# Quick Start Configuration for Avaya Ethernet Routing Switch 4900 and 5900 Series

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# Contents

# Chapter 1: Introduction

## Purpose

This document provides basic instructions to install the hardware and perform basic configuration on the following platforms:

- Ethernet Routing Switch 4900 Series
- Ethernet Routing Switch 5900 Series

Examples and network illustrations in this document may illustrate only one of the supported platforms. Unless otherwise noted, the concept illustrated applies to all supported platforms.

## Related resources

### Documentation

For a list of the documentation for this product and more information about documents on how to configure other switch features, see *Documentation Reference for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-103.

For more information on new features of the switch and important information about the latest release, see *Release Notes for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-400.

For more information about how to configure security, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

For the current documentation, see the Avaya Support web site: www.avaya.com/support.

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### Procedure

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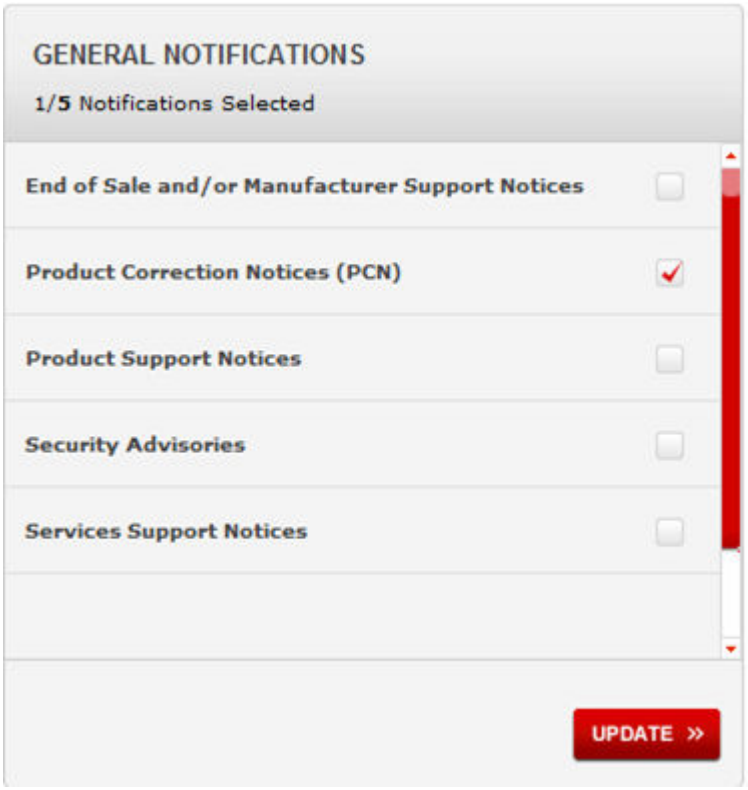


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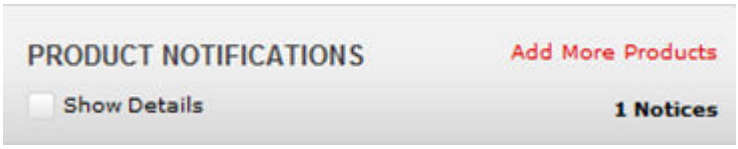


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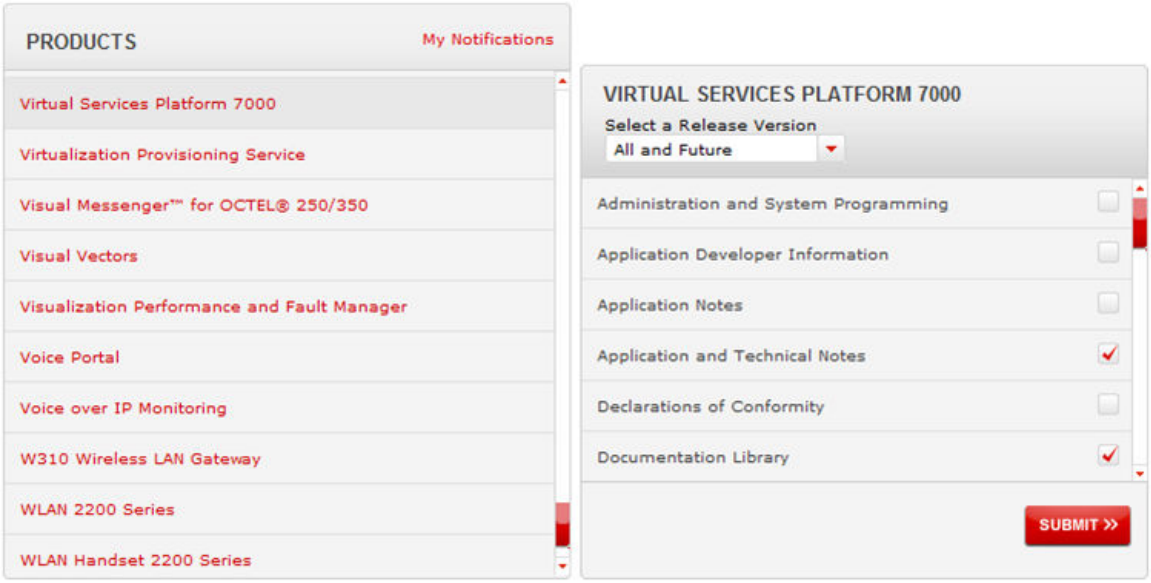


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# Chapter 2: New in this document

The following sections detail what is new in this document for *Quick Start Configuration for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-500 for Release 7.2.

