

IPv6 Interface Configuration on 200/300 Series Managed Switches

Objective

IPv6 is the Internet protocol designed to replace IPv4. It was designed in order to allow for more IP addresses than the current IPv4 protocol allows. IPv6 also utilizes a new header in order to lower the amount of processing time needed to pass through a network.

Cisco SF200/300 series switches allow for the use of IPv6 in four different ways. Either through one of the available ports on the device, through a Link Aggregation Group (LAG) which can be used in order to utilize multiple ports as a single port in the connectivity of a device to the switch, through a VLAN which the device is currently on, or through an Intra-site Automatic Tunnel Addressing Protocol (ISATAP) which allows for the protocol to be used within an existing IPv4 network as it encapsulates the IPv6 packets in an IPv4 header.

Note: You can only assign one IPv6 address on the switch. This IPv6 address can be assigned to either a port, a Link Aggregation Group (LAG) interface, or a VLAN.

This article explains how to configure an IPv6 interface and assign IPv6 addresses to the IPv6 interface on 200 and 300 Series Managed Switches.

Applicable Devices

- SF/SG 200 and SF/SG 300 Series Managed Switches

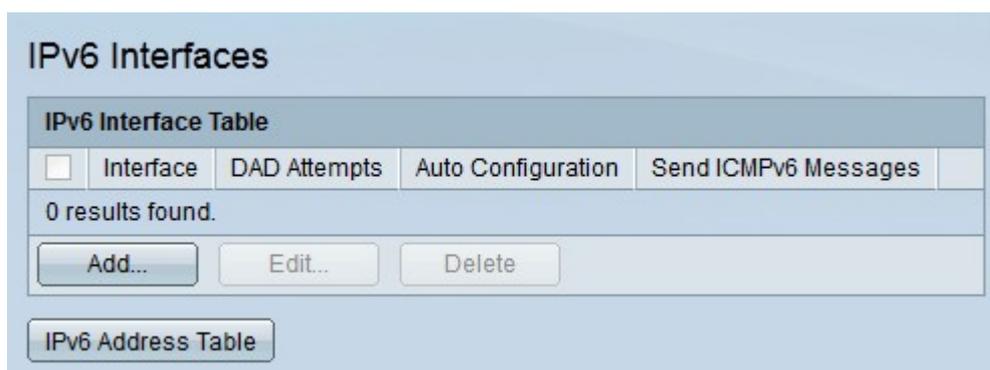
Software Version

- v1.2.7.76

IPv6 Interfaces

Add IPv6 Interface

Step 1. Log in to the web configuration utility and choose **Administration > Management Interface > IPv6 Interface** when the switch is in layer 2 mode or **IP Configuration > Management and IP Interfaces > IPv6 Interface** when the switch is in layer 3 mode. The *IPv6 Interfaces* page opens:



Step 2. Click **Add** to add a new IPv6 interface. The *Add IPv6 Interface* window appears.

Step 3. Click the radio button of the desired IPv6 interface that is to be created.

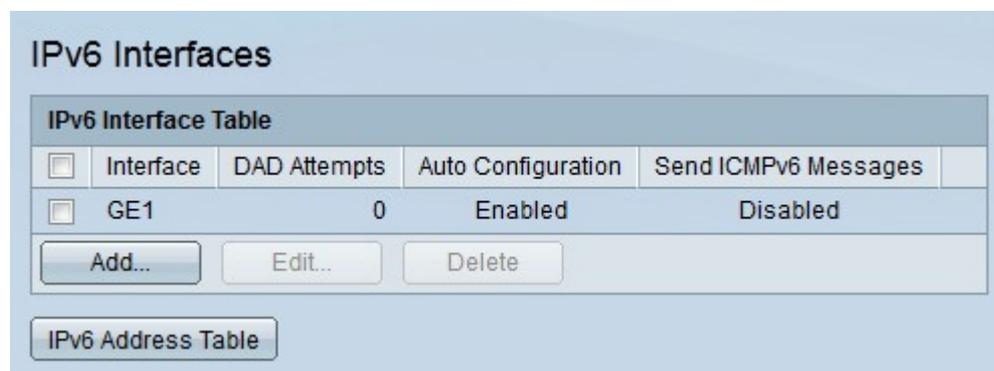
- Port — From the Port drop-down list choose a port that is to become an IPv6 interface.
- LAG — From the LAG drop-down list; choose a LAG that is to become an IPv6 interface.
- VLAN — From the VLAN drop-down list; choose a VLAN that is to become an IPv6 interface.
- ISATAP Tunnel — An Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnel is configured as an IPv6 interface. ISATAP tunnels are used to send traffic between two IPv6 networks over an IPv4 network.

