

# **Assignments:-1**

## **Module:- NDC(WireShark)**

**Name:- Prithviraj Nikam**

**Lab Assignment :-**

**Objective: Network Traffic Monitoring and Analysis using Wireshark**

**Tool Used: Wireshark**

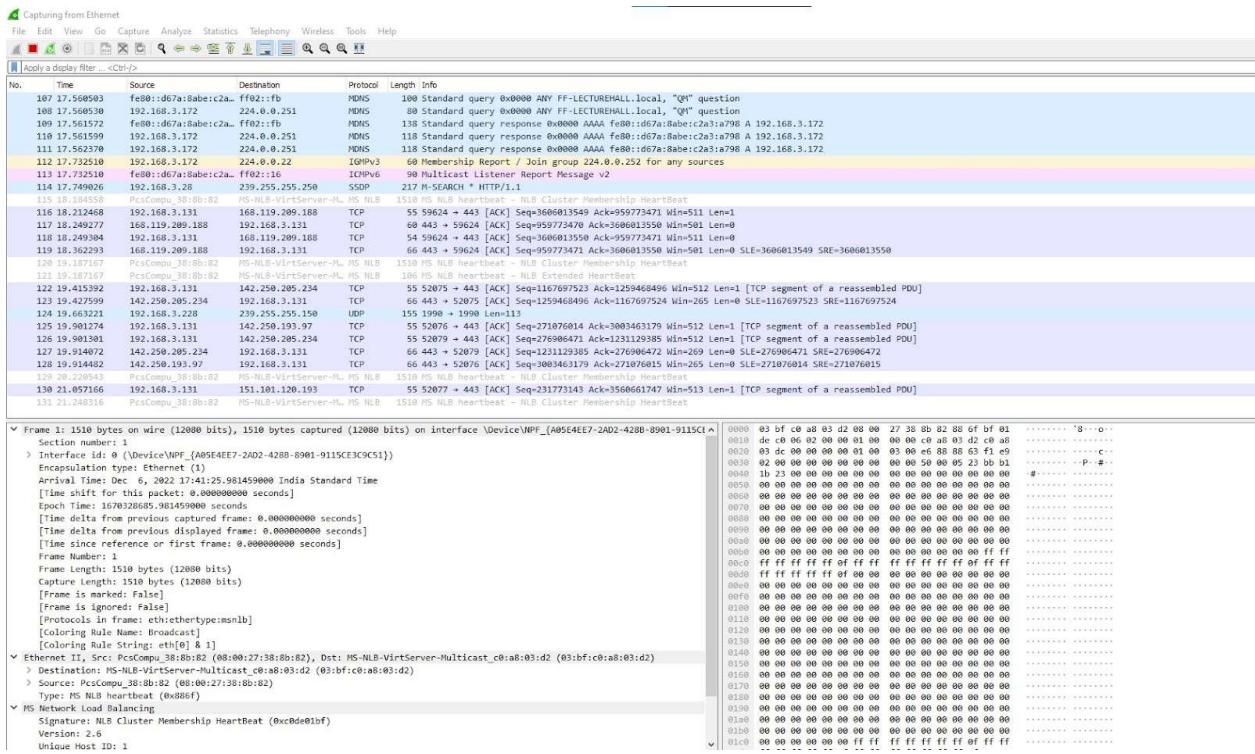
**It is a network packet analyzer tool which captures network packets and tries to display that packet data as detailed as possible.**

**Team Size: 1**

**Person Duration: 3 Hours**

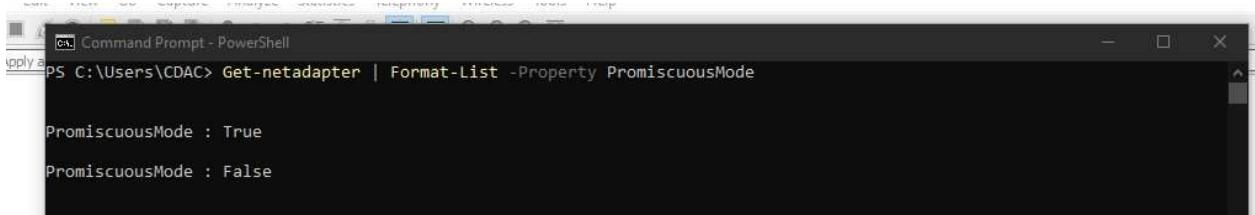
**1. List down the network interfaces connected to your host. Identify the ethernet interface**



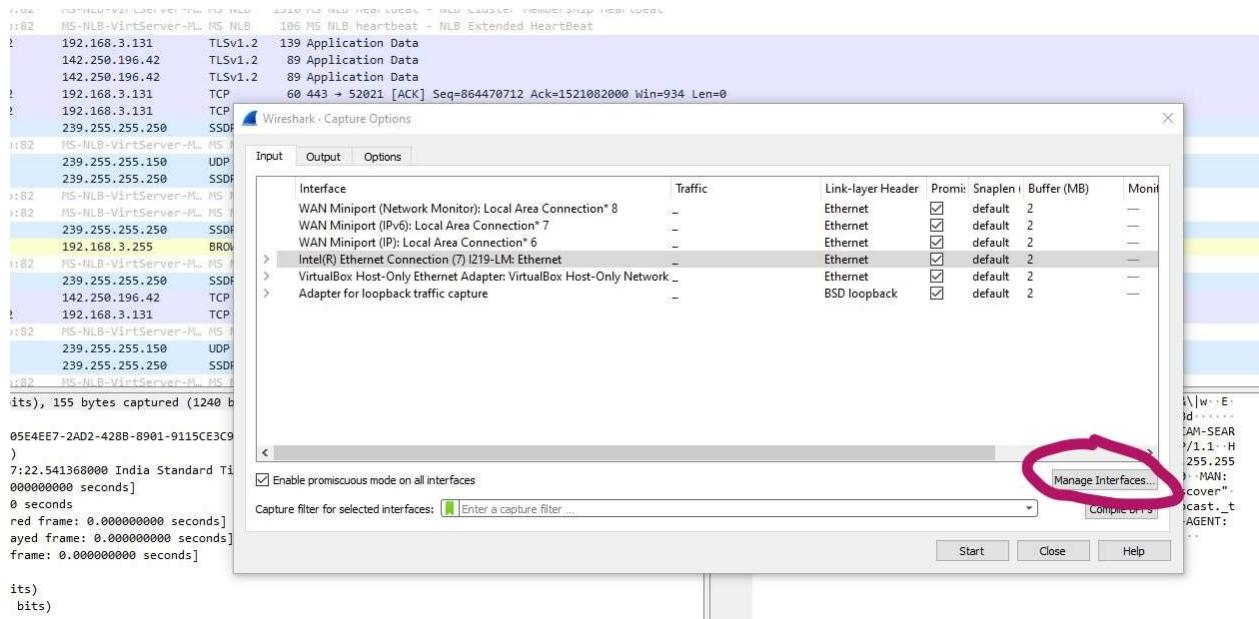


**2. Check whether the network interface of your machine is in Promiscous mode. If it is not in promiscous mode, change it in to promiscous mode.**

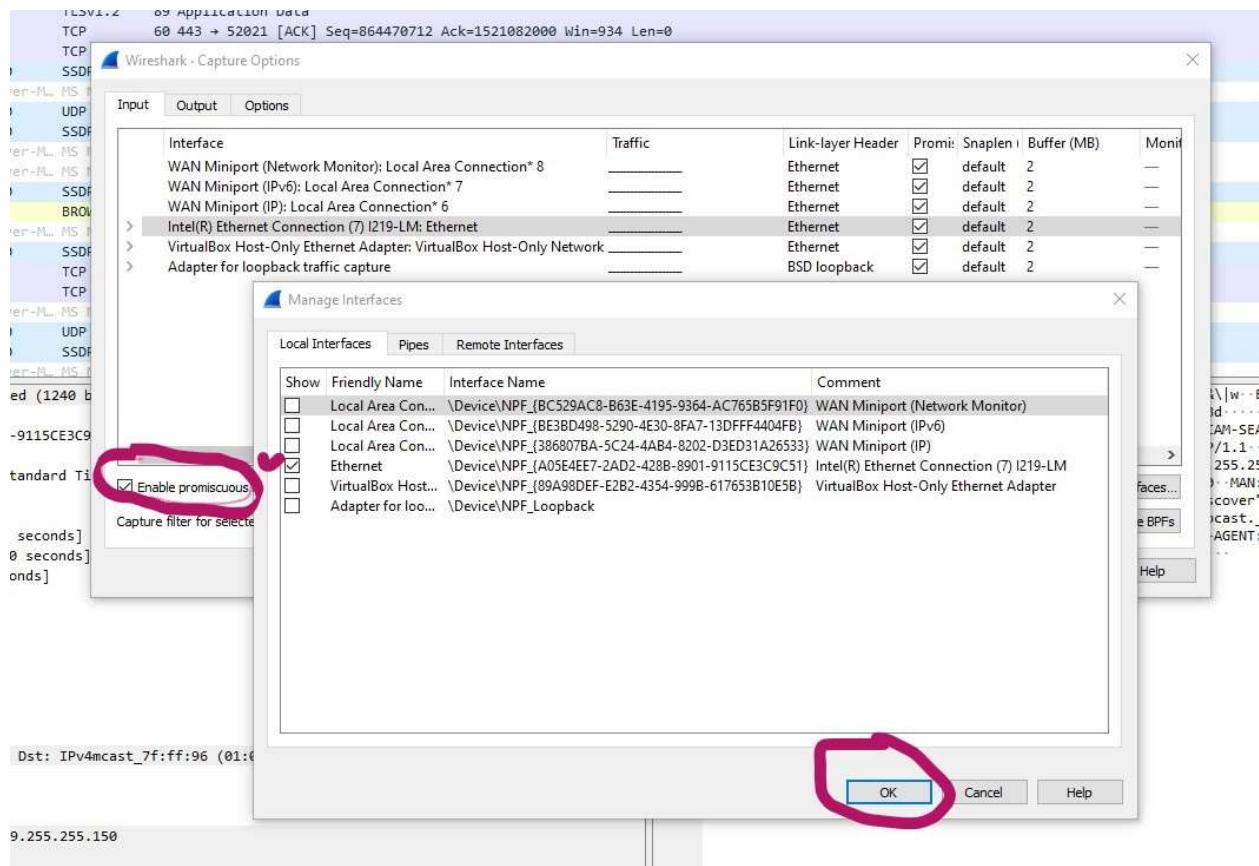
### Step-1:- Go to Command Prompt And Check Promiscous mode



