Razu Ahamed ID: IT-

Lab Report No: 07

Lab Report On: Install Wireshark in Linux

Introduction:

Wireshark is a network packet analyzer. It captures every packet getting in or out of a network interface and shows at them in a nicely formatted text. It is used by Network Engineers all over the world.

Wireshark is cross platform and it is available for Linux, Windows and Mac OS. You Wireshark is cross platform and it is available for Linux, Windows and Mac OS. You get the same user experience in any operating system you use.

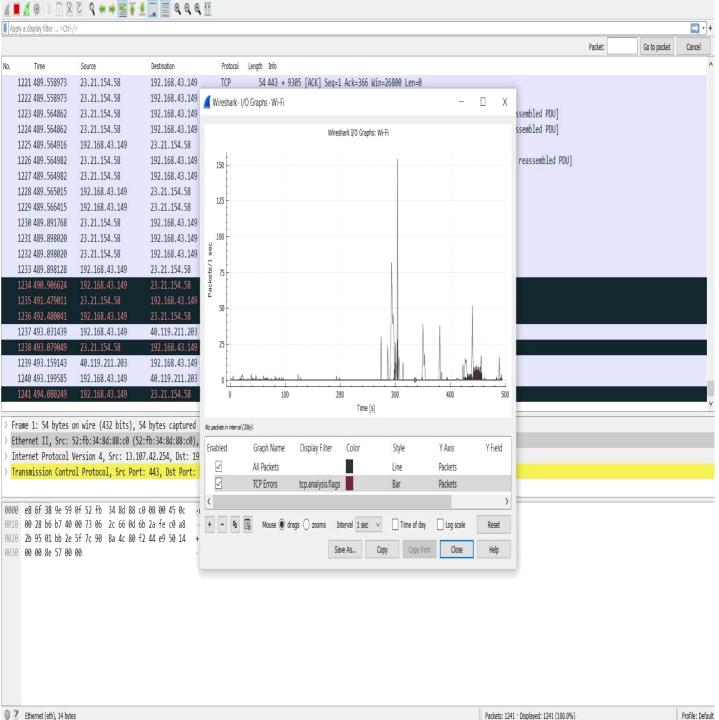
Installing Wireshark:

Wireshark is available in the official package repository of Ubuntu 14.04 LTS and later. So it is really easy to install.

