

# **Advanced Troubleshooting CCIE Routing & Switching v5.0**

**[www.MicronicsTraining.com](http://www.MicronicsTraining.com)**

**Narvik Kocharians  
CCSI, CCIE #12410  
R&S, Security, SP**

## **Switching-I**

# Questions & Answers

# Troubleshooting Switching

## Scenario 1

### Lab Setup:

To copy and paste the initial configurations, go to “CCIE-TS-Initial-configurations” folder → “Switching” → “TS-Switching-Initial-Lab-1”.

### Lab Rules:

- DO NOT remove any command/s unless otherwise stated
- DO NOT change the VLAN assignment
- You must be VERY specific when resolving these tasks

### Ticket 1

R1 and R2 can NOT establish an OSPF session. OSPF is configured on the F0/0 and the loopback 0 interfaces of these two routers.

**Let's verify the problem:**

#### On R1:

```
R1#Show ip ospf neighbor
R1#
```

**Let's verify reachability by Pinging R2 from R1 but before we can ping let's find out the IP address of their F0/0 interface:**

```
R1#Show run int f0/0 | B interface
```

```
interface FastEthernet0/0
 ip address 10.1.1.1 255.255.255.0
 duplex auto
 speed auto
```

```
end
```

### **On R2:**

```
R2#Show run int f0/0 | B interface
```

```
interface FastEthernet0/0
 ip address 10.1.1.2 255.255.255.0
 duplex auto
 speed auto
end
```

### **On R1:**

```
R1#Ping 10.1.1.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.1.1.2, timeout is 2 seconds:

**.!!!!**

**Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/1 ms**

**Ping is successful. Is OSPF configured on the correct interfaces? Let's verify:**

### **On R1:**

```
R1#Show ip ospf interface brief
```

Interface	PID	Area	IP Address/Mask	Cost	State	Nbrs	F/C
Lo0	1	0	1.1.1.1/24	1	LOOP	0/0	
Fa0/0	1	0	10.1.1.1/24	1	DR	0/0	

### **On R2:**

```
R2#Show ip ospf interface brief
```

Interface	PID	Area	IP Address/Mask	Cost	State	Nbrs	F/C
Lo0	1	0	2.2.2.2/24	1	LOOP	0/0	
Fa0/0	1	0	10.1.1.2/24	1	DR	0/0	

**It seems like OSPF was configured on the correct interfaces. Let's verify the configuration of OSPF on these two routers:**

```
R2#Show run | s router ospf
```

```
router ospf 1
 network 2.2.2.2 0.0.0.0 area 0
 network 10.1.1.2 0.0.0.0 area 0
```

### On R1:

```
R1#Show run | s router ospf
```

```
router ospf 1
 network 1.1.1.1 0.0.0.0 area 0
 network 10.1.1.1 0.0.0.0 area 0
```

**No filtering whatsoever. Let's check SW1 and see if the VLANs are configured:**

### On SW1:

```
SW1#Show vlan brief | Exc unshp
```

VLAN Name	Status	Ports
1 default	active	Fa0/4, Fa0/6, Fa0/8, Fa0/9 Fa0/10, Fa0/17, Fa0/18, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gi0/1, Gi0/2
<b>12 VLAN0012</b>	<b>active</b>	<b>Fa0/1, Fa0/2</b>
21 VLAN0021	active	Fa0/7
34 VLAN0034	active	Fa0/3
56 VLAN0056	active	Fa0/5
186 VLAN0186	active	Fa0/13
196 VLAN0196	active	Fa0/11
296 VLAN0296	active	Fa0/12
339 VLAN0339	active	Fa0/14
691 VLAN0691	active	Fa0/15
946 VLAN0946	active	Fa0/16

**Let's check the configuration of F0/1 and F0/2:**

```
SW1#Show run int f0/1 | B inter
```

```
interface FastEthernet0/1
 switchport access vlan 12
 switchport mode access
 spanning-tree portfast
end
```

```
SW1#Show run int f0/2 | B inter
```

```
interface FastEthernet0/2
  switchport access vlan 12
  switchport mode access
  spanning-tree portfast
end
```

**Are these routers connected to the correct switch? May be there is a problem with the diagram:**

### **On SW1:**

```
SW1#Show cdp neighbors | Inc R1|R2
```

R2	Fas 0/2	154	R S I	2811	Fas 0/0
R1	Fas 0/1	124	R S I	2811	Fas 0/0

**Let's see if there is an access-list or an access-map configured on this switch:**

```
SW1#Show access-list
```

```
Extended IP access list 100
  10 permit icmp any any
```

**Sure enough an access-list is configured, but it is ONLY allowing ICMP, let's see what configuration on this switch is calling the access-list:**

```
SW1#Show run | inc 100
```

```
  match ip address 100
access-list 100 permit icmp any any
```

**There must be a route-map or a VLAN Access-map referencing access-list 100, let's verify:**

```
SW1#Show run | i route-map
```

```
SW1#
```

```
SW1#Show run | Inc vlan access-map
vlan access-map tst 10
```

**Let's check this vlan access-map:**

```
SW1#Show run | B vlan access-map
```

```
vlan access-map tst 10
  action forward
  match ip address 100
```

```
vlan filter tst vlan-list 1-4094
(The rest of the output is omitted)
```

wow...we can clearly see the problem, the VLAN access-map is referencing access-list 100 which ONLY permits ICMP and forwards it, and since there is no other statement that permits the rest of the traffic, OSPF traffic is dropped. Since we can NOT remove any configuration and we have to be very specific when we resolve this ticket, let's permit OSPF on access-list 100:

