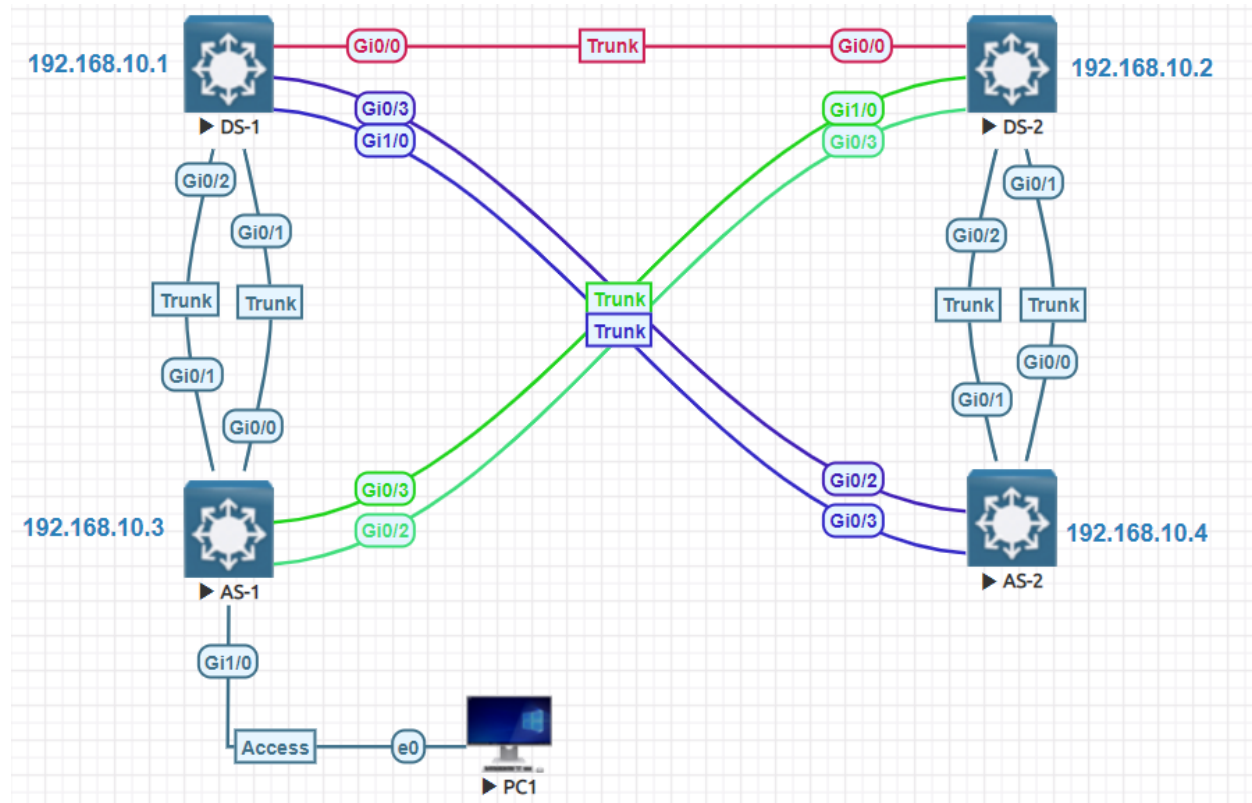


STP Lab:



Switch Images	vios_l2-adventerprisek9-m.ssa.high_iron_20190423
Client PC	Linux-Slax-9.11.0 or VPCS
VLANs	VLAN1 and VLAN10
DS-1 VLAN 10 IP Address	192.168.10.1
DS-2 VLAN 10 IP Address	192.168.10.2
AS-1 VLAN 10 IP Address	192.168.10.3
AS-2 VLAN 10 IP Address	192.168.10.4
DS-1 Trunk Interfaces	G0/0, G0/1, G0/2, G0/3, G1/0
DS-2 Trunk Interfaces	G0/0, G0/1, G0/2, G0/3, G1/0
AS-1 Trunk Interfaces	G0/0, G0/1, G0/2, G0/3
AS-2 Trunk Interfaces	G0/0, G0/1, G0/2, G0/3
AS-1 Access Interface	G1/0
Spanning Tree Mode	PVST
DS-1 Access Interface	G1/1
DS-2 Access Interface	G1/1
AS-1 Access Interface	G1/1
AS-2 Access Interface	G1/1

