Address Resolution

Destination on Same Network

2 primary addresses: (1) MAC - layer 2 physical address
                      (2) IP - layer 3 logical address

MAC: NIC to NIC communications on same Ethernet network

IP: send the packets from source to destination device

Destination on Remote Network

IP on remote network $\longrightarrow$ Default gateway destination MAC

IPv4 : ARP (Address Resolution Protocol)
IPv6 : ICMPv6 (Internet Control Message Protocol)

ARP $\longrightarrow$ IPv4 to MAC mapping table

2 basic functions   - (1) Resolving IPv4 to MAC
of ARP   - (2) Maintaining IPv4 to MAC mappings
                          as a table

Removing Entries : ARP cache timer expires usually 20
                   minutes by default
                   [can also be removed manually by the
                   admin]

ARP commands

On Cisco Router : show ip arp
On Windows PC : arp -a

ARP spoofing : hacker pretending to be the default gateway

ARP poisoning: hacker interfering ARP request/reply