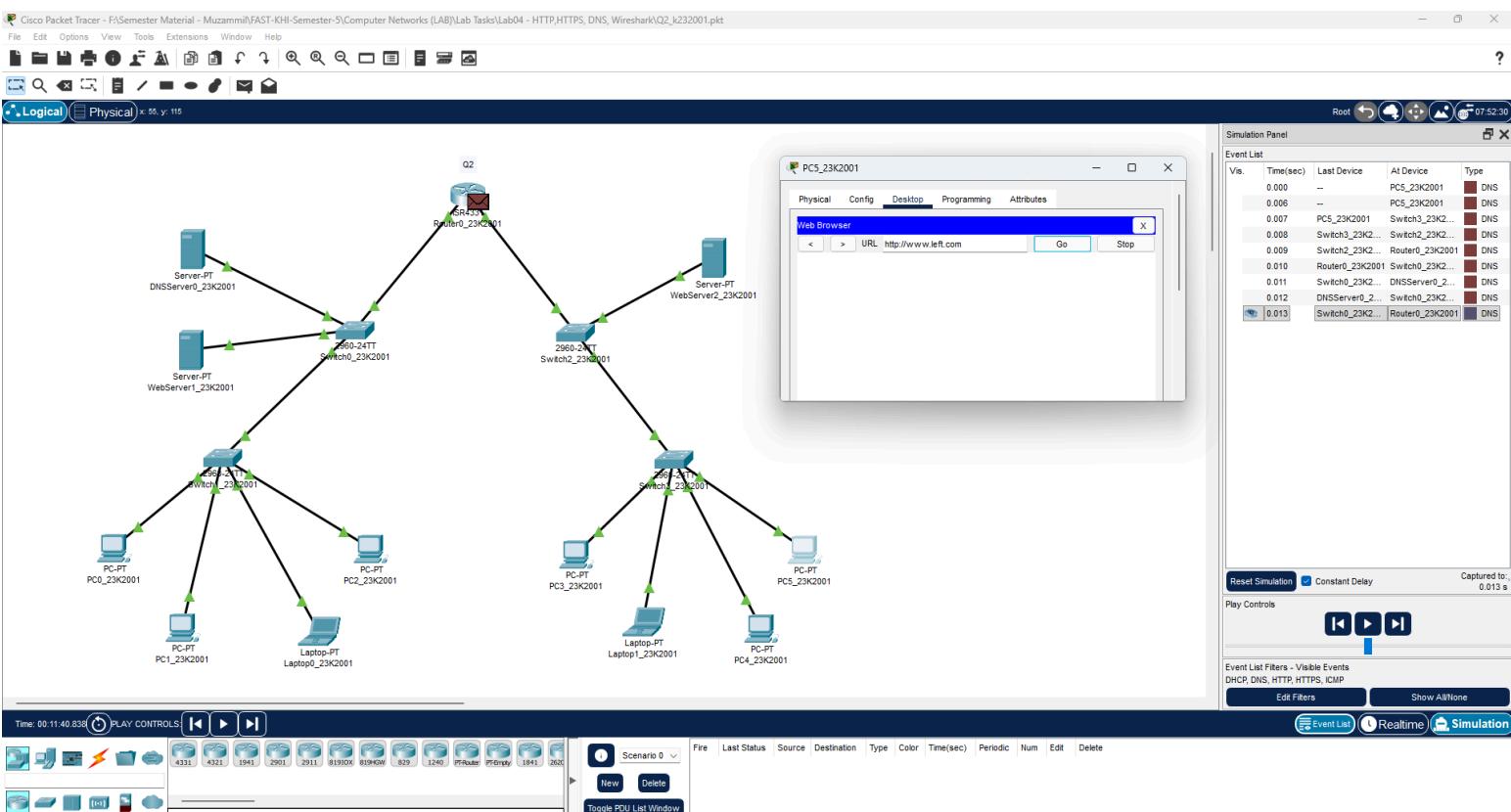
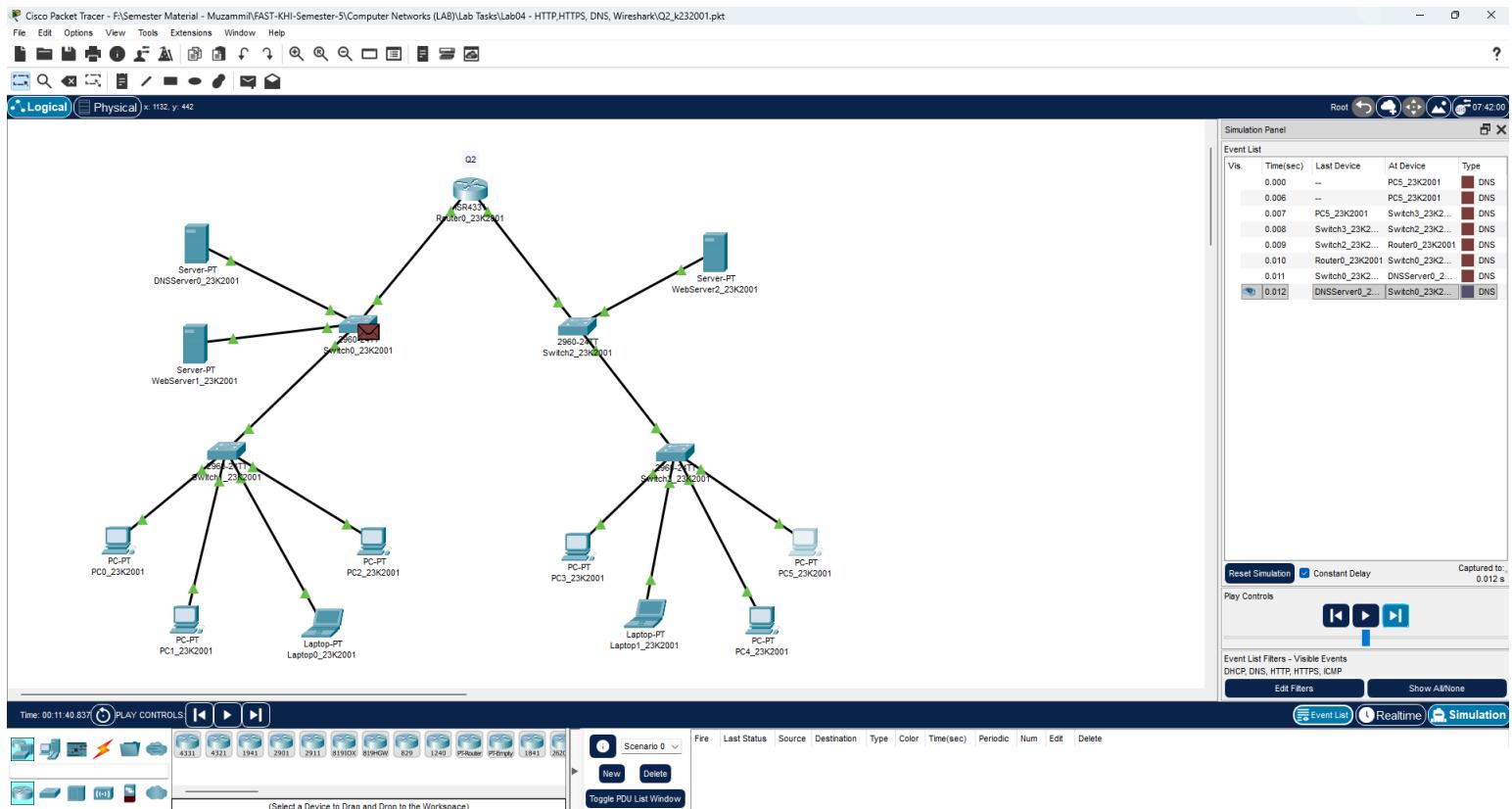


