

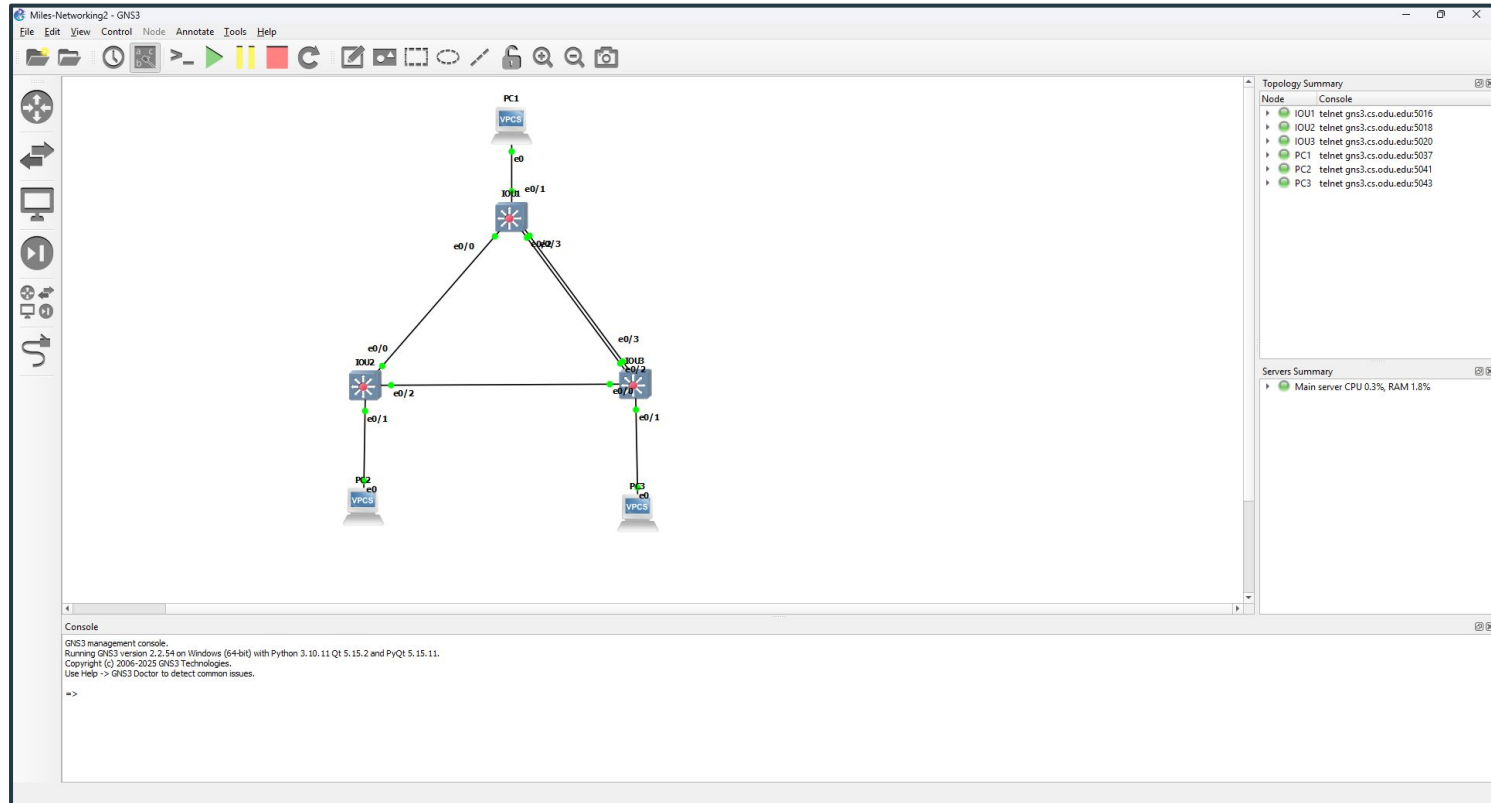


Networking - Spanning Tree Protocol

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Made with GNS3



Network Topology



STP Root bridge

```
IOU1#show spanning-tree
```

```
VLAN0001
```

```
Spanning tree enabled protocol rstp
Root ID    Priority    32769
           Address    aabb.cc00.2e00
           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    aabb.cc00.2e00
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
           Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Et0/0	Desg	FWD	100	128.1	Shr
Pol	Desg	FWD	56	128.65	Shr

