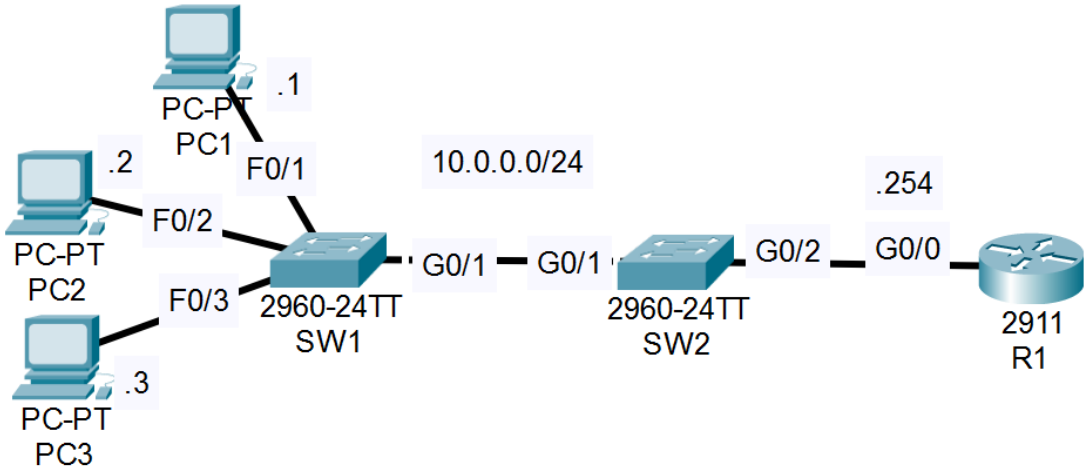
Network Topology:



Instructions and actions:

Configure port security on the following interfaces

1. SW1 F0/1, F0/2, F0/3 –
   Violation mode: Shutdown
   Maximum addresses: 1
   Sticky learning: Disabled
   Ageing time: 1 hour

   By default, the first three conditions will be implemented. I have to enable port security for the interfaces and the ageing timer.