### System logon

With enhanced secure mode enabled, the person in the role-based authentication level of security administrator can configure the login and password values for the other role-based authentication levels. For more information, see System Logon on page 13.

# Chapter 3: Fundamentals

Provisioning follows hardware installation.

The *Quick Start Configuration for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-500 includes the minimum, but essential, configuration steps to:

- Provide a default, starting point configuration
- Establish a management interface
- Establish basic security on the node

The shipment includes the following:

- An installation kit
- A foldout poster

For more information about hardware specifications and installation procedures, see *Installing Avaya Ethernet Routing Switch 5900 Series*, NN47211-300 or *Installing Avaya Ethernet Routing Switch 4900 Series*, NN47212-301.

For more information about how to configure security, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

To download and print selected technical publications and release notes directly from the Internet, go to http://support.avaya.com.

## System connection

Use the console cable to connect the terminal to the switch console port. The console cable and connector must match the console port on the switch (DB-9 or RJ-45, depending on your model). The following are the default communication protocol settings for the console port:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- No flow control
- VT100 or VT100/ANSI Terminal Protocol

To use the console port, you need the following equipment:

- A terminal or TeleTypewriter (TTY)-compatible terminal, or a portable computer with a serial port and terminal-emulation software.
- An Underwriters Laboratories (UL)-listed straight-through or null modem RS-232 cable with a female DB-9 connector for the console port on the switch. The other end of the cable must use a connector appropriate to the serial port on your computer or terminal.

You must shield the cable that connects to the console port to comply with emissions regulations and requirements.

# System Logon

After the platform boot sequence is complete, a logon prompt appears. The following table shows the default values for logon and password for console and Telnet sessions.

**Note:**

With enhanced secure mode enabled, the person in the role-based authentication level of security administrator configures the login and password values for the other role-based authentication levels. The security administrator initially logs on to the switch using the default login as `admin` and the default password as `password`.

After the initial login, the switch prompts the security administrator to create a new security administrator account and password. The default account named admin is removed and during the first login, security administrator must change the password of the newly created account.

The administrator then configures default login and password for the other users based on the role-based authentication levels of the user. For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

**Table 1: Access levels and default logon values**

| Access level | Description | Default Logon | Default Password |
|---|---|---|---|
| Read-only | Permits view-only configuration and status information. Is equivalent to Simple Network Management Protocol (SNMP) read-only community access. | RO | user |
| Read/write | View and change configuration and status information across the switch. You can change security and password settings. This access level is equivalent to SNMP read/write community access. | RW | secure |

# Secure and nonsecure protocols

The following table describes the secure and nonsecure protocols that the switch supports.

**Table 2: Secure and nonsecure protocols**

| Nonsecure protocols | Default status | Equivalent secure protocols | Default status |
|---|---|---|---|
| FTP | Disabled | SCP | Disabled |
| Telnet | Enabled | SSH v1, v2<br>Avaya recommends that you use SSHv2 instead of SSHv1. | Disabled |
| SNMPv1, SNMPv2 | Enabled | SNMPv3<br>You must load the DES/AES image on the platform to use SNMPv3. For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505. | Disabled |
| Rlogin | Disabled | Secure SHell (SSH) v1, v2 | Disabled |
| HTTP | Disabled | HTTPS<br>**Important:**<br>Avaya recommends that you take the appropriate security precautions within the network if you use HTTP. | Enabled |
| **Note:**<br>On SSH, by default, HTTP is enabled and HTTPS is disabled. | | | |

# Out-of-band management

Out-of-band management allows IPv4 or IPv6 switch or stack management using the dedicated out-of-band management port. Out-of-band management supports Telnet, Secure Shell (SSH) protocol, Simple Network Management Protocol (SNMP), HTTP, or HTTPS, without requiring an in-band management VLAN.

To configure out-of-band management, you assign an IP address to the RJ-45 Ethernet management port for a switch or stack. You can configure a specific out-of-band management default gateway, which takes precedence over the in-band default gateway. If you do not configure an out-of-band management default gateway, the in-band default gateway is used for out-of-band switch or stack management.

**Note:**

The out-of-band switch or stack management IP address must be different than the in-band IP address and belong to a different subnet.

You can use the out-of-band management port to perform tasks such as downloading software images and, when the SNMP server is enabled, access the Enterprise Device Manager (EDM) interface for a switch or stack. To access EDM, you type the out-of-band management IP address in the address bar of an Internet browser.

The out-of-band management port supports full auto negotiation, which enables management stations to connect at any of the supported speeds or duplexes.