Step 4. Enter the number of Duplicate Address Detection (DAD) attempts in the Number of DAD Attempts field. This is the number of neighbor solicitation messages that are consecutively sent across a network in order to verify that a new unicast IPv6 address is unique before it is assigned. Enter a zero to disable this feature.

Step 5. (Optional) Check **Enable** in the IPv6 Address Auto Configuration field to enable stateless IPv6 address auto configuration. This allows for the site local and global IP addresses to be automatically assigned based on the router advertisements received on the interface.

Step 6. (Optional) Check **Enable** in the ICMPv6 Messages field to enable ICMPv6 messages. These messages signal a server about errors but do not overload the server.

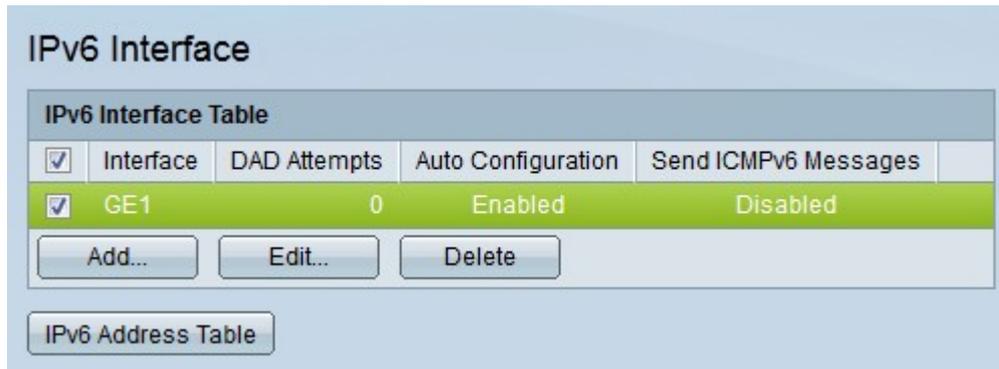
Step 7. Click **Apply**. The IPv6 interface is created.



Note: Click **IPv6 Address Table** to manually assign IPv6 addresses to the interface.

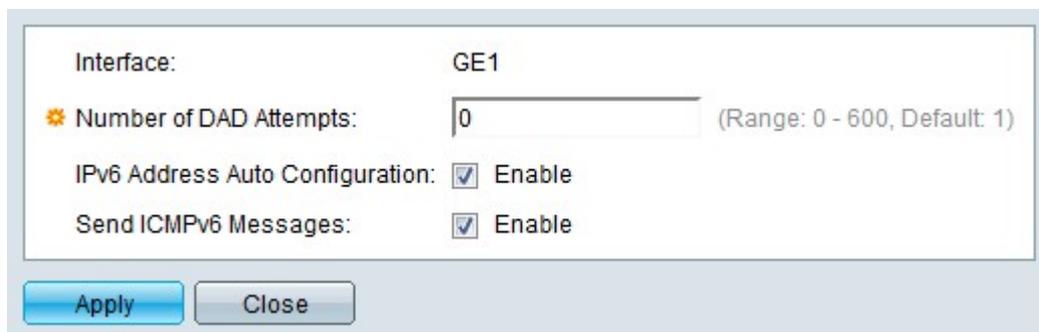
Edit IPv6 Interface

Step 1. Log in to the web configuration utility and choose **Administration > Management Interface > IPv6 Interface** when the switch is in layer 2 mode or **IP Configuration > Management and IP Interfaces > IPv6 Interface** when the switch is in layer 3 mode. The *IPv6 Interfaces* page opens:



Step 2. Check the check box of the IPv6 interface you want to edit.

Step 3. Click **Edit**. The *Edit IPv6* window appears.



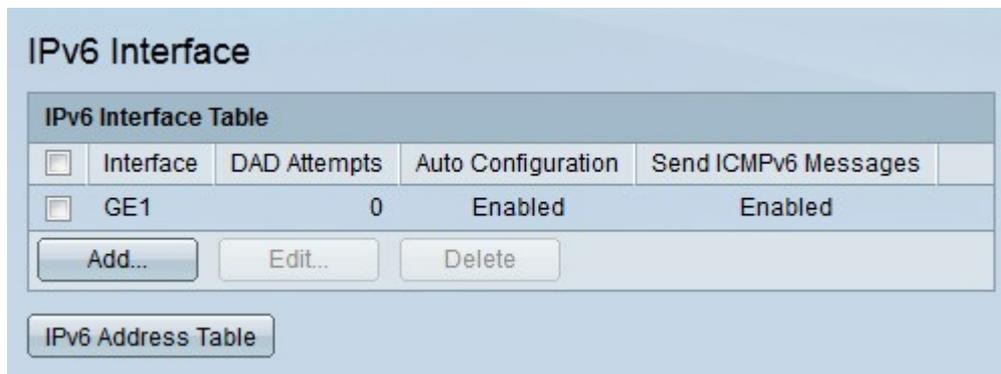
The Interface field displays the interface that is to be edited.

