

## Managing MAC Address Table:

- o MAC is abbreviation which stands for Media Access Control (MAC).
  - o Every LAN card has a unique 48 Bits Address called MAC Address.
  - o Media Access Control address represented in Hexadecimal Format.
  - o Media Access Control address used for Layer 2 Datalink Layer communication.
  - o Media Access Control Address (MAC) used for Switching (Cisco Switches).
  - o MAC Addresses is 12-Digit number used to identifiers the devices unequally.
  - o It has two Parts, OUI (Organisation Unique Identifier) and Serial Number.
  - o MAC Address is total 48 Bits, 24 Bits OUI and 24 Bits is Company Serial Number.
  - o MAC Address also called Hardware, Physical, Fixed, BIA (Burn In Address), 48 Bit.
  - o NIC, Ethernet, Data link Layer, Layer 2, Manufacturer & Adapter Card Addresses.
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- o Switch manage & use MAC address table to forward traffic from one interface to another.
  - o Address table is combination of VLAN ID, MAC Address, Address Type and Port number.
  - o MAC address table are two types, these are dynamic address and static address.
  - o Dynamic MAC address is the address that the switch learns dynamically.
  - o Dynamic MAC address is that the switch learns & then ages when it is not in use.
  - o Static MAC address is the address that manually put by the administrator.
  - o Static address is no aging time and will not be removed if switch rebooted.
  - o If frame receives & destination MAC address is not found, it flooded to all ports.
  - o When the destination replies, the switch adds that source MAC address to the table.
  - o Cisco Switches default-aging time is 300 seconds or five mints, which can be, modify.
  - o Aging timer is used to remove inactive Media Access Control addresses from the table.

### Managing MAC Address Table

```
SW1(config)# mac address-table aging-time seconds
```

```
SW1(config)# mac address-table static mac-address vlan vlan-id interface
```

```
SW1(config)# no mac address-table static mac-address vlan vlan-id interface
```

```
SW1# show mac address-table ?
```

```
address      Address to lookup in the table
aging-time   MAC address table aging parameters
count        Number of MAC addresses in the table
dynamic      List dynamic MAC addresses
interface    List MAC addresses on a specific interface
multicast    List multicast MAC addresses
secure       List secure MAC addresses
static       List static MAC addresses
vlan         List MAC addresses on a specific vlan
|           Output modifiers
<cr>
```

Command	Description
Address	Displays information about a specific MAC address.
Aging-Time	Displays information about the time-out values for the MAC address table.
Count	Displays the number of entries currently in the MAC address table.
Dynamic	Displays information about the dynamic MAC address table entries only.
Interface	Specifies the interface. The interface can be either Ethernet or EtherChannel.
Multicast	Displays information about the multicast MAC address table entries only.
Static	Displays information about the static MAC address table entries only.
VLAN	Displays information for a specific VLAN, VLAN ID range is from 1 to 4094.

### Device Configuration

```
R1(config)#interface f0/0
R1(config-if)#mac-address aaaa.aaaa.1111
R1(config-if)#ip address 1.1.1.1 255.0.0.0
R1(config-if)#no shutdown
```

```
R2(config)#interface f0/0
R2(config-if)#mac-address aaaa.aaaa.2222
R2(config-if)#ip address 1.1.1.2 255.0.0.0
R2(config-if)#no shutdown
```

```
R3(config)#interface f0/0
R3(config-if)#mac-address aaaa.aaaa.3333
R3(config-if)#ip address 1.1.1.3 255.0.0.0
R3(config-if)#no shutdown
```

