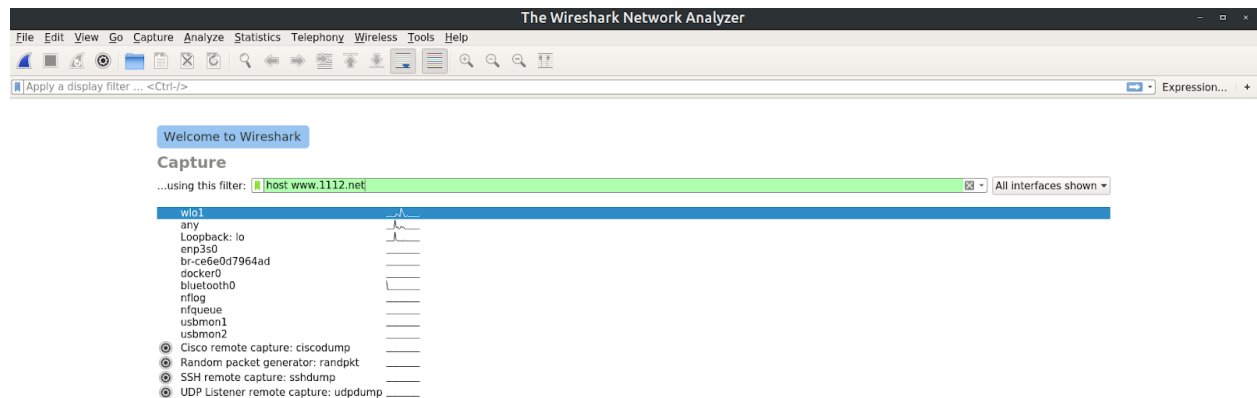


In this analysis, we are visiting <http://www.1112.net/lastpage.html> website, which runs on the **HTTP** protocol. Analysis of traffic to this website in Wireshark can be done by setting the host to [www.1112.net](http://www.1112.net) in the Wireshark **Capture Filters** (as shown in the image below).



**ECN Related Details:** Initially, a TCP SYN packet is sent with the **ECE** and **CWR** bits set to **1**, which indicates that our client supports ECN according to the convention.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.43.71	172.245.130.175	TCP	74	40150 → 80 [SYN, ECN, CWR] Seq=0 Win=64240 Len=0 MSS=1460 SAC
2	0.249505703	192.168.43.71	172.245.130.175	TCP	74	40152 → 80 [SYN, ECN, CWR] Seq=0 Win=64240 Len=0 MSS=1460 SAC
3	0.345786539	172.245.130.175	192.168.43.71	TCP	74	80 → 40150 [SYN, ACK, ECN] Seq=0 Ack=1 Win=14480 Len=0 MSS=13
4	0.345824068	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=1217211316
5	0.345987830	192.168.43.71	172.245.130.175	HTTP	491	GET /lastpage.html HTTP/1.1
6	0.575344331	172.245.130.175	192.168.43.71	TCP	74	80 → 40152 [SYN, ACK, ECN] Seq=0 Ack=1 Win=14480 Len=0 MSS=13
7	0.575406120	192.168.43.71	172.245.130.175	TCP	66	40152 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=1217211546
8	0.676278432	172.245.130.175	192.168.43.71	TCP	66	80 → 40150 [ACK] Seq=1 Ack=426 Win=15616 Len=0 TSval=30487890
9	0.676297861	172.245.130.175	192.168.43.71	HTTP	633	HTTP/1.1 200 OK (text/html)
10	0.676311641	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=426 Ack=568 Win=63744 Len=0 TSval=121721
11	0.750697239	192.168.43.71	172.245.130.175	HTTP	424	GET /favicon.ico HTTP/1.1
12	1.097162086	172.245.130.175	192.168.43.71	HTTP	682	HTTP/1.1 200 OK (image/vnd.microsoft.icon)
13	1.097208009	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=784 Ack=1184 Win=63616 Len=0 TSval=12172
14	6.264657762	172.245.130.175	192.168.43.71	TCP	66	80 → 40150 [FIN, ACK] Seq=1184 Ack=784 Win=16640 Len=0 TSval=
15	6.305294822	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=784 Ack=1185 Win=64128 Len=0 TSval=12172

Transmission Control Protocol, Src Port: 40150, Dst Port: 80, Seq: 0, Len: 0	
Source Port:	40150
Destination Port:	80
[Stream index:	0]
[TCP Segment Len:	0]
Sequence number:	0 (relative sequence number)
[Next sequence number:	0 (relative sequence number)]
Acknowledgment number:	0
1010 ....	= Header Length: 40 bytes (10)
Flags: 0x0c2 (SYN, ECN, CWR)	
000. ....	= Reserved: Not set
...0. ....	= Nonce: Not set
....1... ..	= Congestion Window Reduced (CWR): Set
....1... ..	= ECN-Echo: Set
....10. ....	= Urgent: Not set
....00. ....	= Acknowledgment: Not set
....0... ..	= Push: Not set

Transmission Control Protocol (tcp), 40 bytes

Packets: 15 · Displayed: 15 (100.0%) · Dropped: 0 (0.0%) Profile: Default

This indicates that the client(our system) is ECN-capable. Since the website is ECN-enabled, it confirms ECN support by setting the **ECE bit to 1**, and the **CWR bit to 0**, according to the convention, in the SYN+ACK response packet.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.43.71	172.245.130.175	TCP	74	40150 → 80 [SYN, ECN, CWR] Seq=0 Win=64240 Len=0 MSS=1460 SAC
2	0.249505703	192.168.43.71	172.245.130.175	TCP	74	40152 → 80 [SYN, ECN, CWR] Seq=0 Win=64240 Len=0 MSS=1460 SAC
3	0.345786539	172.245.130.175	192.168.43.71	TCP	74	80 → 40150 [SYN, ACK, ECN] Seq=0 Ack=1 Win=14480 Len=0 MSS=13
4	0.345824068	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=1217211316
5	0.345987830	192.168.43.71	172.245.130.175	HTTP	491	GET /lastpage.html HTTP/1.1
6	0.575344331	172.245.130.175	192.168.43.71	TCP	74	80 → 40152 [SYN, ACK, ECN] Seq=0 Ack=1 Win=14480 Len=0 MSS=13
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14	6.264657762	172.245.130.175	192.168.43.71	TCP	66	80 → 40150 [FIN, ACK] Seq=1184 Ack=784 Win=16640 Len=0 TSval=
15	6.305294822	192.168.43.71	172.245.130.175	TCP	66	40150 → 80 [ACK] Seq=784 Ack=1185 Win=64128 Len=0 TSval=12172

Transmission Control Protocol, Src Port: 80, Dst Port: 40150, Seq: 0, Ack: 1, Len: 0	
Source Port: 80	
Destination Port: 40150	
[Stream index: 0]	
[TCP Segment Len: 0]	
Sequence number: 0 (relative sequence number)	
[Next sequence number: 0 (relative sequence number)]	
Acknowledgment number: 1 (relative ack number)	
1010 ... = Header Length: 40 bytes (10)	
Flags: 0x052 (SYN, ACK, ECN)	
000. .... = Reserved: Not set	
...0 .... = Nonce: Not set	
.... 0... = Congestion Window Reduced (CWR): Not set	
.... 1... = ECN-Echo: Set	
.... 0... = Urgent: Not set	
.... 1... = Acknowledgment: Set	
.... 0... = Push: Not set	

Transmission Control Protocol (tcp), 40 bytes

Packets: 15 · Displayed: 15 (100.0%) · Dropped: 0 (0.0%)

Profile: Default