**Step-2:- Go to Open Wire Shark and Select Capture Option—> manage Interface**



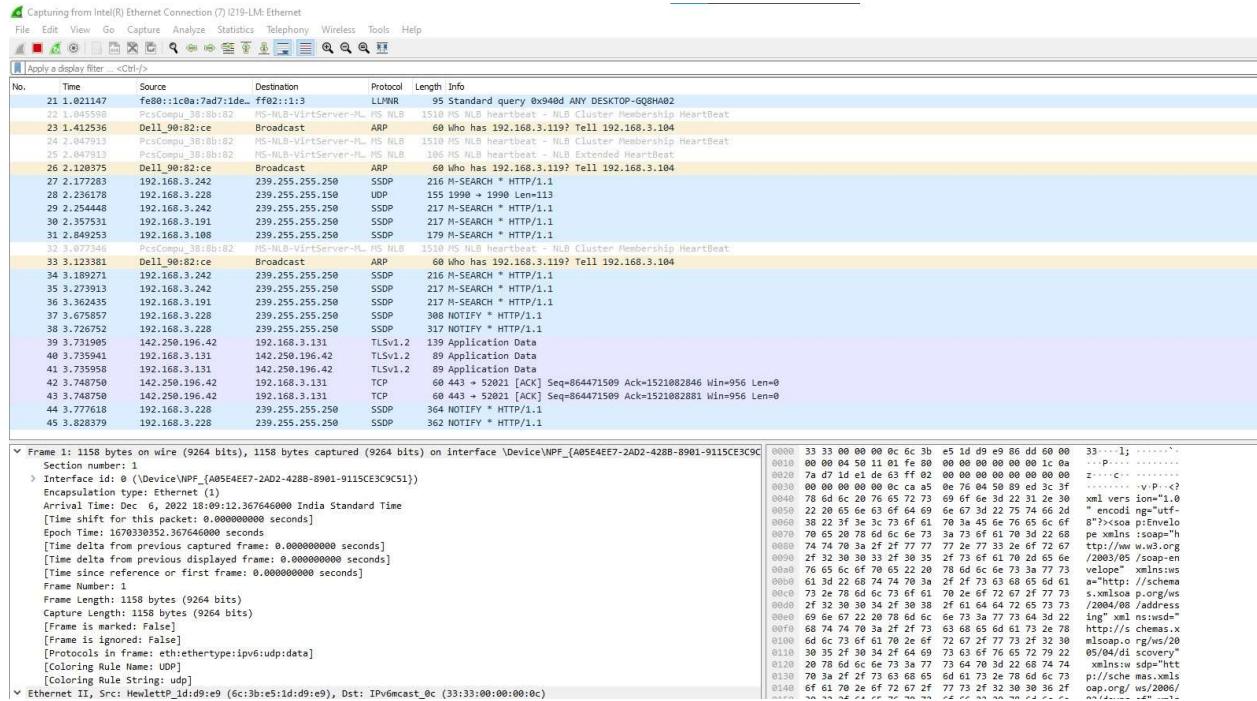
### Step-3:- Enable promiscuous and Click OK



### **Step-3:- Check Changeable promiscous Mode on Command Prompt**

```
07  
08  
09 PS C:\Users\CDAC> Get-netadapter | Format-List -Property PromiscuousMode  
10  
11 PromiscuousMode : False  
12  
13 PromiscuousMode : False  
14  
15
```

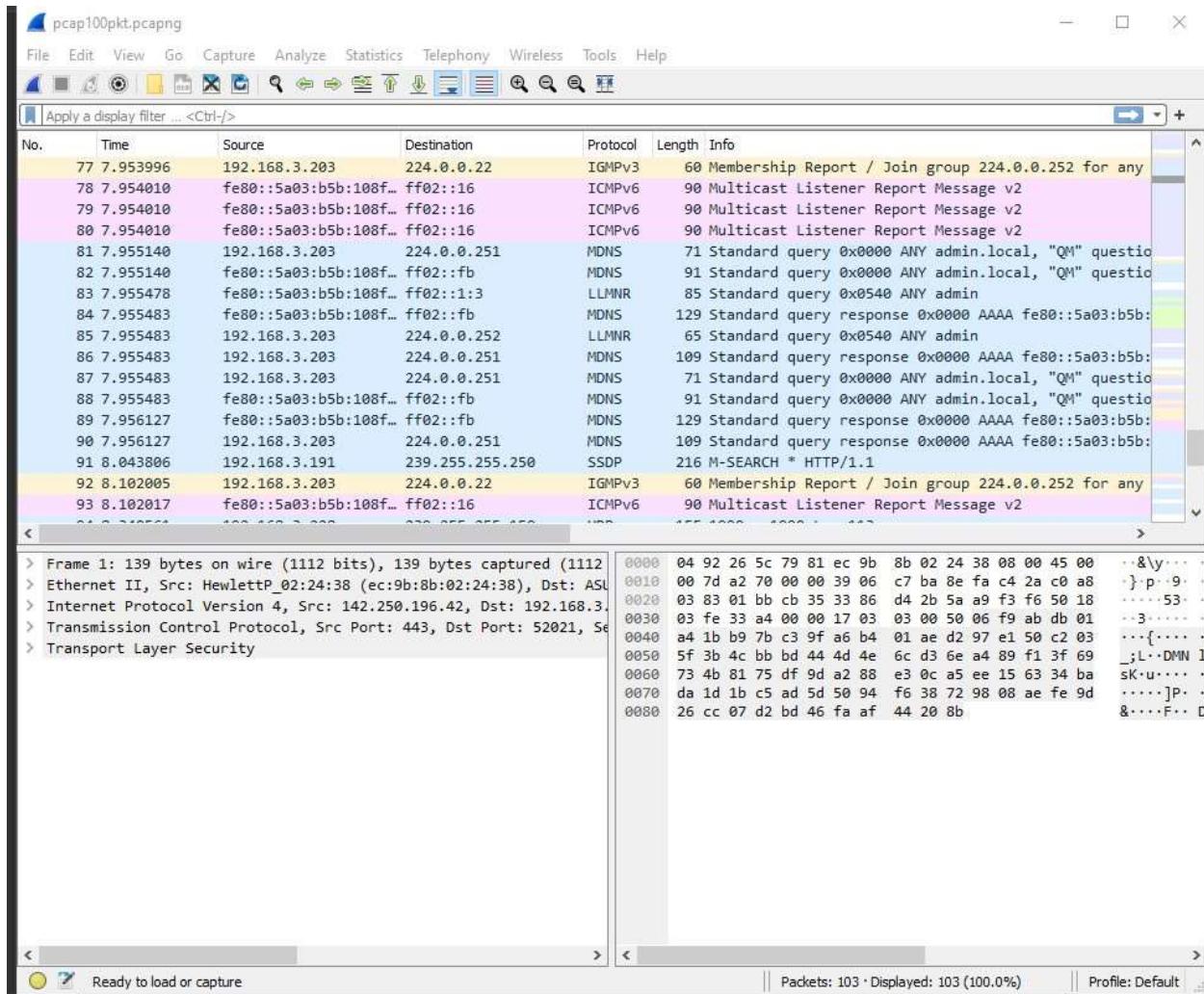
#### **Step-4:- OPEN Wire Shark and Run It**



**3. Configure the capture stop option of the wireshark in following settings**

3.a) Stop after 100 packets and store in to a file “pcap100pkt”.

