SYCS CN

PRACTICAL 8

AIM :

Using Wireshark, network analyzer, set the filter for ICMP, TCP, HTTP, UDP, FTP and perform respective protocol transactions to show/prove that the network analyzer is working

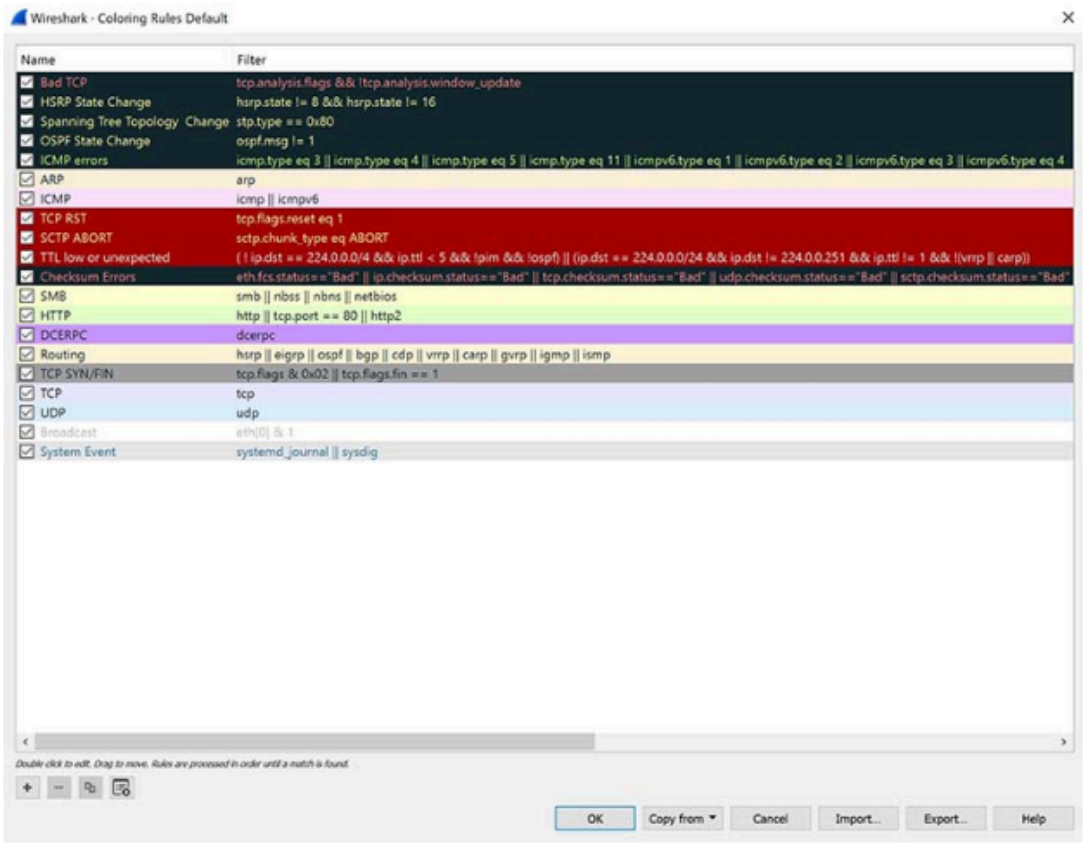
Wireshark is a network protocol analyzer, or an application that captures packets from a network connection, such as from your computer to your home office or the internet. Wireshark is the most often-used packet sniffer in the world. Like any other packet sniffer, Wireshark does three things:

