

IP Config

This chapter contains the following sections:

- Management Interface, on page 1
- Domain Name System, on page 4

Management Interface

The switch has one IPv4 address and one IPv6 interface in the management VLAN. This IP address and the default gateway can be configured manually, or by DHCP. The static IP address and default gateway are configured on the IPv4 Interface and IPv6 Interface pages. The switch uses the default gateway, if configured, to communicate with devices that are not in the same IP subnet with the switch. By default, VLAN 1 is the management VLAN, but this can be modified. The switch can only be reached at the configured IP address through its management VLAN. The factory default setting of the IPv4 address configuration is DHCPv4. This means that the switch acts as a DHCPv4 client, and sends out a DHCPv4 request during boot up.

If the switch receives a DHCPv4 response from the DHCPv4 server with an IPv4 address, it sends Address Resolution Protocol (ARP) packets to confirm that the IP address is unique. If the ARP response shows that the IPv4 address is in use, the switch sends a DHCPDECLINE message to the offering DHCP server, and sends another DHCPDISCOVER packet that restarts the process.

If the switch does not receive a DHCPv4 response in 60 seconds, it continues to send DHCPDISCOVER queries, and adopts the default IPv4 address: 192.168.1.254/24.

IP address collisions occur when the same IP address is used in the same IP subnet by more than one device. Address collisions require administrative actions on the DHCP server and/or the devices that collide with the switch. When a VLAN is configured to use dynamic IPv4 addresses, the switch issues DHCPv4 requests until it is assigned an IPv4 address from a DHCPv4 server. Only the management VLAN can be configured with a static or dynamic IP address.

The IP address assignment rules for the switch are as follows:

- Unless the switch is configured with a static IP address, it issues DHCPv4 requests until a response is received from the DHCP server.
- The System LED on the front panel of the switch changes to solid green when a new unique IP address is received from the DHCP server. If a static IP address has been set, the System LED also changes to solid green. The System LED flashes when the switch is acquiring an IP address and is currently using the factory default IP address 192.168.1.254.

- The same rules apply when a client must renew the lease, prior to its expiration date, through a DHCPREQUEST message.
- With the factory default settings, when no statically-defined or DHCP acquired IP address is available, the default IP address is used. When the other IP addresses become available, the addresses are automatically used. The default IP address is always on the management VLAN.

To access and manage the switch by using the web-based interface, the switch management IP address must be defined and known. The default configuration of the switch is to use its factory default IP address of 192.168.1.254. The switch IP address can be manually configured.

IPv4 Interface

To manage the switch by using the web-based interface, the IPv4 management IP address must be defined and known. The switch IP address can be manually configured or automatically taken from a DHCP server.

To configure the IPv4 management IP address:

Procedure

Step 1 Click **IP Configuration > Management Interface > IPv4 Interface**.

Step 2 Enter the following information:

- Management VLAN—Select the management VLAN used to access the switch through Telnet or the web-based interface. VLAN1 is the default management VLAN.
- IP Address Type—Select one of the following options:
  - Dynamic—Discovers the IP address using DHCP from the management VLAN.
  - Static—Manually defines a static IP address.

If a static IP address is used, enter the following fields:

- IP Address—Enter the management IP address of the switch. The default is 192.168.1.254.
- Mask—Enter the IP address mask or prefix length.
  - Network Mask—Select and enter the IP address mask.
  - Prefix Length—Select and enter the length of the IPv4 address prefix.
- Administrative Default Gateway—Select User Defined to manually enter the default gateway IP address, or select None to remove the selected default gateway IP address from the interface.
- Operational Default Gateway—Displays the current default gateway IP address.

Note
If the switch is not configured with a default gateway, it cannot communicate with other devices that are not in the same IP subnet.

If a dynamic IP address is retrieved from the DHCP server, enter the following fields:

- Management VLAN—Select the management VLAN used to access the switch through Telnet or the web-based interface. VLAN1 is the default management VLAN.
- DHCP Force Auto Configuration—Check Enable to force the switch to perform auto configuration that will renew IP address from a DHCP server. The switch dynamic IP address can be renewed any time after it is assigned by a DHCP server. Note that depending on your DHCP server configuration, the switch may receive a new IP address after the renewal that requires setting the web-based interface to the new IP address.
- Auto Configuration via DHCP—Displays whether the DHCP Auto Configuration feature is enabled or disabled. You can configure this feature on the Administration > File Management > DHCP Auto Configuration page.

Step 3 Click **Apply**. The IPv4 interface settings are defined, and the Running Configuration is updated.

IPv6 Interface

The switch supports one IPv6 interface. In additional to the default link local and Multicast addresses, the switch also automatically adds global addresses to the interface based on the router advertisements that it receives. Each address must be a valid IPv6 address that is specified in hexadecimal format by using 16-bit values separated by colons.

To assign an IPv6 address to the IPv6 Interface:

Procedure

Step 1 Click **IP Configuration > Management Interface > IPv6 Interface**.

Step 2 Check **Enable** next to IPv6 Address Auto Configuration field to automatically assign IPv6 addresses by the DHCPv6 server, or uncheck to disable this feature.