Ping information & captured packet: ping 8.8.8.8 in powershell

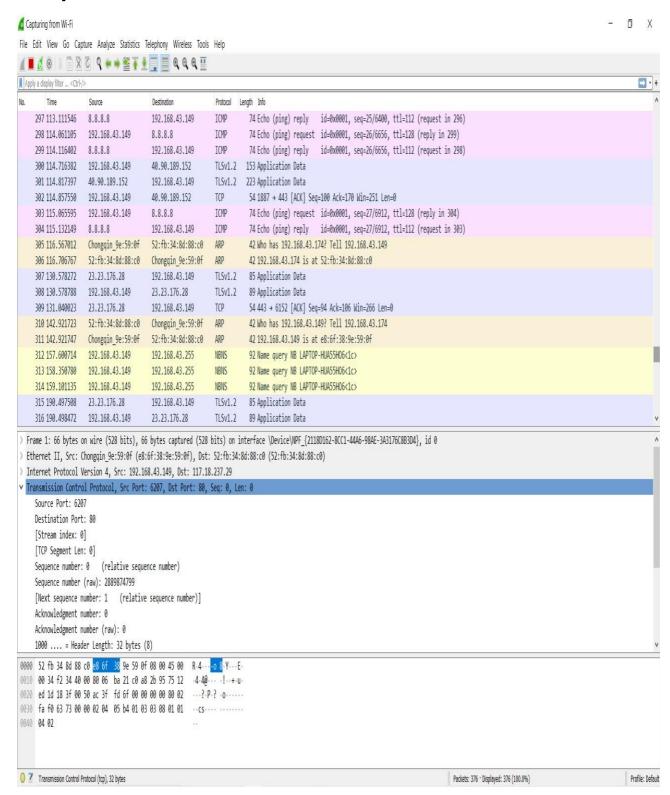
Administrator: Windows PowerShell	3 <u>0</u>	X	192.168.43.149	13.107.4.254	TCP	54 6208 → 443 [ACK] Seq=452
Nindows PowerShell		۸1	192.168.43.149	13.107.4.254	TLSv1.2	92 Application Data
Copyright (C) Microsoft Corporation. All rights reserved.		5	13.107.4.254	192.168.43.149	TCP	92 [TCP Retransmission] 443
Try the new cross-platform PowerShell https://aka.ms/pscore6		5	13.107.4.254	192.168.43.149	TLSv1.2	544 Application Data
in y che nen cross-pareronn i onershear incepsi,/ona-ms/pseureo		5	13.107.4.254	192.168.43.149	TLSv1.2	230 Application Data
PS C:\windows\system32> ping 255.255.255.255		5	13.107.4.254	192.168.43.149	TLSv1.2	92 Application Data
Ping request could not find host 255.255.255.255. Please check the name and try again.		5	13.107.4.254	192.168.43.149	TLSv1.2	92 Application Data
PS C:\windows\system32> ping 8.8.8.8		0	192.168.43.149	13.107.4.254	TCP	54 6206 → 443 [ACK] Seq=674
Pinging 8.8.8.8 with 32 bytes of data:		2	192.168.43.149	13.107.4.254	TLSv1.2	92 Application Data
Reply from 8.8.8.8; bytes=32 time=262ms TTL=112		8	13.107.4.254	192.168.43.149	TCP	54 443 → 6206 [ACK] Seq=117
Reply from 8.8.8.8: bytes=32 time=55ms TTL=112		5	13.107.4.254	192.168.43.149	TCP	54 [TCP Previous segment no
Reply from 8.8.8.8: bytes=32 time=55ms TTL=112		5	13.107.4.254	192.168.43.149	TCP	92 [TCP Retransmission] 443
Reply from 8.8.8.8: bytes=32 time=66ms TTL=112		1	192.168.43.149	13.107.4.254	TCP	54 6208 → 443 [ACK] Seq=490
Ping statistics for 8.8.8.8:		183	192.168.43.149	8.8.8.8	ICMP	74 Echo (ping) request id=0
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),		27	8.8.8.8	192.168.43.149	ICMP	74 Echo (ping) reply id=0
Approximate round trip times in milli-seconds:		19	192.168.43.149	8.8.8.8	ICMP	74 Echo (ping) request id=
Minimum = 55ms, Maximum = 262ms, Average = 109ms		46	8.8.8.8	192.168.43.149	ICMP	74 Echo (ping) reply id=0
PS C:\windows\system32>		.05	192.168.43.149	8.8.8.8	ICMP	74 Echo (ping) request id=0
		.02	8.8.8.8	192.168.43.149	ICMP	74 Echo (ping) reply id=0
		82	192.168.43.149	40.90.189.152	TLSv1.2	153 Application Data
		.97	40.90.189.152	192.168.43.149	TLSv1.2	223 Application Data
		50	192.168.43.149	40.90.189.152	TCP	54 1887 → 443 [ACK] Seq=100
		95	192.168.43.149	8.8.8.8	ICMP	74 Echo (ping) request id=
		.49	8.8.8.8	192.168.43.149	ICMP	74 Echo (ping) reply id=0
		12	Chongqin_9e:59:0f	52:fb:34:8d:88:c0	ARP	42 Who has 192.168.43.174?
		67	52:fb:34:8d:88:c0	Chongqin_9e:59:0f	ARP	42 192.168.43.174 is at 52:

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help



Ethernet (eth), 14 bytes Packets: 1241 · Displayed: 1241 (100.0%)

The protocol information:



Capturing from Wi-Fi

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help



Apply a display filter ... <Ctrl-/>

lo.	Time	Source	Destination	Protocol	Length Info
	1328 541.745119	52.158.208.111	192.168.43.149	TCP	66 443 → 9306 [FIN, ACK] Seq=4484 Ack=5824 Win=261888 Len=0 TSval=1073507752 TSecr=5459024
	1329 541.745156	192.168.43.149	52.158.208.111	TCP	66 9306 → 443 [ACK] Seq=5824 Ack=4485 Win=65536 Len=0 TSval=5459370 TSecr=1073507752
	1330 544.115195	192.168.43.149	172.217.163.170	TCP	54 9307 + 443 [FIN, ACK] Seq=1736 Ack=8705 Win=65536 Len=0
	1331 544.240252	172.217.163.170	192.168.43.149	TCP	54 443 → 9307 [FIN, ACK] Seq=8705 Ack=1737 Win=64000 Len=0
	1332 544.240338	192.168.43.149	172.217.163.170	TCP	54 9307 → 443 [ACK] Seq=1737 Ack=8706 Win=65536 Len=0