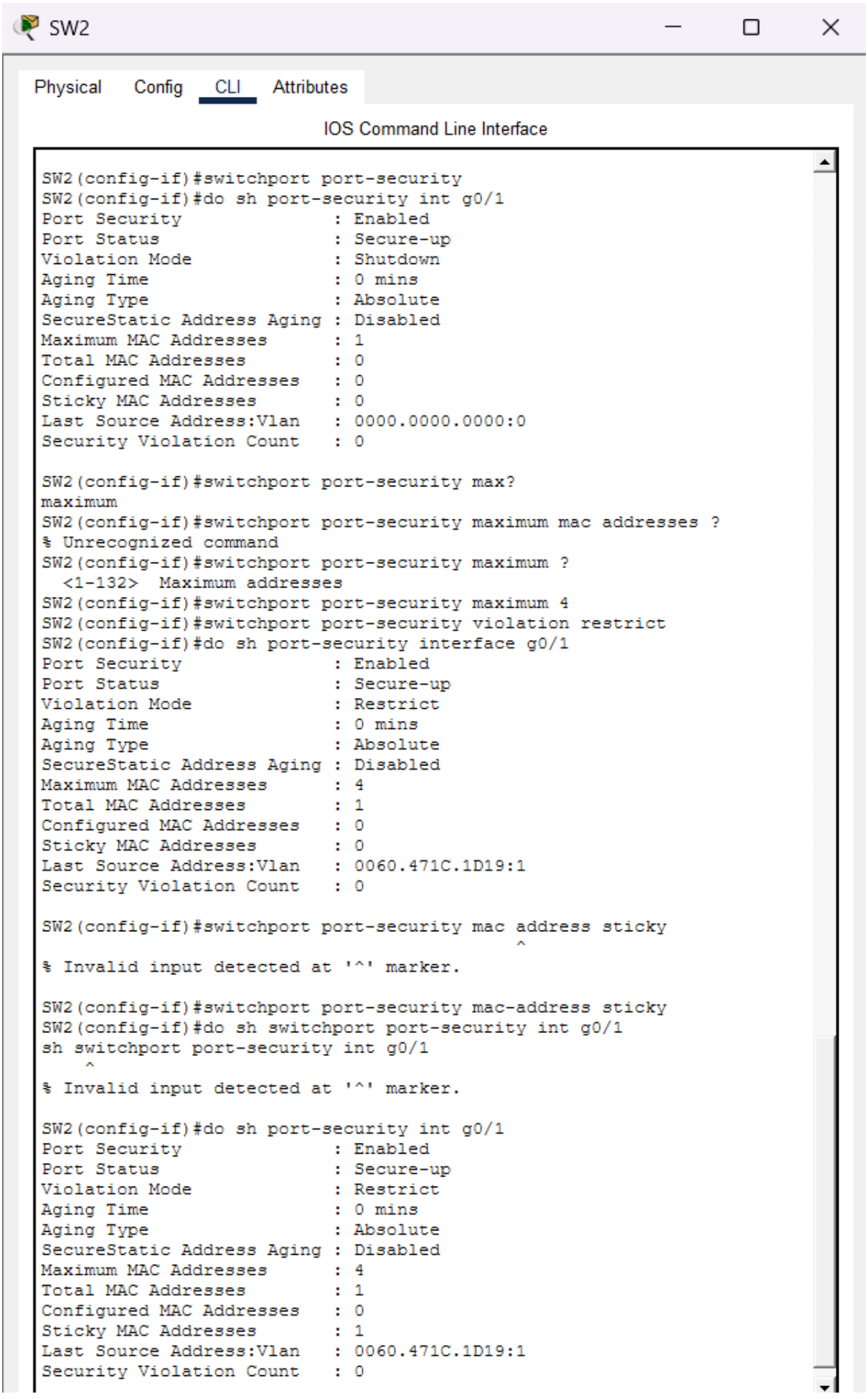
   SW1 CLI:

```
SW1(config-if)#int f0/2
SW1(config-if)#switchport mode access
SW1(config-if)#switchport port-security
SW1(config-if)#do sh port-security int f0/2
Port Security              : Enabled
Port Status                : Secure-up
Violation Mode             : Shutdown
Aging Time                 : 0 mins
Aging Type                 : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses      : 1
Total MAC Addresses        : 0
Configured MAC Addresses   : 0
Sticky MAC Addresses       : 0
Last Source Address:Vlan   : 0000.0000.0000:0
Security Violation Count   : 0

SW1(config-if)#switchport port-security aging time 60
```

   (These commands were configured to the interface range f0/1-3)

2. SW2 G0/1
   Violation mode: Restrict
   Maximum addresses: 4
   Sticky learning: Enabled
   SW2 CLI:



3. Checking:

   When PC1, PC2 and PC3 pinged their default gateway, we could observe the following MAC address table on SW2 –

```
SW2#show mac address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0001.0001.0001    STATIC      Gig0/1
   1    0002.0002.0002    STATIC      Gig0/1
   1    0003.0003.0003    STATIC      Gig0/1
   1    0060.471c.1d19    STATIC      Gig0/1
   1    00e0.b0d8.7e01    DYNAMIC     Gig0/2
SW2#
```

   As a maximum of 4 MAC addresses were allowed on the g0/1 interface of SW2, one more can't ping through it.

   SW1 CLI:

```
SW1>en
SW1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW1(config)#int vlan 1
SW1(config-if)#ip address 10.0.0.10 255.255.255.0
SW1(config-if)#do ping 10.0.0.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.254, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
```

   Same for SW1, after manipulating the MAC address of PC1 from configuration mode, PC1 is not able to ping through SW1 as SW1 can't recognise the MAC.

   PC1 Command Prompt:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.254

Pinging 10.0.0.254 with 32 bytes of data:

Reply from 10.0.0.254: bytes=32 time<1ms TTL=255
Reply from 10.0.0.254: bytes=32 time<1ms TTL=255
Reply from 10.0.0.254: bytes=32 time<1ms TTL=255
Reply from 10.0.0.254: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.254

Pinging 10.0.0.254 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.0.254:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```