```
SW1 (config) #Access-list 100 permit ospf any any
```

Let's check R1:

### On R1:

Once we connect to R1's console we should see the following message that is confirming OSPF's adjacency:

```
%OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on FastEthernet0/0 from LOADING to FULL, Loading Done
```

```
R1#Show ip route ospf
```

```
      2.0.0.0/32 is subnetted, 1 subnets
O        2.2.2.2 [110/2] via 10.1.1.2, 00:01:15, FastEthernet0/0
```

Perfect.

## Ticket 2

R3 and R4 can NOT Ping each other. These two routers are in VLAN 34, R3 is connected to SW1 and R4 is connected to SW2, the F0/19 interfaces of these two switches are configured as a trunk link. Do not remove any command, configure another trunk or change the VLAN assignment to fix this problem.

Let's confirm the problem:

### On R3:

```
R3#Ping 34.1.1.4
```

Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 34.1.1.4, timeout is 2 seconds:

.....  
**Success rate is 0 percent (0/5)**

**Let's check the ARP table:**

R3#**Show arp**

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	34.1.1.3	-	0007.b35b.8310	ARPA	FastEthernet0/0
<b>Internet</b>	<b>34.1.1.4</b>	<b>0</b>	<b>Incomplete</b>	<b>ARPA</b>	

**Let's check and see if there is an access-list configured on R3 or R4:**

**On R3:**

R3#**Show access-list**  
R3#

**On R4:**

R4#**Show access-list**  
R4#

**Let's check the switches (SW1 and SW2):**

**On SW1:**

SW1#**Show run int f0/3 | B interface**

```
interface FastEthernet0/3
switchport access vlan 34
switchport mode access
spanning-tree portfast
end
```

**On SW2:**

SW2#**Show run int f0/4 | B interface**

```
interface FastEthernet0/4
switchport access vlan 34
switchport mode access
```



```
spanning-tree portfast
end
```

## **Let's check the trunk:**

### **On SW1:**

```
SW1#Show interface trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Fa0/19	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Fa0/19	1-4094

Port	Vlans allowed and active in management domain
Fa0/19	1,12,21,34,56,186,196,296,339,691,946

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/19	1,12,21,34,56,186,196,296,339,691,946

### **On SW2:**

```
SW2#Show interface F0/19 trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Fa0/19	on	isl	trunking	1

Port	Vlans allowed on trunk
Fa0/19	1-4094

Port	Vlans allowed and active in management domain
Fa0/19	1,33,56,152,339,691

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/19	1,33,56,152,339,691

**Why don't we see VLAN 34 in the "VLANs allowed and active in management domain"?**

## **Let's check the VLANs on SW2**

### **On SW2:**

```
SW2#Show vlan brief | Exc unsup
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/13 Fa0/14, Fa0/15, Fa0/16, Fa0/17 Fa0/18, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gi0/1, Gi0/2
21 VLAN0021	active	Fa0/12
33 VLAN0033	active	Fa0/11
56 VLAN0056	active	Fa0/6
152 VLAN0152	active	Fa0/5

Earlier we saw that the F0/4 interface was configured in VLAN 34, but it does not show up in the list of VLANs, let's repeat the same command and see all the VLANs (supported and unsupported):

### On SW2:

```
SW2#Show vlan brief
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/16, Fa0/17, Fa0/18 Fa0/20, Fa0/21, Fa0/22, Gi0/1 Gi0/2
33 VLAN0033	active	Fa0/7
<b>34 VLAN0034</b>	<b>act/unsup</b>	<b>Fa0/4</b>
56 VLAN0056	active	Fa0/6
152 VLAN0152	active	Fa0/5
339 VLAN0339	active	Fa0/14
691 VLAN0691	active	Fa0/15
1002 fddi-default	act/unsup	
1003 token-ring-default	act/unsup	
1004 fddinet-default	act/unsup	
1005 trnet-default	act/unsup	

Sure enough we can see the VLAN but why does it have an "act/unsup" status? Let's verify:

### On SW2:

```
SW2#Show vlan id 34
```

VLAN Name	Status	Ports
34 VLAN0034	act/unsup	Fa0/4, Fa0/19

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
34	fddi	100034	1500	-	-	-	-	-	0	0

Remote SPAN VLAN

-----  
Disabled

Primary Secondary Type Ports

-----

**We can clearly see the problem, the media type was changed, let's correct the problem and verify:**

### On SW2:

```
SW2 (config) #Vlan 34
SW2 (config-vlan) #media ethernet
SW2 (config-vlan) #Exit
```

### To verify the configuration:

### On SW2:

```
SW2#Show vlan brief | Exc unsup
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/16, Fa0/17, Fa0/18 Fa0/20, Fa0/21, Fa0/22, Gi0/1 Gi0/2
33	VLAN0033	active	Fa0/7
34	VLAN0034	active	Fa0/4
56	VLAN0056	active	Fa0/6
152	VLAN0152	active	Fa0/5
339	VLAN0339	active	Fa0/14
691	VLAN0691	active	Fa0/15

**This looks much better, let's verify VLAN 34 on the trunk:**

```
SW2#Show interface F0/19 trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Fa0/19	on	isl	trunking	1

Port Vlans allowed on trunk

```
Fa0/19      1-4094
```

```
Port      Vlans allowed and active in management domain
Fa0/19    1,21,33-34,56,152,339,691
```

```
Port      Vlans in spanning tree forwarding state and not pruned
Fa0/19    1,21,33-34,56,152,339,691
```

### Let's test the solution:

#### On R3:

```
R3#Ping 34.1.1.4
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 34.1.1.4, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

