

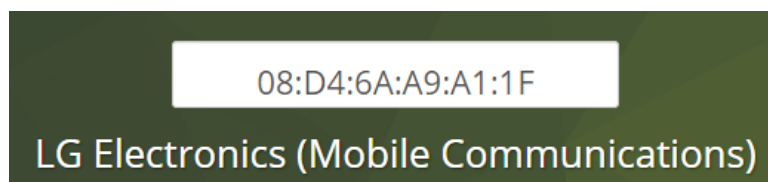
# Addressing in Computer Networks

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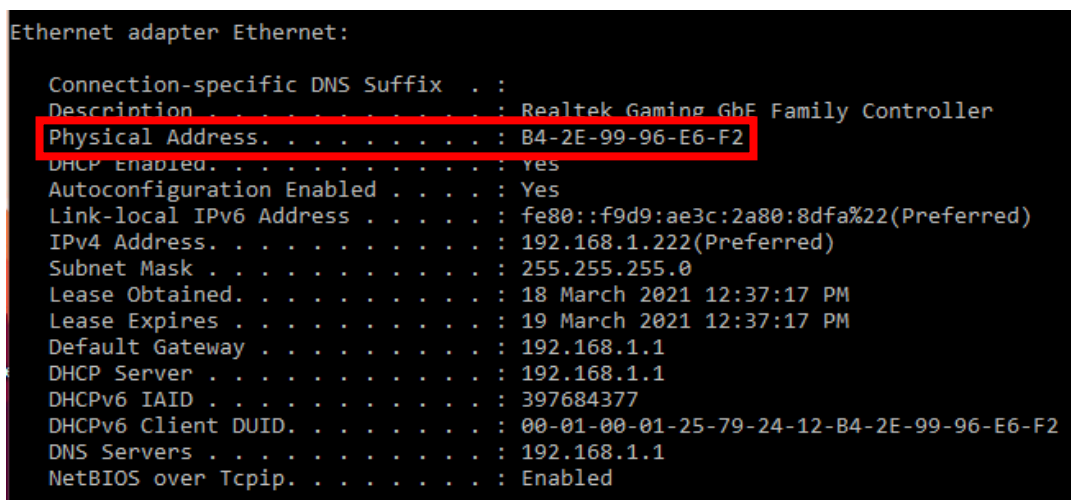
## 1. Phone MAC Address: 08:D4:6A:A9:A1:1F



## 2. Phone's NIC Manufacturer: LG Electronics



## 3. PC's MAC Address: B4:2E:99:96:E6:F2



## 4. PC's NIC Manufacturer: GIGA-BYTE



Frame 5: 50 bytes on wire (400 bits) 50 bytes captured (400 bits) on interface \Device\NPF\_{F1A7D8CC-772B-4D92-A7CC-3463EF9E7AAD}, id 0  
Ethernet II, Src: Giga-Byt\_96:e6:f2 (b4:2e:99:96:e6:f2), Dst: ASUSTekC\_e4:dd:98 (54:a0:50:e4:dd:98)  
Internet Protocol Version 4, Src: 192.168.1.222, Dst: 213.163.95.28  
User Datagram Protocol, Src Port: 65126, Dst Port: 50003  
Data (8 bytes)

## 5. Individual Part: 96:e6:f2 ( last 3 bytes of MAC address )

## 6. ARP Table Entries:

Interface: 192.168.1.222 --- 0x16

Internet Address	Physical Address	Type
192.168.1.1	54-a0-50-e4-dd-98	dynamic
192.168.1.88	1c-5a-3e-53-01-96	dynamic
192.168.1.113	4c-eb-bd-4a-98-6f	dynamic
192.168.1.219	f8-77-b8-5f-01-00	dynamic
192.168.1.255	ff-ff-ff-ff-ff-ff	static
224.0.0.22	01-00-5e-00-00-1b	static
224.0.0.251	01-00-5e-00-00-fb	static
224.0.0.252	01-00-5e-00-00-fc	static
239.255.255.250	01-00-5e-7f-ff-fa	static
255.255.255.255	ff-ff-ff-ff-ff-ff	static