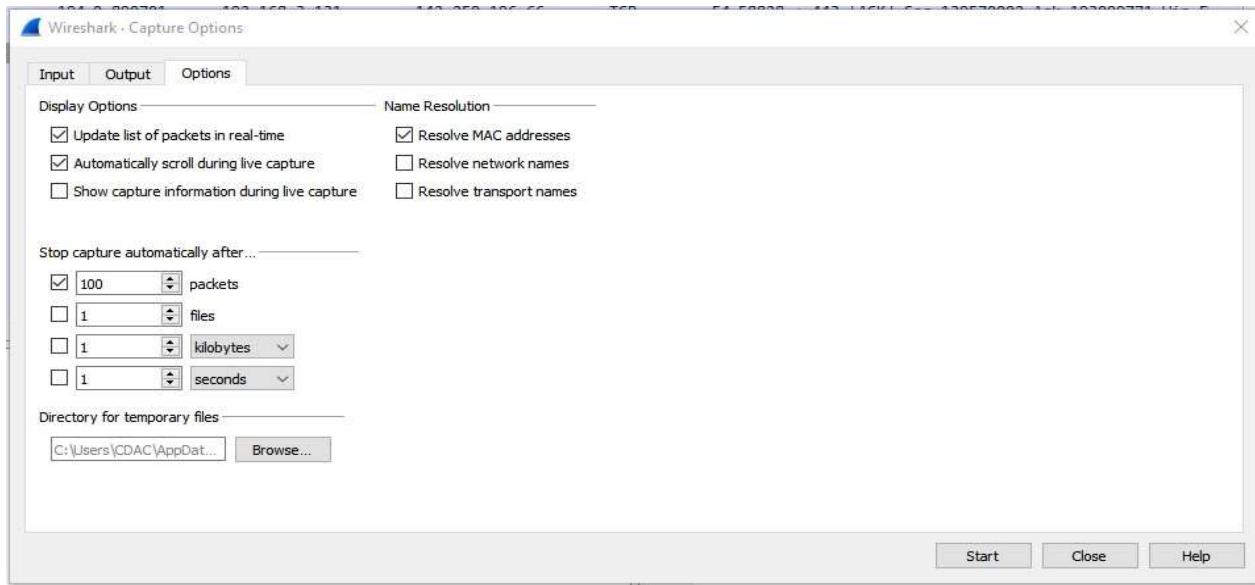
## Open Wireshark



**Go to Capture Option ---->Right Click ----->Select Option and Set packets=100**

**Start the Wireshark**

**Save the file = pcap100pkt.pcap**



**3.b) Stop after 200 Kb and store in to a file “pcap200kb”.**

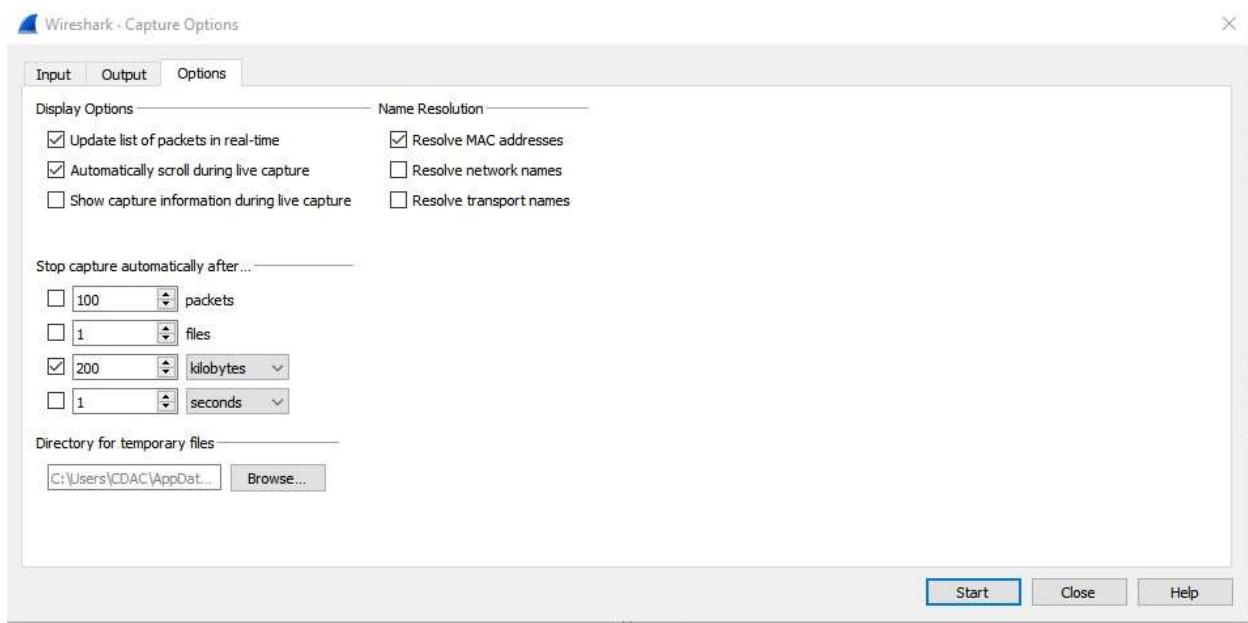
**Open the Wire Shark**

No.	Time	Source	Destination	Protocol	Length	Info
474	76.965050	142.250.77.163	192.168.3.131	TLSv1.2	93	Application Data
475	76.974065	142.250.77.163	192.168.3.131	TCP	60	443 + 52133 [ACK] Seq=2612739140 Ack=418485049 Win=
476	76.999566	142.250.77.163	192.168.3.131	TLSv1.2	126	Application Data
477	76.999566	142.250.77.163	192.168.3.131	TLSv1.2	128	Application Data
478	76.999583	192.168.3.131	142.250.77.163	TCP	54	52133 + 443 [ACK] Seq=418485049 Ack=2612739286 Win=
479	76.999964	142.250.77.163	192.168.3.131	TLSv1.2	85	Application Data
480	76.999964	142.250.77.163	192.168.3.131	TLSv1.2	93	Application Data
481	76.999974	192.168.3.131	142.250.77.163	TCP	54	52133 + 443 [ACK] Seq=418485049 Ack=2612739356 Win=
482	77.000242	192.168.3.131	142.250.77.163	TLSv1.2	89	Application Data
483	77.000267	192.168.3.131	142.250.77.163	TLSv1.2	93	Application Data
484	77.004722	142.250.77.163	192.168.3.131	TLSv1.2	126	Application Data
485	77.004722	142.250.77.163	192.168.3.131	TLSv1.2	128	Application Data
486	77.004722	142.250.77.163	192.168.3.131	TLSv1.2	85	Application Data
487	77.004742	192.168.3.131	142.250.77.163	TCP	54	52133 + 443 [ACK] Seq=418485123 Ack=2612739533 Win=
488	77.012288	142.250.77.163	192.168.3.131	TCP	60	443 + 52133 [ACK] Seq=2612739533 Ack=418485123 Win=
489	77.433487	142.250.183.234	192.168.3.131	TLSv1.2	139	Application Data
490	77.441686	192.168.3.131	142.250.183.234	TLSv1.2	89	Application Data

**Go to Capture Option ---->Right Click ----->Select Option and Set Size=200kb**

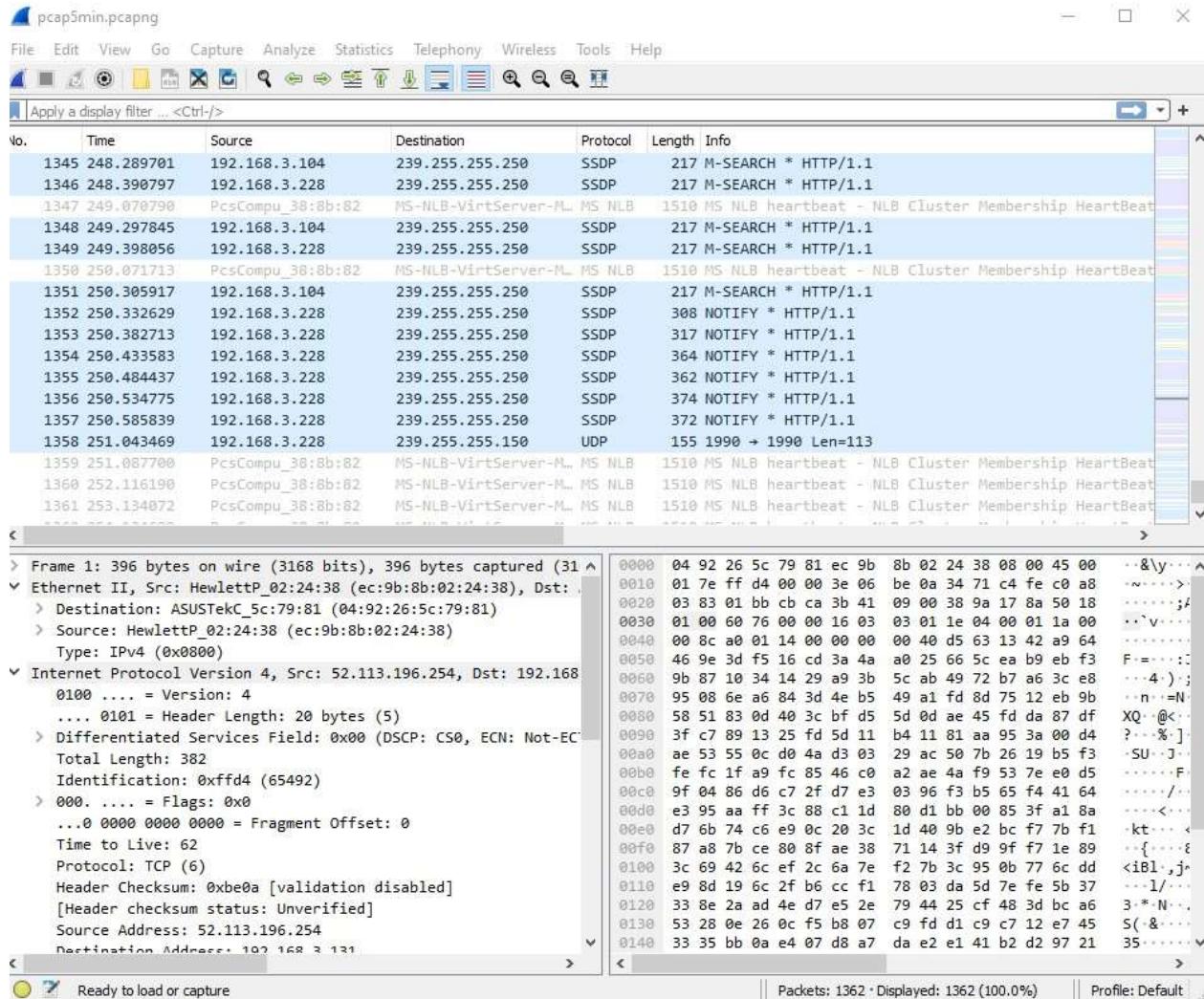
**Start the Wireshark**

**Save the file = pcap200kb.pcap**



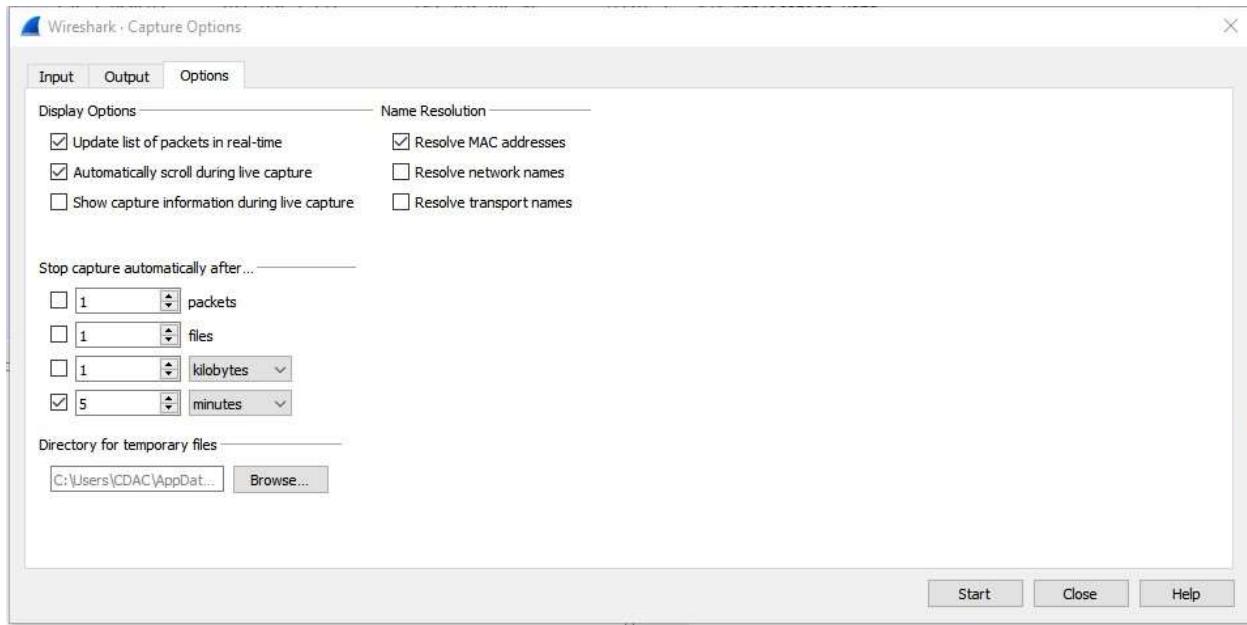
**3.c) Stop after 5 minutes and store in to a file “pcap5min” .**

**Open the Wire Shark**



**Go to Capture Option --->Right Click ---->Select Option and Set time=5 min**

**Start the Wireshark  
Save the file = pcap5min.pcap**



#### 4. Capture live traffic from a particular host (e.g from [www.google.com](http://www.google.com) ) and store the captured file as “pcaphost.pcap”.