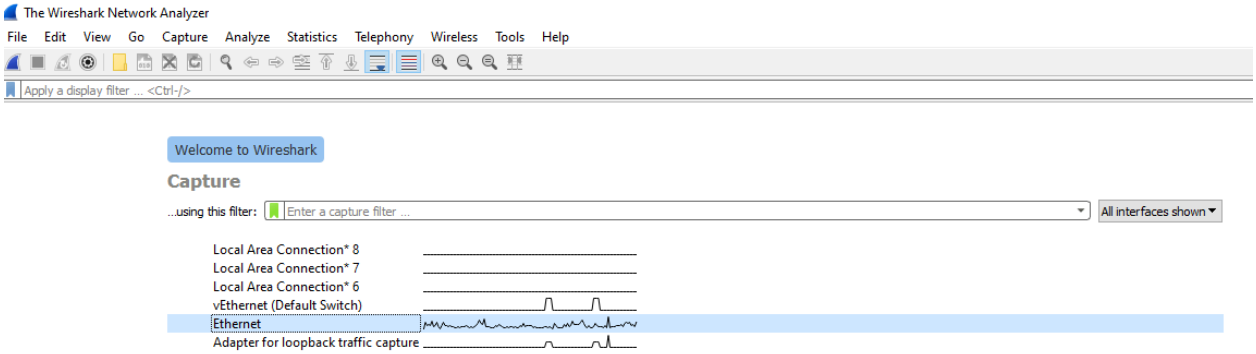
1. **Packet Capture:** Wireshark listens to a network connection in real time and then grabs entire streams of traffic – quite possibly tens of thousands of packets at a time.
2. **Filtering:** Wireshark is capable of slicing and dicing all of this random live data using filters. By applying a filter, you can obtain just the information you need to see.
3. **Visualization:** Wireshark, like any good packet sniffer, allows you to dive right into the very middle of a network packet. It also allows you to visualize entire conversations and network streams.

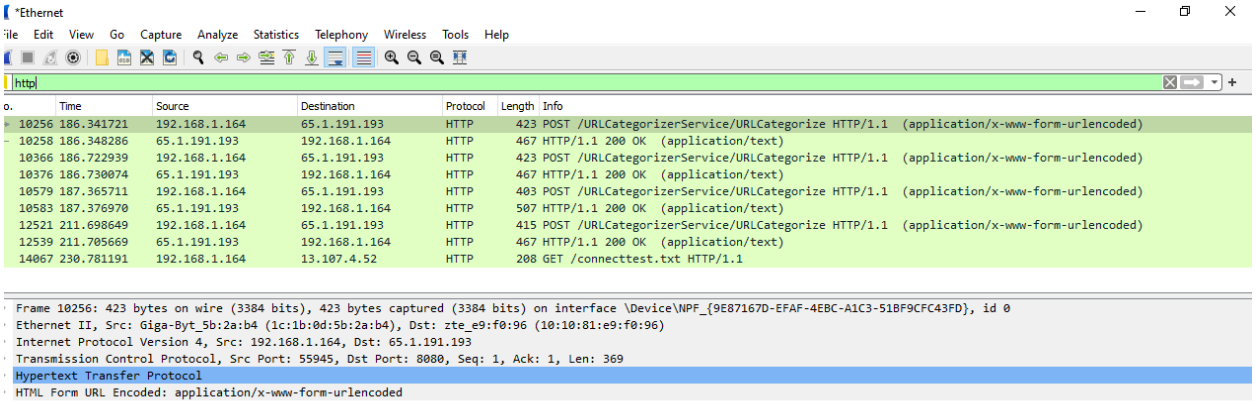
Now that you have some packets, it's time to figure out what they mean. Wireshark tries to help you identify packet types by applying common-sense color coding. The table below describes the default colors given to major packet types.

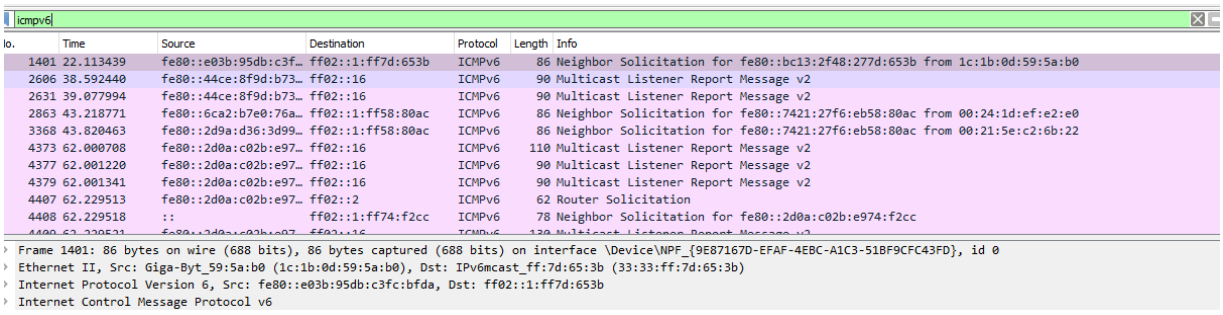
Color in Wireshark	Packet Type
Light purple	TCP
Light blue	UDP
Black	Packets with errors
Light green	HTTP traffic
Light yellow	Windows-specific traffic, including Server Message Blocks (SMB) and NetBIOS
Dark yellow	Routing
Dark gray	TCP SYN, FIN and ACK traffic