DS-1 Basic Configuration

```
DS-1(config)#hostname DS-1
DS-1(config)#spanning-tree mode pvst
DS-1(config)#line con 0
DS-1(config-line)#exec-timeout 0 0
DS-1(config-line)#logging synchronous
DS-1(config-line)#exit
DS-1(config)#interface range g0/0-3, g1/0-3
DS-1(config-if-range)#shutdown
DS-1(config-if-range)#exit
```

DS-1 Trunk Configuration

```
DS-1(config)#interface range g0/0-3, g1/0
DS-1(config-if-range)#switchport trunk encapsulation dot1q
DS-1(config-if-range)#switchport mode trunk
DS-1(config-if-range)#no shutdown
```

DS-1 VLAN & SVI Configuration

```
DS-1(config)#interface vlan 10
DS-1(config-if)#ip address 192.168.10.1 255.255.255.0
DS-1(config-if)#no shutdown
DS-1(config-if)#exit
```

DS-1 Interfaces Configuration

```
DS-1(config)#interface g1/1
DS-1(config-if)#switchport access vlan 10
DS-1(config-if)#no shutdown
```

DS-2 Basic Configuration

```
DS-2(config)#hostname DS-2
DS-2(config)#spanning-tree mode pvst
DS-2(config)#line con 0
DS-2(config-line)#exec-timeout 0 0
DS-2(config-line)#logging synchronous
DS-2(config-line)#exit
DS-2(config)#interface range g0/0-3, g1/0-3
DS-2(config-if-range)#shutdown
DS-2(config-if-range)#exit
```

DS-2 Trunk Configuration

```
DS-2(config)#interface range g0/0-3, g1/0
DS-2(config-if-range)#switchport trunk encapsulation dot1q
DS-2(config-if-range)#switchport mode trunk
DS-2(config-if-range)#no shutdown
DS-2(config-if-range)#exit
```

DS-2 VLAN & SVI Configuration

```
DS-2(config)#interface vlan 10
DS-2(config-if)#ip address 192.168.10.2 255.255.255.0
DS-2(config-if)#no shutdown
DS-2(config-if)#exit
```

DS-2 Interfaces Configuration

```
DS-2(config)#interface g1/1
DS-2(config-if)#switchport access vlan 10
DS-2(config-if)#no shutdown
```

AS-1 Basic Configuration

```
AS-1(config)#hostname AS-1
AS-1(config)#spanning-tree mode pvst
AS-1(config)#line con 0
AS-1(config-line)#exec-timeout 0 0
AS-1(config-line)#logging synchronous
AS-1(config-line)#exit
AS-1(config)#interface range g0/0-3, g1/0-3
AS-1(config-if-range)#shutdown
AS-1(config-if-range)#exit
```

AS-1 Trunk Configuration

```
AS-1(config)#interface range g0/0-3
AS-1(config-if-range)#switchport trunk encapsulation dot1q
AS-1(config-if-range)#switchport mode trunk
AS-1(config-if-range)#no shutdown
AS-1(config-if-range)#exit
```

AS-1 VLAN & SVI Configuration

```
AS-1(config)#interface vlan 10
AS-1(config-if)#ip address 192.168.10.3 255.255.255.0
AS-1(config-if)#no shutdown
AS-1(config-if)#exit
```

AS-1 Interfaces Configuration

```
AS-1(config)#interface g1/1
AS-1(config-if)#switchport access vlan 10
AS-1(config-if)#no shutdown
```

AS-2 Basic Configuration

```
AS-2(config)#hostname AS-2
AS-2(config)#spanning-tree mode pvst
AS-2(config)#line con 0
AS-2(config-line)#exec-timeout 0 0
AS-2(config-line)#logging synchronous
AS-2(config-line)#exit
AS-2(config)#interface range g0/0-3, g1/0-3
AS-2(config-if-range)#shutdown
AS-2(config-if-range)#exit
```

AS-2 Trunk Configuration

```
AS-2(config)#interface range g0/0-3
AS-2(config-if-range)#switchport trunk encapsulation dot1q
AS-2(config-if-range)#switchport mode trunk
AS-2(config-if-range)#no shutdown
AS-2(config-if-range)#exit
```

AS-2 VLAN & SVI Configuration

```
AS-2(config)#interface vlan 10
AS-2(config-if)#ip address 192.168.10.4 255.255.255.0
AS-2(config-if)#no shutdown
AS-2(config-if)#exit
```

