

MST IEEE 802.1s
Multiple spanning tree
1 bpdu will be generated for all vlans
By default only 1 instance /tree will be created.
Instance 0

Bridge ID
pri+sys-ext-id (vlan ID) in pvst,rstp

pri+sys-ext-id (instance number) --Rstp,pvst
pri+instance_num --MST

pvst/rpvst 128 vlan -128 tree/instance/bpdu
mst 1-50 instance 0 MST0
51-100 instance 1 Mst1
101-128 instance 2 MSt3

Max instance =16

Election process
Propasal-agreement
the port on which agreement bpdu is sent
will be moved to up

MST instance numbers is in the range of 0–4095

Different Catalyst platforms supported different ranges: 0–15 on Catalyst 2950
0–4094 on Catalyst 2960 and 3560.

MST standard allows for at most 65 active MST instances (instance 0 plus at most 64 user-definable instances).

MST uses a single BPDU to carry information about all instances, and it must fit into a single Ethernet frame.

While a typical Ethernet MTU of 1500B would allow for approximately 88 MST instances in total, the limit of 64 user-definable

In MST, a port sends BPDUs if it is Designated for at least one MST instance. As

MST uses a single BPDU for all instances, it is possible to see both switches on a point-to-point link to send BPDUs to each other if each of these switches is Designated in a different MST instance.

Out of all MST instances, the instance 0 has a special meaning. This instance is also called the Internal Spanning Tree, or IST, and serves several purposes. First, this instance always exists even if no other MST instances are created, providing a loop-free environment to VLANs mapped onto it within a region.

Without any additional configuration, all VLANs are mapped onto the IST.

Second, the IST is the only instance that interacts with STP run on switches outside the MST region.

Whatever port role and state are determined by the interaction of IST on a region boundary with a neighboring switch, this role and state will be inherited by all existing VLANs on that port, not just by VLAN

The CIST Root Switch is elected by the lowest Bridge ID from all switches that participate in CIST, that is, from all MST switches across all regions according to their IST

Bridge IDs (composed of IST priority, instance number 0, and their base MAC address), and from all STP/RSTP switches, if present, according to the only Bridge IDs they have.

This switch will also become the root of IST inside its own MST

```
en
conf t
ho Sw2
int range g0/0-2
sw trunk encap dot1q
sw mode trunk
exit
spanning-tree mode mst
```

```
int range g1/0-3
shut
```

```
spanning-tree mst 0 root primary
```

```
spanning-tree mst configuration
revision 2
name abcd
instance 1 vlan 2-10
exit
```

```
Sw3(config)#do sh spanning-tree mst configuration digest
Name [abc]
Revision 2 Instances configured 2
Digest 0x6F768535A3266EFBF2F3863CDEE9B1D8
Pre-std Digest 0x26D740FC5A17A35FAC314D9E3932C
```

```
Sw5(config)#do sh spanning-tree mst configuration digest
Name [abcd]
Revision 2 Instances configured 2
Digest 0x4A7E4FF75BA44BE04FC94144578EAE3F
Pre-std Digest 0x84BCB6C65FA831A850D1F7D29BA7B4D6
Sw5(config)#
```