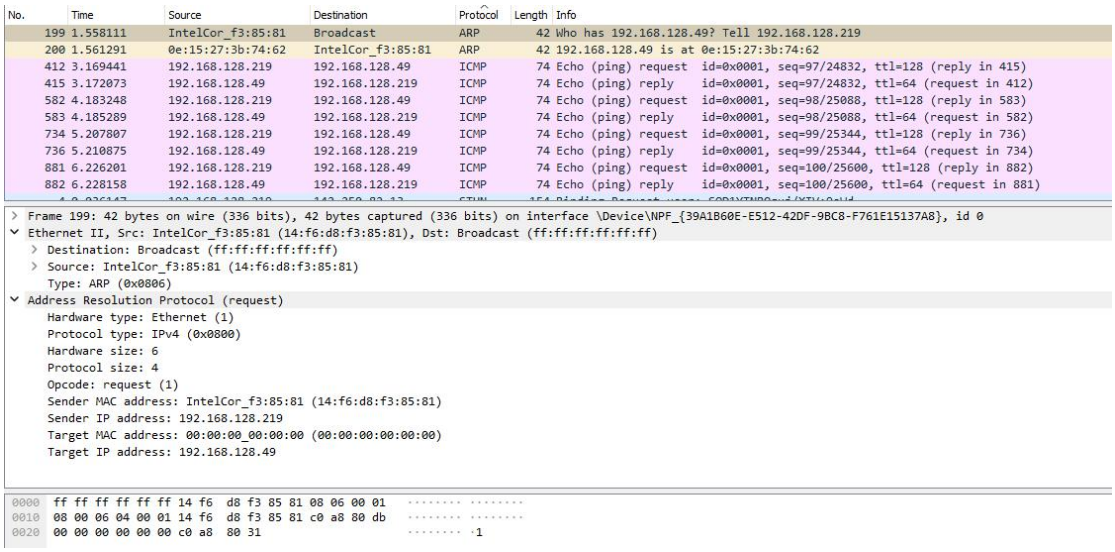
SOUTION 1:

1. Ipconfig /all

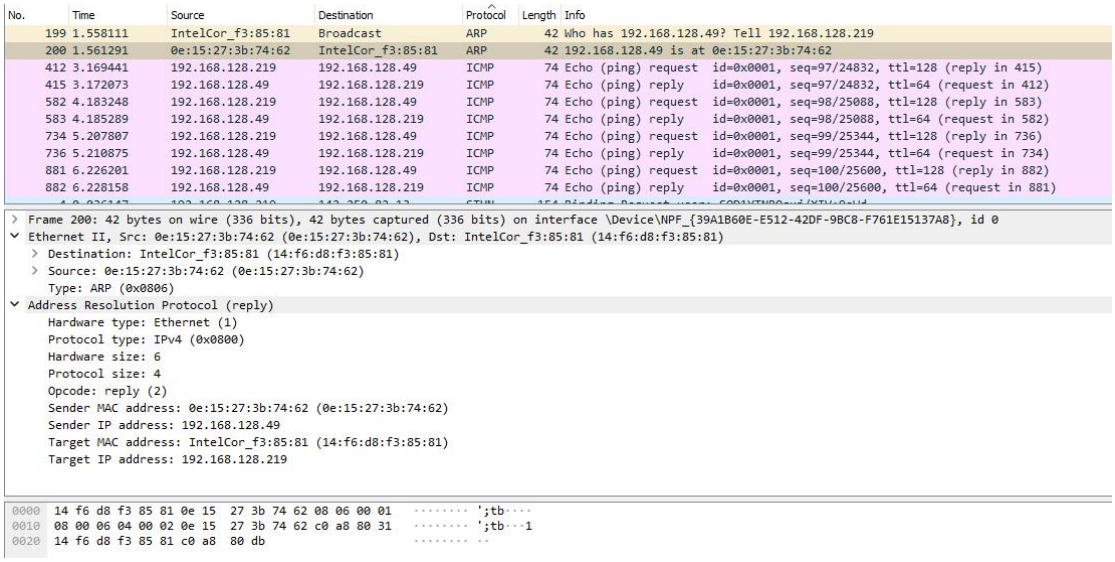
```
Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
   Physical Address. . . . . . . . . : 14-F6-D8-F3-85-82
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
   Physical Address. . . . . . . . . : 16-F6-D8-F3-85-81
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter WiFi:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) Wireless-AC 9462
   Physical Address. . . . . . . . . : 14-F6-D8-F3-85-81
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::ad67:1708:e561:2bf0%7(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.128.219(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : 16 November 2021 11:51:39
   Lease Expires . . . . . . . . . . : 16 November 2021 14:19:02
   Default Gateway . . . . . . . . . : 192.168.128.49
   DHCP Server . . . . . . . . . . . : 192.168.128.49
   DHCPv6 IAID . . . . . . . . . . . : 85259992
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-27-E0-E8-95-14-F6-D8-F3-85-81
   DNS Servers . . . . . . . . . . . : 192.168.128.49
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Bluetooth Device (Personal Area Network)
   Physical Address. . . . . . . . . : 14-F6-D8-F3-85-85
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
```

2. Analyzing ARP request



- The sender MAC address is same as my Physical Address.
- Sender IP address is same as my IP adders.
- Destination is FF:FF:FF:FF:FF:FF which is broadcast address.
- Target IP address is same as default gateway which was pinged.