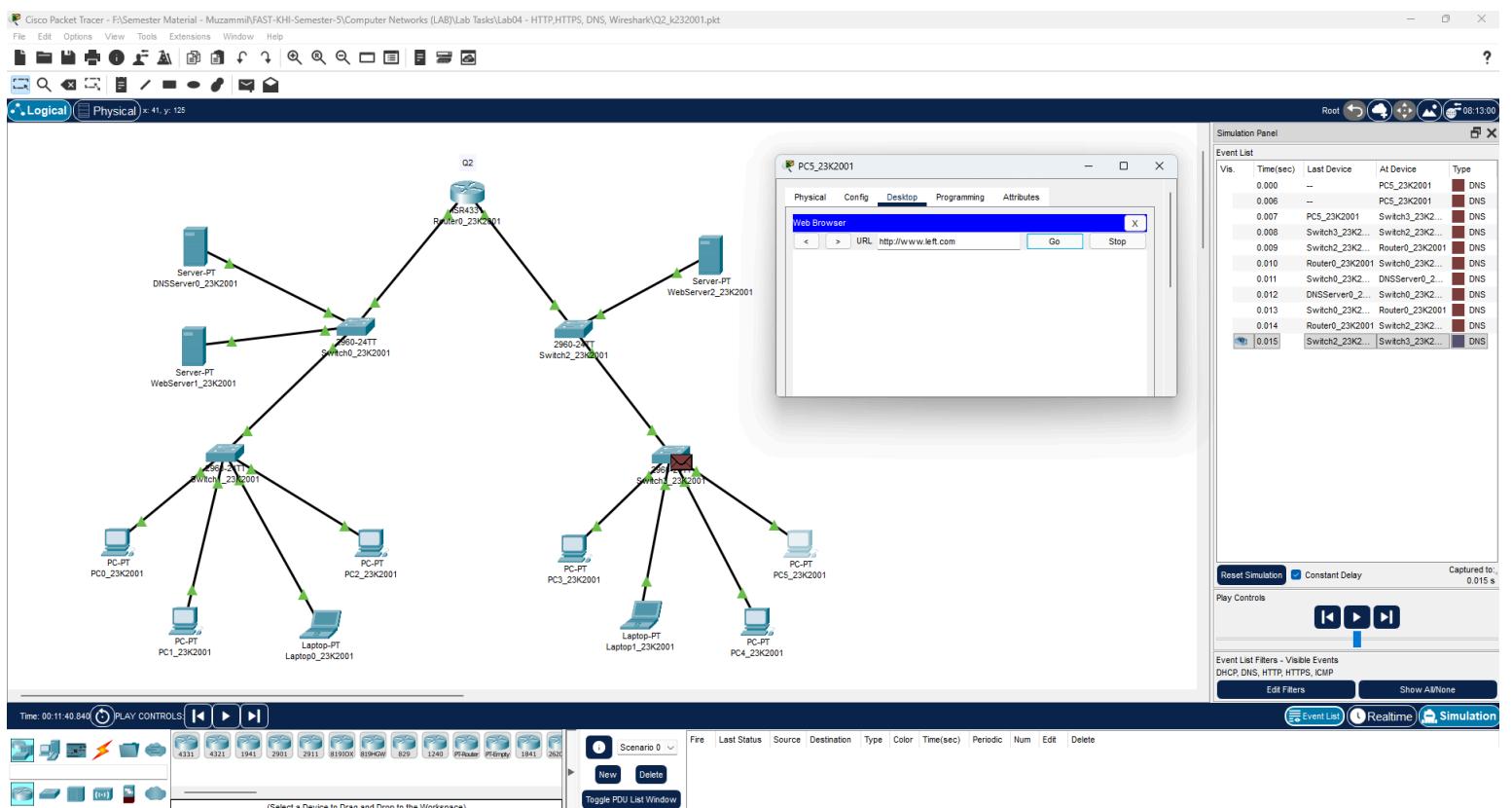
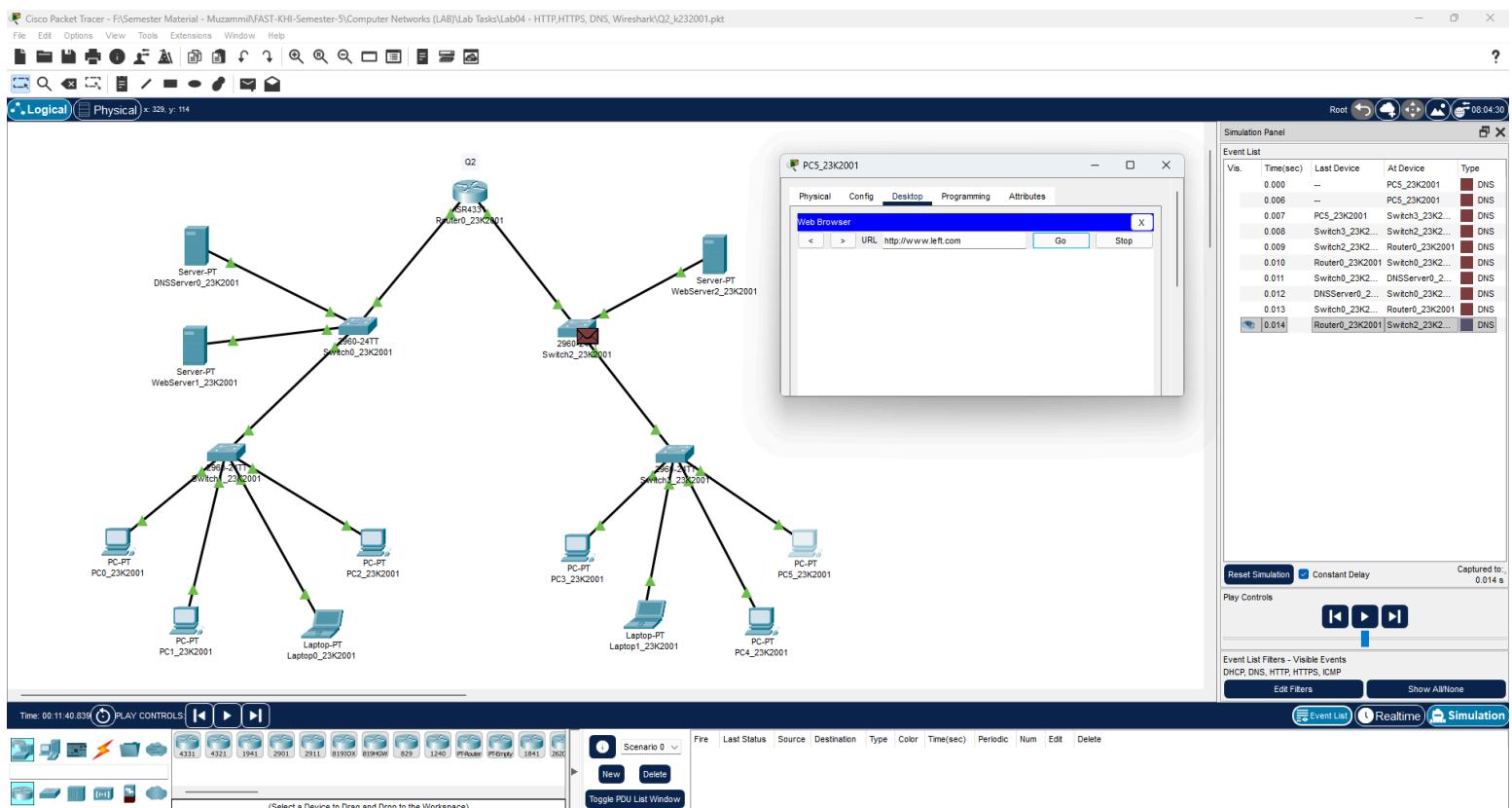
Simulation: (Access Left Web Server via Right LAN PC5)

