



ENCS Switch Portal Configuration

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Switch Settings

The **Switch** option from the Cisco Enterprise NFVIS portal allows you to configure STP/RSTP, VLAN on specified ranges, RADIUS based authentication, and port channel load balancing for various switch ports. This section describes how to configure settings on the ENCS switch portal.

| SwitchPort | Description | Status | MAC Address | PortType | VLAN | Speed | RXBytes | PktDrop |
|--------------------|-------------|--------|-------------------|----------|------|-------|---------|---------|
| GigabitEthernet1/0 | | down | 00:a6:ca:d6:32:d9 | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/1 | | down | 00:a6:ca:d6:32:da | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/2 | | down | 00:a6:ca:d6:32:db | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/3 | | down | 00:a6:ca:d6:32:dc | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/4 | | down | 00:a6:ca:d6:32:dd | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/5 | | down | 00:a6:ca:d6:32:de | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/6 | | down | 00:a6:ca:d6:32:df | access | 1 | 1000 | 0 | 0 |
| GigabitEthernet1/7 | | down | 00:a6:ca:d6:32:e0 | access | 1 | 1000 | 0 | 0 |

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| POR | IN-UCAS | OUT-UCAS | IN-MCAS | OUT-MCAS | IN-BCAS | OUT-BCAST |
|-----|---------|----------|---------|----------|---------|-----------|
| T | T | T | T | T | T | |
| 1/0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/7 | 0 | 0 | 0 | 0 | 0 | 0 |

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You can view the Switch Interface operational data and the statistics parameters in the following table:

Table 1: Switch Settings Interface

| Parameter | Description | Values |
|-------------|---|--|
| SwitchPort | Specifies the switch interface name. | |
| Description | Specifies the description of the interface. | |
| Status | Specifies the status of the interface. | up or down |
| MAC Address | Specifies the MAC address of the interface. | |
| PortType | Specifies the mode of the port interface. | Supported types are: <ul style="list-style-type: none"> • access • dot1q-tunnel • private-vlan • trunk |
| VLAN | Specifies the VLAN ID. | Range: 1-2349 and 2450-4093 |

| | | |
|-----------|--|--|
| Speed | Specifies the speed of the interface. | Speed: <ul style="list-style-type: none"> • 10 MBPS • 100 MBPS • 1000 MBPS |
| RxBytes | Specifies the received data on interface in bytes. | |
| PktDrop | Specifies the number of packet drops. | |
| PORT | Specifies the port number. | |
| IN-UCAST | Specifies the number of incoming unicast packets at the interface. | |
| OUT-UCAST | Specifies the number of outgoing unicast packets at the interface. | |
| IN-MCAST | Specifies the number of incoming multicast packets at the interface. | |
| OUT-MCAST | Specifies the number of outgoing multicast packets at the interface. | |
| IN-BCAST | Specifies the number of incoming broadcast packets at the interface. | |
| OUT-BCAST | Specifies the number of outgoing broadcast packets at the interface. | |

Configuring Spanning Tree

Spanning Tree Protocol (STP) is a Layer 2 protocol that runs on bridges and switches. The main purpose of STP is to ensure that you do not create loops when you have redundant paths in your network.

The Spanning Tree option is enabled by default. You can click on **edit** and make the necessary settings or disable Spanning Tree if required.

Spanning Tree

| | | |
|-------|-------------------------|---|
| dot1x | Spanning Tree | <input checked="" type="checkbox"/> Enable <input type="checkbox"/> Disable |
| LACP | Mode | <input type="text" value="rstp"/> ▼ |
| Vlan | Forward Time | - <input type="text" value="15"/> + |
| | Hello Time | - <input type="text" value="2"/> + |
| | Max Age | - <input type="text" value="20"/> + |
| | Loopback Guard | <input type="checkbox"/> Enable <input checked="" type="checkbox"/> Disable |
| | Path Cost Method | <input type="text" value="long"/> ▼ |
| | Priority | - <input type="text" value="32768"/> + |

[✎ Edit](#)

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Spanning Tree

| | | |
|-------|-----------------------|---|
| dot1x | Spanning Tree | <input type="checkbox"/> Enable <input checked="" type="checkbox"/> Disable |
| LACP | BPDU Filtering | <input type="checkbox"/> |
| Vlan | BPDU Flooding | <input checked="" type="checkbox"/> |

[✓ Apply](#) [✕ Cancel](#)

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The configuration of spanning tree has the following parameters when it is enabled:

Table 2: Spanning Tree Parameters

| Parameter | Description | Values |
|---------------|---|---|
| Spanning Tree | Specifies the state of the Spanning Tree. | Enable or Disable The default value is Enable. |

| | | |
|------------------|---|---|
| Mode | Specifies the mode of the Spanning Tree. | stp or rstp |
| Forward Time | Specifies the Spanning Tree forward time in seconds. | Range: 4-30 seconds |
| Hello Time | Specifies the Hello time in seconds. | Range: 1 to 10 seconds |
| Max Age | Specifies the spanning-tree bridge maximum age in seconds. | Range: 6 to 40 seconds |
| Loopback Guard | Specifies the loopback guard status. | Enable or Disable |
| Path Cost Method | Specifies the speed of the interface. | Method: <ul style="list-style-type: none"> • long - for 32 bit based values for default port path costs. • short - 16 bit based values for default port path costs. The default method is long. |
| Priority | Specifies the port priority. | Range: 0 to 61440 in steps of 4096 The default value is 32768. |
| BPDU Filtering | Specifies that BPDU packets are filtered when the spanning tree is disabled on an interface. | |
| BPDU Flooding | Specifies that BPDU packets are flooded unconditionally when the spanning tree is disabled on an interface. | |

Configuring Dot1x

This chapter describes how to configure dot1x port-based authentication on the Cisco Enterprise NFVIS portal. dot1x prevents unauthorized devices (clients) from gaining access to the network. It is a standard for media-level (Layer 2) access control, offering the capability to permit or deny network connectivity based on the identity of the end user or device. The dot1x is disabled by default. You can click on **edit** to enable dot1x.

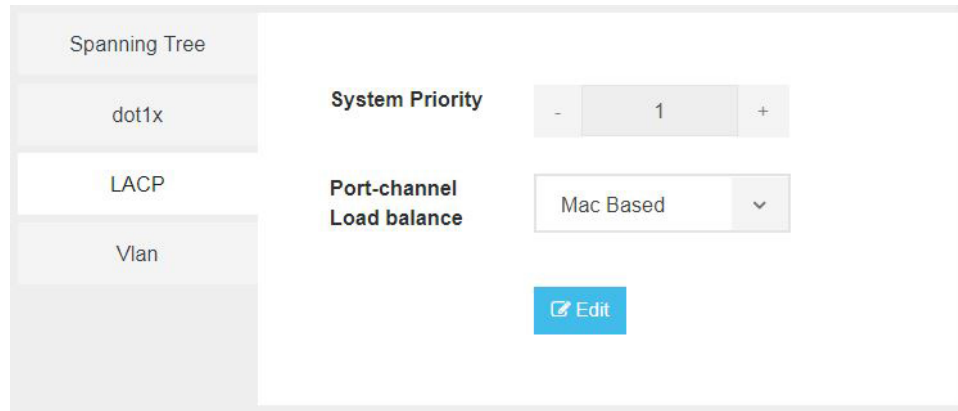
The configuration of dot1x has the following parameters:

Table 3: Dot1x Parameters

| Parameter | Description | Values |
|-----------------------|--|--|
| Authentication | Specifies the authentication type for the port. | radius or none The default value is radius. |
| Guest VLAN Timeout(s) | Specifies the time delay in seconds between enabling Dot1X (or port up) and adding the port to the guest VLAN. | Range: 30 to 180 seconds |
| System Auth control | Specifies the authentication control. | Enable or Disable |

Configuring LACP

The Link Aggregation Control Protocol (LACP) enables you to bundle several physical ports together to form a single logical channel. LACP enables you to form a single Layer 2 link automatically from two or more Ethernet links. This protocol ensures that both ends of the Ethernet link are functional and are part of the aggregation group.



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LACP uses the following parameters to control aggregation:

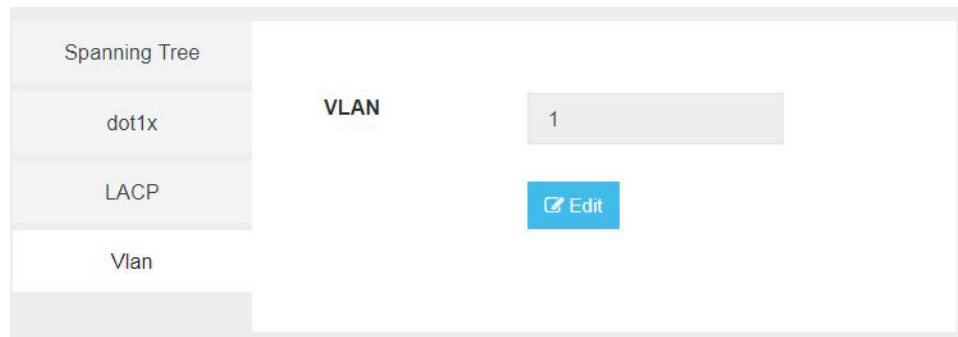
Table 4: LACP Parameters

| Parameter | Description | Values |
|---------------------------|---|-----------------------|
| System Priority | Specifies the port priority. | Range: 1 to 65535 |
| Port-channel load balance | Specifies the load balance of the port channel. | Mac Based or IP Based |