- > Frame 1: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface \Device\NPF_{2118D162-8CC1-44A6-98AE-3A3176C8B3D4}, id 0
- > Ethernet II, Src: 52:fb:34:8d:88:c0 (52:fb:34:8d:88:c0), Dst: Chongqin_9e:59:0f (e8:6f:38:9e:59:0f)
- > Internet Protocol Version 4, Src: 13.107.42.254, Dst: 192.168.43.149
- v Transmission Control Protocol, Src Port: 443, Dst Port: 11871, Seq: 1, Ack: 1, Len: 0

Source Port: 443
Destination Port: 11871
[Stream index: 0]
[TCP Segment Len: 0]

Sequence number: 1 (relative sequence number)

Sequence number (raw): 2089847372

[Next sequence number: 1 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)

Acknowledgment number (raw): 2163361001 0101 = Header Length: 20 bytes (5)

> Flags: 0x014 (RST, ACK)
Window size value: 0
[Calculated window size: 0]

[Window size scaling factor: -1 (unknown)]

Checksum: 0x8e57 [unverified] [Checksum Status: Unverified]

Urgent pointer: 0
> [Timestamps]

Port Security Hashing Algorithm:

```
0030
      00 3e 91 f2 00 00 26 ca
                                79 60 65 b3 35 d0 4c 4e
                                                            ->----&- v`e-5-LN
0040
      e1 22 1b 71 b5 c3 40 9b
                                24 82 82 92 3d 51 3c ea
                                                            ·"-q--@- $---=Q<
                                                            DJ....S. ...49."8
0050
      44 4a 06 f5 b2 03 53 92
                                c7 dd 8e 34 39 82 22 26
0060
      23 85 17 a0 81 01 bc 00
                                6b b0 d4 70 3b 7b 71 61
                                                            #..... k..p;{qa
0070
      c0 b1 6a a0 1a 1e c1 71
                                95 dc 4e 54 0f 22 d0 80
                                                            --j----q --NT-"-
                                f1 ac 13 44 c0 c3 19
0080
      bd ab b9 b5 d7 5d b4 81
0090
      49 c1 59 94 0f 0e 0d d4
                                d9 a3 f8 23 5f a3 0f
      63 Øb 57 65 f4 55 34 7d
00a0
                                98 0a 21 e2 13 d5 aa 81
                                                            c·We·U4} ..!....
00b0
      ea 05 78 1d ee a2 91 6e
                                61 63 27 49 b2 1f 9e 96
                                                            ··x····n ac'I···
      71 6f 52 bb 80 bc e8 60
                                                            goR----`--Nv)--8
00c0
                                d8 a6 4e 76 29 b0 0d 38
      4e 11 cc 59 68 4d a4 37
                                                            N--YhM-7 ----\--
00d0
                                0c c9 fb ac 5c d3 d0
                                                      2a
      b9 25 4b 69 bb 97 9c f9
                                f7 43 3a a2 98 Øe 51
                                                            -%Ki----- C:---OR
00e0
00f0
      5a 8e c9 f4 6a bf 3a 0f
                                59 25 1a 88 6f f6 b0
                                                            Z····j·:· Y%···o··
                                                            P...\.". ...v.,.
0100
      50 1c da 8d 5c 85 22 99
                                96 f4 c0
                                         76 c2 2c 1a
0110
      51 fd 66 f1 c8 42 59 9e
                                da 5b f8 80 a3 2b 0c
                                                            Q-f--BY- -[---+-r
      b9 78 9b 3b 55 98 6c 79
0120
                                09 d8 c6 cf b9 51 60 9e
                                                            ·x·;U·ly ·····0`
0130
      52 f6 ca 15 c0 07 90 66
                                f9 0d 13 16 c0 05 4d e2
                                                            R------ f ------ M
                                                            135^.".0 ..~..0.
0140
      5d 4a 53 5e b9 22 fb 30
                                ed 81
                                      7e e5 92 4f 06 28
0150
      f8 3f e0 f0 33 30 5c 7b
                                cc 59 49 1b 80 de 91 c0