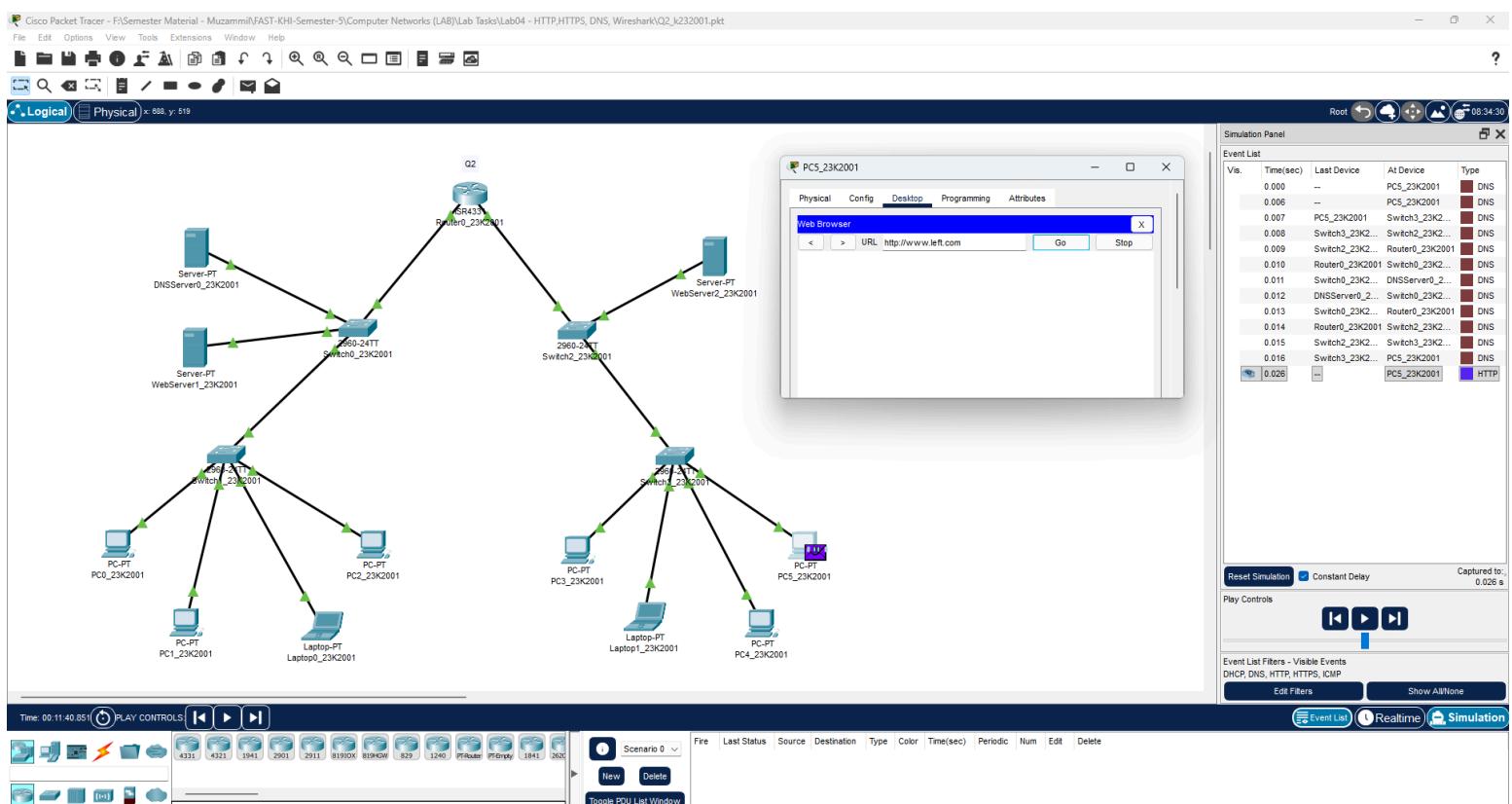
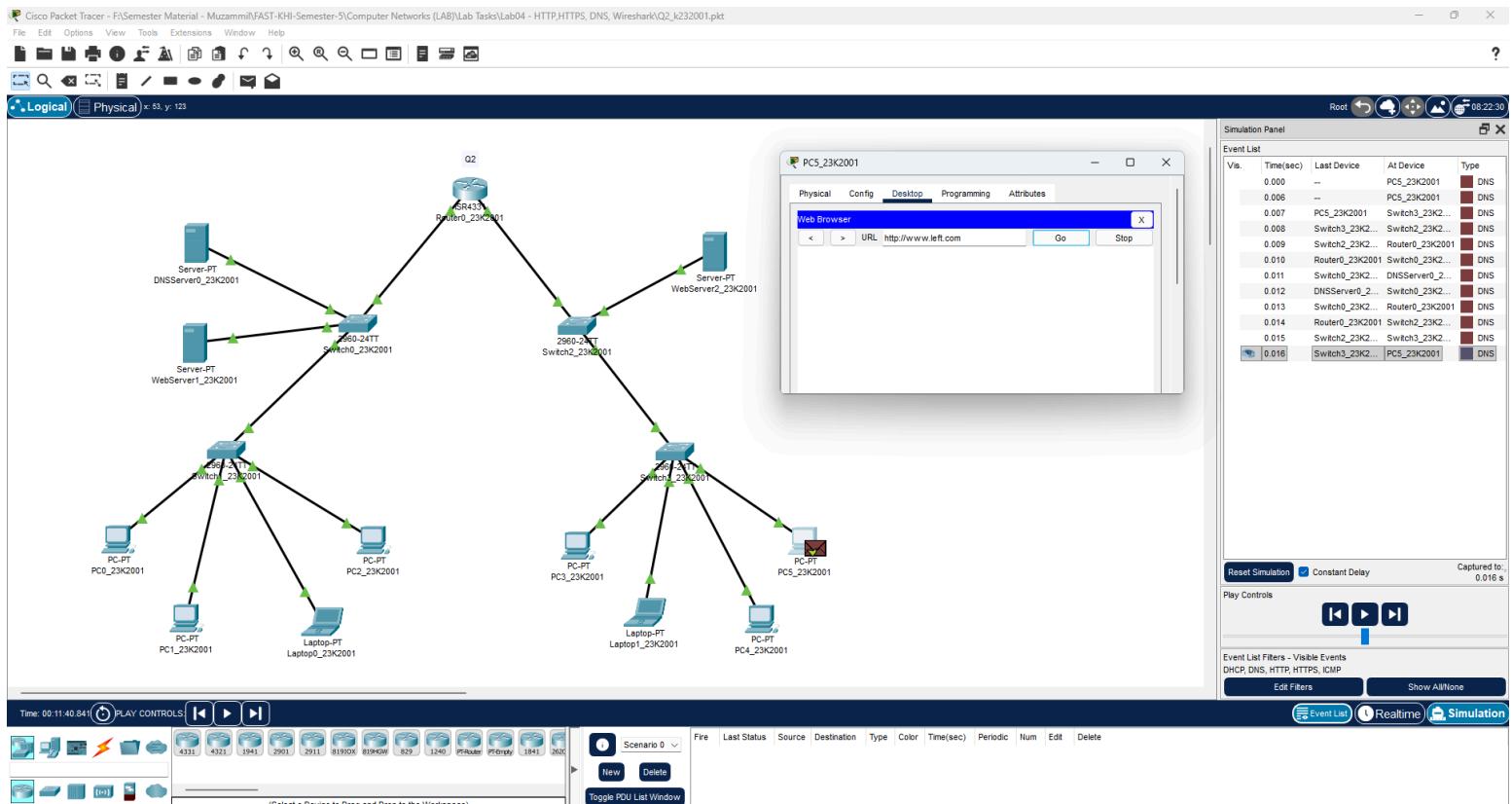