#### Let's check the ARP table:

```
R3#Show arp
```

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	34.1.1.3	-	0007.b35b.8310	ARPA	FastEthernet0/0
<b>Internet</b>	<b>34.1.1.4</b>	<b>0</b>	<b>Incomplete</b>	<b>ARPA</b>	

**Why can't we ping? The trunk is up, the VLAN is in act state, what else can be wrong? Let's check the trunks in detail one more time:**

#### On SW1:

```
SW1#Sh interface trunk
```

Port	Mode	Encapsulation	Status	Native vlan
<b>Fa0/19</b>	<b>on</b>	<b>802.1q</b>	<b>trunking</b>	<b>1</b>

```
Port      Vlans allowed on trunk
Fa0/19    1-4094
```

```
Port      Vlans allowed and active in management domain
Fa0/19    1,12,21,34,56,186,196,296,339,691,946
```

```
Port      Vlans in spanning tree forwarding state and not pruned
```

```
Fa0/19      1,12,21,34,56,186,196,296,339,691,946
```

**Let's summarize the output of the above show command:**

- **The trunk interface is F0/19**
- **Mode is ON**
- **Encapsulation is 802.1q**
- **It is trunking**
- **Native VLAN is 1**

**Let's check the trunk on SW2**

**On SW2:**

```
SW2#Show interface trunk
```

<b>Port</b>	<b>Mode</b>	<b>Encapsulation</b>	<b>Status</b>	<b>Native vlan</b>
Fa0/19	on	isl	trunking	1

```
Port      Vlans allowed on trunk  
Fa0/19    1-4094
```

```
Port      Vlans allowed and active in management domain  
Fa0/19    1,21,33-34,56,152,339,691
```

```
Port      Vlans in spanning tree forwarding state and not pruned  
Fa0/19    1,21,33-34,56,152,339,691
```

**We can see the problem, SW1 is configured with an encapsulation of 802.1q, whereas, SW2 is configured with an encapsulation of ISL. Let's change SW2's encapsulation to 802.1q:**

**On SW2:**

```
SW2 (config)#Int F0/19  
SW2 (config-if)#Swi trunk encapsulation dot1q
```

**Let's test the solution again, but we have to wait 30 seconds for STP to converge:**

**On R3:**

```
R3#Ping 34.1.1.4
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 34.1.1.4, timeout is 2 seconds:
```

..!!!

Success rate is 60 percent (3/5), round-trip min/avg/max = 1/1/1 ms

R3#**Show arp**

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	34.1.1.3	-	0007.b35b.8310	ARPA	FastEthernet0/0
<b>Internet</b>	<b>34.1.1.4</b>	<b>4</b>	<b>0015.fa03.c3a1</b>	<b>ARPA</b>	<b>FastEthernet0/0</b>

**Perfect..**

### **Ticket 3**

R5 and R6 can't establish an Eigrp adjacency. Eigrp AS 100 is configured on the F0/0 of R5 and the F0/1 interface of R6; R5 is advertising networks 5.5.5.0/24 and R6 is advertising 6.6.6.0/24. You must be very specific, do not remove any command to fix this problem.

**Let's verify the problem:**

#### **On R5:**

```
R5#Show ip eigrp neighbor  
IP-EIGRP neighbors for process 100  
R5#
```

**Let's check the interface configuration of R5:**

```
R5#Show run int f0/0 | B inter  
  
interface FastEthernet0/0  
 ip address 56.1.1.5 255.255.255.0  
 duplex auto  
 speed auto  
end
```

**The interface is configured with a an IP address of 56.1.1.5/24 and there is no access-list. Let's verify if Eigrp is configured on the correct interface:**

```
R5#Show ip eigrp interface  
EIGRP-IPv4 Interfaces for AS(100)
```

Interface	Peers	Xmit Queue Un/Reliable	Mean SRTT	Pacing Time Un/Reliable	Multicast Flow Timer	Pending Routes
Lo0	0	0/0	0	0/1	0	0
Fa0/0	0	0/0	0	0/1	50	0

### Can we Ping 56.1.1.6?

R5#Ping 56.1.1.6

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 56.1.1.6, timeout is 2 seconds:

.!!!!

Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms

Let's verify the switchport that R5 is connected to:

### On SW1:

SW1#Sh run int f0/5 | B inter

```
interface FastEthernet0/5
  switchport access vlan 56
  switchport mode access
end
```

The configuration is correct, let's verify the VLAN on the trunk:

SW1#Show interface trunk

```
Port      Mode      Encapsulation  Status      Native vlan
Fa0/19    on        802.1q         trunking    1
```

```
Port      Vlans allowed on trunk
Fa0/19    1-4094
```

```
Port      Vlans allowed and active in management domain
Fa0/19    1,12,21,34,56,186,196,296,339,691,946
```

```
Port      Vlans in spanning tree forwarding state and not pruned
Fa0/19    1,12,21,34,56,186,196,296,339,691,946
```

Everything looks to be correctly configured. Let's check SW2:

### On SW2:

SW2#**Show inter trunk**

Port	Mode	Encapsulation	Status	Native vlan
Fa0/19	on	802.1q	trunking	1
Fa0/23	on	802.1q	trunking	1
Fa0/24	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Fa0/19	1-4094
Fa0/23	1-4094
Fa0/24	1-4094

Port	Vlans allowed and active in management domain
Fa0/19	1, 21, 33-34, <b>56</b> , 152, 339, 691
Fa0/23	1, 21, 33-34, <b>56</b> , 152, 339, 691
Fa0/24	1, 21, 33-34, <b>56</b> , 152, 339, 691