**Step-1:- Go to command prompt and check the host([www.google.com](http://www.google.com)) IP**

```
C:\ Command Prompt - nslookup

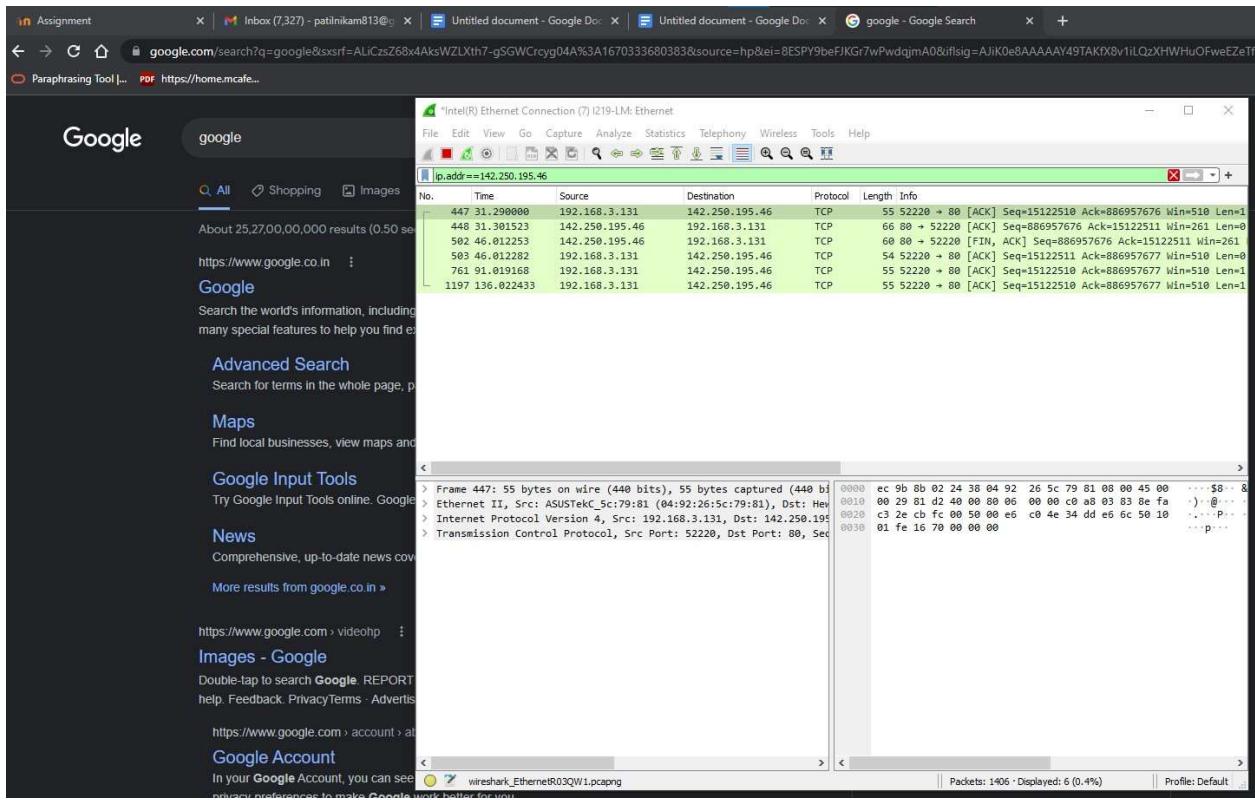
C:\Users\CDAC>nslookup
Default Server: stuns.blr1.cdac.in
Address: 192.168.1.3

> google.com
Server: stuns.blr1.cdac.in
Address: 192.168.1.3

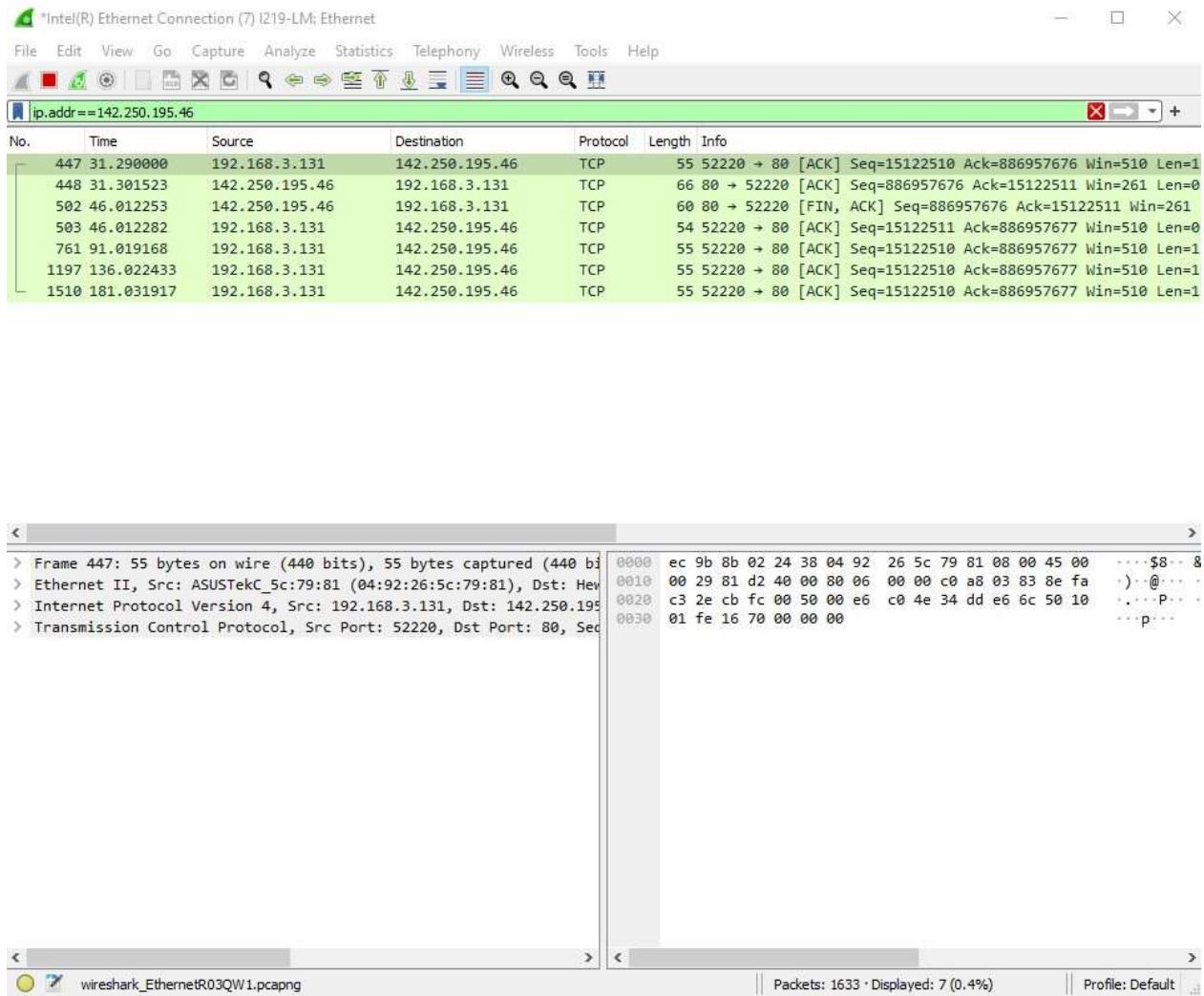
Non-authoritative answer:
Name: google.com
Addresses: 2404:6800:4007:822::200e
           142.250.195.46

>
```

