

Lab 2

Aim: Capture ping and traceroute PDUs using Network Protocol Analyzer and examine.

Step: 1

Ping and trace:

Use Ping Command with an extension to Display packet Information such as Response Time, Packet Size and Sequence Number.

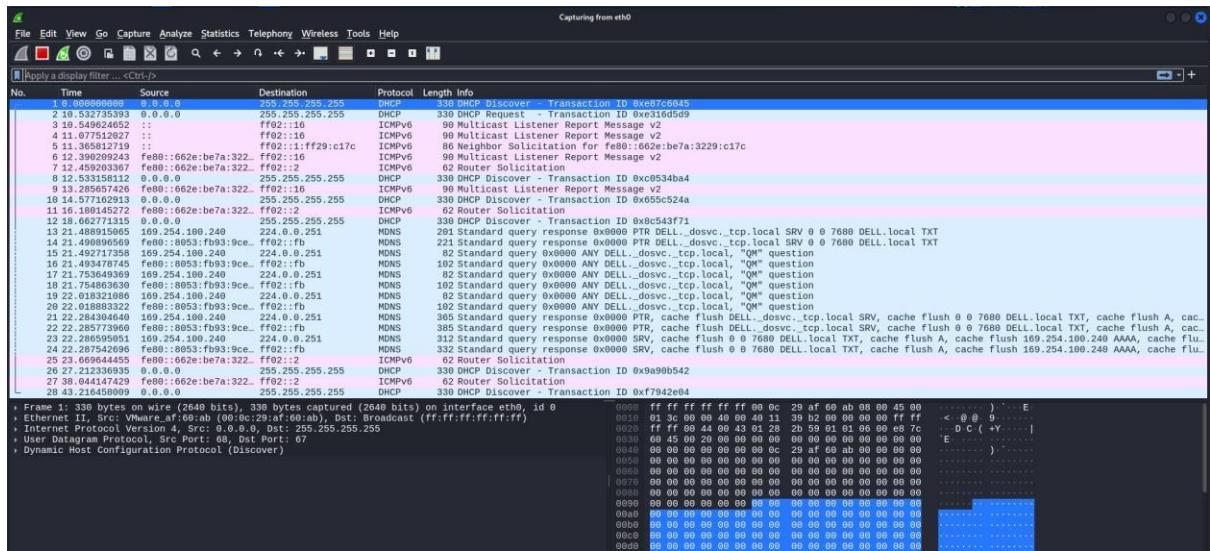
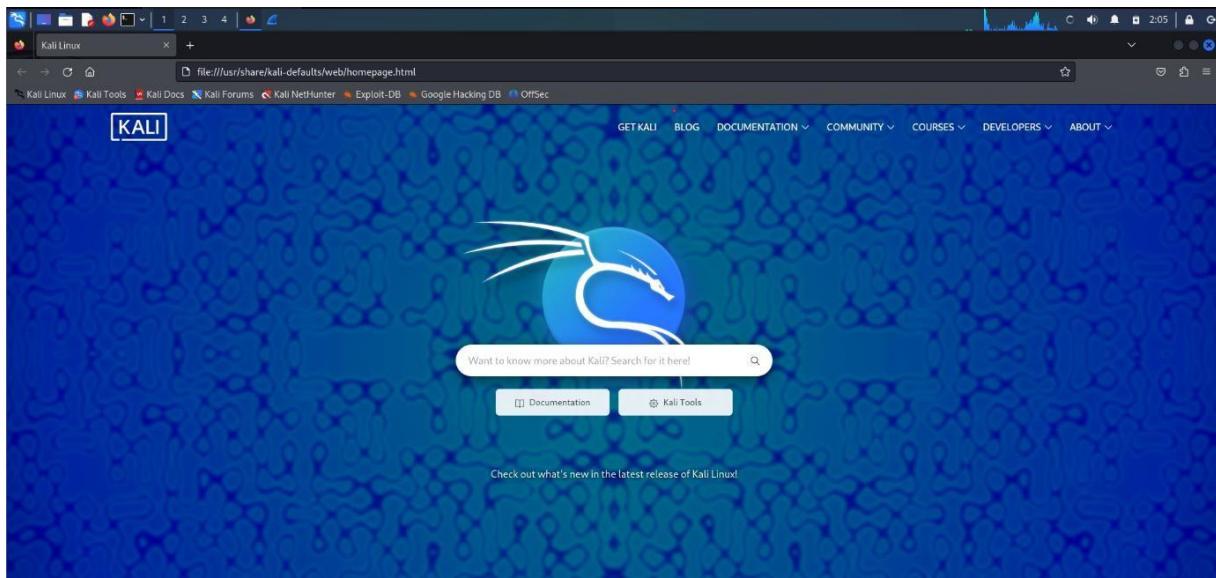
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ping -c 50 192.168.0.100
PING 64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=1 ttl=115 time=79.7 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=2 ttl=115 time=117 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=3 ttl=115 time=117 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=4 ttl=115 time=166 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=5 ttl=115 time=85.8 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=6 ttl=115 time=175 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=7 ttl=115 time=159 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=8 ttl=115 time=158 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=9 ttl=115 time=176 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=10 ttl=115 time=124 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=11 ttl=115 time=111 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=12 ttl=115 time=141 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=13 ttl=115 time=166 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=14 ttl=115 time=111 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=15 ttl=115 time=111 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=16 ttl=115 time=160 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=17 ttl=115 time=188 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=18 ttl=115 time=159 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=19 ttl=115 time=115 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=20 ttl=115 time=74.9 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=21 ttl=115 time=114 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=22 ttl=115 time=123 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=23 ttl=115 time=74.5 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=24 ttl=115 time=74.7 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=25 ttl=115 time=111 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=26 ttl=115 time=76.8 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=27 ttl=115 time=69.7 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=28 ttl=115 time=185 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=29 ttl=115 time=109 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=30 ttl=115 time=153 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=31 ttl=115 time=68.6 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=32 ttl=115 time=0.1 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=33 ttl=115 time=144 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=34 ttl=115 time=66.2 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=35 ttl=115 time=186 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=36 ttl=115 time=114 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=38 ttl=115 time=57.8 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=39 ttl=115 time=277 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=40 ttl=115 time=56.8 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=41 ttl=115 time=8.8 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=42 ttl=115 time=118 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=43 ttl=115 time=55.1 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=44 ttl=115 time=144 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=45 ttl=115 time=71.1 ms
64 bytes from b012a05.in-ve.le100.net (2404:6800:4:009::811::200e): icmp_seq=46 ttl=115 time=97.7 ms

