

Address Resolution Protocol (ARP)

- Resolves IP address to MAC Addresses
- Finds the hardware address of a host from a know IP address
 - And vice versa (RARP)

ARP Command: arp -a

```
Command Prompt
Microsoft Windows [Version 10.0.19042.985]
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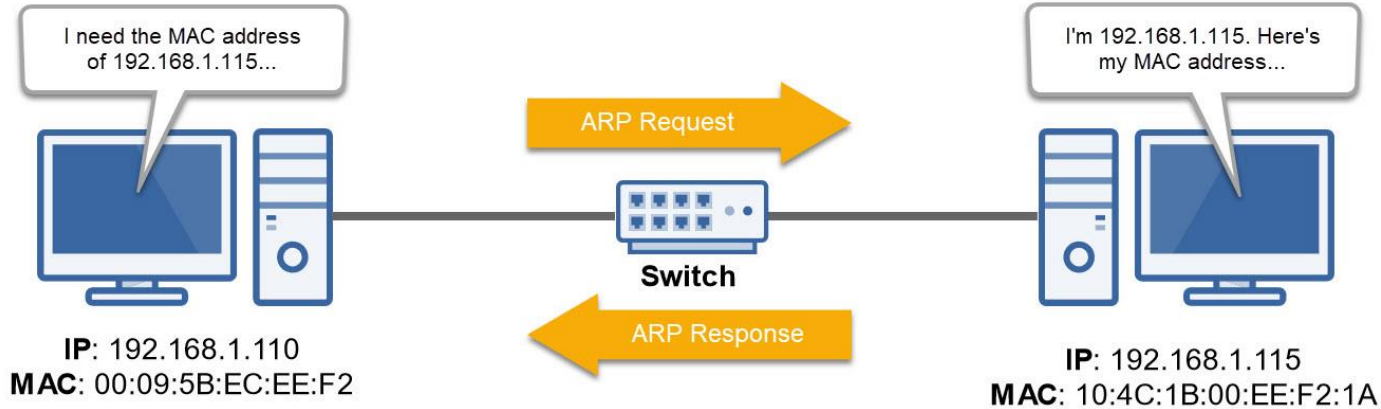
C:\Users\Alton>arp -a

Interface: 192.168.0.132 --- 0xe
Internet Address      Physical Address      Type
192.168.0.1           2c-fd-a1-a2-74-c0     dynamic
192.168.0.5           00-90-a9-db-c1-a3     dynamic
192.168.0.10          00-11-32-e2-ce-58     dynamic
192.168.0.15          00-11-32-d0-b6-9f     dynamic
192.168.0.62          10-98-c3-dc-f4-4a     dynamic
192.168.0.76          ac-ae-19-03-b3-e6     dynamic
192.168.0.186         82-07-b3-9c-ef-ab     dynamic
192.168.0.199         0c-47-c9-33-92-68     dynamic
```

```
root@kali: ~
root@kali:~# arp -a
_gateway (10.0.2.1) at 52:54:00:12:35:00 [ether] on eth0
root@kali:~#
```

```
alton — -bash — 68x7
Last login: Thu May 13 14:25:01 on console
[Altons-iMac:~ alton$ arp -a
? (10.0.2.2) at 52:54:0:12:35:2 on en0 ifscope [ethernet]
? (10.0.2.255) at ff:ff:ff:ff:ff:ff on en0 ifscope [ethernet]
? (224.0.0.251) at 1:0:5e:0:0:fb on en0 ifscope permanent [ethernet]
Altons-iMac:~ alton$
```

ARP Diagram



If a computer knows a device's IP address but not its MAC address, it'll send a **broadcast** message to all devices on the LAN asking which device is assigned that MAC address.