                                                            ·?··30\{ ·YI····
0160
      74 3a a6 f0 05 a4 2f 82
                                6b 82 84 32 d0 91 65
                                                            t:..../. k..2..e
0170
                                                            ····&··I ·····6··
      84 b0 d0 11 26 d8 18 49
                                e3 ad a7 98 e3 36 96 ed
0180
      71 91 c6 20 c5 ea 95 0d
                                2c 28 3e 46 d9 7c 10 00
                                                            q...,(>F.|..
                                                            ····8·· ]·F·;qY
0190
      c3 f1 f0 cb ac 38 fc ed
                                5d f6 46 c8 3b 71 59 16
01a0
      55 41 31 74 ba 4a 99 42
                                46 a7 09 91 f7 e5 b5 b0
                                                            UA1t·J·B F·····
      d9 86 82 79
                                                            ...y.&.. .J....U
01b0
                  fb 26 9e 94
                                03 4a df f7 ac fb 55 9e
01c0
      26 3b f5 41 37 a7 c5 b8
                                2b 39 c9 41 5c 26 5f 51
                                                            &; · A7 · · · +9 · A\&_(
01d0
      81 c6 3c 65 40 f9 d8 b9
                                77 78 86 7b ea 0a fc ae
                                                            ··<e@··· wx·{···
                                                            -6h---;D -m@----=
01e0
      bb 36 68 18 e2 b3 3b 44
                                c7 6d 40 fa 0b 1e d9
01f0
      01 4c 91 87 60 83 36 37
                                7a bc 78 a0 38 27 a3
                                                            J.. ..%. .."M...
0200
      4a 0e ca 5f d8 0e 25 f0
                                b0 af 22 4d 12 b7 ba
      29 2d 4b e5 2a 93 84 4c
                                                            )-K-*--L N;R-W--
0210
                                4e 3b 52 e7 57 d2 86 b9
0220
      4b df 44 61 d6 9b c8 61
                                93 00 6c 42 58 af 38 65
                                                            K∙Da···a ··lBX·8∈
      f5 c0 8f ee 01 ad 9f 1b
                                99 a8 02 9a e2 89 7c 60
0230
                                                            0240
      36 03 aa c4 65 d0 11 f9
                                3c 8a 33 00 b5 b2 d8 b2
0250
      bc 96 f2 9f d3 94 17 a5
                                48 b1 d2 46 c3 d1 c5
                                                            . . . . . . . . H . . F . . . p
0260
      b4 07 02 ed 69 83 96 b8
                                cd 43 b8 d4
                                             55 ee dd
0270
      19 85 0c 3d 5b 3d 16 e4
                                37 aa ab 16 38 7d 3d 06
                                                            ··-=[=·· 7···8}=·
0280
      00 82 43 a4 de 45 c9 8c
                                22 79 d7 29 68 7c 74
                                                             ·C · · E · · · "y · )h | t ?
0290
      b0 e5 ed cb c3 cd ea 92
                                8d d0 5d 00 0a 06 0c bc
                                                            43 77 f0 39 b4 95 3a 5c
                                ff 95 53 86 0b 49 c3 90
                                                            Cw-9··:\ ··S··I·
02a0
02b0
      21 d6 f7 1f fe c4 03 a0
                                47 70 94 ad d0 5b 6b e7
                                                            !..... Gp --- [k
      78 39 15 aa 3c 59 53 d3
                                                            x9 · · < YS · · · · L · / · <sup>3</sup>
02c0
                                04 00 df 4c 0d 2f 86
                                                      2a
02d0
      d9 49 0b 8a 6b d7 30 4f
                                ae 7c df 24 43 01
                                                            ·I··k·00 ·|·$C··
02e0
      a8 40 b1 3f f0 46 f8 74
                                   a3 88 b2 1c 0c
```

Different Statistics:

Wi_Fi file capture:

■ Wireshark · Capture File Properties · Wi-Fi

Details

File

Name: $C: \label{local-Temp-wireshark_Wi-Fi_20200804211509_a01608.pcapng} C: \label{local-Temp-wireshark_Wi-Fi_2020080408.pcapng} C: \label{local-Temp-wireshark_Wi-Fi_2020080408.pcapng} C: \label{local-Temp-wireshark_Wi-Fi_2020080408.pcapng}$

Length: 24 kB

4a3e04fe356cd42feec021b0783dfd5fe39b096c76f1d7ead62b2fcea15c3b89 Hash (SHA256):

Hash (RIPEMD160): c09df01ea64e532c2fed5079cee65dd1a640a9cb Hash (SHA1): e231768d84970f9830ff8449ad51c083aa64de6e

Format: Wireshark/... - pcapng

Encapsulation: Ethernet

Time

First packet: 2020-08-04 21:15:18 Last packet: 2020-08-04 21:15:44

Elapsed: 00:00:26

Capture

Intel(R) Core(TM) i3-10110U CPU @ 2.10GHz (with SSE4.2) Hardware:

64-bit Windows 10 (1909), build 18363 OS:

Dumpcap (Wireshark) 3.2.5 (v3.2.5-0-ged20ddea8138) Application:

Interfaces

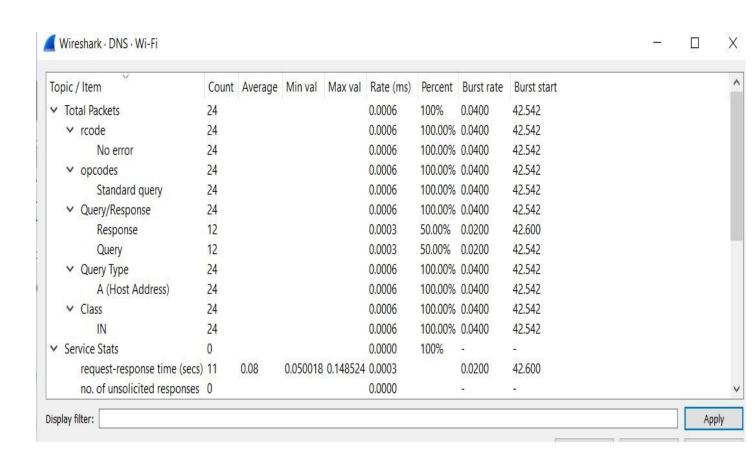
<u>Interface</u>	Dropped packets	<u>Capture filter</u>	Link type	Packet size limit
Wi-Fi	Unknown	none	Ethernet	262144 bytes

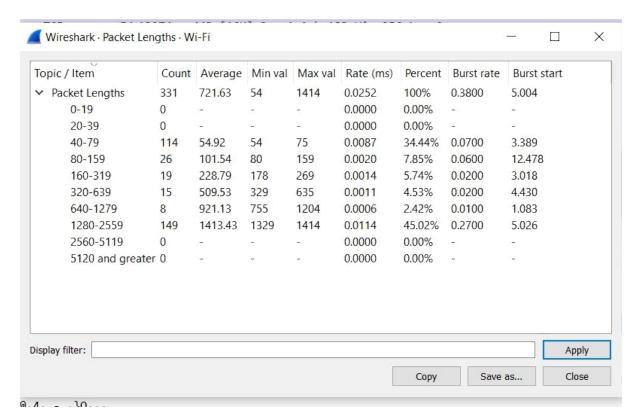
Statistics

Control of the Contro			
Measurement	Captured	Displayed	Marked
Packets	106	106 (100.0%)	-
Time span, s	26.030	26.030	<u>0.00</u>
Average pps	4.1	4.1	20
Average packet size, B	190	190	700
Bytes	20135	20135 (100.0%)	0
Average bytes/s	773	773	<u></u>
Average bits/s	6188	6188	<u>(24)</u>