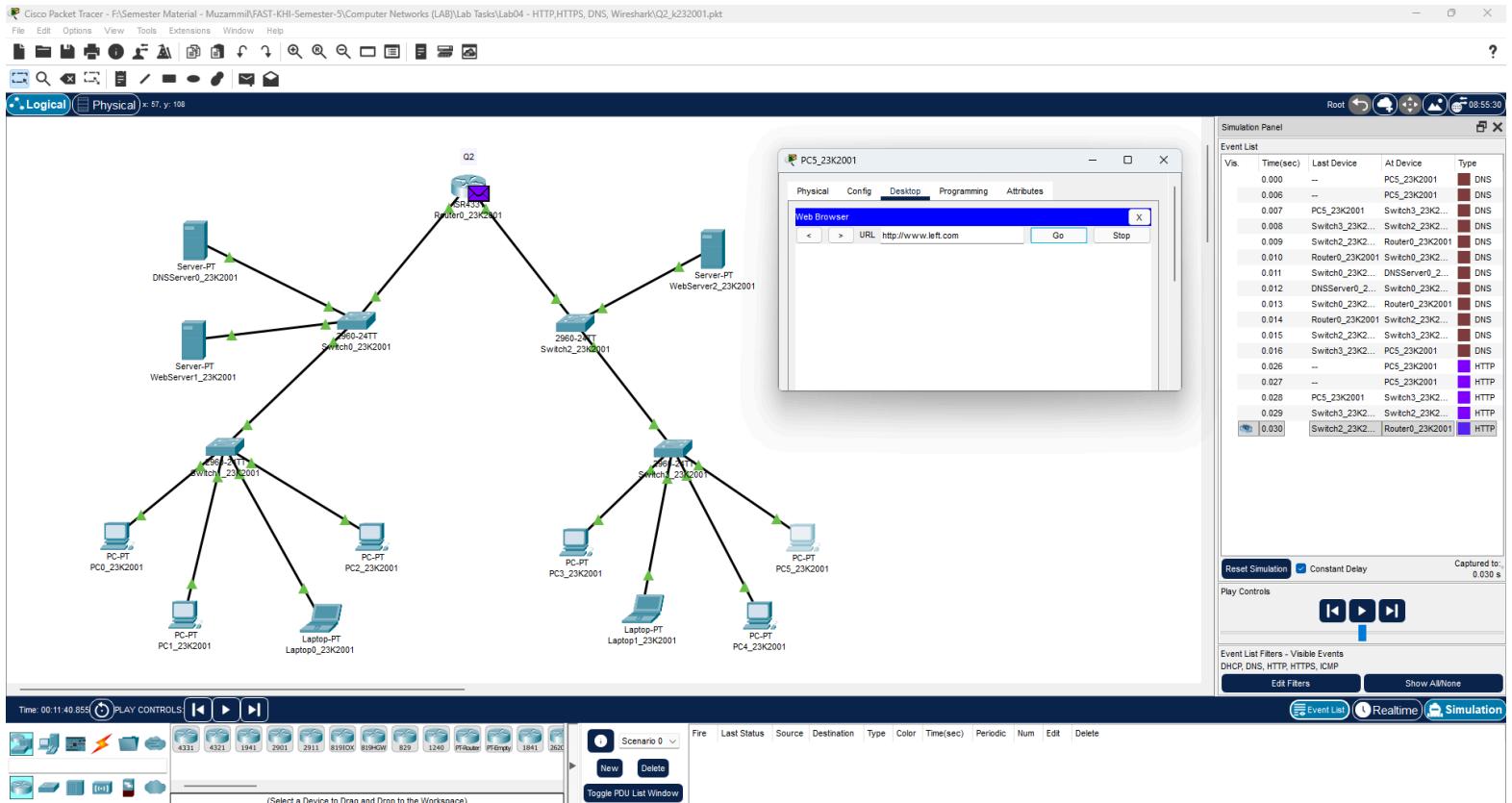
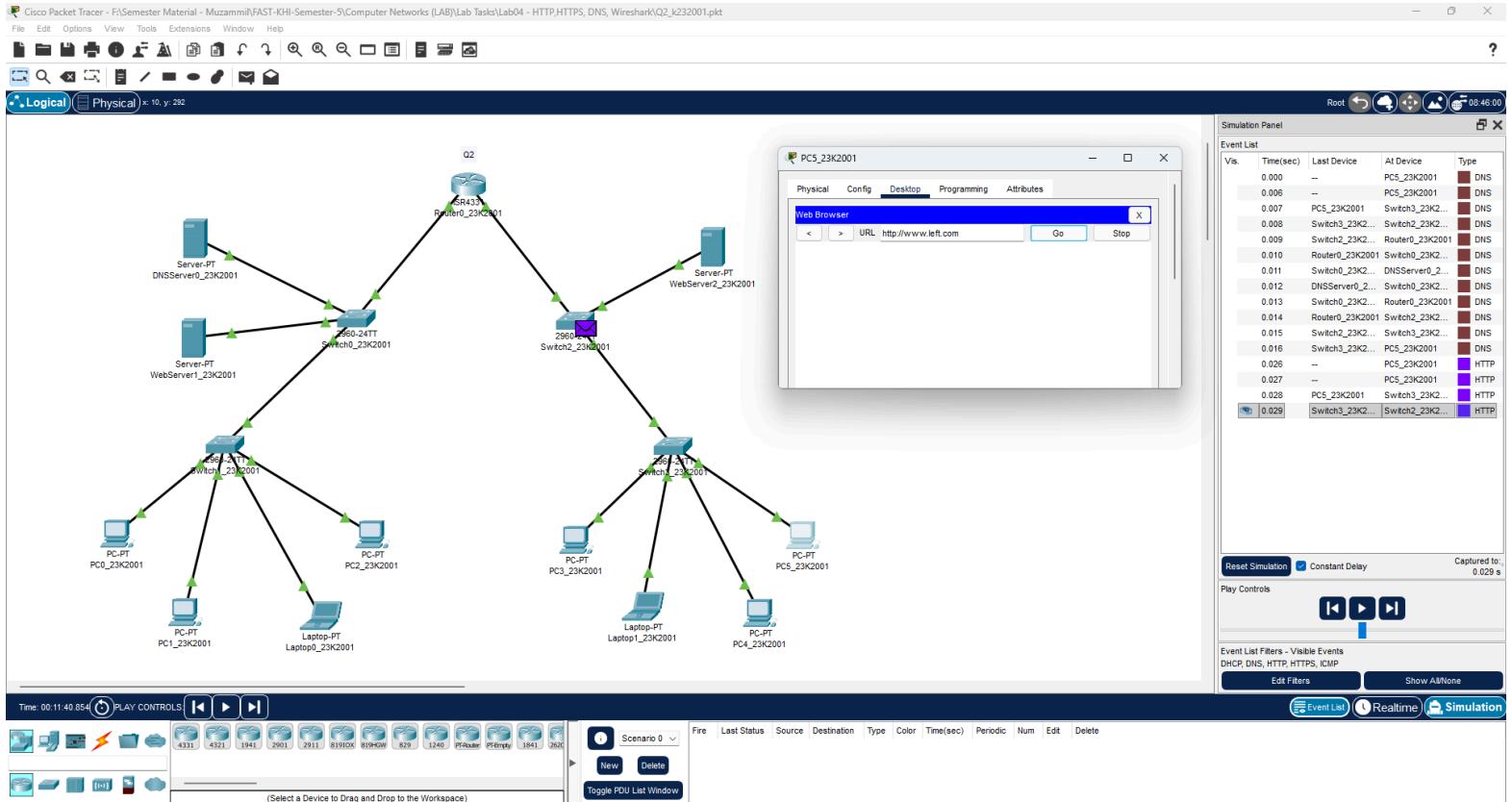