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/19	1, 21, 33-34, <b>56</b> , 152, 339, 691
Fa0/23	1, 21, 33-34, <b>56</b> , 152, 339, 691
Fa0/24	21, 34, <b>56</b> , 152

**The trunk is configured to carry the VLAN, but we have two additional trunks, let's see which port is forwarding the traffic for VLAN 56:**

SW2#**Show spanning-tree Vlan 56**

VLAN0056

Spanning tree enabled protocol ieee

Root ID	Priority	32824			
	Address	0014.a934.b880			
	Cost	19			
	Port	21 (FastEthernet0/19)			
	Hello Time	2 sec	Max Age 20 sec	Forward Delay 15 sec	

Bridge ID	Priority	32824	(priority 32768 sys-id-ext 56)		
	Address	001b.2be5.1200			
	Hello Time	2 sec	Max Age 20 sec	Forward Delay 15 sec	
	Aging Time	300			

Interface	Role	Sts	Cost	Prio.Nbr	Type
<b>Fa0/6</b>	<b>Desg</b>	<b>FWD</b>	<b>19</b>	<b>128.8</b>	<b>Edge P2p</b>
<b>Fa0/19</b>	<b>Root</b>	<b>FWD</b>	<b>19</b>	<b>128.21</b>	<b>P2p</b>
Fa0/23	Desg	FWD	19	128.25	P2p



Fa0/24                      Desg FWD 19                      128.26      P2p

The port that R6 is connected to is in FWD state, the root port for this VLAN is F0/19 interface, if this is correct, then, SW1 must be the root for this Vlan. Let's verify:

### On SW1:

SW1#**Show spanning-tree root**

Vlan	Root ID	Root Cost	Hello Time	Max Age	Fwd Dly	Root Port
VLAN0001	32769 000c.302d.9980	57	2	20	15	Fa0/19
VLAN0012	32780 0012.7f40.9380	0	2	20	15	
VLAN0021	32789 0012.7f40.9380	0	2	20	15	
VLAN0034	32802 0012.7f40.9380	0	2	20	15	
<b>VLAN0056</b>	<b>32824 0012.7f40.9380</b>	<b>0</b>	<b>2</b>	<b>20</b>	<b>15</b>	
VLAN0186	32954 0012.7f40.9380	0	2	20	15	
VLAN0196	32964 0012.7f40.9380	0	2	20	15	
VLAN0296	33064 0012.7f40.9380	0	2	20	15	
VLAN0339	33107 000c.302d.9980	57	2	20	15	Fa0/19
VLAN0691	33459 000c.302d.9980	57	2	20	15	Fa0/19
VLAN0946	33714 0012.7f40.9380	0	2	20	15	

Perfect, let's verify the configuration of SW2's F0/6 interface:

### On SW2:

SW2#**Show run int f0/6 | B inter**

```
interface FastEthernet0/6
  switchport access vlan 56
  switchport mode access
  storm-control multicast level 0.00
  spanning-tree portfast
end
```

We see the problem, the "Storm-control" command is blocking all Multicast traffic by setting its level to 0.00, but since we can NOT configure any of the switches to resolve this ticket, let's configure the routers to establish an adjacency using unicast:

### On R5:

R5 (config) #**Router eigrp 100**

```
R5 (config-router) #Neighbor 56.1.1.6 F0/0
```

### **On R6:**

```
R6 (config) #Router eigrp 100  
R6 (config-router) #Neighbor 56.1.1.5 F0/1
```

### **Let's verify the configuration:**

### **On R6:**

```
R6#Show ip eigrp neighbors  
EIGRP-IPv4 Neighbors for AS(100)  
R5#
```

### **What else can be wrong?**

**The routers are NOT configured with an access-list, Let's enable "debug ip packet detail" and tie an access-list to it and analyze the output:**

### **On R5:**

**Before configuring any access-list, the "Show access-list" must be used to confirm that no other access-list is using the same number.**

```
R5#Show access-list  
R5#
```

```
R5 (config) #access-list 100 permit eigrp host 56.1.1.6 host 56.1.1.5  
R5 (config) #access-list 100 permit eigrp host 56.1.1.5 host 56.1.1.6
```

```
R5#Debug ip packet det 100  
IP packet debugging is on (detailed) for access list 100
```

```
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,  
proto=88  
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,  
proto=88  
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,  
proto=88  
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,  
proto=88  
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,  
proto=88
```

```
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending,
proto=88
```

**It looks like R5 is sending unicast hellos but not receiving anything from R6. Let's do the same on R6:**

### **On R6:**

```
R6#Show access-list
R6#
```

```
R6 (config) #access-list 100 permit eigrp host 56.1.1.6 host 56.1.1.5
R6 (config) #access-list 100 permit eigrp host 56.1.1.5 host 56.1.1.6
```

```
R6#Debug ip packet det 100
```

```
IP packet debugging is on (detailed) for access list 100
```

```
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending,
proto=88
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending full
packet, proto=88
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending,
proto=88
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending full
packet, proto=88
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending,
proto=88
s=56.1.1.6 (local), d=56.1.1.5 (FastEthernet0/1), len 60, sending full
packet, proto=88
```

**It looks like R5 is sending unicast Hellos to R6 but not receiving any, and R6 is sending Unicast Hellos to R5 but it is NOT receiving any from R5.**

**Let's check the switches for an access-list:**

### **On SW1:**

```
SW1#Show access-list
```

```
Extended IP access list 100
 10 permit icmp any any
 20 permit ospf any any
```

**AH.....This access-list was referenced by a Vlan access-map and it is ONLY allowing ICMP and OSPF and NOT Eigrp. Let's add Eigrp to the access-list and verify again:**