### Stack mode

In stack mode, when you use the unit, switch, or stack parameters, the device assigns the IPv4 or IPv6 address to the management stack. If a management stack IP address is in use, you can only access the stack through the management port base unit. If the base unit goes down, the stack management IP address becomes unreachable and the switch management IP address becomes status up.

Only the base unit allows all commands for out-of-band management. if the base unit leaves the stack, the stack IP addresses and priveleges transfer to the temporary base unit (TBU). You need a link in the management port TBU for the IP address to be operational.

On the base unit, if you configure the IP stack address, the base unit is the only active IP address in the stack. On the non-base units, the IP addresses you configure only become active and reachable if they become stand alone.

### Stand alone mode

In stand alone mode, you assign the IPv4 or IPv6 address only to the switch. You can configure IP addresses on every switch in the stack.

On the non-base units, the IP addresses you configure only become active and reachable if they become stand alone.

### Considerations and limitations

The following considerations and limitations apply when you configure and use out-of-band management:

- You must configure all out-of-band management IP addresses for a stack to the same subnet.
- You can configure only one out-of-band management default gateway for each stack.
- You cannot automatically obtain an out-of-band management IP address using BootP or DHCP.
- With out-of-band management you can issue the **`ping`** command from the out-of-band management port on a stack base unit only.

- With out-of-band management you can only download a software image, or load a configuration file from the base unit in a stack.
- You can access a management stack from the out-of-band management port on the stack base unit only.
- You can configure both an in-band and out-of-band management IP:
  - The out-of-band management default gateway takes precedence over the in-band management default gateway.
  - In Layer 2 mode, once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.
  - In Layer 3 mode, you must configure a management route to maintain connectivity with the management network when you use out-of-band management.
- The MAC address for the out-of-band management port is created using the switch MAC address plus the management offset. The management offset value for the primary out-of-band management port is 0x300 and the management offset value for the secondary out-of-band management port is 0x301.
- The out-of-band management port speed is automatically negotiated, however, you can change it manually.
- The out-of-band management port does not support generation or processing of Autotopology packets when an out-of-band management IP is configured.
- RADIUS authentication is not supported for the out-of-band management IP.

# New unit Quick Configuration

You can use the new unit Quick Configuration feature to create a default configuration that applies to any new unit joining the stack. Quick Configuration can configure the VLAN IDs, port speed, PVID, tagging, and spanning tree groups for the new unit without resetting the stack.

# Password encryption

The local passwords for the switch are stored in the configuration file, encrypted with an Avaya proprietary algorithm.

**Important:**

For security reasons, Avaya recommends that you configure the passwords to values other than the factory defaults.

For more information about configuring passwords, see:

*Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104

*Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505

# Quick Start

You can use the **`install`** command in Avaya Command Line Interface (ACLI) or the Quick Start menu in Enterprise Device Manager (EDM) to configure the following:

- quick start VLAN
- in-band IP address and subnet mask
- default gateway
- management subnet mask, management IP address and management default gateway
- read-only and read-write community strings
- IPv6 in-band address and IPv6 default gateway
- management IPV6 address and management IPV6 default gateway

**Note:**

When you reset the switch to factory default, the setup utility does not start automatically. Use the `install` command to start the setup utility. The default IP address of the switch is 192.168.1.1 if the switch does not get its IP address from another source.

# Enterprise Device Manager

Enterprise Device Manager (EDM) is an embedded graphical user interface (GUI) that you can use to manage and monitor the platform through a standard web browser. EDM is embedded in the switch software, and the switch operates as a web server, so you do not require additional client software. For more information about EDM, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104.

If you want to manage the switch from a centralized location through Configuration and Orchestration Manager (COM) 2.0 and later, Avaya offers optional, product-specific EDM plug-ins for COM that include other features such as centralized syslog, trap viewer, troubleshooting and diagnostic tools. For more information, or to purchase plug-ins, go to www.avaya.com.

## Enterprise Device Manager access

To access EDM, open **http://<deviceip>/login.html** or **https://<deviceip>/login.html** from either Microsoft Internet Explorer (minimum version 8.x), or Mozilla Firefox (minimum version 3.x).

**Important:**

You must enable the web server from ACLI to enable HTTP access to EDM. If you want HTTP access to the device, you must also disable the web server secure-only option. The web server secure-only option is enabled by default and allows HTTPS access to the device. Take the appropriate security precautions within the network if you use HTTP.

If you experience issues while connecting to EDM, check the proxy settings. Proxy settings can affect EDM connectivity to the switch. Clear the browser cache, and do not use a proxy when connecting to the device.

## Default user name and password

The following table contains the default user name and password that you can use to log on to the switch using EDM. For more information about changing the passwords, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

**Table 3: EDM default user name and password**

| User Name | Password |
|---|---|
| admin | password |

**Important:**

The default passwords and community strings are documented and well known. Avaya strongly recommends that you change the default passwords and community strings immediately after you first log on. For more information about changing user names and passwords, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

The following table describes access levels and default logon values when Enhanced Secure Mode is disabled.