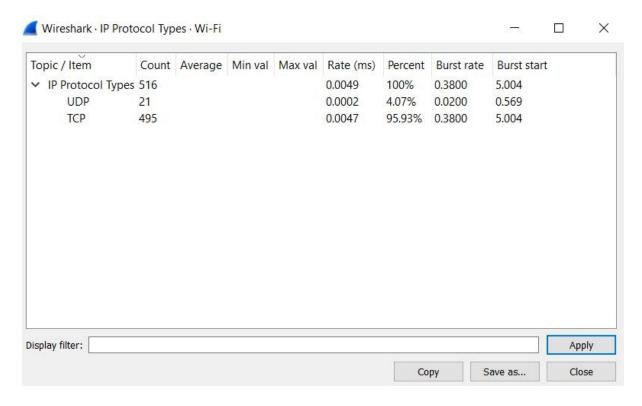
■ Wireshark · Protocol Hierarchy Statistics · Wi-Fi Percent Packets Packets Percent Bytes Bytes Bits/s End Packets End Bytes End Bits/s 100.0 739 330333 11 k 0 ✓ Frame 100.0 0 0 → Ethernet 100.0 739 3.1 10346 345 0 0 0 ✓ Internet Protocol Version 4 99.2 733 44 14660 489 0 0 0 User Datagram Protocol 39 0.1 312 10 0 5.3 8 8 46 Simple Service Discovery Protocol 1.1 0.4 1392 46 1392 0.2 25 NetBIOS Name Service 2.0 15 750 25 15 750 Domain Name System 2.2 16 0.2 825 27 16 825 27 91.4 7661 93.9 301880 10 k 229342 Transmission Control Protocol 694 462 Transport Layer Security 30.7 227 284244 9496 222 231373 7729 86.0 10 10 0 0 Data 1.4 0.0 10 10 0.8 168 5 Address Resolution Protocol 6 0.1 168 5 6

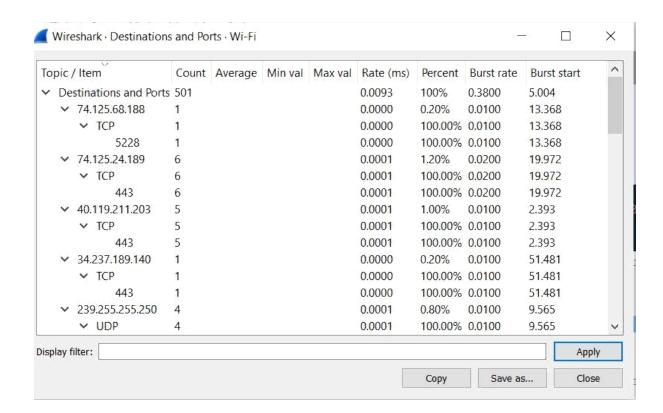
DNS:





Protocl have been used:

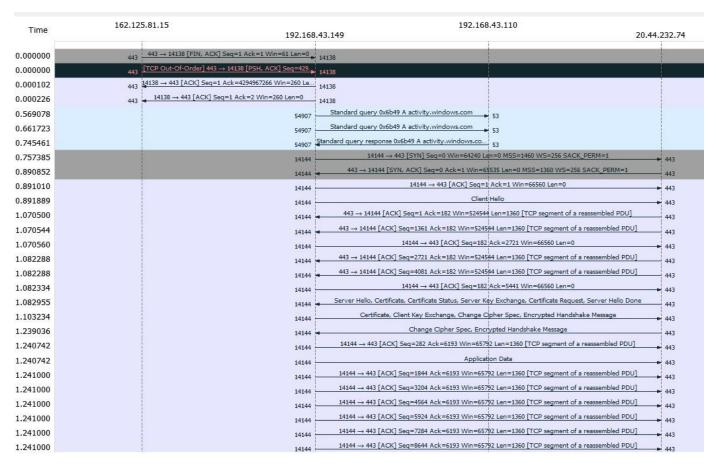




Error & Success Rates:



Real time Response:



Conclution:

The Wireshark package contains a network protocol analyzer. Wireshark is a open source and free software. It is a Graphical alternative to TCP dump and display packet in details. Open files contains packet data captures. Filtering is essential when dealing with a lot of packets. This is useful for analyzing data captured "off the wire" from a live network connection, or data read from a capture file.

Wireshark provides both a graphical and a TTY-mode front-end for examining captured network packets from over 500 protocols, as well as the capability to read capture files from many other popular network analyzers.