**Step-2:- Open the Wireshark as well as run the Google.com on web Browser**

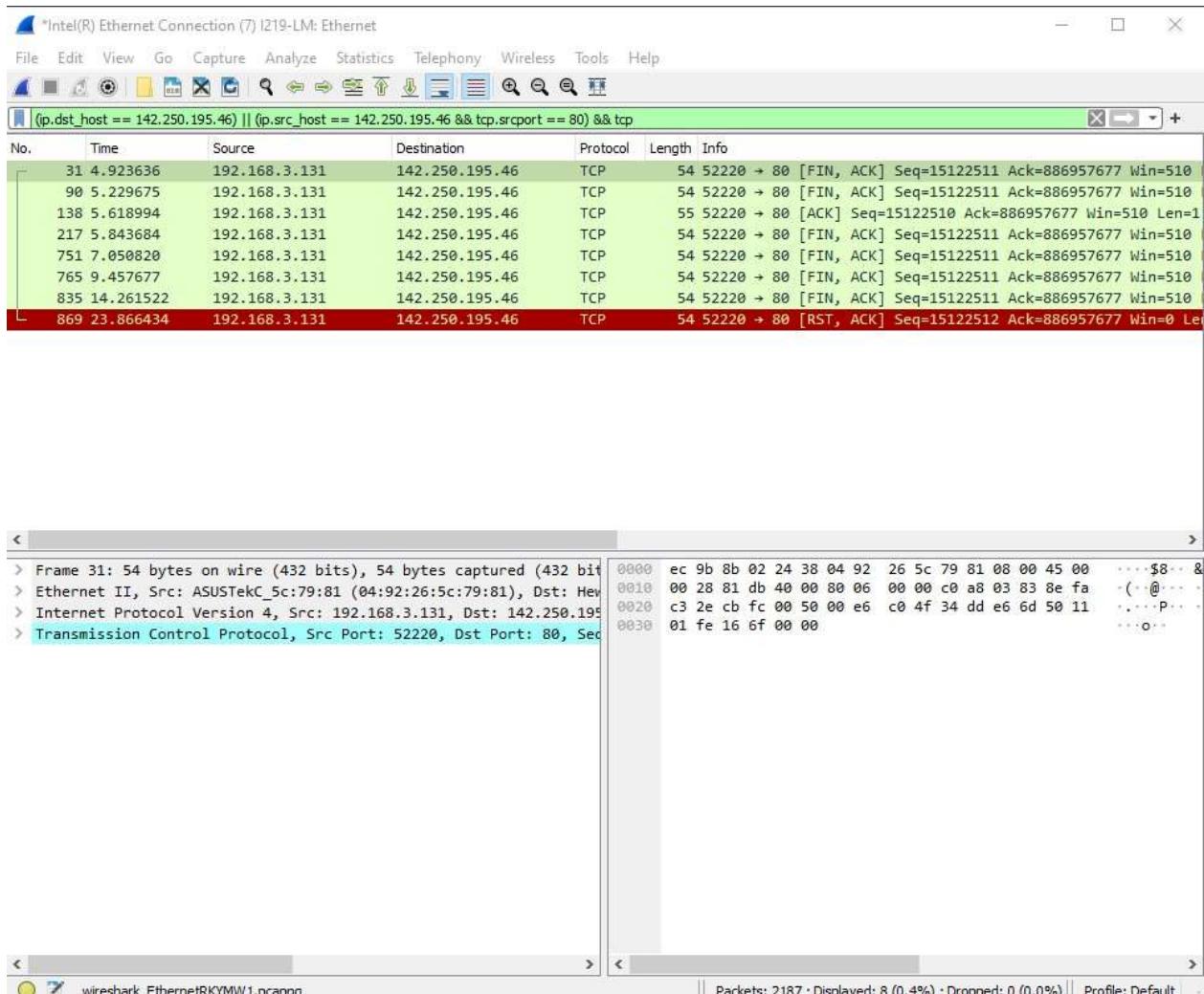


### Step-3:- Now Capture The Live traffic through- ip.addr=-142.250.195.46



**5. Capture live traffic from a port ( e.g port 80) and store the captured file as “pcapport.pcap”.**

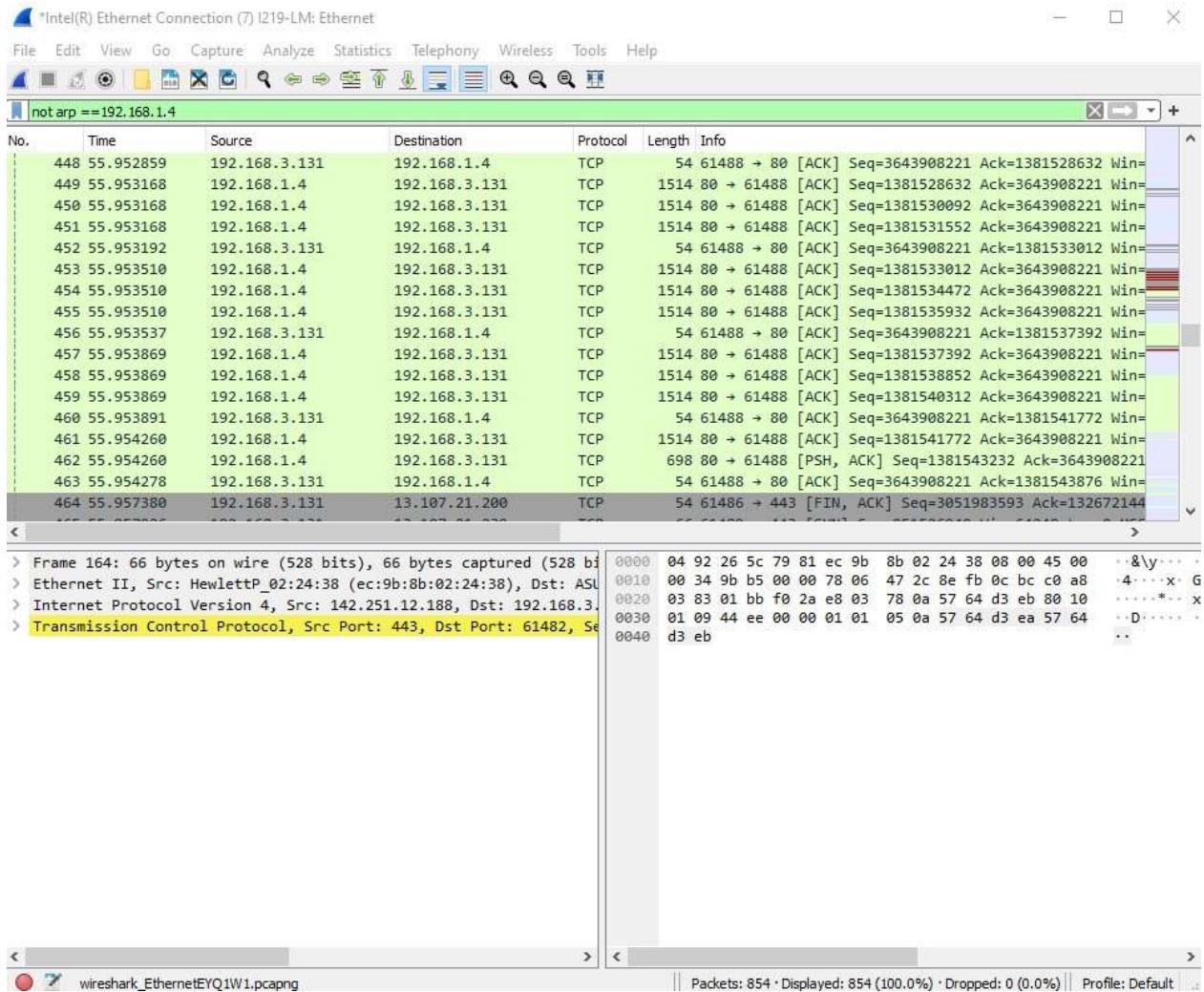
**Step-1:- Capture the Live Traffic on port 80 using-  
 $(ip.dst\_host==142.250.195.46)|| (ip.src\_host==142.250.195.46 \&\&tcp.sport==80) \&\&tcp$**



## 6. Capture all non arp traffic using capturing filter operators and store the captured file as “nonarp.pcap”.

Now Capture the Non ARP packets

Not arp==192.168.1.4



## 7. Display the summary of the following

- \* No. of packet captured, total bytes transferred
- \* Average packets/sec, average packet size
- \* Bandwidth usage (Average bytes/ sec)

**Open Wireshark--->Go to Statistics ----->Select Capture Filter Property**

Wireshark · Capture File Properties · Intel(R) Ethernet Connection (7) I219-LM: Ethernet

Details

**File**

Name:	C:\Users\CDAC\AppData\Local\Temp\wireshark_Ethernet1\4TW1.pcapng
Length:	84 kB
Hash (SHA256):	0a4eaa30b7783bf0f1cb96022cff2fa14a4e885c7fe227e1d124c21fa9eeb65a
Hash (RIPEMD160):	a6e43124f7a9621e386854ee1f4b54a438673081
Hash (SHA1):	6f179270d488de07b5bbb2fbb180c22a61208571
Format:	Wireshark/... - pcapng
Encapsulation:	Ethernet

**Time**

First packet:	2022-12-09 19:18:54
Last packet:	2022-12-09 19:18:56
Elapsed:	00:00:02

**Capture**

Hardware:	Intel(R) Core(TM) i7-8700 CPU @ 3.20GHz (with SSE4.2)
OS:	64-bit Windows 10 (21H2), build 19044
Application:	Dumpcap (Wireshark) 4.0.1 (v4.0.1-0-ge9f3970b1527)

**Interfaces**

Interface	Dropped packets	Capture filter	Link type	Packet size limit (snaplen)
Ethernet	0 (0.0%)	none	Ethernet	262144 bytes

**Statistics**

Measurement	Captured	Displayed	Marked
Packets	379	379 (100.0%)	—
Time span, s	2.267	2.267	—
Average pps	167.2	167.2	—
Average packet size, B	189	189	—
Bytes	71524	71524 (100.0%)	0
Average bytes/s	31 k	31 k	—
Average bits/s	252 k	252 k	—