Step 3 Check **Enable** next to the DHCPv6 field to enable the DHCPv6 server, or uncheck to disable this feature.

Step 4 If you disable DHCPv6 and IPv6 Address Auto Configuration, manually enter the following fields:

- IPv6 Address—Enter the IPv6 address of the switch.
- Prefix Length—Enter the length of the global IPv6 prefix of the switch.
- IPv6 Gateway—Enter the link local IPv6 address of the default router.
- Link Local Address—Displays the IPv6 address of the local link.
- IPv6 Address Inuse—Displays the IPv6 address currently used by the switch.
- IPv6 Gateway Inuse—Displays the IPv6 gateway address currently used by the switch.

Step 5 To configure the interface as a DHCPv6 client so that the interface is able to receive information from the DHCPv6 server for DHCPv6 auto configuration feature, enter the DHCPv6 Client fields:

- Stateless—Check Enable to enable the interface as a stateless DHCPv6 client.
- Minimum Information Refresh Time—Select either Infinite (no refresh unless the server sends this option) or User Defined to manually set a value. This value is used to put a floor on the refresh time value. If the server sends a refresh time option that is less than this value, this value is used instead.

- Information Refresh Time—Select either Infinite (no refresh unless the server sends this option) or User Defined to manually set a value. This value indicates how often the switch will refresh information received from the DHCPv6 server. If this option is not received from the server, the value entered here is used.

Step 6 Click **Apply**. The IPv6 interface settings are defined, and the Running Configuration is updated.

Domain Name System

The Domain Name System (DNS) translates domain names into IP addresses for the purpose of locating and addressing hosts. Asa DNS client, the device resolves domain names to IP addresses through the use of one or more configured DNS servers.

DNS Settings

Use the DNS Settings page to enable the DNS feature, configure the DNS servers and set the default domain used by the device. To configure the DNS Settings, follow these steps:

Procedure

Step 1 Click **IP Configuration** > **DNS** > **DNS Settings**.

Step 2 Enter the parameters.

- DNS—Select to designate the device as a DNS client, which can resolve DNS names into IP addresses through one or more configured DNS servers.
- Default Parameters—Enter the following default parameters:
  - Default Domain Name—Enter the DNS domain name used to complete unqualified host names. The device appends this to all non fully qualified domain names (NFQDNs) turning them into FQDNs.

    Note
    Don't include the initial period that separates an unqualified name from the domain name (like cisco.com).

  - DHCP Domain Search List—Click **Details** to view the list of DNS servers configured on the device.

Step 3 Click **Apply**. The Running Configuration file is updated.

The DNS Server Table displays the following information for each DNS server configured:

- DNS Server—The IP address of the DNS server.
- Preference—Each server has a preference value, a lower value means a higher chance of being used.
- Source—Source of the server's IP address (static or DHCPv4 or DHCPv6)

Step 4 Up to eight DNS servers can be defined. To add a DNS server, click **Add.**

Step 5 Enter the parameters.

- IP Version—Select Version 6 for IPv6 or Version 4 for IPv4.
- DNS Server IP Address—Enter the DNS server IP address.
- Preference—Select a value that determines the order in which the domains are used (from low to high). This effectively determines the order in which unqualified names are completed during DNS queries.

Step 6 Click **Apply**. The DNS server is saved to the Running Configuration file.

Search List

The search list can contain one static entry defined by the user in the DNS Settings, on page 4 and dynamic entries received from DHCPv4 and DHCPv6 servers.

To view the domain names that have been configured on the device, click **IP Configuration** > **DNS** > **Search List**.

The following fields are displayed for each DNS server configured on the device.

- Source—Source of the server's IP address (static or DHCPv4 or DHCPv6) for this domain.
- Preference—This is the order in which the domains are used (from low to high). This effectively determines the order in which unqualified names are completed during DNS queries.

Host Mapping

Host name/IP address mappings are stored in the Host Mapping Table (DNS cache).

This cache can contain the following type of entries:

- Static Entries—These are mapping pairs that manually added to the cache.
- Dynamic Entries—Are mapping pairs that are either added by the system as a result of being used by the user, or an entry for each IP address configured on the device by DHCP.

Name resolution always begins by checking static entries, continues by checking the dynamic entries, and ends by sending requests to the external DNS server. Eight IP addresses are supported per DNS server per host name.

To add a host name and its IP address, complete the following:

Procedure

Step 1 Click **IP Configuration** > **DNS** > **Host Mapping**.

Step 2 To add a host mapping, click **Add** and configure the following:

- IP Version—Select Version 6 for IPv6 or Version 4 for IPv4.
- Host Name—Enter a user-defined host name or fully qualified name. Host names are restricted to the ASCII letters A through Z (case-insensitive), the digits 0–9, the underscore, and the hyphen. A period (.) is used to separate labels.

- IP Address—Enter a single address or up to eight associated IP addresses (IPv4 or IPv6).

Step 3 Click **Apply**. The settings are saved to the Running Configuration file.