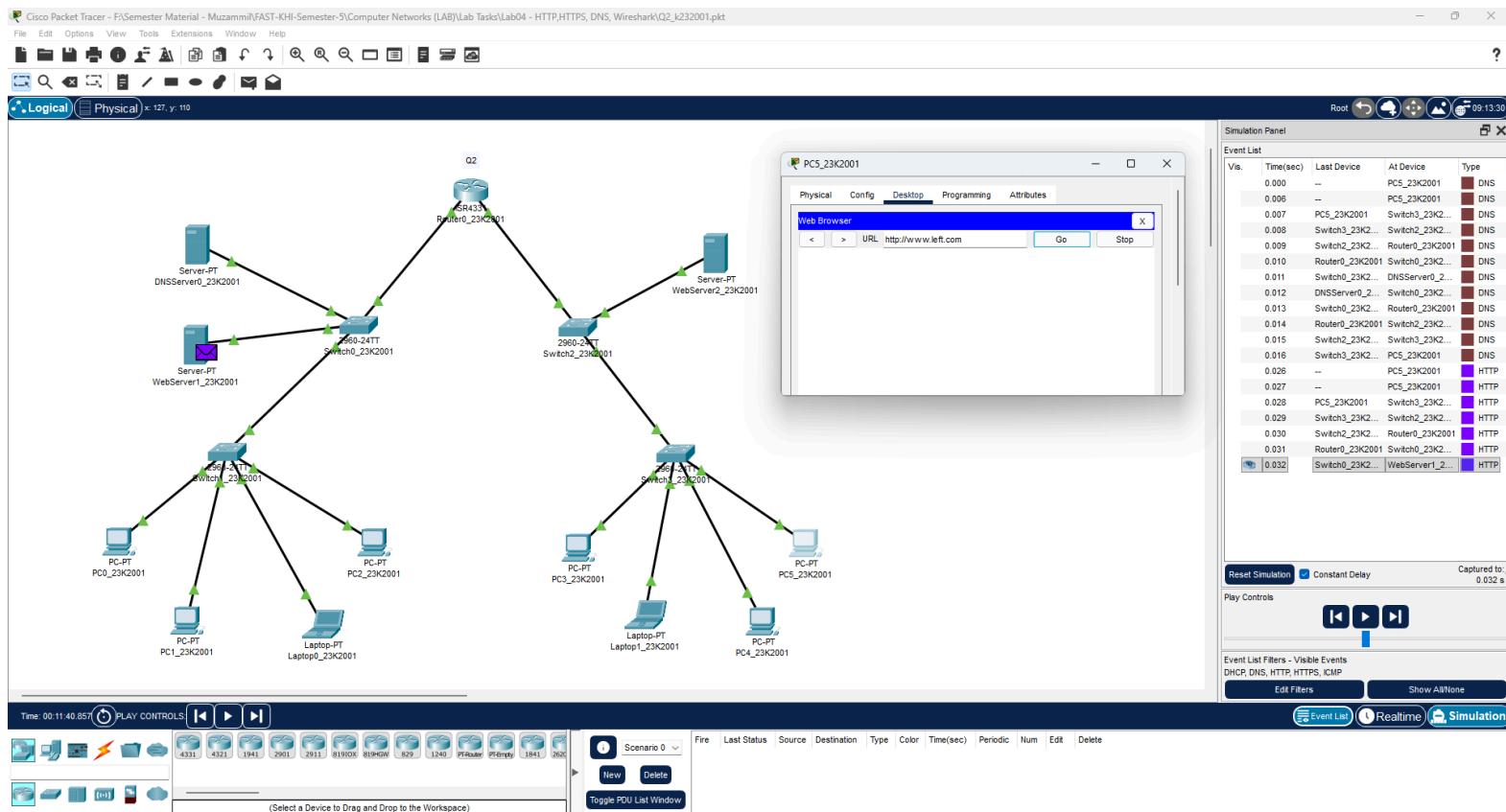
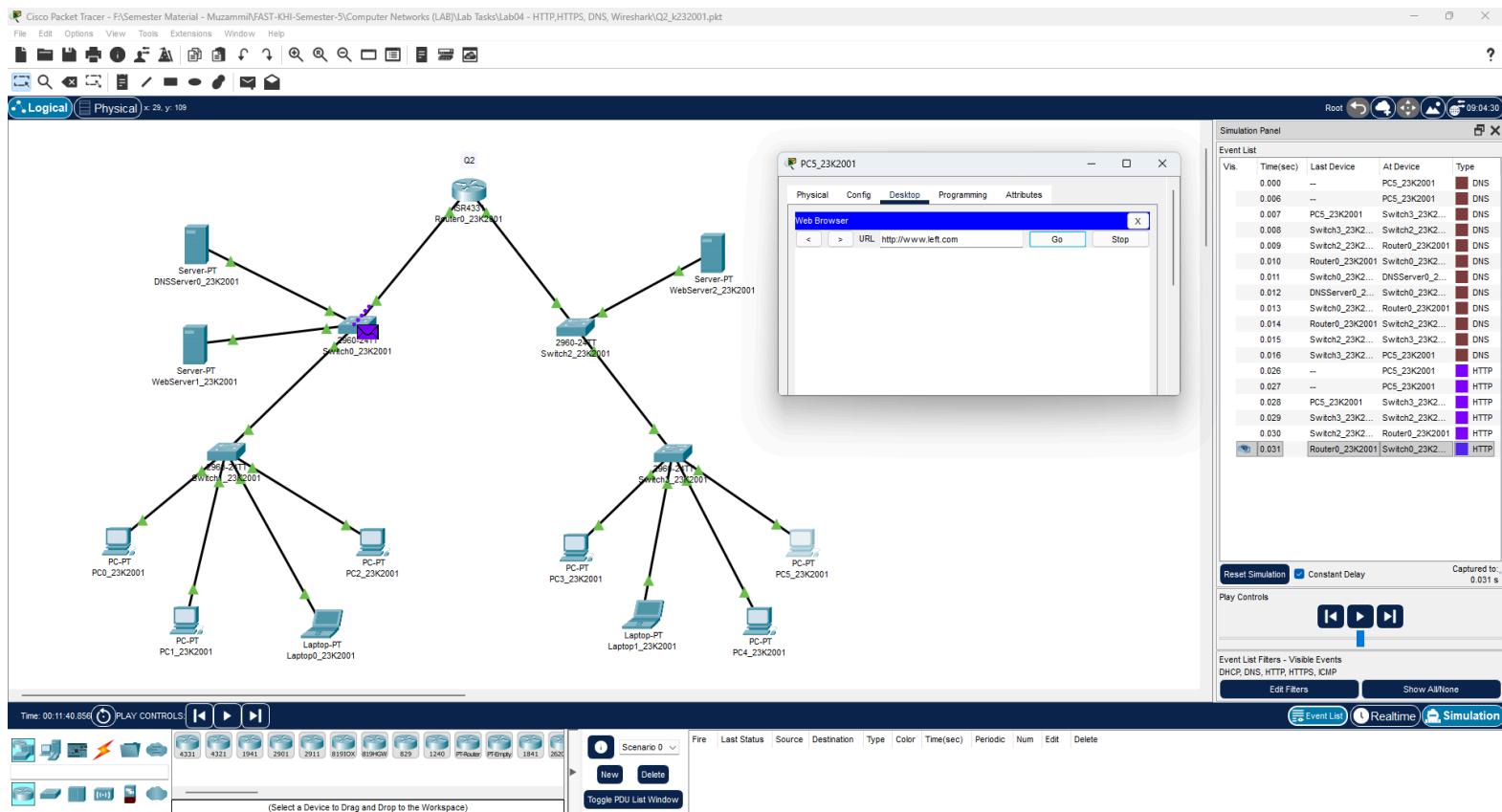


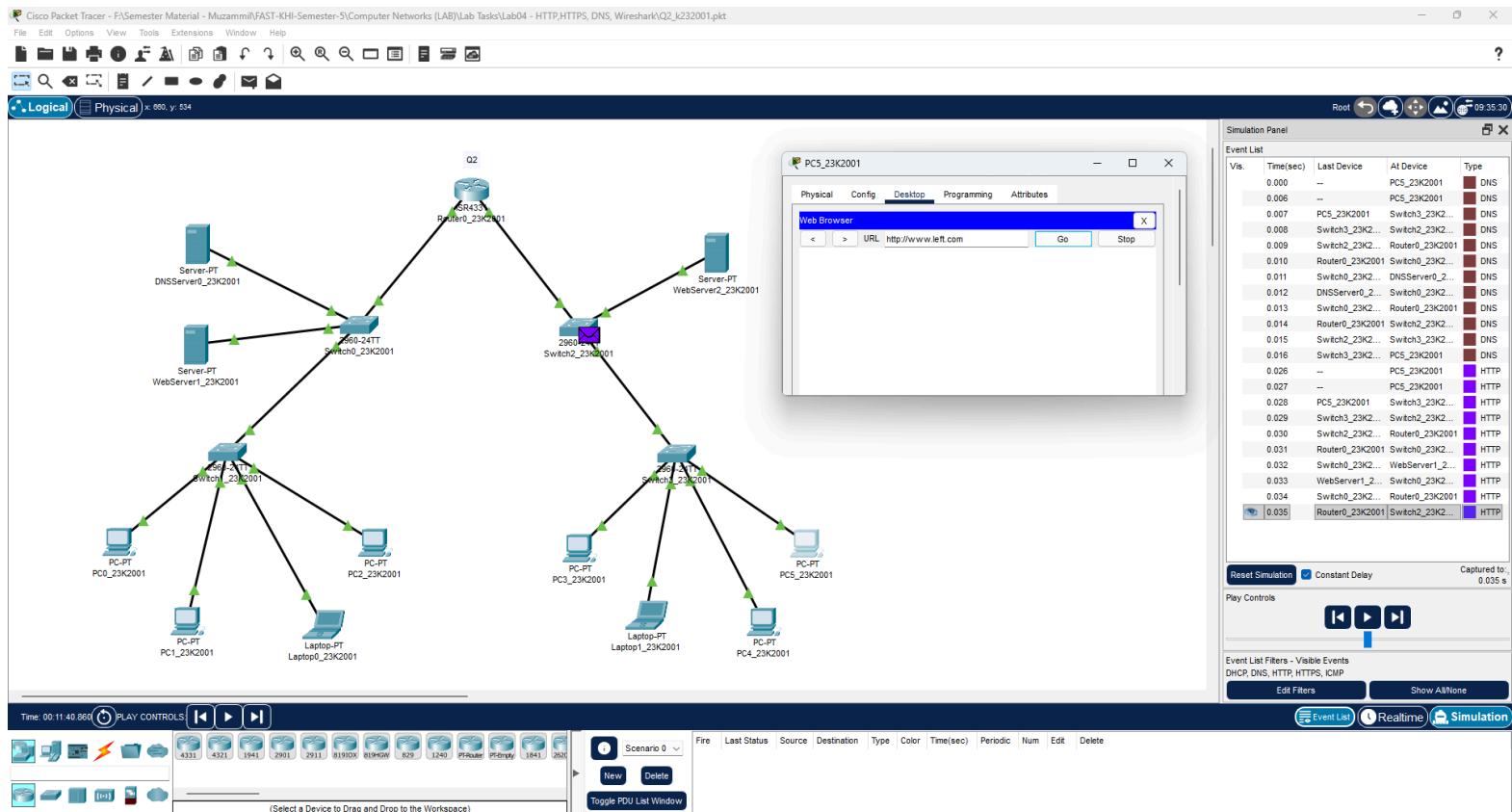
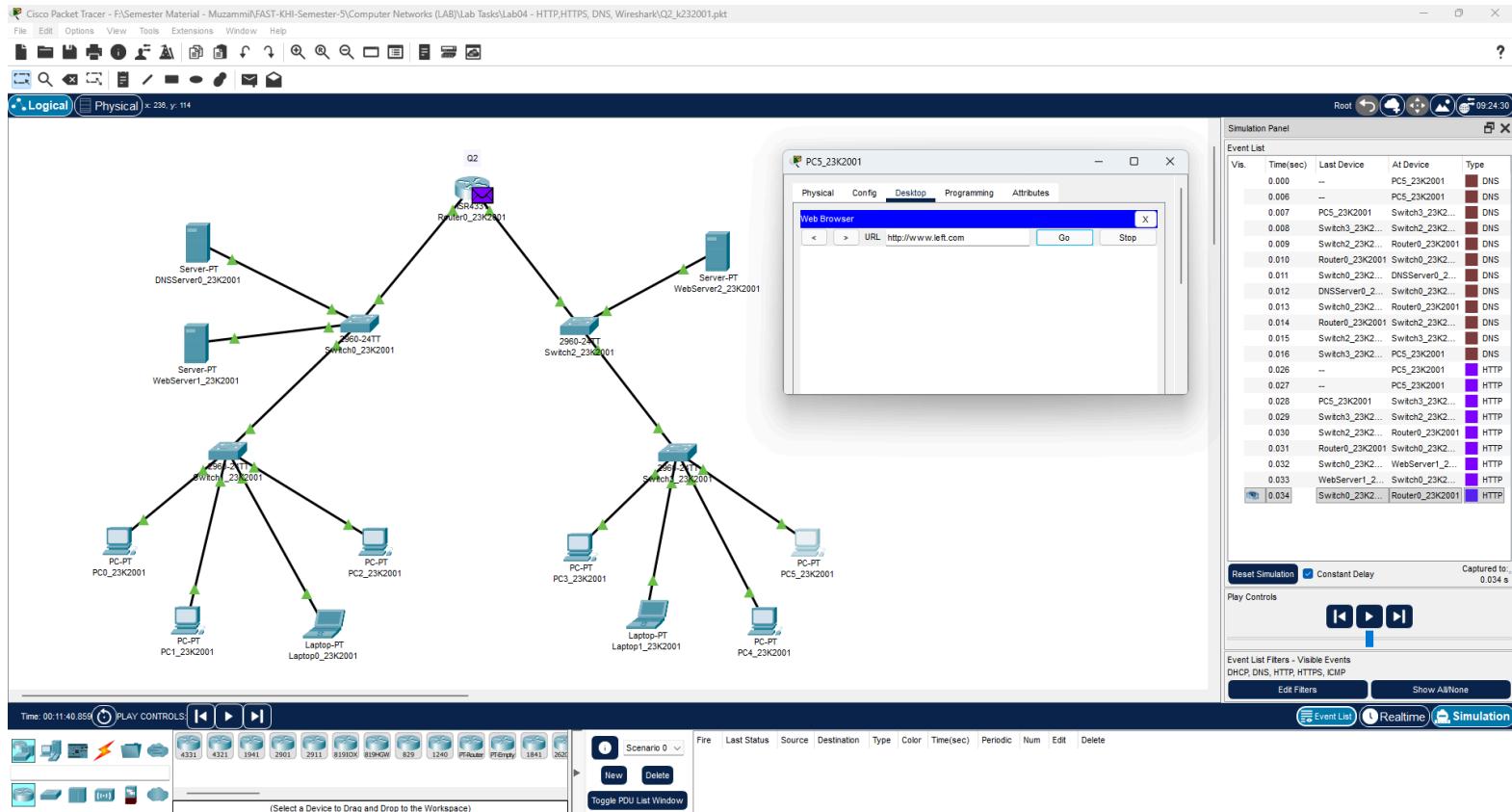


