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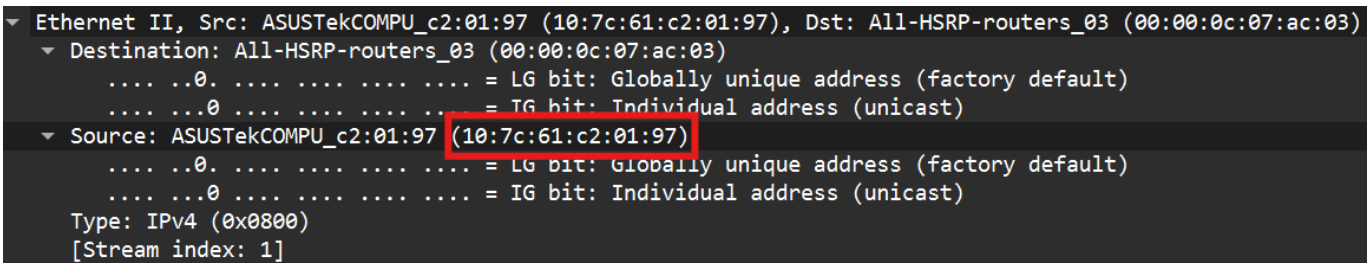
Session 7

Exercise 1: Ethernet

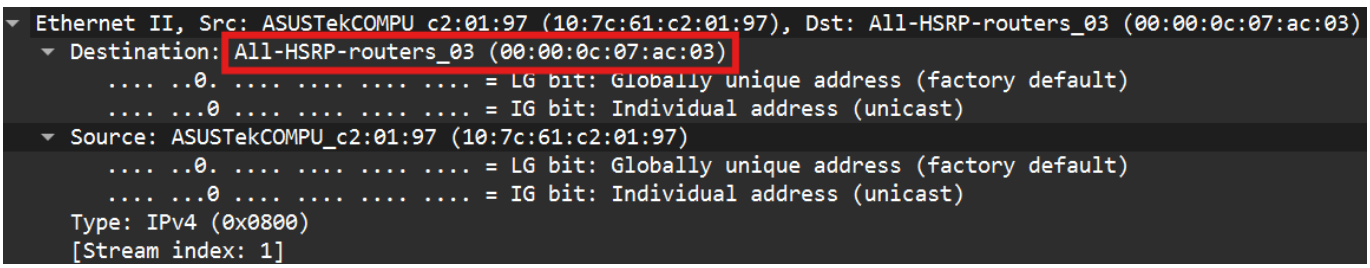
a

The 48-bit Ethernet address from my computer is `10:7C:61:C2:01:97`.



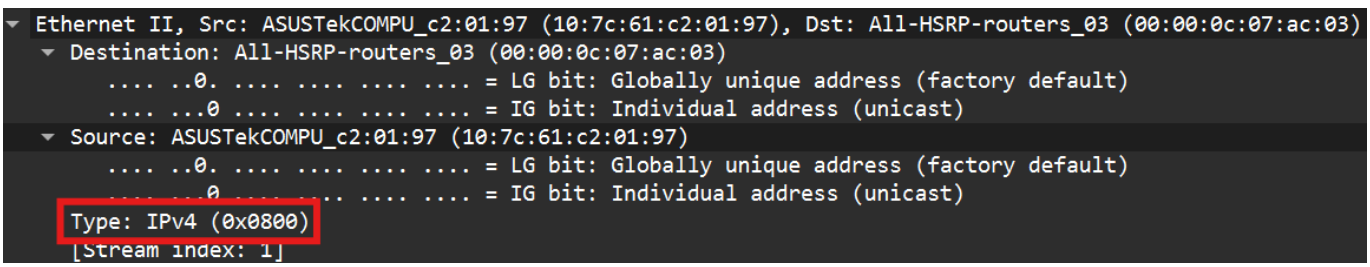
b

The 48-bit destination address is `00:00:0C:07:AC:03` and it belongs to `All-HSRP-routers_03`.



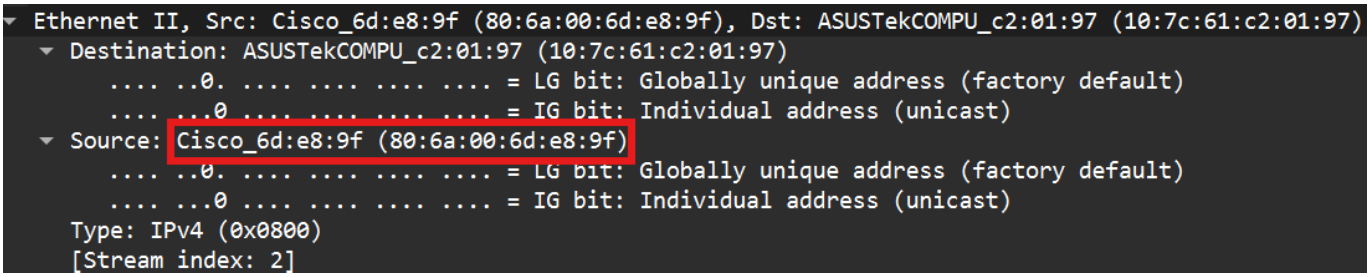
c

The hexadecimal value of the Frame type is `0x0800` which is used for `IPv4` and is on the `internet layer`.



