

Advance Networks Lab: Lab Assignment-2

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Problem 1

Displaying arp table

Ans)cmd: arp -n

```
ramsandesh@ramsandesh-HP-Compaq-Pro-6300-MT:/$ arp -n
Address          HWtype  HWaddress      Flags Mask    Iface
10.30.56.1        ether   00:1f:9d:f2:bc:c9  C             eth0
```

Empty arp table.

cmd: sudo ip -s -s neigh flush all

```
ramsandesh@ramsandesh-HP-Compaq-Pro-6300-MT:~$ sudo ip -s -s neigh flush all
10.30.56.1 dev eth0 lladdr 00:1f:9d:f2:bc:c9 ref 307 used 67/67/47 probes 4 STALE

*** Round 1, deleting 1 entries ***
*** Flush is complete after 1 round ***
ramsandesh@ramsandesh-HP-Compaq-Pro-6300-MT:~$ arp -n
Address          HWtype  HWaddress      Flags Mask    Iface
10.30.56.1        (incomplete)
ramsandesh@ramsandesh-HP-Compaq-Pro-6300-MT:~$
```

Problem 2

Ping with another machine in the intranet.

cmd: ping 10.30.56.107

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=7/1792, ttl=64
2	0.000659	10.30.56.107	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0e23, seq=7/1792, ttl=64
3	1.000010	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=8/2048, ttl=64
4	1.000733	10.30.56.107	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0e23, seq=8/2048, ttl=64
5	1.041656	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00 Cost = 4 Port = 0x802e	
6	2.000011	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=9/2304, ttl=64
7	2.000681	10.30.56.107	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0e23, seq=9/2304, ttl=64
8	3.000010	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=10/2560, ttl=64
9	3.000587	10.30.56.107	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0e23, seq=10/2560, ttl=64
10	3.041466	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00 Cost = 4 Port = 0x802e	
11	3.999986	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=11/2816, ttl=64
12	4.000660	10.30.56.107	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0e23, seq=11/2816, ttl=64
13	5.000014	10.30.56.18	10.30.56.107	ICMP	98	Echo (ping) request id=0x0e23, seq=12/3072, ttl=64

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)
 Ethernet II, Src: 88:51:fb:42:80:86 (88:51:fb:42:80:86), Dst: 6c:3b:e5:31:2f:a8 (6c:3b:e5:31:2f:a8)
 Internet Protocol Version 4, Src: 10.30.56.18 (10.30.56.18), Dst: 10.30.56.107 (10.30.56.107)
 Internet Control Message Protocol

arp table after pinging to local machine.

cmd: arp -n

Address	HWtype	HWaddress	Flags	Mask	Iface
10.30.56.107	ether	6c:3b:e5:31:2f:a8	C		eth0
10.30.56.1	ether	00:1f:9d:f2:bc:c9	C		eth0

ping google.com

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	10.30.56.18	74.125.236.98	ICMP	98	Echo (ping) request id=0x0f12, seq=8/2048, ttl=64
2	0.013907	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00 Cost = 4 Port = 0x802e	
3	0.059007	74.125.236.98	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0f12, seq=8/2048, ttl=56
4	0.059185	10.30.56.18	8.8.8.8	DNS	86	Standard query PTR 98.236.125.74.in-addr.arpa
5	0.148349	8.8.8.8	10.30.56.18	DNS	124	Standard query response PTR bom03s01-in-f2.1e100.net
6	1.001365	10.30.56.18	74.125.236.98	ICMP	98	Echo (ping) request id=0x0f12, seq=9/2304, ttl=64
7	1.062447	74.125.236.98	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0f12, seq=9/2304, ttl=56
8	1.062699	10.30.56.18	8.8.8.8	DNS	86	Standard query PTR 98.236.125.74.in-addr.arpa
9	1.157439	8.8.8.8	10.30.56.18	DNS	124	Standard query response PTR bom03s01-in-f2.1e100.net
10	2.082501	10.30.56.18	74.125.236.98	ICMP	98	Echo (ping) request id=0x0f12, seq=10/2560, ttl=64
11	2.014087	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00 Cost = 4 Port = 0x802e	
12	2.106856	74.125.236.98	10.30.56.18	ICMP	98	Echo (ping) reply id=0x0f12, seq=10/2560, ttl=56
13	2.107104	10.30.56.18	8.8.8.8	DNS	86	Standard query PTR 98.236.125.74.in-addr.arpa

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)
 Ethernet II, Src: 88:51:fb:42:80:86 (88:51:fb:42:80:86), Dst: Cisco f2:bc:c9 (00:1f:9d:f2:bc:c9)
 Internet Protocol Version 4, Src: 10.30.56.18 (10.30.56.18), Dst: 74.125.236.98 (74.125.236.98)
 Internet Control Message Protocol

Problem 3

Request google.com from web browser.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00	Cost = 4 Port = 0x802e
2	1.999976	Cisco 7f:1b:2e	Spanning-tree-(for-br)STP	60	Conf. Root = 32768/15/00:0c:31:65:a9:00	Cost = 4 Port = 0x802e
3	3.179027	74.125.236.117	10.30.56.18	TLSv1	121	Application Data
4	3.179053	10.30.56.18	74.125.236.117	TCP	66	34986 > https [ACK] Seq=1 Ack=56 Win=634 Len=0 TSval=3957954 TSecr=30885422
5	3.179066	74.125.236.117	10.30.56.18	TLSv1	99	Application Data
6	3.179070	10.30.56.18	74.125.236.117	TCP	66	34986 > https [ACK] Seq=1 Ack=89 Win=634 Len=0 TSval=3957954 TSecr=30885422
7	3.185432	10.30.56.18	74.125.236.117	TCP	2902	[TCP segment of a reassembled PDU]
8	3.185453	10.30.56.18	74.125.236.117	TLSv1	945	Application Data
9	3.359367	74.125.236.117	10.30.56.18	TCP	66	https > 34986 [ACK] Seq=89 Ack=1419 Win=661 Len=0 TSval=30885633 TSecr=3957955
10	3.367569	74.125.236.117	10.30.56.18	TCP	66	https > 34986 [ACK] Seq=89 Ack=2837 Win=661 Len=0 TSval=30885634 TSecr=3957955
11	3.367603	74.125.236.117	10.30.56.18	TCP	66	https > 34986 [ACK] Seq=89 Ack=3716 Win=661 Len=0 TSval=30885635 TSecr=3957955
12	3.728525	74.125.236.117	10.30.56.18	TLSv1	758	Application Data
13	3.728548	74.125.236.117	10.30.56.18	TLSv1	121	Application Data

▶ Frame 4: 66 bytes on wire (528 bits), 66 bytes captured (528 bits)

▶ Ethernet II, Src: 88:51:fb:42:80:86 (88:51:fb:42:80:86), Dst: Cisco f2:bc:c9 (00:1f:9d:f2:bc:c9)

▶ Internet Protocol Version 4, Src: 10.30.56.18 (10.30.56.18), Dst: 74.125.236.117 (74.125.236.117)

▶ Transmission Control Protocol, Src Port: 34986 (34986), Dst Port: https (443), Seq: 1, Ack: 56, Len: 0