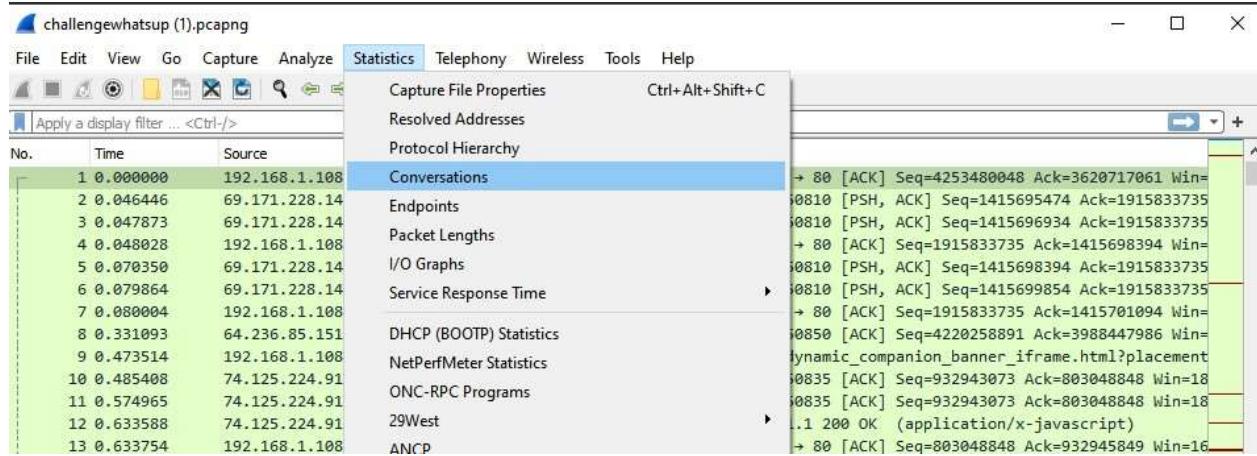
Capture file comments

Refresh Save Comments Close Copy To Clipboard Help

**Use the challengewhatsup.pcapng for solving the problems from 10 to 13**

**10. How many different IP hosts is A's machine is communicating with?**

**Step-1:- Now open the challengewhatsup.pcapng file --->go to ---> Statistics ---->Select Conversion --->Open It**

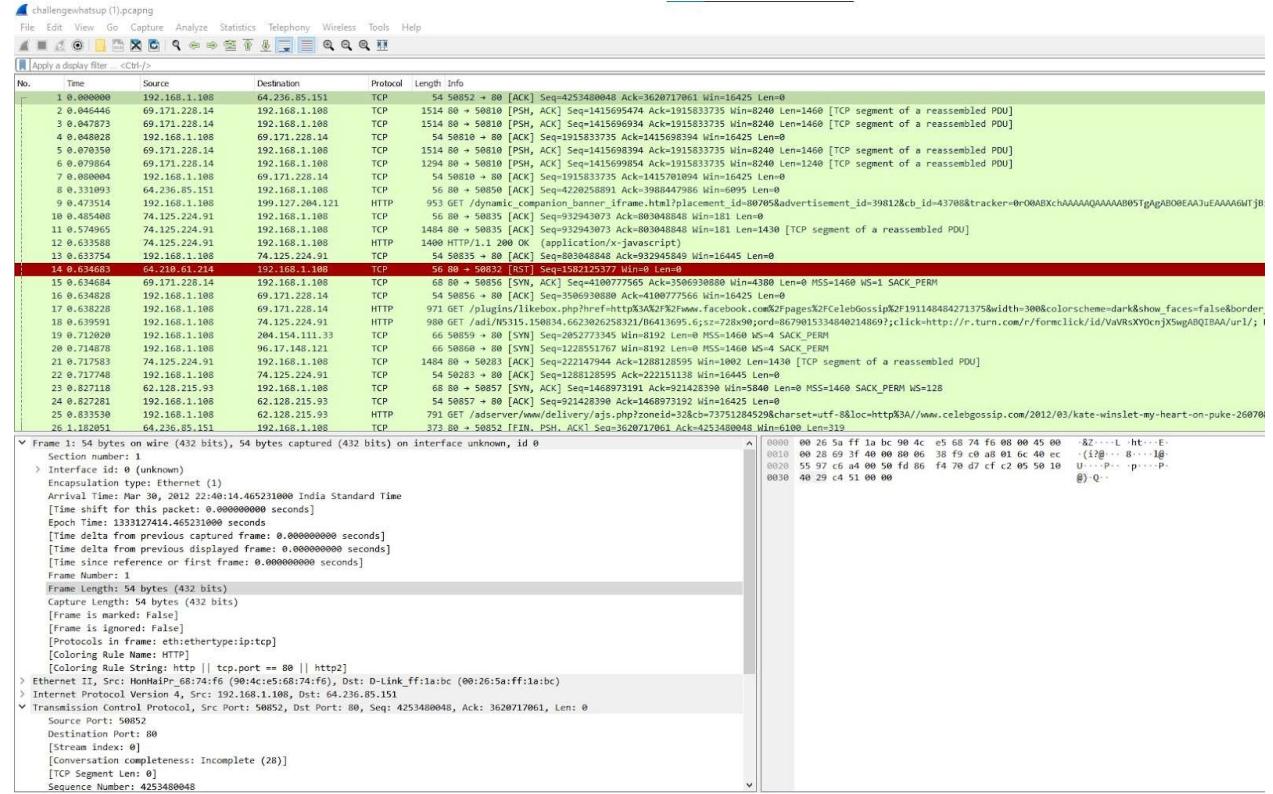


Conversation Settings														
Ethernet - 2		IPv4 - 142		IPv6		TCP - 311		UDP						
Address A	Address B	Packets	Bytes	Packets A → B	Bytes A → B	Packets B → A	Bytes B → A	Rel Start	Duration	Bits/s A → B	Bits/s B → A			
23.21.171.74	192.168.1.108	3	164 bytes	1	56 bytes	2	108 bytes	30.156293	2.4244	184 bytes	356 bytes			
62.128.215.93	192.168.1.108	15	3.368 KiB	8	2.268 KiB	7	1.101 KiB	0.827118	28.7583	645 bytes	313 bytes			
64.210.61.214	192.168.1.108	13	4.922 KiB	4	248 bytes	9	4.680 KiB	0.634683	30.9873	64 bytes	1.208 KiB			
69.171.228.14	192.168.1.108	80	55.010 KiB	41	41.330 KiB	39	13.680 KiB	0.046446	237.1490	1.394 KiB	472 bytes			
69.194.244.11	192.168.1.108	3	164 bytes	1	56 bytes	2	108 bytes	3.93056	0.3242	1.349 KiB	2.602 KiB			
74.125.224.91	192.168.1.108	210	118.388 KiB	108	78.070 KiB	102	40.317 KiB	0.485408	236.8815	2.636 KiB	1.361 KiB			
157.55.178.11	192.168.1.108	2	110 bytes	1	56 bytes	1	54 bytes	29.735205	0.0000					
178.238.225.233	192.168.1.108	61	24.485 KiB	34	12.391 KiB	27	12.095 KiB	35.657576	171.1392	593 bytes	578 bytes			
192.168.1.108	4.26.45.208	11	2.909 KiB	6	1.990 KiB	5	941 bytes	229.794288	0.6402	24.869 KiB	11.482 KiB			
192.168.1.108	4.30.14.112	21	13.900 KiB	10	1.122 KiB	11	12.778 KiB	228.096320	0.3936	22.806 KiB	259.715 KiB			
192.168.1.108	4.71.251.71	14	7.212 KiB	8	5.071 KiB	6	2.141 KiB	206.434409	2.7622	14.688 KiB	6.199 KiB			
192.168.1.108	8.21.24.35	70	18.324 KiB	33	7.977 KiB	37	10.258 KiB	228.093584	3.2323	19.741 KiB	25.388 KiB			
192.168.1.108	12.129.199.107	11	3.313 KiB	6	1.934 KiB	5	1.380 KiB	33.722570	182.7231	221 bytes	251 bytes			
192.168.1.108	12.130.81.249	27	10.542 KiB	16	4.938 KiB	11	5.604 KiB	21.207.687118	0.4146	20.934 KiB	189.917 KiB			
192.168.1.108	23.0.1.107	19	10.928 KiB	10	1.085 KiB	9	9.843 KiB	20.27.687118	0.4146					
192.168.1.108	23.0.2.77	19	6.979 KiB	10	3.559 KiB	9	3.421 KiB	21.6.603823	18.6051	1.529 KiB	1.471 KiB			
192.168.1.108	23.0.4.46	8	2.965 KiB	4	753 bytes	4	2.229 KiB	228.088858	0.0419	140.531 KiB	426.075 KiB			
192.168.1.108	23.0.13.229	20	11.349 KiB	9	5.322 KiB	11	6.026 KiB	204.461251	1.5744	27.043 KiB	30.621 KiB			
192.168.1.108	23.0.247.55	40	19.510 KiB	21	4.090 KiB	19	15.420 KiB	207.861969	6.1821	5.292 KiB	19.954 KiB			
192.168.1.108	33.0.247.231	62	38.136 KiB	37	12.218 KiB	25	25.918 KiB	201.006114	26.5589	3.680 KiB	7.807 KiB			
192.168.1.108	33.1.12.74	34	19.776 KiB	15	5.983 KiB	19	13.793 KiB	22.2.284154	1.1500	41.624 KiB	95.953 KiB			
192.168.1.108	33.21.205.149	17	12.210 KiB	7	1.009 KiB	10	11.201 KiB	224.409091	0.9756	8.271 KiB	91.852 KiB			
192.168.1.108	33.47.192.143	11	4.946 KiB	6	2.062 KiB	5	2.885 KiB	199.999512	0.2671	61.736 KiB	86.390 KiB			
192.168.1.108	50.17.205.178	7	1.015 KiB	4	763 bytes	3	276 bytes	22.691785	0.7346	8.114 KiB	2.935 KiB			
192.168.1.108	50.18.120.113	7	2.062 KiB	4	1.103 KiB	3	984 bytes	228.194699	0.2504	35.223 KiB	30.699 KiB			
192.168.1.108	50.22.30.67	28	13.393 KiB	14	5.101 KiB	14	8.292 KiB	195.115904	0.7431	54.910 KiB	89.268 KiB			
192.168.1.108	63.215.202.6	25	12.774 KiB	14	3.801 KiB	11	8.974 KiB	206.794985	24.3221	1.250 KiB	2.951 KiB			
192.168.1.108	63.215.202.48	12	4.833 KiB	8	2.637 KiB	4	2.196 KiB	207.675115	22.9929	939 bytes	782 bytes			
192.168.1.108	64.74.15.30	7	2.187 KiB	4	1.131 KiB	3	1.056 KiB	225.882958	5.9070	1.531 KiB	1.430 KiB			
192.168.1.108	64.94.107.19	9	1.547 KiB	6	1.167 KiB	3	389 bytes	23.187305	0.7961	11.727 KiB	3.817 KiB			
192.168.1.108	65.55.119.90	9	930 bytes	5	379 bytes	4	551 bytes	91.120953	0.2664	11.113 KiB	16.156 KiB			
192.168.1.108	66.410.70.59	37	8.931 KiB	22	7.198 KiB	15	1.732 KiB	205.891196	18.5291	3.107 KiB	765 bytes			
192.168.1.108	66.421.61.100	12	3.132 KiB	7	1.900 KiB	5	1.231 KiB	227.6769137	2.0259	7.504 KiB	4.862 KiB			
192.168.1.108	66.421.61.142	11	3.486 KiB	6	2.613 KiB	5	894 bytes	200.719570	11.9388	1.751 KiB	599 bytes			
192.168.1.108	66.94.24.5.1	8	2.024 KiB	4	1.324 KiB	4	717 bytes	223.237549	0.0466	227.465 KiB	120.274 KiB			
192.168.1.108	66.15.35.49.42	351	239.896 KiB	165	34.970 KiB	186	204.926 KiB	195.106414	42.2943	6.614 KiB	38.762 KiB			
192.168.1.108	66.15.72.22.26	36	16.790 KiB	11	6.056 KiB	63	41.897 KiB	20.1167	31.1864	8.313 KiB	12.438 KiB			
192.168.1.108	66.15.10.149.23	118	80.902 KiB	55	32.412 KiB	63	48.490 KiB	200.081703	31.1864	50.483 KiB	24.809 KiB			
192.168.1.108	66.15.10.149.24	9	5.075 KiB	5	2.601 KiB	4	2.475 KiB	226.282280	0.2981	69.780 KiB	66.400 KiB			
192.168.1.108	67.201.62.209	3	194 bytes	3	194 bytes	0	0 bytes	40.250519	9.0016	172 bytes	0 bytes			
192.168.1.108	67.214.158.5	10	3.237 KiB	5	1.338 KiB	5	1.899 KiB	200.660576	0.3534	30.285 KiB	42.997 KiB			
192.168.1.108	68.43.161.152	8	1.360 KiB	5	934 bytes	3	459 bytes	179.771984	0.1445	50.483 KiB	24.809 KiB			
192.168.1.108	68.43.161.153	15	2.427 KiB	9	1.795 KiB	6	647 bytes	10.452953	11.7154	1.226 KiB	441 bytes			
192.168.1.108	68.43.161.159	8	1.450 KiB	5	980 bytes	3	505 bytes	192.442366	1.1129	6.879 KiB	3.545 KiB			
192.168.1.108	69.43.161.164	10	1.747 KiB	6	985 bytes	4	804 bytes	1.761302	9.2419	852 bytes	695 bytes			
192.168.1.108	69.172.216.156	125	62.946 KiB	59	9.691 KiB	66	53.255 KiB	216.774138	19.3239	4.012 KiB	22.047 KiB			
192.168.1.108	72.21.214.141	1	54 bytes	1	54 bytes	0	0 bytes	21.958987	0.0000					
192.168.1.108	72.21.215.147	7	1.010 KiB	4	705 bytes	3	329 bytes	232.884507	0.3945	13.962 KiB	6.516 KiB			