## On SW1

```
SW1 (config) #Access-list 100 permit eigrp any any
```

### To verify the configuration:

## On R5:

In the output of the debug, you should see that you have established Eigrp adjacency and you are sending and receiving Eigrp packets from R6:

```
%DUAL-5-NBRCHANGE: IP-EIGRP(0) 100: Neighbor 56.1.1.6 (FastEthernet0/0) is up: new adjacency
```

```
IP: tableid=0, s=56.1.1.6 (FastEthernet0/0), d=56.1.1.5 (FastEthernet0/0), routed via RIB
```

```
IP: s=56.1.1.6 (FastEthernet0/0), d=56.1.1.5 (FastEthernet0/0), len 60, rcvd 3, proto=88
```

```
IP: s=56.1.1.5 (local), d=56.1.1.6 (FastEthernet0/0), len 60, sending, proto=88
```

```
R5#Show ip eigrp neighbor  
IP-EIGRP neighbors for process 100
```

H	Address	Interface	Hold (sec)	Uptime	SRTT (ms)	RTO	Q Cnt	Seq Num
0	56.1.1.6	Fa0/0	11	00:00:49	6	200	0	3

```
R5#Show ip route Eigrp
```

```
        6.0.0.0/24 is subnetted, 1 subnets  
D          6.6.6.0 [90/156160] via 56.1.1.6, 00:01:56, FastEthernet0/0
```

## On Both Routers:

```
R6#U all
```

```
R5 (config) #No access-list 100
```

**Perfect.**

## Ticket 4

R7 can NOT ping R8's G0/1.21 interface.

**Before the ticket is verified, let's find out the G0/1.21 sub-interface of R8:**

### On R8:

```
R8#Show run int g0/1.21 | B interface
```

```
interface GigabitEthernet0/1.21
  encapsulation dot1Q 21
  ip address 12.1.1.2 255.255.255.0
end
```

### On R7:

```
R7#Ping 12.1.1.2
```

Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 12.1.1.2, timeout is 2 seconds:

```
.....
Success rate is 0 percent (0/5)
```

**Let's verify the ARP table:**

```
R7#Show arp
```

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	12.1.1.1	-	24e9.b3ab.4b20	ARPA	GigabitEthernet0/0
<b>Internet</b>	<b>12.1.1.2</b>	<b>0</b>	<b>Incomplete</b>	<b>ARPA</b>	
Internet	33.3.3.1	-	24e9.b3ab.4b21	ARPA	GigabitEthernet0/1

**Let's check SW1:**

### On SW1:

```
SW1#Show interface F0/7 status
```

Port	Name	Status	Vlan	Duplex	Speed	Type
<b>Fa0/7</b>		<b>connected</b>	<b>21</b>	<b>a-full</b>	<b>a-100</b>	<b>10/100BaseTX</b>

```
SW1#Show vlan brie | Exc unsup
```

VLAN Name	Status	Ports
1 default	active	Fa0/4, Fa0/6, Fa0/8, Fa0/9 Fa0/10, Fa0/17, Fa0/18, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gi0/1, Gi0/2
12 VLAN0012	active	Fa0/1, Fa0/2
<b>21 VLAN0021</b>	<b>active</b>	<b>Fa0/7</b>
34 VLAN0034	active	Fa0/3
56 VLAN0056	active	Fa0/5
186 VLAN0186	active	Fa0/13
196 VLAN0196	active	Fa0/11
296 VLAN0296	active	Fa0/12
339 VLAN0339	active	Fa0/14
691 VLAN0691	active	Fa0/15
946 VLAN0946	active	Fa0/16

The output of the above show command reveals that VLAN 21 is active and port F0/7 which is connected to R7 is part of this Vlan.

SW1#**Show run int F0/7 | B interface**

```
interface FastEthernet0/11
  switchport access vlan 21
  switchport mode access
  spanning-tree portfast
end
```

Let's verify the trunk link:

SW1#**Show interface trunk**

```
Port      Mode      Encapsulation  Status      Native vlan
Fa0/19    on        802.1q         trunking    1

Port      Vlans allowed on trunk
Fa0/19    1-4094

Port      Vlans allowed and active in management domain
Fa0/19    1,12,21,34,56,186,196,296,339,691,946

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/19    1,12,21,34,56,186,196,296,339,691,946
```

Interface F0/19 is the trunk that carries traffic. Let's see if STP is using this port:

```
SW1#Show spanning-tree Vlan 21
```

```
VLAN0021
```

```
Spanning tree enabled protocol ieee
```

```
Root ID      Priority      32789
Address      0012.7f40.9380
This bridge is the root
Hello Time   2 sec      Max Age 20 sec      Forward Delay 15 sec
```

```
Bridge ID   Priority      32789 (priority 32768 sys-id-ext 21)
Address     0012.7f40.9380
Hello Time  2 sec      Max Age 20 sec      Forward Delay 15 sec
Aging Time  300
```

Interface	Role	Sts	Cost	Prio.	Nbr	Type
Fa0/7	Desg	FWD	19	128.9		Edge P2p
Fa0/19	Desg	FWD	19	128.21		P2p

**Well.....the interface that R7 is connected to is forwarding for VLAN 21, and so is the F0/19 interface. Since this interface is connected to SW2, let's go to SW2 and verify this information. Remember that R8's G0/1 interface is connected to SW3's F0/8.**