## 7. Frame 42:

MAC Dest	MAC Src	IP Scr	IP Dest	Transport Header	Data
B4:2E:99:96:E6:F2	54:A0:50:E4:DD:98	162.159.133.234	192.168.1.222	-	-

Frame 42: 97 bytes on wire (776 bits), 97 bytes captured (776 bits) on interface \Device\NPF\_{F1A7D8CC-772B-4D92-A7CC-3463EF9E7AAD}, id 0  
Ethernet II, Src: ASUSTekC\_e4:dd:98 (54:a0:50:e4:dd:98), Dst: Giga-Byt\_96:e6:f2 (b4:2e:99:96:e6:f2)  
Internet Protocol Version 4, Src: 162.159.133.234, Dst: 192.168.1.222  
Transmission Control Protocol, Src Port: 443, Dst Port: 58436, Seq: 371, Ack: 1, Len: 43  
Transport Layer Security

## 8. Frame 2048: Physical then Logical Addresses

> Frame 2048: 249 bytes on wire (1992 bits), 249 bytes captured (1992 bits) on interface \Device\NPF\_{F1A7D8CC-772B-4D92-A7CC-3463EF9E7AAD}, id 0  
> Ethernet II, Src: ASUSTekC\_e4:dd:98 (54:a0:50:e4:dd:98), Dst: Giga-Byt\_96:e6:f2 (b4:2e:99:96:e6:f2)  
> Internet Protocol Version 4, Src: 213.163.95.28, Dst: 192.168.1.222  
> User Datagram Protocol, Src Port: 50003, Dst Port: 49449  
> Data (207 bytes)

```
0000 b4 2e 99 96 e6 f2 54 a0 50 e4 dd 98 08 00 45 00  .....T.....E-
0010 00 eb 38 b3 40 00 3a 11 10 09 d5 a3 5f 1c c0 a8  ...8@:.....
0020 01 de c3 53 c1 29 00 d7 96 b5 90 78 90 1a 51 14  ...S).....X-Q-
0030 92 94 00 0e af c1 ce 82 c0 bd f5 eb 0a e9 9f 81  .....
0040 6b 44 25 e4 38 40 f0 a9 18 9d 7e 08 b4 41 f0 f4  kD%@.....A-
0050 53 09 4b 2d 0e 45 1b b6 73 e5 4f 69 97 16 fa b2  S-K-E...s-O!....
0060 69 6e 98 e8 bb 0e 29 83 9f de b9 06 f7 e3 13 7f  in.....).....
0070 06 df cc e4 68 bb e3 61 9f c5 8a f7 12 70 a5 b2  ....h...a.....p-
0080 1e 45 59 81 e7 57 10 5f 2f 6f 51 50 46 83 1c bb  -EY-W.../oQPF...
0090 72 7c 76 a9 4d 5f f0 62 8f a0 e4 3a 80 2e 56 09  r|v-M_b.....V-
00a0 56 4d 9b ad 3d df 09 61 d4 b2 0f 9b 0b e3 a0 0c  VM.....a.....
00b0 4a f5 7b 32 42 56 0f cf 14 0d 48 c5 59 9f d2 81  J-{2BV.....H-Y...
00c0 67 94 a2 19 69 a2 de e7 53 cc 79 fe d3 b7 b4 78  g...i...S-y.....x
00d0 d0 a6 18 d4 55 01 5d 87 8d ba fe 76 bf 5c c5 c0  ....U].....v-A-
00e0 46 c7 1c a9 6d 47 e0 60 1f b2 3b d0 57 8c 50 1e  F...mG.....g-W-P-
00f0 3b f4 ff 60 e6 a5 4c 01 00  ....L.....
```