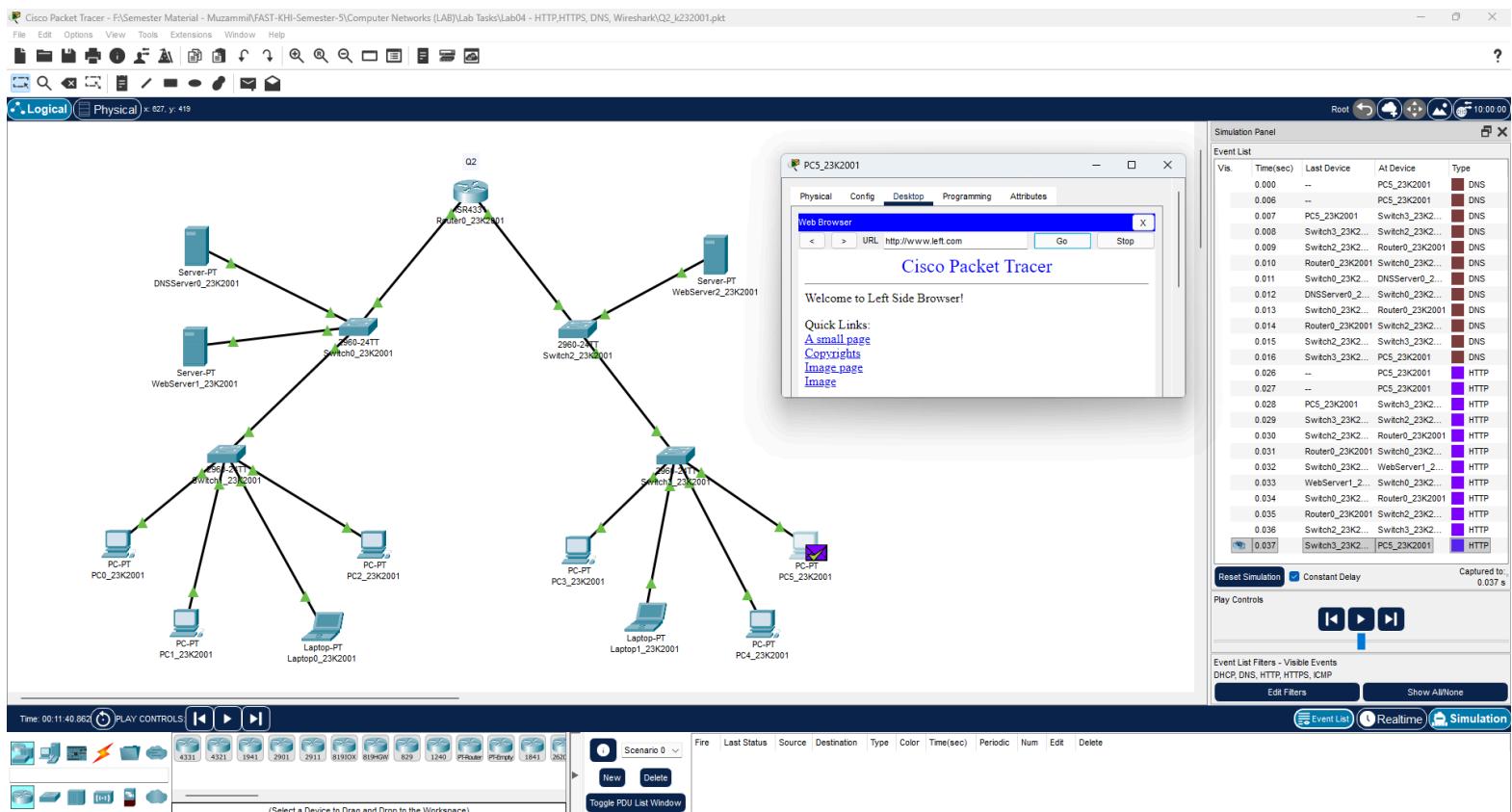
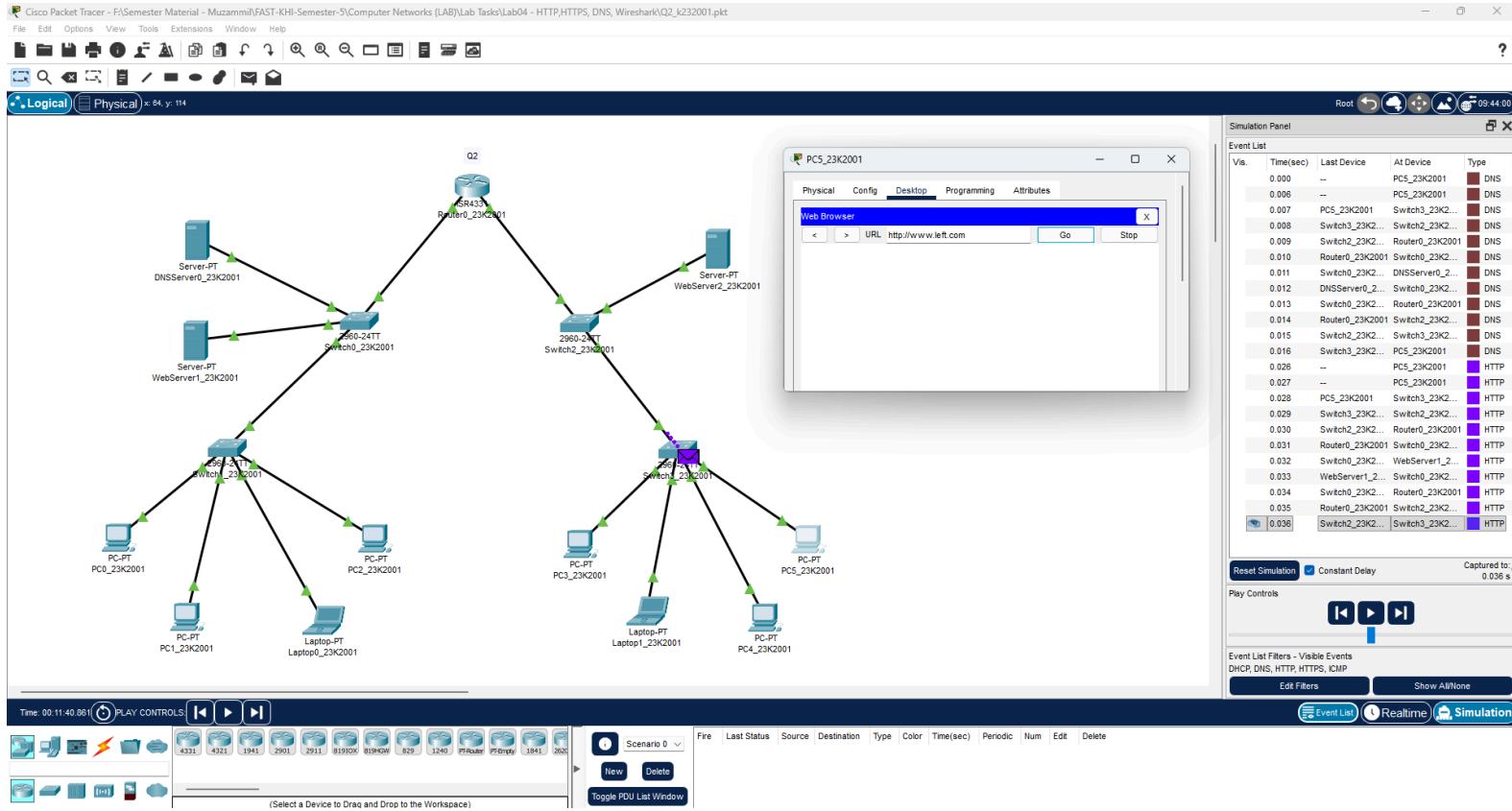