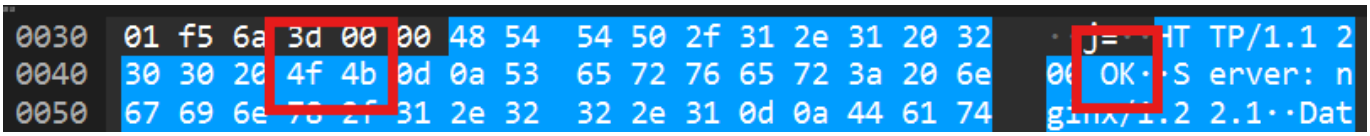
d

The 48-bit destination address is `80:6A:00:6D:E8:9F` and it belongs to `Cisco_6d:e8:9f`.



e

`0` appears in the 68th byte in the Ethernet frame.



Exercise 2: ARP

a

Interface `143.129.40.79` is the current IPv4 address of the Ethernet adapter.

Interface `172.17.144.1` is an internal IPv4 address of my WSL.

- **Internet Address**: IP-address of the device.
- **Physical Address**: MAC-address of the device.
- **Type**: type of ARP entry, which can be dynamic or static.
    - Dynamic: entries are automatically added by the system when it communicates with other devices on the network.
    - Static: entries are manually added and remain in the ARP table until they are manually removed.

```
Interface: 143.129.40.79 --- 0x13
  Internet Address      Physical Address      Type
  143.129.40.78         bc-0f-f3-5d-48-ac     dynamic
  143.129.40.83         d8-bb-c1-24-e9-01     dynamic
  143.129.40.105        04-7c-16-38-22-14     dynamic
  143.129.40.254        00-00-0c-07-ac-03     dynamic
  143.129.40.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     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

Interface: 172.17.144.1 --- 0x2b
  Internet Address      Physical Address      Type
  172.17.159.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
```

b

In `arp -d *`, `-d` means `delete` and `*` means `all`.

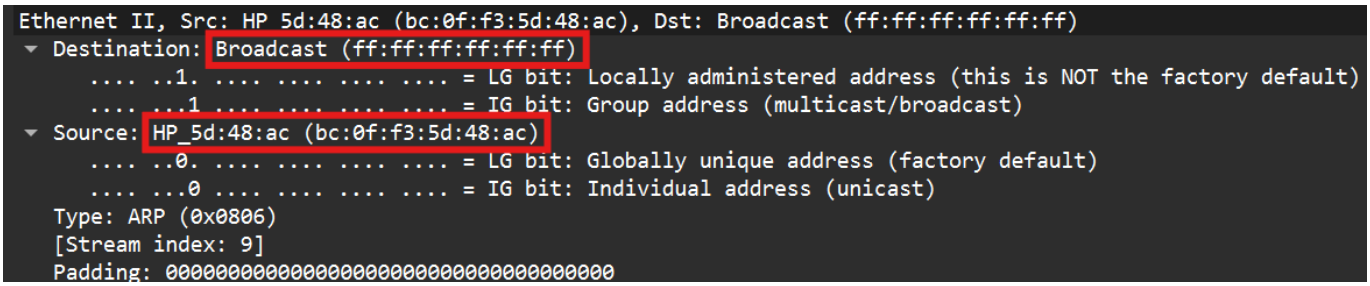
```
Interface: 143.129.40.79 --- 0x13
  Internet Address      Physical Address      Type
  143.129.40.254        00-00-0c-07-ac-03     dynamic
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     static

Interface: 172.17.144.1 --- 0x2b
  Internet Address      Physical Address      Type
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     static
```

c

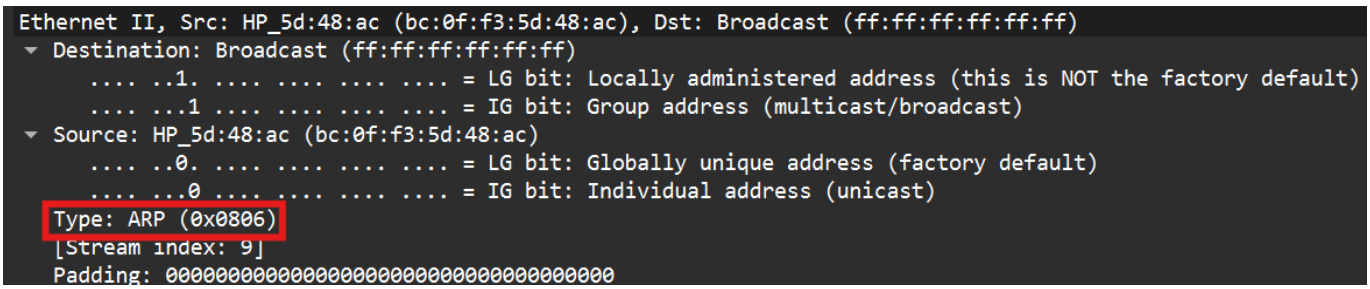
Source address: `BC:0F:F3:5D:48:AC`, belongs to `HP_5d:48:ac`.

Destination address: `FF:FF:FF:FF:FF:FF` is a broadcast.



d

The hexadecimal value of the Frame type is `0x0806` which is used for `ARP` and is on the `link layer`.



e

There doesn't seem to be an ARP-reply in my recordings in Wireshark, hereby the results are purely speculative.

Source address: `10:7C:61:C2:01:97`, belongs to my computer.

Destination address: `BC:0F:F3:5D:48:AC`, belongs to `HP_5d:48:ac`.