The default coloring scheme is shown below in Figure 6.
You can view this by going to **View >> Coloring Rules.**

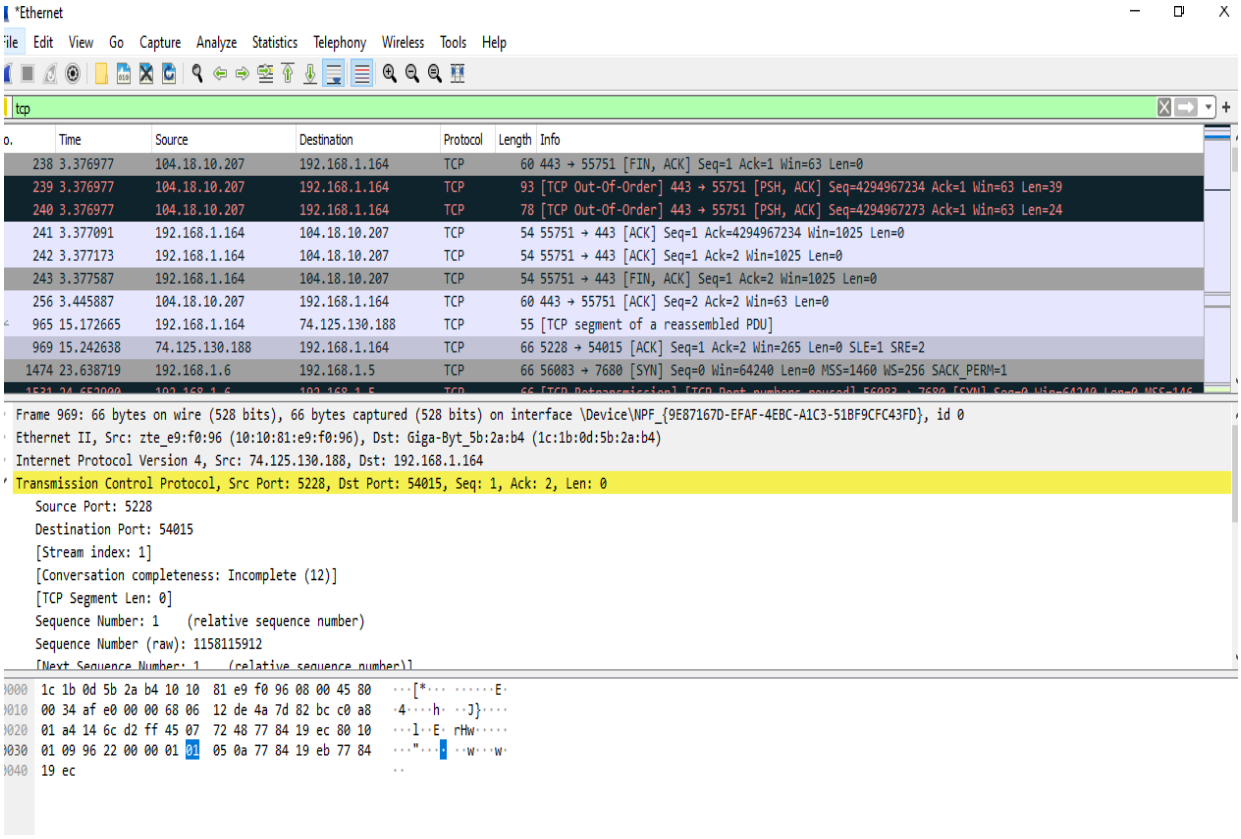



The Wireshark Network Analyzer
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
Welcome to Wireshark
Capture
...using this filter:
Enter a capture filter ...
All interfaces shown
Local Area Connection* 8
Local Area Connection* 7
Local Area Connection* 6
vEthernet (Default Switch)
Ethernet
Adapter for loopback traffic capture