### On SW2:

```
SW2#Show inter trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Fa0/19	on	802.1q	trunking	1
Fa0/23	on	802.1q	trunking	1
Fa0/24	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Fa0/19	1-4094
Fa0/23	1-4094
Fa0/24	1-4094

Port	Vlans allowed and active in management domain
Fa0/19	1, 21, 33-34, 56, 152, 339, 691
Fa0/23	1, 21, 33-34, 56, 152, 339, 691
Fa0/24	1, 21, 33-34, 56, 152, 339, 691

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/19	1, 21, 33-34, 56, 152, 339, 691
Fa0/23	1, 21, 33-34, 56, 152, 339, 691

Fa0/24 21, 34, 56, 152

**This is starting to make sense, SW2 is using interfaces F0/23 and/or F0/24 to reach SW3. Let's see if STP is using these interfaces:**

```
SW2#Show spanning-tree Vlan 21 | B Interface
```

Interface	Role	Sts	Cost	Prio.	Nbr	Type
-----------	------	-----	------	-------	-----	------

---

Fa0/19	Root	FWD	19	128.21		P2p
Fa0/23	Desg	FWD	19	128.25		P2p
Fa0/24	Desg	FWD	19	128.26		P2p

**The traffic for VLAN 21 comes in through F0/19 and uses ports F0/23 and F0/24 to reach SW3. Let's verify SW3's configuration:**

### On SW3:

```
SW3#Show cdp neighbor
```

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
SW4	Fas 0/19	144	S I	WS-C3550-2Fas	0/19
SW2	Fas 0/24	156	S I	WS-C3560-2Fas	0/24
SW2	Fas 0/23	156	S I	WS-C3560-2Fas	0/23

**We don't even see R8, based on our topology diagram, R8's G0/1 interface should be connected to SW3's F0/8 interface. Let's check R8's configuration:**

### On R8:

```
R8#Show run int G0/1.21 | B interface
```

```
interface GigabitEthernet0/1.21
 encapsulation dot1Q 21
 ip address 12.1.1.2 255.255.255.0
end
```

**R8 is configured as a trunk, let's check the interface of SW3 that R8 is connected to:**

### On SW3:



```
SW3#Show run int f0/8 | B inter
```

```
interface FastEthernet0/12
  switchport trunk encapsulation isl
  switchport mode trunk
end
```

The port on SW3 is also configured as a trunk, but it is using an ISL encapsulation and NOT 802.1q, let's change the encapsulation on SW3 to match the router:

### On SW3:

```
SW3(config)#int f0/8
SW3(config-if)#Switch trunk encapsulation dot
```

Let's clear the cdp table, wait 60 seconds and verify the connectivity using CDP:

```
SW3#Clear cdp table
```

```
SW3#Show cdp neighbor
```

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
SW4	Fas 0/19	154	S I	WS-C3550-2Fas	0/19
SW2	Fas 0/24	169	S I	WS-C3560-2Fas	0/24
SW2	Fas 0/23	169	S I	WS-C3560-2Fas	0/23
<b>R8</b>	<b>Fas 0/8</b>	<b>156</b>	<b>R B S I</b>	<b>CISCO1921/Gig</b>	<b>0/1</b>

### Let's verify and test the solution:

### On R8:

```
R8#Ping 12.1.1.1
```

Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 12.1.1.1, timeout is 2 seconds:

```
.....
Success rate is 0 percent (0/5)
```

```
R8#Show arp
```

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
<b>Internet</b>	<b>12.1.1.1</b>	<b>0</b>	<b>Incomplete</b>	<b>ARPA</b>	
Internet	12.1.1.2	-	000e.d774.2c21	ARPA	FastEthernet0/1.21

Internet 152.1.1.2 - 000e.d774.2c21 ARPA FastEthernet0/1.152

**Does Vlan 21 exist on SW3:**

### On SW3:

SW3#**Show vlan brief**

<b>VLAN Name</b>	<b>Status</b>	<b>Ports</b>
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/10 Fa0/17, Fa0/18, Fa0/20, Fa0/21 Fa0/22, Gi0/1, Gi0/2
33 VLAN0033	active	Fa0/9
186 VLAN0186	active	Fa0/13
196 VLAN0196	active	Fa0/11
296 VLAN0296	active	Fa0/12
339 VLAN0339	active	Fa0/14
691 VLAN0691	active	Fa0/15
946 VLAN0946	active	Fa0/16
1002 fddi-default	act/unsup	
1003 token-ring-default	act/unsup	
1004 fddinet-default	act/unsup	
1005 trnet-default	act/unsup	

**No, it does not, let's configure Vlan 21 and wait 30 seconds before testing:**

```
SW3 (config) #Vlan 21
SW3 (config-vlan) #Exit
```

**If the "Exit" command is NOT used, the Vlan is not created. Let's verify reachability:**

### On R8:

R8#**Ping 12.1.1.1**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 12.1.1.1, timeout is 2 seconds:

**.!!!!**

**Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms**

**Perfect.**

## Ticket 5

R9 can NOT ping R7's G0/1 interface

**Let's find out the IP address of R7's G0/1 interface:**

### On R7:

```
R7#Show run int g0/1 | B interface
```

```
interface GigabitEthernet0/1
 ip address 33.3.3.1 255.255.255.0
 duplex auto
 speed auto
end
```

### To verify the problem

### On R9:

```
R9#Ping 33.3.3.1
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 33.3.3.1, timeout is 2 seconds:
```

```
.....
Success rate is 0 percent (0/5)
```

```
R9#Show arp
```

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	33.3.3.3	-	000b.be03.54c1	ARPA	FastEthernet0/1

### **Is this interface up?**

```
R9#Show ip int brief F0/1
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/1	33.3.3.3	YES	manual	up	down

