

MST (Multiple Spanning Tree) Notes and configuration

In PVST, we need to have different calculations for each VLAN. This will be fine for less number of VLANs. But if we have 100's of VLAN this is not easy. For such cases we use MST (Multiple Spanning Tree).

In MST, Instead of calculating a spanning tree for each VLAN we can use instances and map VLANs to each instance. For example consider we have 200 vlans. it can be configured as

- Instance 1: VLAN 100 – 200.
- Instance 2: VLAN 201 – 300.

Only two spanning tree calculations (instances) are required for all these VLANs.

MST works with the concept of regions. Switches that are configured to use MST need to find out if their neighbors are running MST. When switches have the same attributes they will be in the same region. It's possible to have one or more regions and here are the attributes that need to match

- MST configuration name.
- MST configuration revision number.
- MST instance to VLAN mapping table.

When switches have the same attributes configured they will be in the same region. If the attributes are not the same the switch is seen as being at the boundary of the region. It can be connected to another MST region but also talk to a switch running another version of spanning tree.

We can give any name or number for "MST configuration name" and "MST configuration revision number". VLANs will be mapped to an instance by using the "MST instance to VLAN mapping table". This is something we have to do ourselves.

Within the MST region we will have one instance of spanning tree that will create a loop free topology within the region. When you configure MST there is always one default instance used to calculate the topology within the region. We call this the IST (Internal Spanning Tree). By default Cisco will use instance 0 to run the IST.

By default there will be only instance 0 is available. We can see that all VLANs are currently mapped to instance 0.

Lets do an example. There are two switches-Switch A and Switch B. **Don't forget to create trunk between switches.**

```
SwitchA(config)#spanning-tree mode mst
SwitchA(config)#vlan 10
SwitchA(config-vlan)#vlan 20
SwitchA(config-vlan)#vlan 30
SwitchA(config-vlan)#vlan 40
SwitchA(config-vlan)#vlan 50
SwitchA(config-vlan)#vlan 60
SwitchA(config-vlan)#exit
```

```
SwitchB(config)#spanning-tree mode mst
SwitchB(config)#vlan 10
SwitchB(config-vlan)#vlan 20
SwitchB(config-vlan)#vlan 30
SwitchB(config-vlan)#vlan 40
SwitchB(config-vlan)#vlan 50
SwitchB(config-vlan)#vlan 60
SwitchB(config-vlan)#exit
```

We enabled mst and configured vlan 10,20,30,40,50 and 60 in both switch A and Switch B

```
SwitchA(config)#spanning-tree mst configuration
SwitchA(config-mst)#name sysnetnotes
SwitchA(config-mst)#revision 1
SwitchA(config-mst)#instance 2 vlan 10,20,30
SwitchA(config-mst)#instance 3 vlan 40,50,60
SwitchA(config-mst)#exit
```

```
SwitchB(config)#spanning-tree mst configuration
SwitchB(config-mst)#name sysnetnotes
SwitchB(config-mst)#revision 1
SwitchB(config-mst)#instance 2 vlan 10,20,30
SwitchB(config-mst)#instance 3 vlan 40,50,60
SwitchB(config-mst)#exit
```

This is how we configure MST. First you need the spanning-tree mst configuration command to enter the configuration of MST. We set the name by using the name command[You can set any name]. Don't forget to set a revision number and map the instances with the instance command.

We can use the show spanning-tree mst configuration command to verify our configuration. You can see that we now have two instances. The VLANs are mapped to instance 2 and 3. All the other VLANs are still mapped to instance 0.

To create Root bridge manually in MST

Switch(config)#spanning-tree mst < 0 > priority 4096

This is how I change the priority for MST "instance 0".

To view

Switch#show spanning-tree mst

Switch#show spanning-tree mst configuration

NOTE : MST will only advertise BPDUs from the IST [(Internal Spanning Tree)] to the outside world

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