Conversation Settings														
Ethernet - 2		IPv4 - 142		IPv6		TCP - 311		UDP						
Address A	Address B	Packets	Bytes	Packets A → B	Bytes A → B	Packets B → A	Bytes B → A	Rel Start	Duration	Bits/s A → B	Bits/s B → A			
192.168.1.108	173.192.226.198	40	6.241 KiB	21	4.317 KiB	19	1.924 KiB	226.246715	5.5314	6.244 KiB	2.782 KiB			
192.168.1.108	173.231.21.70	11	4.304 KiB	11	2.279 KiB	6	1.076 KiB	204.226.246715	170.7004	97 bytes				
192.168.1.108	174.122.19.109	10	3.222 KiB	6	1.618 KiB	4	1.024 KiB	226.246715	170.7004	889 bytes				
192.168.1.108	174.122.239.18	26	13.833 KiB	19	7.782 KiB	11	6.056 KiB	226.246715	18.3171	1.639 KiB	2.568 KiB			
192.168.1.108	174.123.26.226	36	48.825 KiB	36	16.790 KiB	39	30.075 KiB	23.107050	9.0321	14.838 KiB	26.638 KiB			
192.168.1.108	174.128.196.71	13	8.315 KiB	2	4.944 KiB	12	2.000 KiB	2.00.224.74694	0.3932	47.905 KiB	24.497 KiB			
192.168.1.108	174.129.205.91	12	3.359 KiB	6	1.204 KiB	8	2.049 KiB	2.04.226.08269	0.3382	2.049 KiB	2.049 KiB			
192.168.1.108	174.130.180.109	11	4.926 KiB	9	2.460 KiB	5	1.204 KiB	204.226.08269	0.3382	1.937 KiB	1.937 KiB			
192.168.1.108	174.130.181.33	52	12.603 KiB	29	10.507 KiB	23	2.101 KiB	2.04.226.08269	1.6841	3.076 KiB	3.233 bytes			
192.168.1.108	174.236.130.127	9	2.867 KiB	5	1.322 KiB	4	1.558 KiB	212.041910	0.2435	76.303 KiB	17.904 KiB			
192.168.1.108	174.236.131.48	12	3.005 KiB	3	1.558 KiB	5	2.056 KiB	200.226.08269	11.5750	2.073 KiB	1.420 KiB			
192.168.1.108	174.236.131.100	9	3.647 KiB	9	1.844 KiB	6	1.824 KiB	226.246715	4.4491	1.693 KiB	1.353 KiB			
192.168.1.108	174.236.131.127	9	3.578 KiB	6	1.844 KiB	7	2.048 KiB	204.226.08269	13.3288	1.564 KiB	1.378 KiB			
192.168.1.108	174.236.131.176	28	5.718 KiB	12	2.800 KiB	12	3.000 KiB	204.226.08269	17.7770	1.260 KiB	1.338 KiB			
192.168.1.108</td														

## 11. What is the average packets per second rate seen in trace file?

### Step-1:- Now open the challengewhatsup.pcapng file

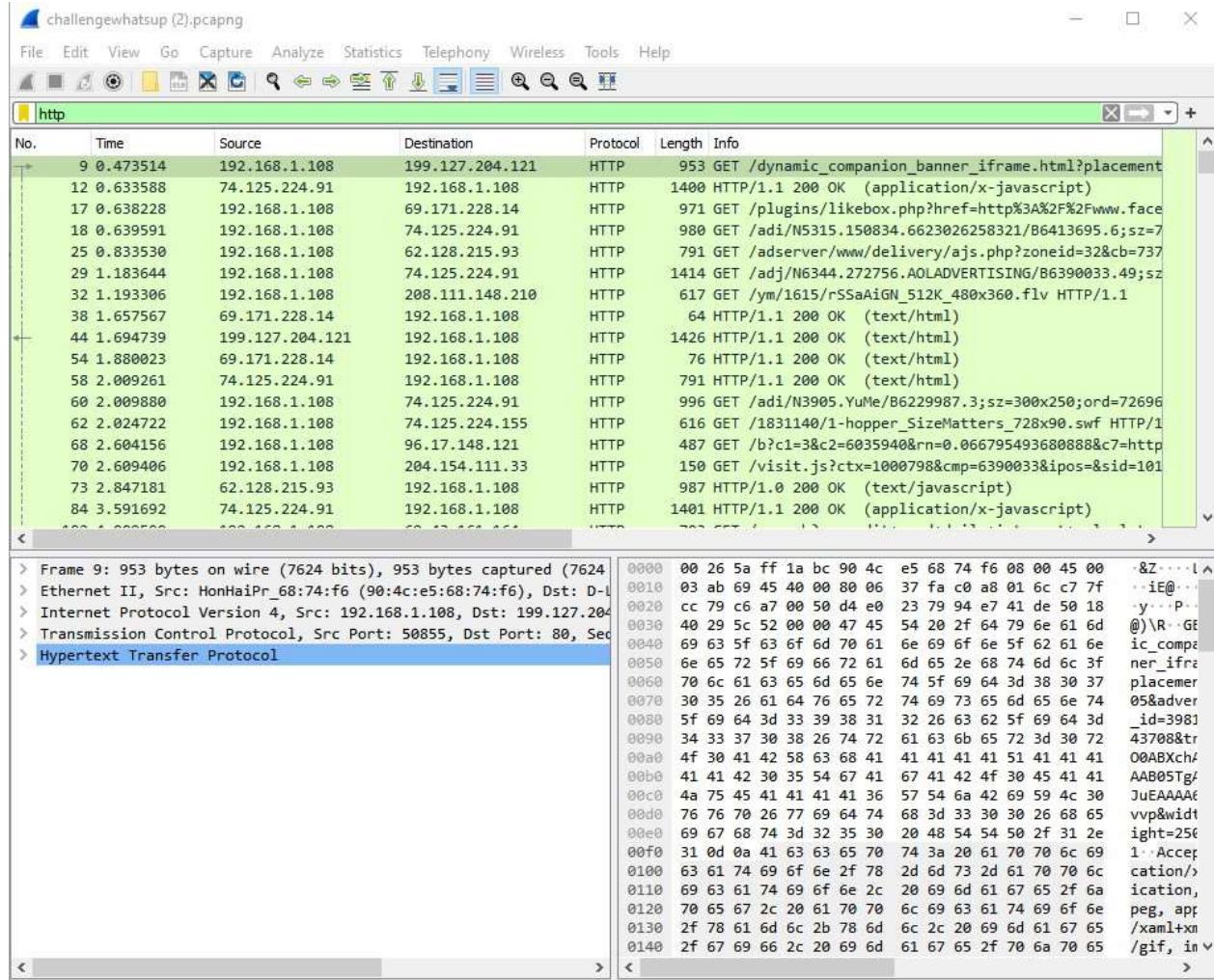


**Step-2:- Open Wireshark---->Go to Statistics ---->Select Capture Filter Property**

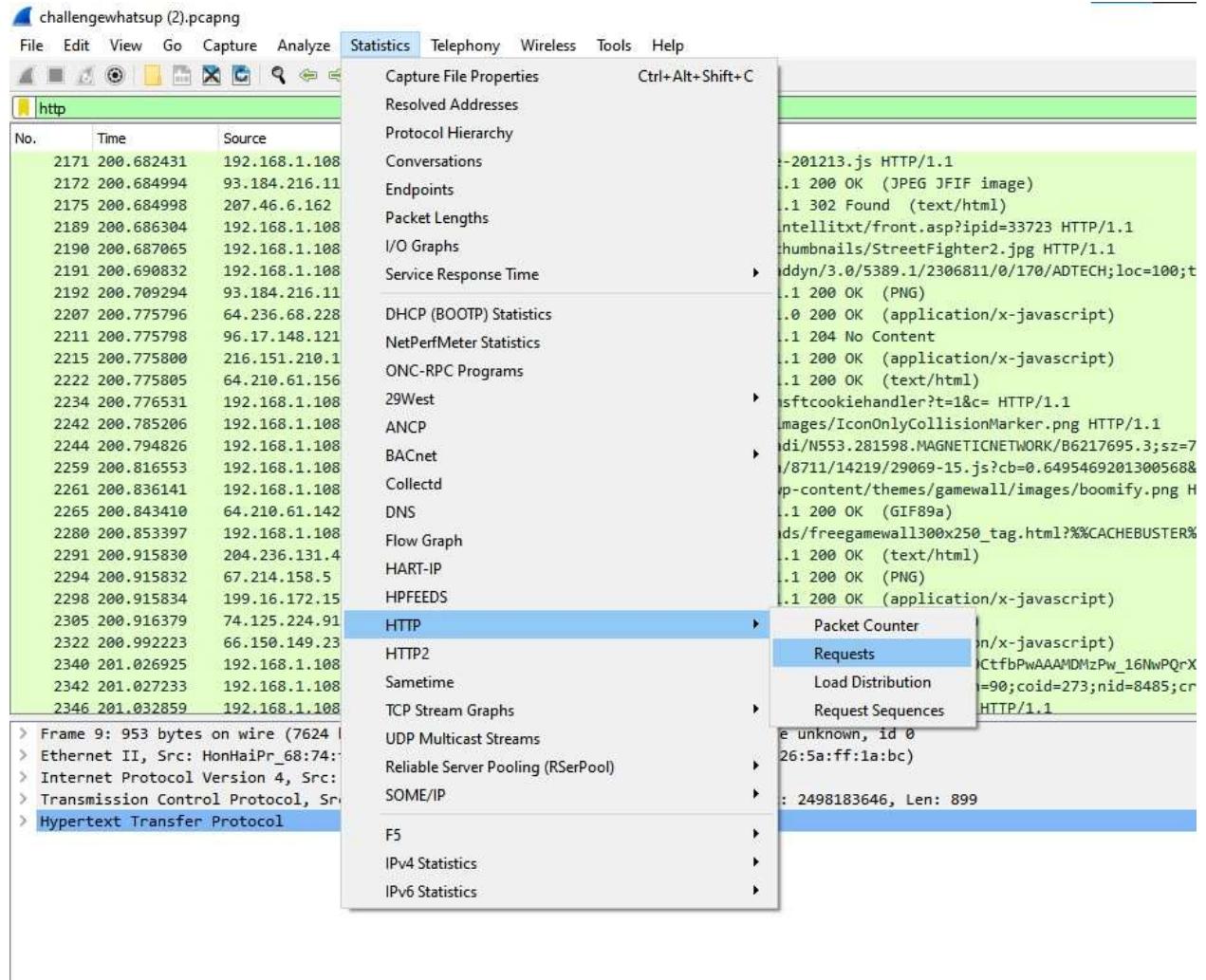
Wireshark - Capture File Properties - challengewhatsup (1).pcapng				
Details				
<b>File</b>				
Name:				
Length:				
Hash (SHA256):				
Hash (RIPEMD 160):				
Hash (SHA1):				
Format:				
Encapsulation:				
<b>Time</b>				
First packet:				
Last packet:				
Elapsed:				
<b>Capture</b>				
Hardware:				
OS:				
Application:				
<b>Interfaces</b>				
Interface	Dropped packets	Capture filter	Link type	Packet size limit (snaplen)
Unknown	Unknown	Unknown	Ethernet	65535 bytes
<b>Statistics</b>				
<u>Measurement</u>				
Packets	Captured	Displayed	Marked	—
Time span, s	7327	7327 (100.0%)	—	—
Average pps	237.435	237.435	—	—
Average packet size, B	30.9	30.9	—	—
Bytes	601	601	—	—
Average bytes/s	4400914	4400914 (100.0%)	0	—
Average bits/s	18 k	18 k	—	—
	148 k	148 k	—	—