*Ethernet
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http
No. Time Source Destination Protocol Length Info
10256 186.341721 192.168.1.164 65.1.191.193 HTTP 423 POST /URLCategorizerService/URLCategorize HTTP/1.1 (application/x-www-form-urlencoded)
10258 186.348286 65.1.191.193 192.168.1.164 HTTP 467 HTTP/1.1 200 OK (application/text)
10366 186.722939 192.168.1.164 65.1.191.193 HTTP 423 POST /URLCategorizerService/URLCategorize HTTP/1.1 (application/x-www-form-urlencoded)
10376 186.730074 65.1.191.193 192.168.1.164 HTTP 467 HTTP/1.1 200 OK (application/text)
10579 187.365711 192.168.1.164 65.1.191.193 HTTP 403 POST /URLCategorizerService/URLCategorize HTTP/1.1 (application/x-www-form-urlencoded)
10583 187.376970 65.1.191.193 192.168.1.164 HTTP 507 HTTP/1.1 200 OK (application/text)
12521 211.698649 192.168.1.164 65.1.191.193 HTTP 415 POST /URLCategorizerService/URLCategorize HTTP/1.1 (application/x-www-form-urlencoded)
12539 211.705669 65.1.191.193 192.168.1.164 HTTP 467 HTTP/1.1 200 OK (application/text)
14067 230.781191 192.168.1.164 13.107.4.52 HTTP 208 GET /connecttest.txt HTTP/1.1
Frame 10256: 423 bytes on wire (3384 bits), 423 bytes captured (3384 bits) on interface \Device\NPF_{9E87167D-EFAF-4EBC-A1C3-51BF9CFC43FD}, id 0
Ethernet II, Src: Giga-Byt_5b:2a:b4 (1c:1b:0d:5b:2a:b4), Dst: zte_e9:f0:96 (10:10:81:e9:f0:96)
Internet Protocol Version 4, Src: 192.168.1.164, Dst: 65.1.191.193
Transmission Control Protocol, Src Port: 55945, Dst Port: 8080, Seq: 1, Ack: 1, Len: 369
Hypertext Transfer Protocol
HTML Form URL Encoded: application/x-www-form-urlencoded


icmpv6
No. Time Source Destination Protocol Length Info
1401 22.113439 fe80::e03b:95db:c3f… ff02::1:ff7d:653b ICMPv6 86 Neighbor Solicitation for fe80::bc13:2f48:277d:653b from 1c:1b:0d:59:5a:b0
2606 38.592440 fe80::44ce:8f9d:b73… ff02::16 ICMPv6 90 Multicast Listener Report Message v2
2631 39.077994 fe80::44ce:8f9d:b73… ff02::16 ICMPv6 90 Multicast Listener Report Message v2
2863 43.218771 fe80::6ca2:b7e0:76a… ff02::1:ff58:80ac ICMPv6 86 Neighbor Solicitation for fe80::7421:27f6:eb58:80ac from 00:24:1d:ef:e2:e0
3368 43.820463 fe80::2d9a:d36:3d99… ff02::1:ff58:80ac ICMPv6 86 Neighbor Solicitation for fe80::7421:27f6:eb58:80ac from 00:21:5e:c2:6b:22
4373 62.000708 fe80::2d0a:c02b:e97… ff02::16 ICMPv6 110 Multicast Listener Report Message v2
4377 62.001220 fe80::2d0a:c02b:e97… ff02::16 ICMPv6 90 Multicast Listener Report Message v2
4379 62.001341 fe80::2d0a:c02b:e97… ff02::16 ICMPv6 90 Multicast Listener Report Message v2
4407 62.229513 fe80::2d0a:c02b:e97… ff02::2 ICMPv6 62 Router Solicitation
4408 62.229518 :: ff02::1:ff74:f2cc ICMPv6 78 Neighbor Solicitation for fe80::2d0a:c02b:e974:f2cc
Frame 1401: 86 bytes on wire (688 bits), 86 bytes captured (688 bits) on interface \Device\NPF_{9E87167D-EFAF-4EBC-A1C3-51BF9CFC43FD}, id 0
Ethernet II, Src: Giga-Byt_59:5a:b0 (1c:1b:0d:59:5a:b0), Dst: IPv6mcast_ff:7d:65:3b (33:33:ff:7d:65:3b)
Internet Protocol Version 6, Src: fe80::e03b:95db:c3fc:bfda, Dst: ff02::1:ff7d:653b
Internet Control Message Protocol v6