Configuring VLAN

You can use virtual LANs (VLANs) to divide the network into separate logical areas. VLANs can also be considered as broadcast domains. Any switch port can belong to a VLAN, and unicast, broadcast, and multicast packets are forwarded and flooded only to end stations in that VLAN. Each VLAN is considered a logical network, and packets destined for stations that do not belong to the VLAN must be forwarded through a router.

You can configure VLANs in the range <1-2349>|<2450-4093> for a specified switch port.



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Configuring General Settings

The screenshot shows the 'General Settings' tab of the ENCS Switch Portal configuration interface. The interface is divided into three tabs: 'General Settings', 'Advanced Settings', and 'Spanning Tree'. The 'General Settings' tab is active. The configuration fields are as follows:

- Interface:** GigabitEthernet1/0
- Description:** A large text area for entering a description.
- Speed:** A dropdown menu set to 1000.
- Dot1x Auth:** A dropdown menu set to 802.1x.
- Admin Status:** A toggle switch currently turned off.

At the bottom of the configuration area, there are two buttons: 'Apply' and 'Cancel'. A vertical ID number '366828' is visible on the right side of the screenshot.

You can configure general settings using the following parameters for each switch interface:

- Interface—Name of the interface
- Description—Set the description per interface
- Speed—10/100/1000 MBPS
- Dot1x Auth—802.1x, mac or both
- PoE Method—auto, never or four-pair
- PoE Limit—0-60000mW
- Admin Status—enable or disable

Configuring Advanced Settings

The screenshot displays the 'Advanced Settings' tab in the ENCS Switch Portal. The configuration parameters are as follows:

| Parameter | Value |
|-------------------|---|
| Mode | access |
| Access Vlan | 1 |
| Allowed Vlan | All (selected), Vlan IDs (1-2349,2450-4093) |
| Native Vlan | 1 |
| dot1q Tunnel Vlan | |
| Community | 1-29 |
| Protected Port | No |

Buttons: Apply, Cancel

You can make the advanced settings using the following parameters for each switch interface:

- Mode—access, dot1q-tunnel, private-vlan, or trunk
- Access Vlan—Specifies the number of VLANs.
- Allowed Vlan—All or VLAN IDs
- Native Vlan—Specifies the VLAN ID. You can enter a value from one of the following ranges:
 - 1 to 2349
 - 2450 to 4093
- Dot1q Tunnel Vlan—Specifies the Layer 2 tunnel port.
- Community—Specifies the community number. Range: 1 to 29
- Protected Port—Yes or No



Note The VLAN configuration takes effect only if the global VLANs are also configured with the same values in [Configuring VLAN, on page 7](#).

Configuring Spanning Tree per Interface

The image displays two screenshots of the ENCS Switch Portal configuration interface for Spanning Tree settings. The top screenshot shows the 'Spanning Tree' tab with the following options:

- Spanning Tree: Enable Disable
- Cost: Choose from 1-200000000
- Priority: 128
- Link Type: [Dropdown]
- BPDU Guard: Enable Disable
- Root Guard: Enable Disable
- Port Fast: auto

The bottom screenshot shows the 'Spanning Tree' tab with the following options:

- Spanning Tree: Enable Disable
- BPDU Filtering:
- BPDU Flooding:

You can configure spanning tree for each switch interface using the following parameters:

- Spanning Tree—Enable or Disable
- Cost—Specifies the cost. Range: 1 to 200000000
- Priority—Specifies the port priority. Range: 0 to 240, default value is 128
- Link Type—point-to-point or shared
- BPDU Guard—Enable or Disable
- Root Guard—Enable or Disable
- Port Fast—auto or enable
- BPDU Filtering—Specifies that BPDU packets are filtered when the spanning tree is disabled

- BPDU Flooding—Specifies that BPDU packets are flooded when the spanning tree is disabled