**Table 4: Access levels and default logon values for EDM**

| Access level | Default logon | Default password |
|---|---|---|
| Read-only | RO | user |
| Read/write | RW | secure |

## Device Physical View

When you access EDM, the first panel in the work area displays a switch summary view. The tab behind the summary view is a real-time physical view of the front panel of the device or stack called the Device Physical View.

Objects in the Device Physical View are:

- Stand-alone switch, called a unit

- Switch stack, called a chassis
- Port

From the Device Physical View, you can:

- Determine the hardware operating status
- Select a switch or a port to perform management tasks on specific objects or view fault, configuration, and performance information for specific objects

Click to select an object. The system outlines the object in yellow to indicate that the object is selected.

The conventions on the device view are similar to the actual switch appearance except that LEDs in Device Physical View do not blink. The LEDs and the ports are color-coded to reflect hardware status. Green indicates the port is up and running; red indicates that the port is disabled.

From the menu bar, you can click the **Device Physical View** tab to open the Device Physical View any time during a session.

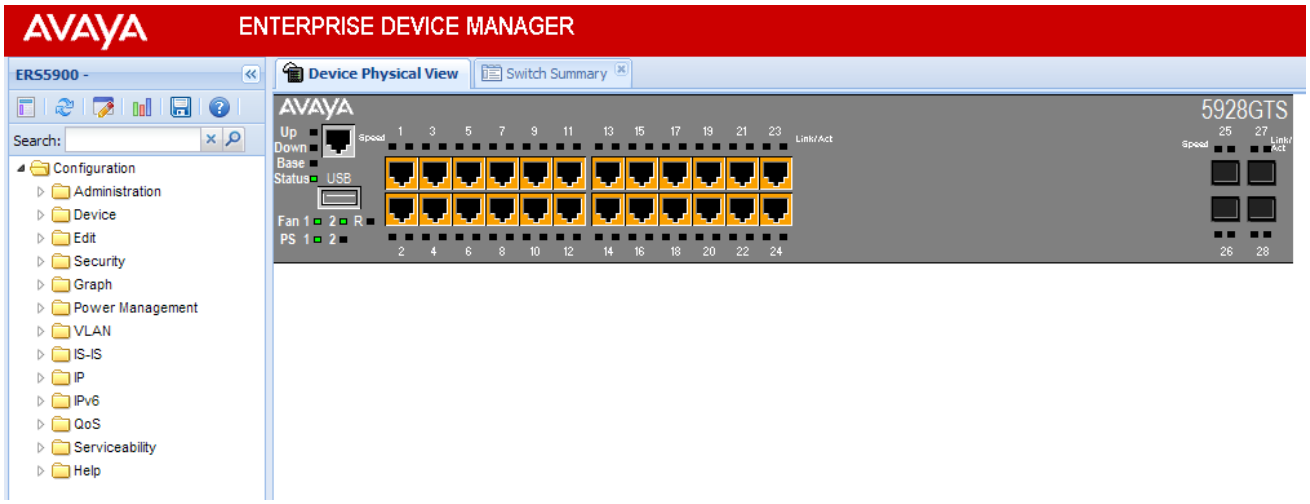


**Figure 1: Device Physical View**

# EDM window

The EDM window contains the following parts:

1. Navigation tree—The navigation pane on the left side of the window that displays available command folders in a tree format.
2. Navigation tree toolbar—The area displays buttons for common functions.
3. Menu bar—The area at the top of the window that displays primary and secondary tabs that you accessed during the session; the tabs remain available until you close them.
4. Toolbar—The area just below the menu bar that provides quick access to the most common operational commands such as **Apply**, **Refresh**, and **Help**.

5. Work area—The main area on the right side of the window that displays the dialog boxes where you view or configure switch parameters.
6. Auto Complete Search — The area between the navigation tree toolbar and the navigation tree where you can type a partial or complete search string to find menus. When you type the search string, the navigation tree changes to display only the entries associated with your search. To return to the full navigation tree display, click the **x** beside the Auto Complete Search dialog box.