0000 33 33 ff 7d 65 3b 1c 1b 0d 59 5a b0 86 dd 60 00
0010 00 00 00 20 3a ff fe 80 00 00 00 00 00 00 e0 3b
0020 95 db c3 fc bf da ff 02 00 00 00 00 00 00 00 00
0030 00 01 ff 7d 65 3b 87 00 20 bd 00 00 00 00 fe 80
0040 00 00 00 00 00 00 bc 13 2f 48 27 7d 65 3b 01 01
0050 1c 1b 0d 59 5a b0


*Ethernet
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
238 3.376977 104.18.10.207 192.168.1.164 TCP 60 443 → 55751 [FIN, ACK] Seq=1 Ack=1 Win=63 Len=0
239 3.376977 104.18.10.207 192.168.1.164 TCP 93 [TCP Out-Of-Order] 443 → 55751 [PSH, ACK] Seq=4294967234 Ack=1 Win=63 Len=39
240 3.376977 104.18.10.207 192.168.1.164 TCP 78 [TCP Out-Of-Order] 443 → 55751 [PSH, ACK] Seq=4294967273 Ack=1 Win=63 Len=24
241 3.377091 192.168.1.164 104.18.10.207 TCP 54 55751 → 443 [ACK] Seq=1 Ack=4294967234 Win=1025 Len=0
242 3.377173 192.168.1.164 104.18.10.207 TCP 54 55751 → 443 [ACK] Seq=1 Ack=2 Win=1025 Len=0
243 3.377587 192.168.1.164 104.18.10.207 TCP 54 55751 → 443 [FIN, ACK] Seq=1 Ack=2 Win=1025 Len=0
256 3.445887 104.18.10.207 192.168.1.164 TCP 60 443 → 55751 [ACK] Seq=2 Ack=2 Win=63 Len=0
965 15.172665 192.168.1.164 74.125.130.188 TCP 55 [TCP segment of a reassembled PDU]
969 15.242638 74.125.130.188 192.168.1.164 TCP 66 5228 → 54015 [ACK] Seq=1 Ack=2 Win=265 Len=0 SLE=1 SRE=2
1474 23.638719 192.168.1.6 192.168.1.5 TCP 66 56083 → 7680 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM=1
Frame 969: 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on interface \Device\NPF_{9E87167D-EFAF-4EBC-A1C3-51BF9CFC43FD}, id 0
Ethernet II, Src: zte_e9:f0:96 (10:10:81:e9:f0:96), Dst: Giga-Byt_5b:2a:b4 (1c:1b:0d:5b:2a:b4)
Internet Protocol Version 4, Src: 74.125.130.188, Dst: 192.168.1.164
Transmission Control Protocol, Src Port: 5228, Dst Port: 54015, Seq: 1, Ack: 2, Len: 0
Source Port: 5228
Destination Port: 54015
[Stream index: 1]
[Conversation completeness: Incomplete (12)]
[TCP Segment Len: 0]
Sequence Number: 1 (relative sequence number)
Sequence Number (raw): 1158115912
1c 1b 0d 5b 2a b4 10 10 81 e9 f0 96 08 00 45 80
00 34 af e0 00 00 68 06 12 de 4a 7d 82 bc c0 a8
01 a4 14 6c d2 ff 45 07 72 48 77 84 19 ec 80 10
01 09 96 22 00 00 01 01 05 0a 77 84 19 eb 77 84
19 ec