3. Analyzing ARP reply



- The sender MAC address is physical address of default gateway as a ARP reply.
- Sender IP address is same as default gateway's IP address.
- Target MAC address is same as my MAC address.
- Target IP address is same as my IP address.

SOLUTION 2:

Class-full addressing Table:

CLASS	EADING BITS	NET ID BITS	HOST ID BITS	NO. OF NETWORKS	ADDRESSES PER NETWORK	START ADDRESS	END ADDRESS
CLASS A	0	8	24	2^7 (128)	2^{24} (16,777,216)	0.0.0.0	127.255.255.255
CLASS B	10	16	16	2^{14} (16,384)	2^{16} (65,536)	128.0.0.0	191.255.255.255
CLASS C	110	24	8	2^{21} (2,097,152)	2^8 (256)	192.0.0.0	223.255.255.255
CLASS D	1110	NOT DEFINED	NOT DEFINED	NOT DEFINED	NOT DEFINED	224.0.0.0	239.255.255.255
CLASS E	1111	NOT DEFINED	NOT DEFINED	NOT DEFINED	NOT DEFINED	240.0.0.0	255.255.255.255

Pinging different sites and classifying the classes of IP

```
PS C:\Users\Sceke> ping instagram.com

Pinging instagram.com [31.13.79.174] with 32 bytes of data:   Class A
Reply from 31.13.79.174: bytes=32 time=82ms TTL=51
Reply from 31.13.79.174: bytes=32 time=68ms TTL=51
Reply from 31.13.79.174: bytes=32 time=61ms TTL=51
Reply from 31.13.79.174: bytes=32 time=59ms TTL=51

Ping statistics for 31.13.79.174:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 59ms, Maximum = 82ms, Average = 67ms
PS C:\Users\Sceke> ping youtube.com

Pinging youtube.com [142.250.67.142] with 32 bytes of data:   Class B
Reply from 142.250.67.142: bytes=32 time=65ms TTL=112
Reply from 142.250.67.142: bytes=32 time=70ms TTL=112
Reply from 142.250.67.142: bytes=32 time=97ms TTL=112
Reply from 142.250.67.142: bytes=32 time=63ms TTL=112

Ping statistics for 142.250.67.142:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 63ms, Maximum = 97ms, Average = 73ms
PS C:\Users\Sceke> ping drive.google.com

Pinging drive.google.com [142.250.67.238] with 32 bytes of data:  Class B
Reply from 142.250.67.238: bytes=32 time=104ms TTL=112
Reply from 142.250.67.238: bytes=32 time=64ms TTL=112
Reply from 142.250.67.238: bytes=32 time=66ms TTL=112
Reply from 142.250.67.238: bytes=32 time=61ms TTL=112

Ping statistics for 142.250.67.238:
```

```
PS C:\Users\Sceke> ping google.com

Pinging google.com [142.250.183.174] with 32 bytes of data:
Reply from 142.250.183.174: bytes=32 time=67ms TTL=112
Reply from 142.250.183.174: bytes=32 time=87ms TTL=112
Reply from 142.250.183.174: bytes=32 time=62ms TTL=112
Reply from 142.250.183.174: bytes=32 time=78ms TTL=112

Ping statistics for 142.250.183.174:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 62ms, Maximum = 87ms, Average = 73ms
PS C:\Users\Sceke> arp -d
PS C:\Users\Sceke> ping bing.com

Pinging bing.com [13.107.21.200] with 32 bytes of data:
Reply from 13.107.21.200: bytes=32 time=59ms TTL=114
Reply from 13.107.21.200: bytes=32 time=73ms TTL=114
Reply from 13.107.21.200: bytes=32 time=83ms TTL=114
Reply from 13.107.21.200: bytes=32 time=63ms TTL=114

Ping statistics for 13.107.21.200:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 59ms, Maximum = 83ms, Average = 69ms
PS C:\Users\Sceke> ping facebook.com

Pinging facebook.com [31.13.79.35] with 32 bytes of data:
Reply from 31.13.79.35: bytes=32 time=59ms TTL=51
Reply from 31.13.79.35: bytes=32 time=59ms TTL=51
Reply from 31.13.79.35: bytes=32 time=58ms TTL=51
Reply from 31.13.79.35: bytes=32 time=96ms TTL=51
```

Class B (127-191)

Class A (0-127)

Class A (0-)127