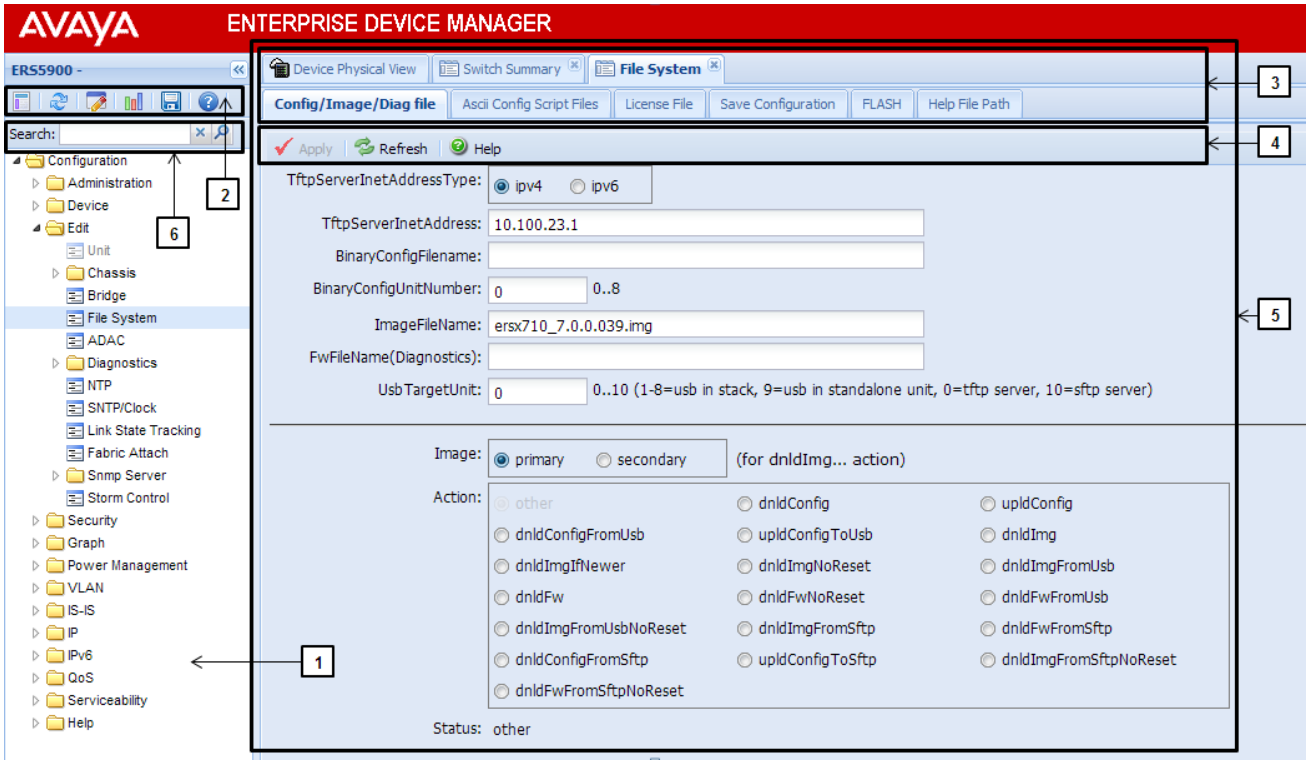


**Figure 2: EDM window**

# Chapter 4: Connecting and configuring the switch

This chapter describes how to connect a terminal to the switch and the required procedures for the initial provisioning.

## Connecting a terminal to the switch

This procedure describes the steps to connect a terminal to the console port on the switch.

### Before you begin

To use the console port, you need the following equipment:

- Terminal with AC power cord and keyboard. Any terminal or a computer with an appropriate terminal emulator can be used as the management station. See *Installing Avaya Ethernet Routing Switch 5900 Series*, NN47211-300 or *Installing Avaya Ethernet Routing Switch 4900 Series*, NN47212-301 for a list of the terminal emulation settings that must be used with any terminal emulation software used to connect to the switch.
- Use the RJ-45 or DB-9 console cable to connect the switch console port to your management terminal. See *Installing Avaya Ethernet Routing Switch 5900 Series*, NN47211-300 or *Installing Avaya Ethernet Routing Switch 4900 Series*, NN47212-301 for console port pin-out information. You can use the pin-out information to verify or create a console cable for use with your maintenance terminal.

### Procedure

1. Connect one end of the serial cable to the connector on the terminal or on the computer.
2. Connect the other end of the serial cable to the console port on the switch.
3. Turn the terminal or computer on.
4. Set the terminal protocol on the terminal or terminal emulation program to VT100 or VT100/ANSI.
5. Connect to the switch using the terminal or terminal emulation application. The Avaya switch banner displays when you connect to the switch through the console port.
6. Press `Ctrl+Y` to obtain a CLI prompt.

The switch only supports the Avaya CLI. The old Bay Stack menu interface is not supported on this product.

# Configuring the switch

Use the procedures in this section to configure the switch using Quick Start.

## Configuring Quick Start using ACLI

The **`Install`** script consists of a series of prompts that are used to set up the minimum configuration information.

You must enter the following information when prompted:

- Quick start VLAN
- IP address
- Subnet mask
- Default gateway
- Management subnet mask
- Management IP address
- Management default gateway
- Read-only community string
- Read-write community string
- Management IPV6 address
- Management IPV6 default gateway

### Before you begin

- Connect to the switch using the terminal or terminal emulation application.

### Procedure

1. Press

   `CTRL + Y` to obtain a CLI prompt.

2. Enter **`enable`**
3. Enter **`install`**

   The switch setup utility banner appears.