ANS#3. The Expires header sets a "best before" date for cached items.

ANS#4. PUT replaces the entire resource, while POST adds/creates new data.

Q5: (HTTP)

The screenshot shows a Wireshark interface capturing traffic on the "Ethernet" interface. The "http" tab is selected, displaying a list of HTTP requests and responses. The table includes columns for No., Time, Source, Destination, Protocol, Length, and Info. Several requests are visible, including POST requests for userinfo.php and favicon.ico, and a GET request for the favicon icon. The "Details" pane at the bottom shows the raw HTTP headers and body for one of the requests, including form-encoded data for username, ucc, uemail, and uphone. The "Hex" pane shows the binary representation of the captured data. The status bar at the bottom indicates 22631 total packets, 6 displayed, and 0 dropped.

No.	Time	Source	Destination	Protocol	Length	Info
16115	91.730087	192.168.18.197	44.228.249.3	HTTP	708	POST /userinfo.php HTTP/1.1 (application/x-www-form-urlencoded)
16230	92.019360	44.228.249.3	192.168.18.197	HTTP	128	HTTP/1.1 200 OK (text/html)
16236	92.063013	192.168.18.197	44.228.249.3	HTTP	464	GET /favicon.ico HTTP/1.1
16357	92.334055	44.228.249.3	192.168.18.197	HTTP	948	HTTP/1.1 200 OK (image/x-icon)
+ 18660	99.918354	192.168.18.197	44.228.249.3	HTTP	709	POST /userinfo.php HTTP/1.1 (application/x-www-form-urlencoded)
+ 18734	100.206666	44.228.249.3	192.168.18.197	HTTP	126	HTTP/1.1 200 OK (text/html)

Content-Type: application/x-www-form-urlencoded\r\nContent-Length: 110\r\nOrigin: http://testphp.vulnweb.com\r\nConnection: keep-alive\r\nReferer: http://testphp.vulnweb.com/userinfo.php\r\nCookie: login=test%2Ftest\r\nUpgrade-Insecure-Requests: 1\r\nPriority: u=0, i\r\n\r\n[Response in frame: 18734]\n[Full request URI: http://testphp.vulnweb.com/userinfo.php]\nFile Data: 110 bytes

HTML Form URL Encoded: application/x-www-form-urlencoded

- Form item: "username" = "Muzammil"
- Key: username
- Value: Muzammil
- Form item: "ucc" = "55943269188631"
- Key: ucc
- Value: 55943269188631
- Form item: "uemail" = "noreply@gmail.com"
- Key: uemail
- Value: noreply@gmail.com
- Form item: "uphone" = "0300123456"
- Key: uphone
- Value: 0300123456

.....

0140 6f 64 69 6e 67 3a 20 67 7a 69 70 2c 20 64 65 66 oding: g zip, def
0150 6c 61 74 65 0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 late: Co ntent-Ty
0160 70 65 3a 20 61 70 70 6c 69 63 61 74 69 6f 6e 2f pe: appl ication/
0170 78 2d 77 77 77 2d 66 6f 72 6d 2d 75 72 6c 65 6e x-www-fo rm-ulen
0180 63 6f 64 65 64 0d 0a 43 6f 6e 74 65 6e 74 2d 4c coded: C ontent-L
0190 65 6e 67 74 68 3a 20 31 31 30 0d 0a 4f 72 69 67 ength: 1 10 · Orig
01a0 69 6e 3a 20 68 74 74 70 3a 2f 2f 74 65 73 74 70 in: http ::/testp
01b0 68 70 2e 76 75 6c 6e 77 65 62 2e 63 6f 6d 0d 0a hp.vulnw eb.com ·
01c0 43 6f 6e 66 65 63 74 69 6f 6e 3a 20 6b 65 65 70 Connecti on: keep
01d0 2d 61 6c 69 76 65 0d 0a 52 65 66 65 72 65 72 3a -alive · Referer:
01e0 20 68 74 74 70 3a 2f 2f 74 65 73 74 70 68 70 2e http:// testphp.
01f0 76 75 6c 6e 77 65 62 2e 63 6f 6d 2f 75 73 65 72 vulnweb. com/user
0200 69 6e 66 6f 2e 70 68 70 0d 0a 43 6f 6b 69 65 info.php · Cookie
0210 3a 20 6c 6f 67 69 6e 3d 74 65 73 74 25 32 46 74 : login: test%2Ft
0220 65 73 74 0d 0a 55 70 67 72 61 64 65 2d 49 6e 73 est · Up grade-Ins
0230 65 63 75 72 65 2d 52 65 71 75 65 73 74 73 3a 20 ecure-Re quest:
0240 31 0d 0a 50 72 69 6f 72 69 74 79 3a 20 75 3d 30 1 · Priority: u=0
0250 2c 20 69 0d 0a 0d 0a 75 72 6e 61 6d 65 3d 4d 75 , i · u rname Mu
0260 7a 61 6d 6d 69 6c 26 75 63 63 3d 35 35 39 34 33 zammil&cc=55943
0270 32 36 39 31 38 38 36 33 31 26 75 65 6d 61 69 6c 26918863 1&uemai
0280 3d 6e 6f 72 65 70 6c 79 25 34 30 67 6d 61 69 6c l=noreply %40gmail
0290 2e 63 6f 6d 26 75 70 68 6f 6e 65 3d 30 33 30 30 .com&uphone=0300
02a0 31 32 33 34 35 36 26 75 61 64 64 72 65 73 73 3d 123456&u address=
02b0 4a 75 70 69 74 65 72 26 75 70 64 61 74 65 3d 75 Jupiter& update=u
02c0 70 64 61 74 65 pdate

Packets: 22631 · Displayed: 6 (0.0%) · Dropped: 0 (0.0%) · Profile: Default

We are capturing network traffic by visiting a website and analyzing it over HTTP.

