



# Configuring Multiple Spanning Tree

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## About MST

Multiple Spanning Tree (MST) is the IEEE 802.1s standard that allows two or more VLANs to be assigned to a spanning tree instance. Each instance has a spanning tree topology independent of other spanning tree instances. This architecture provides multiple forwarding paths for data traffic, enables load balancing, and reduces the number of Spanning Tree Protocol (STP) instances required to support a large number of VLANs. MST improves the fault tolerance of the network because a failure in one instance (forwarding path) does not affect other instances (forwarding paths). MST instances with the same name, revision number, and VLAN-to-instance mapping combine to form an MST region. The MST region appears as a single bridge to spanning tree configurations outside the region. MST fails over to IEEE 802.1D STP when it receives an 802.1D message from a neighboring switch.



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**Note** Spanning tree is used to refer to IEEE 802.1w and IEEE 802.1s. If the text is discussing the IEEE 802.1D Spanning Tree Protocol, 802.1D is stated specifically.

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In Cisco UCS Director, MST configuration is supported on the following Cisco network devices:

- Cisco Nexus 3000 Series switches
- Cisco Nexus 5000, 5500, and 5672 Series switches
- Cisco Nexus 6000 Series switches
- Cisco Nexus 7000 Series switches
- Cisco Nexus 9000 Series switches

## Configuring an MST Instance

You can configure an MST instance on a network.

**Step 1** Choose **Physical > Network**.

**Step 2** On the **Network** page, choose the pod.

**Step 3** Click **Managed Network Elements**.

**Step 4** Select the network device to be configured.

**Step 5** From the **More Actions** drop-down list, choose **Configure MST Instance**.

You can alternatively choose **Configure MST Instance** command on the **Summary** tab that appears on selection of the network device from the left pane.

**Step 6** In the **Configure MST Instance** screen, complete the following fields:

Name	Description
MST Instance field	The MST ID number.
VLAN field	The VLAN to apply in this MST ID.

**Step 7** Click **Submit**.

## Enabling MST and Configuring MST Network Parameters

**Step 1** Choose **Physical > Network**.

**Step 2** On the **Network** page, choose the pod.

**Step 3** Click **Managed Network Elements**.

**Step 4** Select the network device to be configured.

**Step 5** From the **More Actions** drop-down list, choose **Configure MST**.

You can alternatively choose **Configure MST** command on the **Summary** tab that appears on selection of the network device from the left pane.

**Step 6** In the **Configure MST** screen, complete the required fields, including the following:

Name	Description
Enable MST check box	Check this check box to enable MST. <b>Note</b> To disable MST, uncheck this check box.
Name field	(Required) The MST region name for the bridge. The name string has a maximum length of 32 characters and is case-sensitive. The default is an empty string. <b>Note</b> For two or more bridges to be in the same MST region, they must have the identical MST name, VLAN-to-instance mapping, and MST revision number.

Name	Description
<b>Revision</b> field	(Required) The revision number is an unsigned 16-bit number that identifies the revision of the current MST configuration.
<b>Hello Time</b> field	The hello time between each bridge protocol data unit (BPDU) that is sent on the root bridge port that is used for all MST instances. These messages mean that the switch is alive. For seconds, the range is from 1 to 10, and the default is 2 seconds.
<b>Forward Time</b> field	The forward delay time for all MST instances that a port waits before changing from its spanning tree blocking and learning states to the forwarding state. For seconds, the range is from 4 to 30, and the default is 15 seconds.
<b>Max Hop Count</b> field	The Max Hop Count to be used. This is the maximum number of hops for the MST region. A region is the equivalent of Border Gateway Protocol (BGP) Autonomous Systems, which is a group of switches placed under common administration.
<b>Max Age in seconds</b> field	The maximum-aging time for all MST instances. The maximum-aging time is the number of seconds that a switch waits without receiving spanning tree configuration messages before attempting a reconfiguration. For seconds, the range is from 6 to 40, and the default is 20 seconds.
<b>Copy Running configuration to Startup configuration</b> check box	Check this check box to copy the running configuration to the startup configuration.

**Step 7** In the **Select Items** dialog box, check the check boxes to choose individual ports, and click **Select**.

**Step 8** Click **Submit**.