4. Enter the VLAN ID for the Quick Start at the following prompt:

   ```
   Please provide the Quick Start VLAN <1-4094> [1]:
   ```

5. Enter the IP address at the following prompt:

   ```
   Please provide the in-band IP Address[192.168.1.1]:
   ```

6. Enter the sub-net mask at the following prompt:

   ```
   Please provide the in-band sub-net mask [255.255.255.0]:
   ```

7. Enter the default gateway IP address at the following prompt:

   ```
   Please provide the Default Gateway [0.0.0.0]:
   ```

8. Enter the management sub-net mask at the following prompt:

   ```
   Please provide the management sub-net mask[0.0.0.0]:
   ```

9. Enter the management IP address at the following prompt:

   ```
   Please provide the management IP Address[0.0.0.0]:
   ```

10. Enter the management default gateway at the following prompt:

    ```
    Please provide the management Default Gateway[0.0.0.0]:
    ```

11. Enter the read only community string at the following prompt:

    ```
    Please provide the Read-Only Community String [**********]:
    ```

12. Enter the read write community string at the following prompt::

    ```
    Please provide the Read-Write Community String [**********]:
    ```

13. Enter the in-band IPv6 address at the following prompt:

    ```
    Please provide the in-band IPV6 Address/Prefix_length [ : :/0]:
    ```

14. Enter the in-band IPv6 default gateway at the following prompt:

    ```
    Please provide the in-band IPV6 Default Gateway [ : :]:
    ```

15. Emter the management IPV6 address at the following prompt:

    ```
    Please provide the management IPV6 Address/Prefix_length[::/0]:
    ```

16. Enter the management IPV6 default gateway at the following prompt:

    ```
    Please provide the management IPV6 Default Gateway[::]:
    ```

    Successful completion displays the following message: `Basic switch parameters have been configured and saved.`

**Example**

The following example displays sample output for the `install` command.

```
Switch>enable
Switch#install

##############################################################################
         Welcome to the switch setup utility.
You will be requested to provide the switch basic connectivity settings.
After entering the requested info, the configuration will be applied and
stored into the switch NVRAM.
```

```
Once the basic connectivity settings are applied, additional configuration
can be done using the available management interfaces.
Use Ctrl+C to abort the configuration at any time.

################################################################################

Please provide the Quick Start VLAN <1-4094> [1]:
Please provide the in-band IP Address[192.168.1.1]:
Please provide the in-band sub-net mask[255.255.255.0]:
Please provide the Default Gateway[0.0.0.0]:
Please provide the management sub-net mask[0.0.0.0]:
Please provide the management IP Address[0.0.0.0]:
Please provide the management Default Gateway[0.0.0.0]:
Please provide the Read-Only Community String[**********]:
Please provide the Read-Write Community String[**********]:
Please provide the in-band IPV6 Address/Prefix_length[::/0]:
Please provide the in-band IPV6 Default Gateway[::]:
Please provide the management IPV6 Address/Prefix_length[::/0]:
Please provide the management IPV6 Default Gateway[::]:


################################################################################
Basic switch parameters have now been configured and saved.

################################################################################
Switch#
```

# Configuring Quick Start using EDM

Use the following procedure to configure the Quick Start setup mode using EDM.

### About this task

You can use Quick Start to quickly setup a new switch or stack.

### Procedure

1. From the navigation tree, double-click **Administration**.
2. In the Administration tree, click **Quick Start**.
3. In the work area, click the **IP/Community/Vlan** tab.
4. In the **In-Band Switch IP Address** field, type a switch or stack IP address.
5. In the **In-Band Stack Subnet Mask** field, type a subnet mask.
6. In the **Default Gateway** field, type a gateway IP address.
7. In the **Read-Only Community String** field, type a community string. Re-type the community string in the verification field.
8. In the **Read-Write Community String** field, type a community string. Re-type the community string in the verification field.

   **Note:**

   For security, enter different community strings for Read-Only and Read-Write.

9. In the **Quick Start VLAN** field, type a VLAN ID ranging from 1 to 4094.
10. On the toolbar, click **Apply**.

# Configuring the terminal

You can configure the switch terminal settings to suit your preferences for the terminal speed and display.

### About this task

Use the following procedure to configure terminal settings including the terminal connection speed, and number of characters in the terminal display width and length.

**Important:**

After you modify the terminal configuration, the new settings are applied to the current active session and to all future sessions (serial, telnet or SSH). Terminal configuration change does not affect open concurrent sessions.

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. At the command prompt, enter the following command:

   ```
   terminal {speed <19200 | 38400 | 9600> | length <0-132> | width <1-132>}
   ```

3. To display the current serial port information, enter the following command:

   ```
   show terminal
   ```

### Example

```
Switch#show terminal
Terminal speed: 9600
Terminal width: 79
Terminal length: 23
```

# Variable definitions

Use the definitions in the following table to use the `terminal` command.

| Variable | Definition |
|---|---|
| length | Sets the length of the terminal display in lines. By default, 23 lines are displayed.<br>DEFAULT: 23 |

*Table continues…*

| Variable | Definition |
|---|---|
| | **Important:**<br>If you set the terminal length to 0, the pagination is disabled and the display scrolls continuously. |
| speed <19200 \| 38400 \| 9600> | Sets the transmit and receive baud rates for the terminal.<br>DEFAULT: 9600 |
| width | Sets the width of the terminal display in characters. By default, 79 characters are displayed.<br>DEFAULT: 79 |

# Configuring BootP on the current instance of the switch or server

## About this task

The default operational mode for BootP on the switch is BootP or DefaultIP. The switch requests an IP address from BootP only if one is not already configured from the console terminal (or if the IP address is the default IP address 192.168.1.1).

## Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. At the command prompt, enter the following command:

   ```
   ip bootp server {always | disable | last | default-ip}
   ```

# Variable definitions

Use the definitions in the following table to use the `ip bootp server` command.

| Variable | Definition |
|---|---|
| always \| disable \| last \| default-ip | Specify when to use BootP:<br>• default-ip—Use BootP or the default IP<br>• last—Use BootP or the last known address<br>• disable—Never use BootP<br>• always—Always use BootP |

| Variable | Definition |
|---|---|
| | By default, default-ip is selected. |

# Configuring diagnostics quick mode

The diagnostics quick mode flag enables you to choose the diagnostic test behavior during boot. You can enable quick mode boot tests or all the diagnostic tests. The impact to boot time is 15 to 20 seconds when all diagnostic tests run during startup.

The diagnostic quick mode is disabled by default.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To enable the diagnostics quick mode flag, enter the following command at the command prompt:

   ```
   diagnostics-quick-mode enable
   ```

3. To disable the diagnostics quick mode flag, enter either of the following commands at the command prompt:

   ```
   no diagnostics-quick-mode enable
   ```

   OR

   ```
   default diagnostics-quick-mode
   ```

4. To display the configuration, enter the following command at the command prompt:

   ```
   show diagnostics-quick-mode
   ```

### Example

Enable diagnostics quick mode:

```
Switch>enable
Switch#configure terminal
Switch(config)#diagnostics-quick-mode enable
Switch(config)#show diagnostics-quick-mode
2013-10-02 08:53:27 GMT+00:00

Diagnostics quick mode:  Enabled
```

# Setting user access limitations using ACLI

The administrator can use ACLI to limit user access by creating and maintaining passwords for web, telnet, and console access. This is a two-step process that requires that you first create the password and then enable it.

Ensure that you enter Global Configuration mode in ACLI before you start these tasks.

## Configuring multiple local read-write (RW) and read-only (RO) users accounts

Use the following procedure to create, modify and delete local users.

**Procedure**

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To create a user, enter the following command:

   ```
   username add <username> role-name {RO|RW} [password]
   ```

3. To delete a user, enter the following command:

   ```
   no username <username>
   ```

4. To enable a user, enter the following command:

   ```
   username <username> enable
   ```

5. To disable a user, enter the following command:

   ```
   no username <username> enable
   ```

6. To change the password for a specific user, enter the following command:

   ```
   username <username> password
   ```

7. To change the password for the current user, enter the following command:

   ```
   username password
   ```

8. To reset the settings for a user to default, enter the following command:

   ```
   default username <username>
   ```

9. To enable or disable ssh acces for a user enter the following command:

   ```
   username <username> ssh-access [enable | disable]
   ```

10. To enable or disable telnet acces for a user enter the following command:

    ```
    username <username> telnet-access [enable | disable]
    ```

### Variable Definitions

| Variable | Value |
|---|---|
| <username> | Specifies the user name. |

## Enabling and disabling passwords

After you set the read-only and read-write passwords, you can individually enable or disable them for the various switch-access methods.

### About this task

Follow this procedure to enable or disable a password for a specific access method.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enter the following command:

   ```
   cli password {telnet | serial} {none | local | radius | tacacs}
   ```

### Variable definitions

Use the definitions in the following table to use the **`cli password`** command.

| Variable | Definition |
|---|---|
| {telnet \| serial} | Specify whether the password is enabled or disabled for telnet or the console. Telnet and web access are connected so that enabling or disabling passwords for one enables or disables passwords for the other. |
| none \| local \| radius \| tacacs | Specify the password type to modify:<br>• none: disables the password.<br>• local: uses the locally defined password for serial console or telnet access.<br>• radius: uses RADIUS authentication for serial console or telnet access.<br>• tacacs: uses TACACS+ authentication, authorization and accounting (AAA) services for serial console or telnet access. |

# Setting user access limitations using Enterprise Device Manager

You can use Enterprise Device Manager (EDM) to limit user access by creating and maintaining passwords for web, telnet, and console access.

## Configuring the console password using EDM

### About this task

Use this procedure to configure a password for serial console access to a stack or standalone switch.

### Procedure

1. From the navigation tree, double-click **Security**.
2. In the Security tree, double-click **Web/Telnet/Console**.
3. In the work area, click the Console Password tab.
4. Click the arrow on the **Console Stack Password Type** field.
5. Select a password type from the list.
6. Type the password for read-only access in the **Read-Only Stack Password** field.
7. Type the same password for read-only access in the **Re-enter to verify** field.
8. Type the password for read-write access in the **Read-Write Stack Password** field.
9. Type the same password for read-write access in the **Re-enter to verify** field.
10. On the toolbar, click **Apply**.