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No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	2401:4900:792a:3ecd.260b:140f:1500::b81..	TCP	86	43986 + 80 [ACK] Seq=1 Ack=1 Win=253 Len=0 TStamp=594445143 TSecr=296085436	
2	0.000017	2401:4900:792a:3ecd.260b:140f:1500::b81..	TCP	86	43986 + 80 [ACK] Seq=1 Ack=1 Win=253 Len=0 TStamp=594445143 TSecr=296085436	
3	0.057592	2600:140f:1500::b81..	TCP	86	[TCP ACKed unsegmented] 80 + 49308 [ACK] Seq=1 Ack=2 Win=91 Len=0 TStamp=2960864508 TSecr=59432883	
4	0.687524	2401:4900:792a:3ecd.2603:140d:406:6..	TLSv1.2	117	Application Data	
5	0.687533	2401:4900:792a:3ecd.2603:140d:406:6..	TCP	117	[TCP Retransmission] 40758 + 443 [PSH, ACK] Seq=1 Ack=1 Win=251 Len=43	
6	0.767806	2401:4900:792a:3ecd..260b:140f:1500::b81..	TCP	86	33730 + 80 [ACK] Seq=1 Ack=1 Win=249 Len=0 TStamp=594445911 TSecr=2960855114	
7	0.767845	2401:4900:792a:3ecd..260b:140f:1500::b81..	TCP	86	[TCP Dup ACK 6@1] 33730 + 80 [ACK] Seq=1 Ack=1 Win=249 Len=0 TStamp=594445911 TSecr=2960855114	
8	0.795736	2603:1040:a6:6..	TCP	86	248 Application Data	
9	0.833636	2603:1040:a6:6..	TCP	86	[TCP Unsegmented ACK] 80 + 33730 [ACK] Seq=1 Ack=1 Win=501 Len=0 TStamp=2960865336 TSecr=594343677	
10	0.844631	2401:4900:792a:3ecd..2603:140d:406:6..	TCP	86	49758 + 443 [ACK] Seq=44 Ack=179 Win=255 Len=0	
11	0.844640	2401:4900:792a:3ecd..2603:140d:406:6..	TCP	86	[TCP ACKed ACK 10@1] 40758 + 443 [ACK] Seq=45 Ack=179 Win=255 Len=0	
12	0.844641	2401:4900:792a:3ecd..2603:140d:406:6..	TCP	86	[TCP ACKed ACK 11@1] 40758 + 443 [ACK] Seq=46 Ack=179 Win=255 Len=0	
13	0.598431	192.168.183.13..224.0..251..	DNS	702	Standard query response @0x0000 TXT, cache flush PTR _nstream.dbd._tcp.local PTR 3.2.2.0..32-DELL.214e4357-e70e-4442-b5ed-d2732ae79be..	
13	0.599450	192.168.193.13..224.0..251..	DNS	702	Standard query response @0x0000 TXT, cache flush PTR _nstream.dbd._tcp.local PTR 3.2.2.0..32-DELL.214e4357-e70e-4442-b5ed-d2732ae79be..	
14	2.184925	fe80::70ef:2fff:feab..fe80::70ef:2fff:feab..ICMPv6	86	Neighbor Solicitation Fe80::70ef:2fff:feab:1979:bdca:9c2b (sol, ovr) is at 7c:21:4:a:1:bb:8a		
15	2.185664	fe80::be46:f979:bdca:9c2b..	ICMPv6	86	Neighbor Advertisement Fe80::be46:f979:bdca:9c2b (sol, ovr) is at 7c:21:4:a:1:bb:8a	
16	2.185669	fe80::be46:f979:bdca:9c2b..fe80::70ef:2fff:feab..ICMPv6	86	Neighbor Advertisement Fe80::be46:f979:bdca:9c2b (sol, ovr) is at 7c:21:4:a:1:bb:8a		
17	2.448467	192.168.183.13..192.168.183.42..	DNS	74	Standard query 192.168.1 A ecs.office.com	
18	2.448477	192.168.183.13..192.168.183.42..	DNS	74	Standard query 192.168.1 A ecs.office.com	
19	2.448842	192.168.183.13..192.168.183.42..	DNS	74	Standard query 0x0684 AAAA ecs.office.com	
20	2.448846	192.168.183.13..192.168.183.42..	DNS	74	Standard query 0x0684 AAAA ecs.office.com	
21	2.556471	2401:4900:792a:3ecd..2401:4900:792a:3ecd..DNS	DNS	94	Standard query 0x0684 AAAA ecs.office.com	
22	2.556486	2401:4900:792a:3ecd..2401:4900:792a:3ecd..DNS	DNS	94	Standard query 0x0684 AAAA ecs.office.com	
23	2.556484	2401:4900:792a:3ecd..2401:4900:792a:3ecd..DNS	DNS	94	Standard query 0x0684 AAAA ecs.office.com	