AS-2 Interfaces Configuration

```
AS-2(config)#interface g1/1
AS-2(config-if)#switchport access vlan 10
AS-2(config-if)#no shutdown
```

```
DS-1#show spanning-tree vlan 1
```

```
VLAN0001
```

```
Spanning tree enabled protocol ieee
```

```
Root ID Priority 32769  
Address 500a.0001.0000
```

```
This bridge is the root
```

```
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)  
Address 500a.0001.0000  
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec  
Aging Time 300 sec
```

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

```
-----  
Gi0/0 Desg FWD 4 128.1 P2p  
Gi0/1 Desg FWD 4 128.2 P2p  
Gi0/2 Desg FWD 4 128.3 P2p  
Gi0/3 Desg FWD 4 128.4 P2p  
Gi1/0 Desg FWD 4 128.5 P2p
```

```
DS-1#show spanning-tree vlan 10
```

```
VLAN0010
```

```
Spanning tree enabled protocol ieee
```

```
Root ID Priority 32778  
Address 500a.0001.0000
```

```
This bridge is the root
```

```
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)  
Address 500a.0001.0000  
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec  
Aging Time 300 sec
```

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

```
-----  
Gi0/0 Desg FWD 4 128.1 P2p  
Gi0/1 Desg FWD 4 128.2 P2p  
Gi0/2 Desg FWD 4 128.3 P2p  
Gi0/3 Desg FWD 4 128.4 P2p  
Gi1/0 Desg FWD 4 128.5 P2p  
Gi1/1 Desg FWD 4 128.6 P2p
```

```
DS-1#sh spanning-tree root
```

```
Vlan Root ID Root Cost Hello Time Max Age Fwd Dly Root Port
```

Vlan	Root ID	Root Cost	Hello Time	Max Age	Fwd Dly	Root Port
VLAN0001	32769 500a.0001.0000	0	2	20	15	
VLAN0010	32778 500a.0001.0000	0	2	20	15	

```
DS-1#
```

DS-1#show spanning-tree | i Address

Address 500a.0001.0000
Address 500a.0001.0000
Address 500a.0001.0000
Address 500a.0001.0000

DS-2#show spanning-tree | i Address

Address 500a.0001.0000
Address 500a.0002.0000
Address 500a.0001.0000
Address 500a.0002.0000

AS-1#show spanning-tree | i Address

Address 500a.0001.0000
Address 500a.0003.0000
Address 500a.0001.0000
Address 500a.0003.0000

AS-2#show spanning-tree | i Address

Address 500a.0001.0000
Address 500a.0004.0000
Address 500a.0001.0000
Address 500a.0004.0000

DS-2#show spanning-tree vlan 10

VLAN0010

Spanning tree enabled protocol ieee

Root ID Priority 32778
Address 500a.0001.0000
Cost 4
Port 1 (GigabitEthernet0/0)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
Address 500a.0002.0000
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type
Gi0/0	Root	FWD	4	128.1	P2p
Gi0/1	Desg	FWD	4	128.2	P2p
Gi0/2	Desg	FWD	4	128.3	P2p
Gi0/3	Desg	FWD	4	128.4	P2p
Gi1/0	Desg	FWD	4	128.5	P2p
Gi1/1	Desg	FWD	4	128.6	P2p

AS-1#show spanning-tree vlan 10

VLAN0010

Spanning tree enabled protocol ieee

Root ID Priority 32778
 Address 500a.0001.0000
 Cost 4
 Port 1 (GigabitEthernet0/0)
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
 Address 500a.0003.0000
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type
Gi0/0	Root	FWD	4	128.1	P2p
Gi0/1	Altn	BLK	4	128.2	P2p
Gi0/2	Altn	BLK	4	128.3	P2p
Gi0/3	Altn	BLK	4	128.4	P2p
Gi1/1	Desg	FWD	4	128.6	P2p

AS-2#show spanning-tree vlan 10

VLAN0010

Spanning tree enabled protocol ieee

Root ID Priority 32778
 Address 500a.0001.0000
 Cost 4
 Port 3 (GigabitEthernet0/2)
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
 Address 500a.0004.0000
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type
Gi0/0	Altn	BLK	4	128.1	P2p
Gi0/1	Altn	BLK	4	128.2	P2p
Gi0/2	Root	FWD	4	128.3	P2p
Gi0/3	Altn	BLK	4	128.4	P2p
Gi1/1	Desg	FWD	4	128.6	P2p