## 12. How many HTTP POST requests did A's machine send?

Step-1:- Now open the challengewhatsup.pcapng file



**Step-2:- Open Wireshark—>Go to Statistics —>Select HTTP**



## **Step-3:- HTTP Post request**

Wireshark - Packet Counter - challengewhatsup (2).pcapng

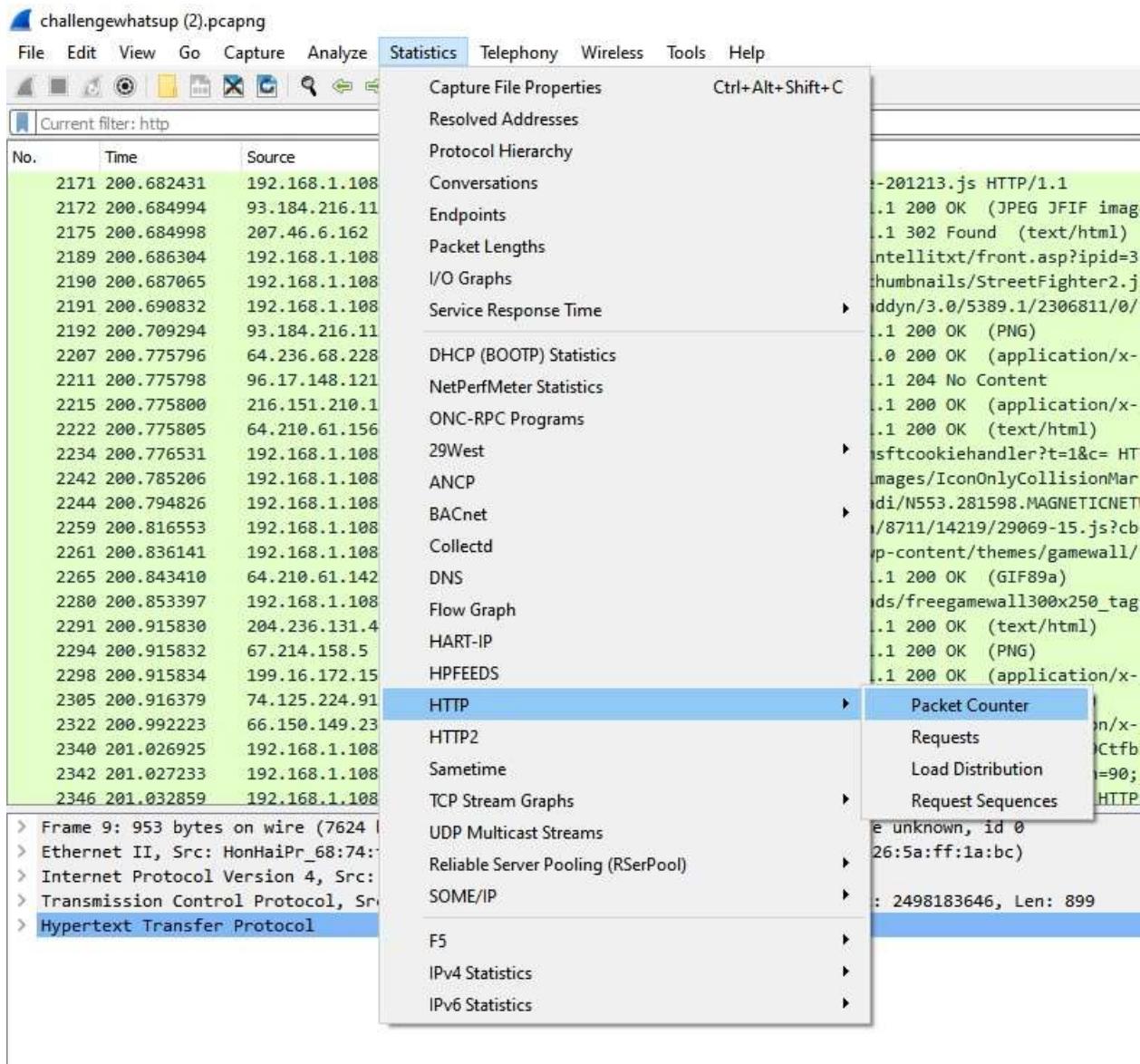
Topic / Item	Count	Average	Min Val	Max Val	Rate (ms)	Percent	Burst Rate	Burst Start
▼ Total HTTP Packets	1351		0.0057	100%	0.2100	207.638		
Other HTTP Packets	39		0.0002	2.89%	0.0500	211.164		
▼ HTTP Response Packets	612		0.0026	45.30%	0.0800	221.827		
???: broken	0		0.0000	0.00%	-	-		
▼ 5xx: Server Error	4		0.0000	0.65%	0.0100	37.394		
504 Gateway Time-out	4		0.0000	100.00%	0.0100	37.394		
▼ 4xx: Client Error	1		0.0000	0.16%	0.0100	85.763		
404 Not Found	1		0.0000	100.00%	0.0100	85.763		
▼ 3xx: Redirection	65		0.0003	10.62%	0.0300	36.129		
304 Not Modified	1		0.0000	1.54%	0.0100	197.361		
302 Found	59		0.0002	90.77%	0.0300	36.129		
301 Moved Permanently	5		0.0000	7.69%	0.0100	134.648		
▼ 2xx: Success	542		0.0023	88.56%	0.0800	221.827		
204 No Content	44		0.0002	8.12%	0.0300	205.858		
200 OK	498		0.0021	91.88%	0.0800	221.827		
1xx: Informational	0		0.0000	0.00%	-	-		
▼ HTTP Request Packets	700		0.0030	51.81%	0.1400	207.638		
POST	3		0.0000	0.43%	0.0100	33.620		
GET	697		0.0029	99.57%	0.1400	207.638		

Display filter:  Apply

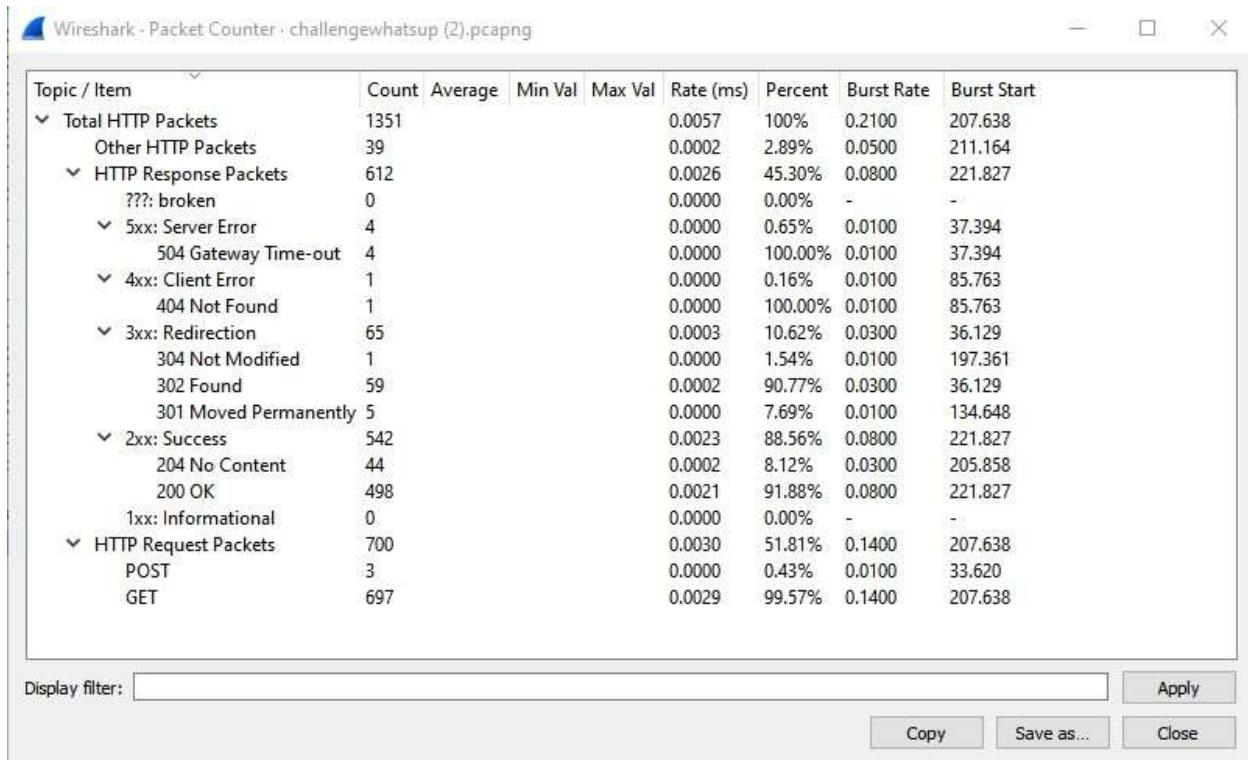
Copy Save as... Close

**13. What application appears to be generating the GET/POST requests?**

**Step-1:- Open Wireshark--->Go to Statistics ----->Select HTTP  
----->Packet Counter**



## Step-2:-



### Step-3:-