Step 4. Enter the number of Duplicate Address Detection (DAD) attempts in the Number of DAD Attempts field. This is the number of neighbor solicitation messages that are consecutively sent across a network in order to verify that a new unicast IPv6 address is unique before it is assigned. Enter a zero to disable this feature.

Step 5. (Optional) Check **Enable** in the IPv6 Address Auto Configuration field to enable stateless IPv6 address auto configuration. This allows for the site local and global IP addresses to be automatically assigned based on the router advertisements received on the interface.

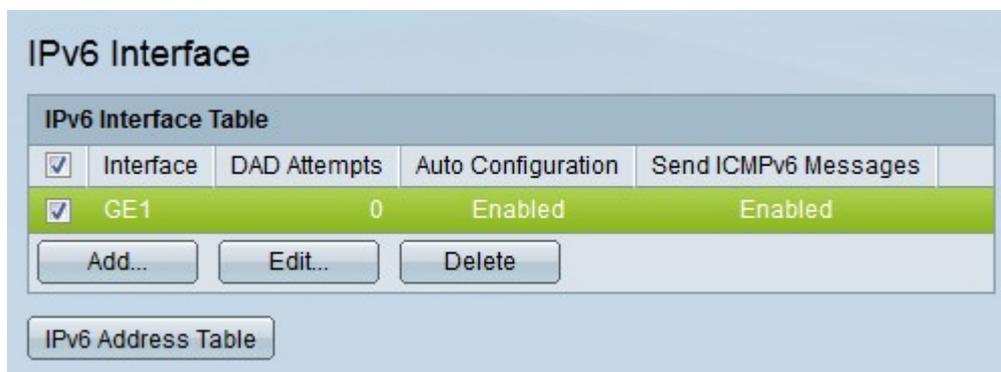
Step 6. (Optional) Check **Enable** in the ICMPv6 Messages field to enable ICMPv6 messages. These messages signal a server about errors but do not overload the server.

Step 7. Click **Apply**. The IPv6 interface configuration is saved.



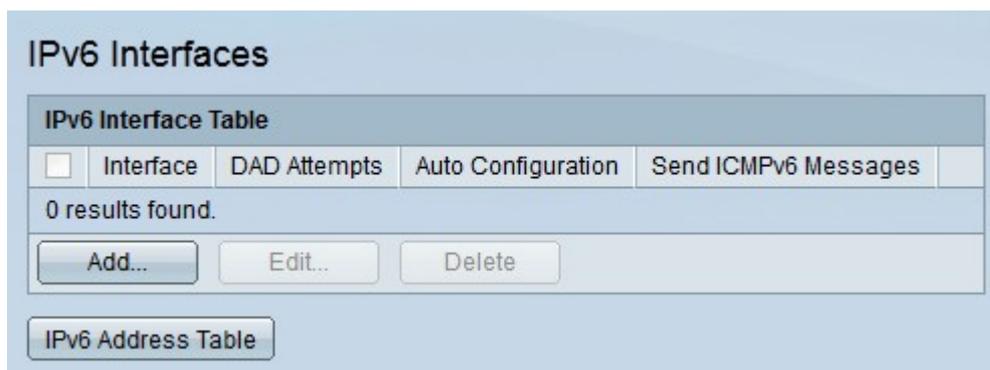
Delete IPv6 Interface

Step 1. Log in to the web configuration utility and choose **Administration > Management Interface > IPv6 Interface** when the switch is in layer 2 mode or **IP Configuration > Management and IP Interfaces > IPv6 Interface** when the switch is in layer 3 mode. The *IPv6 Interfaces* page opens:



Step 2. Check the check box of the IPv6 interface you want to delete.

Step 3. Click **Delete**. The IPv6 interface is deleted.