```
VLAN0010
```

```
Spanning tree enabled protocol rstp
Root ID    Priority    24586
           Address    aabb.cc00.2e00
           This bridge is the root
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID  Priority    24586 (priority 24576 sys-id-ext 10)
           Address    aabb.cc00.2e00
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
           Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Et0/0	Desg	FWD	100	128.1	Shr
Et0/1	Desg	FWD	100	128.2	Shr
Pol	Desg	FWD	56	128.65	Shr

```
VLAN0020
```

```
Spanning tree enabled protocol rstp
Root ID    Priority    24596
           Address    aabb.cc00.2e00
           This bridge is the root
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID  Priority    24596 (priority 24576 sys-id-ext 20)
           Address    aabb.cc00.2e00
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
           Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
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Et0/0	Desg	FWD	100	128.1	Shr
Pol	Desg	FWD	56	128.65	Shr

```
VLAN0030
```

```
Spanning tree enabled protocol rstp
Root ID    Priority    24606
           Address    aabb.cc00.2e00
           This bridge is the root
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID  Priority    24606 (priority 24576 sys-id-ext 30)
           Address    aabb.cc00.2e00
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
           Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Et0/0	Desg	FWD	100	128.1	Shr
Pol	Desg	FWD	56	128.65	Shr

```
VLAN0999
```

```
Spanning tree enabled protocol rstp
Root ID    Priority    33767
           Address    aabb.cc00.2e00
           This bridge is the root
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID  Priority    33767 (priority 32768 sys-id-ext 999)
           Address    aabb.cc00.2e00
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
           Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Et0/0	Desg	FWD	100	128.1	Shr
Et1/0	Desg	FWD	100	128.5	Shr
Et1/1	Desg	FWD	100	128.6	Shr
Et1/2	Desg	FWD	100	128.7	Shr
Et1/3	Desg	FWD	100	128.8	Shr
Et2/0	Desg	FWD	100	128.9	Shr
Et2/1	Desg	FWD	100	128.10	Shr
Et2/2	Desg	FWD	100	128.11	Shr
Et2/3	Desg	FWD	100	128.12	Shr
Et3/0	Desg	FWD	100	128.13	Shr
Et3/1	Desg	FWD	100	128.14	Shr
Et3/2	Desg	FWD	100	128.15	Shr
Et3/3	Desg	FWD	100	128.16	Shr
Pol	Desg	FWD	56	128.65	Shr

STP Non-Root Bridges

Switch IOU2

```
IOU2#show spanning-tree

VLAN0001
Spanning tree enabled protocol rstp
Root ID    Priority    32769
           Address    aabb.cc00.2e00
           Cost        20000
           Port        1 (Ethernet0/0)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
           Address    aabb.cc00.2f00
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Root FWD 20000 128.1 Shr
Et0/2     Altn BLK 20000 128.3 Shr

VLAN0010
Spanning tree enabled protocol rstp
Root ID    Priority    24586
           Address    aabb.cc00.2e00
           Cost        156
           Port        3 (Ethernet0/2)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32778 (priority 32768 sys-id-ext 10)
           Address    aabb.cc00.2f00
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Altn BLK 20000 128.1 Shr
Et0/2     Root FWD 100 128.3 Shr

VLAN0020
Spanning tree enabled protocol rstp
Root ID    Priority    24586
           Address    aabb.cc00.2e00
           Cost        156
           Port        3 (Ethernet0/2)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32788 (priority 32768 sys-id-ext 20)
           Address    aabb.cc00.2f00
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Root FWD 100 128.1 Shr
Et0/2     Root FWD 100 128.3 Shr
```

```
Et0/0     Altn BLK 20000 128.1 Shr
Et0/2     Root FWD 100 128.3 Shr

VLAN0030
Spanning tree enabled protocol rstp
Root ID    Priority    24606
           Address    aabb.cc00.2e00
           Cost        156
           Port        3 (Ethernet0/2)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32788 (priority 32768 sys-id-ext 30)
           Address    aabb.cc00.2f00
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Altn BLK 20000 128.1 Shr
Et0/2     Root FWD 100 128.3 Shr