24	2.556501	2401:4900:792a:3ecd..2401:4900:792a:3ecd..DNS	DNS	94	Standard query 0x0684 AAA A ecs.office.com	
25	2.589862	192.168.183.42..192.168.183.13..	DNS	229	Standard query response @0x0000 CNAME ecs.office.com CNAMES trafficmanager.net	
26	2.589862	192.168.183.42..192.168.183.13..	DNS	241	Standard query response @0x0084 CNAME ecs.office.com CNAMES trafficmanager.net	
27	2.591251	2401:4900:792a:3ecd..2620:140d:42:132..TCP	TCP	86	50405 + 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1440 WS=256 SACK_PERM	
28	2.591259	2401:4900:792a:3ecd..2620:140d:42:132..TCP	TCP	86	[TCP Retransmission] 50405 + 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1440 WS=256 SACK_PERM	
Frame 1: 80 bytes on wire (688 bits), 86 bytes captured (688 bits) on interface \Device\NPFL_67767F53-BE 0000..						
0000 72 ef 02 ab d2 8c 7c 21 4a e1 bb 8a 86 dd 60 06 r- J ..-						
0001 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. J y> ..						
0002 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. Jp 9 & ..						
0003 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. P V2 ..						
0004 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0005 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. W-{:8} ..						
0006 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0007 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0008 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0009 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
000a 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
000b 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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000d 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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000f 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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002a 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
002b 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
002c 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
002d 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
002e 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
002f 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0031 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
0032 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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0039 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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003c 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
003d 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. #n ..						
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0040 00 00 00 00 00 00						

Step 2: Stop Wireshark then search Website in browser and then restart Wireshark Display packet.



Conclusion:

Capturing Ping and Traceroute PDUs with a Network Protocol Analyser helps confirm connectivity, measure latency, and identify network paths. Ping verifies end-to-end reachability and Round Trip Time (RTT), while Traceroute reveals intermediary hops and potential bottlenecks. Both are essential for diagnosing network performance and troubleshooting issues.