IPv6 Addresses

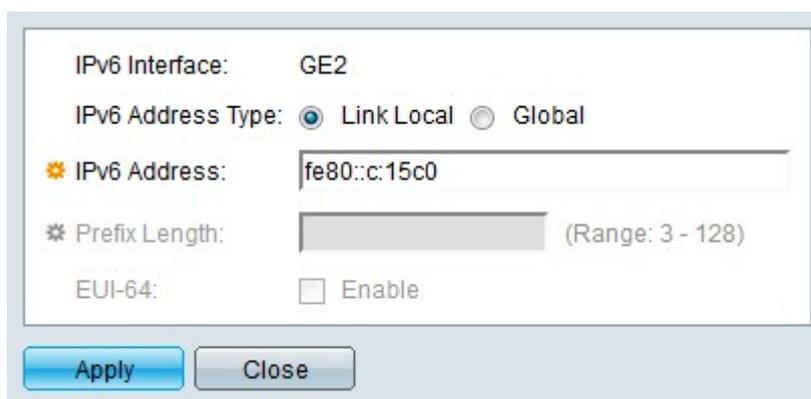
Add IPv6 Address

Step 1. Log in to the web configuration utility and choose **Administration > Management Interface > IPv6 Addresses** when the switch is in layer 2 mode or **IP Configuration > Management and IP Interfaces > IPv6 Addresses** when the switch is in layer 3 mode. The *IPv6 Addresses* page opens:



Step 2. From the Interface Name drop-down list, choose an interface to which an IPv6 address is assigned and click **Go**. The configured IPv6 addresses for the interface are displayed.

Step 3. Click **Add** to configure an IPv6 address to the specified interface. The *Add IPv6 Address* window appears.



The IPv6 Interface field displays the Interface that is to be configured.

Step 4. Click the radio button that corresponds to the desired IPv6 address type in the IPv6 Address Type field.

- Link Local — The IPv6 address is a link local address. Link local addresses are used for internal LAN connections and are not routable. The prefix for a link local address is FF80.
- Global — The IPv6 address is a global address. A global address is a unicast address that is globally unique and is routable.

Step 5. Enter the IPv6 address that is to be assigned to the IPv6 interface in the IPv6 Address field.

Step 6. If the IPv6 address type is global, enter a prefix length for the address in the Prefix Length field. A prefix length defines the range of IP addresses that make up the subnet. The prefix length defines the number of network bits in an IPv6 address. For example, a prefix length of 64 would consider the first 64 bits as network bits. This leaves the last 64 bits as host bits.

Step 7. (Optional) If the IPv6 address type is global, check **Enable** in the EUI-64 field to enable Extended Unique Identifier 64. EUI-64 allows a host to assign itself a unique 64 bit

IPv6 address without the need for manual configuration or a DHCP server. When EUI-64 is used, the 48-bit MAC address of device is split into two parts. The 24 left-most bits of the MAC address make up the 24 left-most bits of the IPv6 address. The 24 right-most bits of the MAC address make up the 24 right-most bits of the IPv6 address. To complete the IPv6 address, EUI-64 inserts the hex value FFFE in the middle.

Step 8. Click **Apply**. The IPv6 address is configured to the IPv6 interface.

IPv6 Addresses

IPv6 Address Table

Filter: *Interface Name* equals to

<input type="checkbox"/>	IPv6 Type	IPv6 Address	Prefix Length	DAD Status	Type
<input checked="" type="checkbox"/>	Link Local	fe80::c:15c0	64	Tentative	Static
<input type="checkbox"/>	Multicast	ff02::1	0	Active	System
<input type="checkbox"/>	Multicast	ff02::1:ff0c:15c0	0	Active	System

Note: Click **IPv6 Interface Table** to view the configured IPv6 Interfaces.

Delete IPv6 Address

Step 1. Log in to the web configuration utility and choose **Administration > Management Interface > IPv6 Addresses** when the switch is in layer 2 mode or **IP Configuration > Management and IP Interfaces > IPv6 Addresses** when the switch is in layer 3 mode. The *IPv6 Addresses* page opens:

IPv6 Addresses

IPv6 Address Table

Filter: *Interface Name* equals to

<input checked="" type="checkbox"/>	IPv6 Type	IPv6 Address	Prefix Length	DAD Status	Type
<input checked="" type="checkbox"/>	Link Local	fe80::c:15c0	64	Tentative	Static
<input type="checkbox"/>	Multicast	ff02::1	0	Active	System
<input type="checkbox"/>	Multicast	ff02::1:ff0c:15c0	0	Active	System

Step 2. Check the check box of the interface that you want to delete.

Step 3. Click **Delete**. The IPv6 address is deleted.

IPv6 Addresses

IPv6 Address Table

Filter: *Interface Name* equals to

<input type="checkbox"/>	IPv6 Type	IPv6 Address	Prefix Length	DAD Status	Type
<input type="checkbox"/>	Link Local	fe80::226:bff:fe0d:6	64	Tentative	System
<input type="checkbox"/>	Multicast	ff02::1	0	Active	System
<input type="checkbox"/>	Multicast	ff02::1:ff0d:6	0	Active	System

Note: The entry returns to the default address once the configured IPv6 address is deleted.