Q6: (TCP)

*Ethernet

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

tcp

No.	Time	Source	Destination	Protocol	Length Info
21	0.698810	2a03:2880:f267:c5:f...	2400:adc1:16f:a300:...	TCP	161 80 → 62012 [PSH, ACK] Seq=1 Ack=1 Win=442 Len=87
23	0.744106	2400:adc1:16f:a300:...	2a03:2880:f267:c5:f...	TCP	74 62012 → 80 [ACK] Seq=1 Ack=88 Win=255 Len=0
116	4.784154	2400:adc1:16f:a300:...	2a00:1450:402a:80f:...	TCP	74 61948 → 443 [ACK] Seq=40 Ack=40 Win=251 Len=0
152	5.914723	2400:adc1:16f:a300:...	2a03:2880:f267:c5:f...	TCP	162 62012 → 80 [PSH, ACK] Seq=1 Ack=88 Win=255 Len=88
154	5.930759	2a03:2880:f267:c5:f...	2400:adc1:16f:a300:...	TCP	74 80 → 62012 [ACK] Seq=88 Ack=89 Win=442 Len=0
163	6.158138	2a03:2880:f267:c5:f...	2400:adc1:16f:a300:...	TCP	146 80 → 62012 [PSH, ACK] Seq=88 Ack=89 Win=442 Len=72
166	6.208216	2400:adc1:16f:a300:...	2a03:2880:f267:c5:f...	TCP	74 62012 → 80 [ACK] Seq=89 Ack=160 Win=255 Len=0
216	7.585764	2a00:1450:402a:80f:...	2400:adc1:16f:a300:...	TCP	74 443 → 61948 [ACK] Seq=40 Ack=134 Win=1047 Len=0
222	7.607707	2400:adc1:16f:a300:...	2a00:1450:402a:80f:...	TCP	74 61948 → 443 [ACK] Seq=134 Ack=248 Win=250 Len=0
231	7.756527	2a00:1450:402a:80f:...	2400:adc1:16f:a300:...	TCP	74 443 → 61948 [ACK] Seq=248 Ack=267 Win=1047 Len=0
234	7.779926	2400:adc1:16f:a300:...	2a00:1450:402a:80f:...	TCP	74 61948 → 443 [ACK] Seq=267 Ack=394 Win=255 Len=0
239	7.821387	52.87.117.168	192.168.18.197	TCP	60 443 → 61288 [ACK] Seq=1 Ack=37 Win=201 Len=0
243	7.931610	2a00:1450:402a:80f:...	2400:adc1:16f:a300:...	TCP	74 443 → 61948 [ACK] Seq=433 Ack=306 Win=1047 Len=0
310	10.298459	185.25.183.36	192.168.18.197	TCP	60 27021 → 61254 [ACK] Seq=1 Ack=55 Win=16385 Len=0
314	10.324914	2400:adc1:16f:a300:...	2a00:1450:4006:812:...	TCP	74 61893 → 443 [ACK] Seq=1 Ack=1511 Win=255 Len=0
324	10.702528	2a03:2880:f267:c5:f...	2400:adc1:16f:a300:...	TCP	161 80 → 62012 [PSH, ACK] Seq=160 Ack=89 Win=442 Len=87
328	10.752939	2400:adc1:16f:a300:...	2a03:2880:f267:c5:f...	TCP	74 62012 → 80 [ACK] Seq=89 Ack=247 Win=254 Len=0
404	13.041634	2400:adc1:16f:a300:...	2a03:2880:f267:c5:f...	TCP	135 62012 → 80 [PSH, ACK] Seq=89 Ack=247 Win=254 Len=61
406	13.061166	2a03:2880:f267:c5:f...	2400:adc1:16f:a300:...	TCP	74 80 → 62012 [ACK] Seq=247 Ack=150 Win=442 Len=0
438	14.390197	2a06:98c1:3108:ac4:...	2400:adc1:16f:a300:...	TCP	74 443 → 62135 [ACK] Seq=25 Ack=29 Win=19 Len=0
442	14.411316	2400:adc1:16f:a300:...	2a00:1450:4006:80e:...	TCP	74 62176 → 443 [FIN, ACK] Seq=64 Ack=74 Win=250 Len=0
447	14.507045	2a00:1450:4006:80e:...	2400:adc1:16f:a300:...	TCP	74 443 → 62176 [ACK] Seq=74 Ack=65 Win=993 Len=0
448	14.507435	2a00:1450:4006:80e:...	2400:adc1:16f:a300:...	TCP	74 443 → 62176 [FIN, ACK] Seq=74 Ack=65 Win=993 Len=0
449	14.507451	2400:adc1:16f:a300:...	2a00:1450:4006:80e:...	TCP	74 62176 → 443 [ACK] Seq=65 Ack=75 Win=250 Len=0

Q7: (UDP)

*Ethernet

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udp

No.	Time	Source	Destination	Protocol	Length Info
1	0.000000	192.168.18.197	103.213.110.161	UDP	222 57651 → 3478 Len=180
2	0.021818	103.213.110.161	192.168.18.197	UDP	116 3478 → 57651 Len=74
3	0.021818	103.213.110.161	192.168.18.197	UDP	124 3478 → 57651 Len=82
4	0.045282	103.213.110.161	192.168.18.197	UDP	175 3478 → 57651 Len=133
5	0.062903	192.168.18.197	103.213.110.161	UDP	182 57651 → 3478 Len=140
6	0.122662	103.213.110.161	192.168.18.197	UDP	86 3478 → 57651 Len=44
7	0.126237	192.168.18.197	103.213.110.161	UDP	177 57651 → 3478 Len=135
8	0.168241	103.213.110.161	192.168.18.197	UDP	85 3478 → 57651 Len=43
9	0.202567	192.168.18.197	103.213.110.161	UDP	172 57651 → 3478 Len=130
10	0.242650	103.213.110.161	192.168.18.197	UDP	85 3478 → 57651 Len=43
11	0.264171	192.168.18.197	103.213.110.161	UDP	173 57651 → 3478 Len=131
12	0.288512	103.213.110.161	192.168.18.197	UDP	67 3478 → 57651 Len=25
13	0.295056	192.168.18.197	103.213.110.161	UDP	172 57651 → 3478 Len=130
14	0.356506	192.168.18.197	103.213.110.161	UDP	175 57651 → 3478 Len=133
15	0.418911	192.168.18.197	103.213.110.161	UDP	185 57651 → 3478 Len=143
16	0.483419	192.168.18.197	103.213.110.161	UDP	180 57651 → 3478 Len=138
17	0.544836	192.168.18.197	103.213.110.161	UDP	176 57651 → 3478 Len=134
18	0.606209	192.168.18.197	103.213.110.161	UDP	180 57651 → 3478 Len=138
19	0.671990	103.213.110.161	192.168.18.197	UDP	89 3478 → 57651 Len=47
20	0.683256	192.168.18.197	103.213.110.161	UDP	189 57651 → 3478 Len=147
24	0.745455	192.168.18.197	103.213.110.161	UDP	192 57651 → 3478 Len=150
25	0.745498	192.168.18.197	103.213.110.161	UDP	80 57651 → 3478 Len=38
26	0.776721	192.168.18.197	103.213.110.161	UDP	179 57651 → 3478 Len=137
27	0.839146	192.168.18.197	103.213.110.161	UDP	179 57651 → 3478 Len=137

Q8: (IP Address)

*Ethernet

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ip.addr == 192.168.18.197

No.	Time	Source	Destination	Protocol	Length Info
18649	99.908384	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18650	99.908499	192.168.18.197	57.144.149.48	UDP	1158 56736 → 3478 Len=1116
18651	99.910061	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18652	99.910061	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18653	99.910061	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18654	99.910061	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18655	99.910473	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18656	99.910473	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18657	99.910473	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18658	99.910473	57.144.149.48	192.168.18.197	UDP	1131 3478 → 56736 Len=1089
18659	99.910473	57.144.149.48	192.168.18.197	UDP	164 3478 → 56736 Len=122
18660	99.918354	192.168.18.197	44.228.249.3	HTTP	709 POST /userinfo.php HTTP/1.1 (application/x-www-form-urlencoded)
18661	99.924140	192.168.18.197	57.144.149.48	UDP	229 56736 → 3478 Len=187
18662	99.960194	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18663	99.960194	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18664	99.960504	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18665	99.961250	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18666	99.962961	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18667	99.962961	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18668	99.964238	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18669	99.964540	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18670	99.965414	57.144.149.48	192.168.18.197	UDP	1074 3478 → 56736 Len=1032
18671	99.965414	57.144.149.48	192.168.18.197	UDP	1069 3478 → 56736 Len=1027
18672	99.986867	192.168.18.197	57.144.149.48	UDP	957 56736 → 3478 Len=915