> Frame 2048: 249 bytes on wire (1992 bits), 249 bytes captured (1992 bits) on interface \Device\NPF\_{F1A7D8CC-772B-4D92-A7CC-3463EF9E7AAD}, id 0  
> Ethernet II, Src: ASUSTekC\_e4:dd:98 (54:a0:50:e4:dd:98), Dst: Giga-Byt\_96:e6:f2 (b4:2e:99:96:e6:f2)  
> Internet Protocol Version 4, Src: 213.163.95.28, Dst: 192.168.1.222  
> User Datagram Protocol, Src Port: 50003, Dst Port: 49449  
> Data (207 bytes)

```
0000 b4 2e 99 96 e6 f2 54 a0 50 e4 dd 98 08 00 45 00  .....T.....E-
0010 00 eb 38 b3 40 00 3a 11 10 09 d5 a3 5f 1c c0 a8  ...8@:.....
0020 01 de c3 53 c1 29 00 d7 96 b5 90 78 90 1a 51 14  ...S).....X-Q-
0030 92 94 00 0e af c1 ce 82 c0 bd f5 eb 0a e9 9f 81  .....
0040 6b 44 25 e4 38 40 f0 a9 18 9d 7e 08 b4 41 f0 f4  kD%@.....A-
0050 53 09 4b 2d 0e 45 1b b6 73 e5 4f 69 97 16 fa b2  S-K-E...s-O!....
0060 69 6e 98 e8 bb 0e 29 83 9f de b9 06 f7 e3 13 7f  in.....).....
0070 06 df cc e4 68 bb e3 61 9f c5 8a f7 12 70 a5 b2  ....h...a.....p-
0080 1e 45 59 81 e7 57 10 5f 2f 6f 51 50 46 83 1c bb  -EY-W.../oQPF...
0090 72 7c 76 a9 4d 5f f0 62 8f a0 e4 3a 80 2e 56 09  r|v-M_b.....V-
00a0 56 4d 9b ad 3d df 09 61 d4 b2 0f 9b 0b e3 a0 0c  VM.....a.....
00b0 4a f5 7b 32 42 56 0f cf 14 0d 48 c5 59 9f d2 81  J-{2BV.....H-Y...
00c0 67 94 a2 19 69 a2 de e7 53 cc 79 fe d3 b7 b4 78  g...i...S-y.....x
00d0 d0 a6 18 d4 55 01 5d 87 8d ba fe 76 bf 5c c5 c0  ....U].....v-A-
00e0 46 c7 1c a9 6d 47 e0 60 1f b2 3b d0 57 8c 50 1e  F...mG.....g-W-P-
00f0 3b f4 ff 60 e6 a5 4c 01 00  ....L.....
```

## 9. ipconfig vs ipconfig /all: Shows more details, such as the physical address.

```
Options:
/?          Display this help message
/all       Display full configuration information.
/release   Release the IPv4 address for the specified adapter.
/release6  Release the IPv6 address for the specified adapter.
/renew     Renew the IPv4 address for the specified adapter.
```

ipconfig

```
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::f9d9:ae3c:2a80:8dfa%22
    IPv4 Address. . . . . : 192.168.1.222
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
```

ipconfig /all

```
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : Realtek Gaming GbE Family Controller
    Physical Address. . . . . : B4-2E-99-96-E6-F2
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::f9d9:ae3c:2a80:8dfa%22(Preferred)
    IPv4 Address. . . . . : 192.168.1.222(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : 18 March 2021 12:37:17 PM
    Lease Expires . . . . . : 19 March 2021 12:37:16 PM
    Default Gateway . . . . . : 192.168.1.1
    DHCP Server . . . . . : 192.168.1.1
    DHCPv6 IAID . . . . . : 397684377
    DHCPv6 Client DUID. . . . . : 00-01-00-01-25-79-24-12-B4-2E-99-96-E6-F2
    DNS Servers . . . . . : 192.168.1.1
    NetBIOS over Tcpip. . . . . : Enabled
```

#### 10. IPv6 Addresses:

- PC MAC: B4:2E:99:96:E6:F2
- PC IPv6: B6:2E:99:FF:FE:96:E6:F2
- Phone MAC: 08:D4:6A:A9:A1:1F
- Phone IPv6: 0A:D4:6A:FF:FE:A9:A1:1F