**Why is this interface down? Let's check the switchport on SW3 that this router is connected to:**

### On SW3:

```
SW3#Show run int f0/9 | B inter
```

```
interface FastEthernet0/9
 switchport access vlan 33
 switchport mode access
 speed 10
 spanning-tree portfast
end
```

**This looks correct, let's check the status of the F0/9 interface on this switch:**

```
SW3#Show interface F0/9 Status
```

Port	Name	Status	Vlan	Duplex	Speed	Type
Fa0/13		notconnect	33	auto	10	10/100BaseTX

**Let's check the G0/1 interface of R9:**

### **On R9:**

```
R9#Show run int f0/1 | B inter
```

```
interface FastEthernet0/1
 ip address 33.3.3.3 255.255.255.0
 duplex auto
 speed 100
end
```

**We can clearly see the problem, R9's F0/1 is configured with a speed of 100 Mbps, whereas, the F0/9 interface on SW3 is configured with 10 Mbps. Let's configure the F0/9 interface of SW3 with a speed of 100 Mbps:**

### **On SW3:**

```
SW3 (config)#Int F0/9
SW3 (config-if)#Speed 100
```

```
Interface FastEthernet0/9, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed
state to up
```

**The above console message state that the F0/9 interface of the local switch is now in UP/UP state.**

**Let's try to confirm reachability:**

## On R9:

```
R9#Ping 33.3.3.1
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 33.3.3.1, timeout is 2 seconds:

```
.!!!!
```

```
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms
```

## Ticket 6

The Etherchannel between SW2 and SW3 is NOT coming up.

### To verify the problem:

## On SW2:

```
SW2#Show etherchannel summary
```

```
Flags:  D - down          P - in port-channel
        I - stand-alone  s - suspended
        H - Hot-standby (LACP only)
        R - Layer3       S - Layer2
        U - in use       f - failed to allocate aggregator
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port
```

```
Number of channel-groups in use: 1
```

```
Number of aggregators: 1
```

Group	Port-channel	Protocol	Ports
23	Po23 (SD)	PAgP	Fa0/23 (I) Fa0/24 (I)

The letter "S" in the "Port-Channel" column tells us that the Port Channel interface is a layer 2 interface and the letter "D" indicates that the status is down.

Let's check Sw3:

## On SW3:

```
SW3#Show etherchannel summary
```

```
Flags: D - down          P - in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
       U - in use       f - failed to allocate aggregator
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port
```

```
Number of channel-groups in use: 1
```

```
Number of aggregators: 1
```

Group	Port-channel	Protocol	Ports
23	Po23 (SD)	PAGP	Fa0/23 (I) Fa0/24 (I)

Looking at the output of the above show command, both switches are using PAgP, and the Etherchannel is a layer 2 Etherchannel, BUT it is down (The letter "D" in the SD indicates that it is down). Let's check the configuration of these two switches:

## On SW2:

```
SW2#Show run int F0/23 | B interface
```

```
interface FastEthernet0/23
 switchport trunk encapsulation dot1q
 switchport mode trunk
 channel-group 23 mode auto
end
```

```
SW3#Show run int F0/24 | B interface
```

```
interface FastEthernet0/24
 switchport trunk encapsulation dot1q
 switchport mode trunk
 channel-group 23 mode auto
end
```

## On SW3:

```
SW3#Show run int F0/23 | B interface

interface FastEthernet0/23
 switchport trunk encapsulation dot1q
 switchport mode trunk
 channel-group 23 mode auto
end
```

```
SW3#Show run int F0/24 | B interface

interface FastEthernet0/24
 switchport trunk encapsulation dot1q
 switchport mode trunk
 channel-group 23 mode auto
end
```

The output of the above configuration reveals that both switches are configured in “Auto” mode, in “Auto” mode none of the switches initiate the negotiation process. To fix this problem, only one side needs to be changed:

### On SW2:

```
SW2 (config)#int range f0/23-24
SW2 (config-if-range)#Channel-group 23 mode desirable
```

You should see the following console messages:

```
Line protocol on Interface FastEthernet0/23, changed state to down
Line protocol on Interface FastEthernet0/24, changed state to down
Line protocol on Interface FastEthernet0/23, changed state to up
Line protocol on Interface FastEthernet0/24, changed state to up
Interface Port-channel23, changed state to up
Line protocol on Interface Port-channel23, changed state to up
```

### To verify the configuration:

### On SW2:

```
SW2#Show etherchannel summary

Flags: D - down          P - in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
```

U - in use            f - failed to allocate aggregator  
u - unsuitable for bundling  
w - waiting to be aggregated  
d - default port

Number of channel-groups in use: 1  
Number of aggregators: 1

Group	Port-channel	Protocol	Ports
23	Po23 (SU)	PAgP	Fa0/23 (P) Fa0/24 (P)

### On SW3:

SW3#**Show etherchannel summary**

Flags: D - down            P - in port-channel  
I - stand-alone s - suspended  
H - Hot-standby (LACP only)  
R - Layer3            S - Layer2  
U - in use            f - failed to allocate aggregator  
u - unsuitable for bundling  
w - waiting to be aggregated  
d - default port

Number of channel-groups in use: 1  
Number of aggregators: 1

Group	Port-channel	Protocol	Ports
23	Po23 (SU)	PAgP	Fa0/23 (P) Fa0/24 (P)

**The letters "SU" indicate that the port channel is a layer two and it's in use.**

## Ticket 7

R8 can NOT ping R5's F0/1 interface.

**Let's find out the IP address of R5's F0/1 interface before verifying the problem:**



## On R5:

```
R5#Show run int f0/1 | B interface
```

```
interface FastEthernet0/1
 ip address 152.1.1.5 255.255.255.0
 duplex auto
 speed auto
 end
```

## On R8:

```
R8#Ping 152.1.1.5
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 152.1.1.5, timeout is 2 seconds:

.....