VLAN0999
Spanning tree enabled protocol rstp
Root ID    Priority    33767
           Address    aabb.cc00.2e00
           Cost        20000
           Port        1 (Ethernet0/0)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    33767 (priority 32768 sys-id-ext 999)
           Address    aabb.cc00.2f00
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Root FWD 20000 128.1 Shr
Et0/2     Altn BLK 20000 128.3 Shr
Et0/3     Desg FWD 100 128.4 Shr
Et1/0     Desg FWD 100 128.5 Shr
Et1/1     Desg FWD 100 128.6 Shr
Et1/2     Desg FWD 100 128.7 Shr
Et1/3     Desg FWD 100 128.8 Shr
Et2/0     Desg FWD 100 128.9 Shr
Et2/1     Desg FWD 100 128.10 Shr
Et2/2     Desg FWD 100 128.11 Shr
Et2/3     Desg FWD 100 128.12 Shr
Et3/0     Desg FWD 100 128.13 Shr
Et3/1     Desg FWD 100 128.14 Shr
Et3/2     Desg FWD 100 128.15 Shr
Et3/3     Desg FWD 100 128.16 Shr
```

Switch IOU3

```
IOU3#show spanning-tree

VLAN0001
Spanning tree enabled protocol rstp
Root ID    Priority    32769
           Address    aabb.cc00.2e00
           Cost        56
           Port        65 (Port-channel1)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
           Address    aabb.cc00.3000
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Desg FWD 100 128.1 Shr
Pol       Root FWD 56 128.65 Shr

VLAN0010
Spanning tree enabled protocol rstp
Root ID    Priority    24586
           Address    aabb.cc00.2e00
           Cost        56
           Port        65 (Port-channel1)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32778 (priority 32768 sys-id-ext 10)
           Address    aabb.cc00.3000
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Desg FWD 100 128.1 Shr
Pol       Root FWD 56 128.65 Shr

VLAN0020
Spanning tree enabled protocol rstp
Root ID    Priority    24586
           Address    aabb.cc00.2e00
           Cost        56
           Port        65 (Port-channel1)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32788 (priority 32768 sys-id-ext 20)
           Address    aabb.cc00.3000
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Desg FWD 100 128.1 Shr
Et1/0     Desg FWD 100 128.5 Shr
Et1/1     Desg FWD 100 128.6 Shr
Et1/2     Desg FWD 100 128.7 Shr
Et1/3     Desg FWD 100 128.8 Shr
Et2/0     Desg FWD 100 128.9 Shr
Et2/1     Desg FWD 100 128.10 Shr
Et2/2     Desg FWD 100 128.11 Shr
Et2/3     Desg FWD 100 128.12 Shr
Et3/0     Desg FWD 100 128.13 Shr
Et3/1     Desg FWD 100 128.14 Shr
Et3/2     Desg FWD 100 128.15 Shr
Et3/3     Desg FWD 100 128.16 Shr
```

```
Et0/0     Desg FWD 100 128.1 Shr
Pol       Root FWD 56 128.65 Shr

VLAN0030
Spanning tree enabled protocol rstp
Root ID    Priority    24606
           Address    aabb.cc00.2e00
           Cost        56
           Port        65 (Port-channel1)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    32788 (priority 32768 sys-id-ext 30)
           Address    aabb.cc00.3000
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Desg FWD 100 128.1 Shr
Et0/1     Desg FWD 100 128.2 Shr
Pol       Root FWD 56 128.65 Shr

VLAN0999
Spanning tree enabled protocol rstp
Root ID    Priority    33767
           Address    aabb.cc00.2e00
           Cost        56
           Port        65 (Port-channel1)
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    33767 (priority 32768 sys-id-ext 999)
           Address    aabb.cc00.3000
           Hello Time  2 sec Max Age 20 sec Forward Delay 15 sec
           Aging Time  300 sec

Interface Role Sts Cost Prio.Nbr Type
-----
Et0/0     Desg FWD 100 128.1 Shr
Et1/0     Desg FWD 100 128.5 Shr
Et1/1     Desg FWD 100 128.6 Shr
Et1/2     Desg FWD 100 128.7 Shr
Et1/3     Desg FWD 100 128.8 Shr
Et2/0     Desg FWD 100 128.9 Shr
Et2/1     Desg FWD 100 128.10 Shr
Et2/2     Desg FWD 100 128.11 Shr
Et2/3     Desg FWD 100 128.12 Shr
Et3/0     Desg FWD 100 128.13 Shr
Et3/1     Desg FWD 100 128.14 Shr
Et3/2     Desg FWD 100 128.15 Shr
Et3/3     Desg FWD 100 128.16 Shr
Pol       Root FWD 56 128.65 Shr
```