Examining MAC Address Aging

Dynamically learned MAC addresses remain in the MAC address table for a specific period of time. If there is no activity from the specific MAC address after this specified period of time, the address is removed from the table. This is why in some of your output you may have had a different number of MAC addresses corresponding to an interface at any one time.

Learning Outcomes

After completing this exercise, you will be able to:

Adjust the default MAC address aging timer

Your Devices

You will be using the following devices in this lab.

- **NYEDGE1** (Cisco 2911 Router)
- **NYWAN1** (Cisco 2911 Router)
- **NYCORE1** (Cisco 3750v2-24PS Switch)
- **NYACCESS1** (Cisco 2960-24 Switch)
- **PLABCSCO01** (Cisco Tools Server)

Task 1 - Adjusting the Aging Timer

It is possible to adjust this aging time according to your network needs.

In this task you will examine MAC address aging, you will adjust this aging timer and observe the results of your changes.

> ***Note:*** *MAC address aging occurs only for dynamically learned MAC addresses. Static entries are never aged out.*

Step 1

By default, the MAC address aging timer is set to **300** seconds or five minutes. Change this default to **10** seconds on the **NYCORE1** switch in order to observe the MAC address learning and aging out process. To do this, issue the following commands:

```
NYCORE1#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
NYCORE1(config)#mac address-table aging-time 10
NYCORE1(config)#exit
NYCORE1#
```

Step 2

Using the command **show mac address-table dynamic**, you can view only the dynamic entries in the back table. Issue this command over and over every couple of seconds using the **up arrow** and observe how the number of dynamically learned MAC addresses changes over time. If you do it enough times, you will see anywhere from zero to eight dynamically learned MAC addresses. Below you can see several of the results of the repeated command as addresses are timed out and are relearned:

```
NYCORE1#show mac address-table dynamic
          Mac Address Table
-------------------------------------------
Vlan    Mac Address       Type        Ports
----    -----------       --------    -----
   1    04da.d2b6.0418    DYNAMIC     Fa1/0/22
   1    7426.ac67.0c70    DYNAMIC     Fa1/0/1
Total Mac Addresses for this criterion: 2
NYCORE1#show mac address-table dynamic
          Mac Address Table
-------------------------------------------
Vlan    Mac Address       Type        Ports
```

```
----    -----------       --------    -----
   1    0015.6227.8b8a    DYNAMIC     Fa1/0/22
   1    04da.d2b6.0418    DYNAMIC     Fa1/0/22
   1    7426.ac67.0c70    DYNAMIC     Fa1/0/1
Total Mac Addresses for this criterion: 3
NYCORE1#show mac address-table dynamic
          Mac Address Table
----------------------------------------
Vlan    Mac Address       Type        Ports
----    -----------       --------    -----
   1    0015.6227.8b8a    DYNAMIC     Fa1/0/22
   1    0050.56a3.353d    DYNAMIC     Fa1/0/22
   1    04da.d2b6.0418    DYNAMIC     Fa1/0/22
   1    7426.ac67.0c70    DYNAMIC     Fa1/0/1
Total Mac Addresses for this criterion: 4
NYCORE1#
```

Note: *You may be wondering why, after the 10 seconds of the aging timer have elapsed, the MAC address table doesn't become completely empty and remain that way. Assuming there is no traffic between devices, MAC addresses should not be relearned. However, traffic does exist on the connections between network devices because there are processes that are continually operating in order to provide for network functionality. Some of these include* ***Spanning Tree Protocol*** *(****STP****),* ***Cisco Discovery Protocol*** *(****CDP****) and* ***Virtual Trunking Protocol*** *(****VTP****) to name a few. Routing protocols are another group of protocols that constantly send traffic between devices. This constant exchange of information causes the MAC address table to be repopulated as seen in the above example.*

Leave the devices in their current states and continue on to the next exercise.