**Success rate is 0 percent (0/5)**

**Let's see R8's G0/1 configuration:**

```
R8#Show ip int br | Exc unass
```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/1.21	12.1.1.2	YES	manual	up	up
GigabitEthernet0/1.152	152.1.1.2	YES	manual	up	up

**Let's check and see if SW3 can see R8:**

## On SW3:

```
SW3#Show cdp nei | Inc R8
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
SW4	Fas 0/19	175	S I	WS-C3550-2Fas	0/19
SW2	Fas 0/24	130	S I	WS-C3560-2Fas	0/24
SW2	Fas 0/23	130	S I	WS-C3560-2Fas	0/23
<b>R8</b>	<b>Fas 0/8</b>	<b>177</b>	<b>R B S I</b>	<b>CISCO1921/Gig</b>	<b>0/1</b>
R9	Fas 0/9	178	R S I	2811	Fas 0/1

**Let's see if Vlan 152 is configured on SW3:**

## On SW3:

```
SW3#Show vlan brief | Exc unSUP
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/10 Fa0/17, Fa0/18, Fa0/20, Fa0/21 Fa0/22, Gi0/1, Gi0/2
21	VLAN0021	active	
33	VLAN0033	active	Fa0/9
186	VLAN0186	active	Fa0/13
196	VLAN0196	active	Fa0/11
296	VLAN0296	active	Fa0/12
339	VLAN0339	active	Fa0/14
691	VLAN0691	active	Fa0/15
946	VLAN0946	active	Fa0/16

**VLAN 152 is NOT configured on SW3, let's configure this VLAN:**

```
SW3(config)#Vlan 152  
SW3(config-vlan)#Exit
```

**Let's wait for Spanning-tree to converge before testing the configuration:**

**To verify the configuration:**

**On R8:**

```
R8#Ping 152.1.1.5
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 152.1.1.5, timeout is 2 seconds:

```
.!!!!
```

```
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms
```

## Ticket 8

**You must “Shut” and “No Shut” the F0/19 interface of SW3 and SW4 before proceeding, when shutting the f0/19 interface down, you must wait for the interface to transition into down state before issuing the “No Shut” command.**



The client keeps on getting the following console messages on SW3:

```
%UDLD-4-UDLD_PORT_DISABLED: UDLD disabled interface Fa0/19, unidirectional link detected
%PM-4-ERR_DISABLE: udd error detected on Fa0/19, putting Fa0/19 in err-disable state
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/19, changed state to down
%LINK-3-UPDOWN: Interface FastEthernet0/19, changed state to down
```

```
%PM-4-ERR_RECOVER: Attempting to recover from udd err-disable state on Fa0/19
```

```
%LINK-3-UPDOWN: Interface FastEthernet0/19, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/19, changed state to up
```

You may break one of the rules in this lab's rules stated in the beginning of this lab.

### To verify the problem:

#### On SW3:

```
SW3#Show udld F0/19
```

```
Interface Fa0/19
```

```
---
```

```
Port enable administrative configuration setting: Enabled / in aggressive mode
```

```
Port enable operational state: Enabled / in aggressive mode
```

```
Current bidirectional state: Unidirectional
```

```
Current operational state: Disabled port
```

```
Message interval: 7
```

```
Time out interval: 5
```

## No neighbor cache information stored

The output of the above show command states that a Unidirectional link is what is detected and the console messages verify this information. But Why?

Let's check the interface configuration of SW3 and SW4; since we can NOT physically inspect or touch the pods in this lab or in the actual CCIE lab, how do we fix this problem?

```
SW3#Show run int f0/19 | B inter
interface FastEthernet0/19
  switchport trunk encapsulation dot1q
  switchport mode trunk
  udd port aggressive
end
```

## On SW4:

```
SW4#Show run int f0/19 | B inter
interface FastEthernet0/19
  switchport trunk encapsulation dot1q
  switchport mode trunk
  udd port aggressive
  mac access-group tst in
end
```

Hmmm.....let's check the mac access-list called "tst":

```
SW4#Show run | B mac access-list
mac access-list extended tst
  deny any host 0100.0ccc.cccc
  permit any any
```

**WOW.... The MAC that is being filtered on ingress F0/19 interface of SW3 is the destination Mac address used by UDLD. In order to fix this problem, we should just remove the mac access-list all together.**

## On SW4

```
SW4 (config) #No mac access-list extended tst
```

**To verify the configuration:**

## On SW3

```
SW3#Show udld f0/19
```

```
Interface Fa0/19
```

```
---
```

```
Port enable administrative configuration setting: Enabled / in aggressive mode
```

```
Port enable operational state: Enabled / in aggressive mode
```

```
Current bidirectional state: Bidirectional
```

```
Current operational state: Advertisement - Single neighbor detected
```

```
Message interval: 7
```

```
Time out interval: 5
```

```
Entry 1
```

```
---
```

```
Expiration time: 43
```

```
Cache Device index: 1
```

```
Current neighbor state: Bidirectional
```

```
Device ID: CAT0629X0DG
```

```
Port ID: Fa0/19
```

```
Neighbor echo 1 device: CAT0628Z0LB
```

```
Neighbor echo 1 port: Fa0/19
```

```
Message interval: 15
```

```
Time out interval: 5
```

```
CDP Device name: SW4
```

## Ticket 9

Erase the startup configuration and the "vlan.dat" and reload the devices before proceeding to the next scenario.