## Variable definitions

Use the data in the following table to configure the console switch password.

| Variable | Value |
|---|---|
| Console Stack Password Type | Specifies the type of password to use. Values include:<br>• none—disables the password<br>• Local Password— uses the locally defined password for serial console access.<br>• RADIUS Authentication— uses RADIUS authentication for serial console access. |

*Table continues…*

| Variable | Value |
|---|---|
| | • TACACS Authentication— uses TACACS+ authentication, authorization, and accounting (AAA) services authentication for console access. |
| Read-Only Stack Password | Specifies the read-only password for stack or switch access. The following are the requirements for the password:<br>• The maximum length is 255 characters.<br>• Password must contain 10 characters. A minimum of two uppercase characters, two lowercase characters, two numbers, and two special characters. |
| Read-Write Stack Password | Specifies the read-write password for stack or switch access. The following are the requirements for the password:<br>• The maximum length is 255 characters.<br>• Password must contain 10 characters. A minimum of two uppercase characters, two lowercase characters, two numbers, and two special characters. |

# Configuring the web and telnet password using EDM

## About this task

Use the following procedure to configure a password for web and telnet access to a stack or standalone switch.

## Procedure

1. From the navigation tree, double-click **Security**.
2. In the Security tree, click **Web/Telnet/Console**.
3. In the work area, click the **Web/Telnet** tab.
4. Click the arrow on the **Web/Telnet Switch Password Type** field.
5. Select a password type from the list.
6. Type the password for read-only access in the **Read-Only Stack Password** field.
7. Type the same password for read-only access in the **Re-enter to verify** field.
8. Type the password for read-write access in the **Read-Write Switch Password** field.
9. Type the same password for read-write access in the **Re-enter to verify** field.
10. On the toolbar, click **Apply**.

### Variable definitions

| Variable | Value |
|---|---|
| Web/Telnet Stack Password Type | Specifies the type of the password to use. Values include:<br>• none—disables the password<br>• Local Password— uses the locally defined password for Web and Telnet access.<br>• RADIUS Authentication— uses RADIUS password authentication for Web and Telnet access.<br>• TACACS Authentication— uses TACACS+ authentication, authorization, and accounting (AAA) services authentication for Web and Telnet access. |
| Read-Only Stack Password | Specifies the read-only password for stack or switch access. The following are the requirements for the password:<br>• The maximum length is 255 characters.<br>• Password must contain 10 characters. A minimum of two uppercase characters, two lowercase characters, two numbers, and two special characters. |
| Read-Write Switch Password | Specifies the read-write password for stack or switch access. The following are the requirements for the password:<br>• The maximum length is 255 characters.<br>• Password must contain 10 characters. A minimum of two uppercase characters, two lowercase characters, two numbers, and two special characters. |

# Configuring the ACLI banner

You can configure the banner that is presented when a user logs on to the switch through ACLI to a user-defined value.

You can use the custom logon banner to display company information, such as company name and contact information.

The banner cannot exceed 1539 bytes, or 19 rows by 80 columns plus line termination characters. The banner control setting is saved to NVRAM, and both the banner file and control setting are distributed to all units within a stack.

### About this task

Follow this procedure to configure the ACLI banner.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Configure the switch to use a custom banner or use the default banner:

   ```
   banner {custom | static}
   ```

3. Create a custom banner:

   ```
   banner <line_number> "<LINE>"
   ```

4. Save the configuration:

   ```
   save config
   ```

5. Display the banner information:

   ```
   show banner
   ```

6. Log on again to verify the configuration.
7. **(Optional)** Disable the banner:

   ```
   no banner
   ```

### Example

The following is an example of ACLI banner configuration:

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#show banner
Current banner setting: STATIC
Switch(config)#banner custom
Switch(config)#banner 1 "My Company Name"
Switch(config)#banner 2 "123A My Address Avenue    My Town  CA 12345"
Switch(config)#banner 3 "Phone: (123) 555-5555 * Fax (123) 555-5555"
Switch(config)#banner 4 "http://www.mycompanywebsite.com"
Switch(config)#save config
Switch(config)#show banner
Current banner setting: CUSTOM
Switch(config)#end
Switch#exit
My Company Name
123A My Address Avenue    My Town  CA 12345
Phone: (123) 555-5555 * Fax (123) 555-5555
http://www.mycompanywebsite.com



Enter Ctrl-Y to begin.
```

```
************************************************************
*** Ethernet Routing Switch <Switch>                     ***
*** Avaya                                                ***
*** Copyright (c) 1996-2014,  All Rights Reserved        ***
***                                                      ***
*** HW:R0D.7    FW:0.0.0.2c  SW:v7.0.0.056                ***
************************************************************
```

## Variable definitions

Use the definitions in the following table to use the **banner** command.

| Variable | Definition |
|---|---|
| custom | Disable the use of the default banner. |
| static | Activate the use of the default banner. |
| *<line_number>* | Banner line number you are configuring. The range is 1 to 19 |
| *<LINE>* | Specify the characters in the line number. |

# Configuring system identification

### About this task

You can configure system identification to specify the system name, contact person, and location of the switch, and to add a trap receiver to the trap-receiver table.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enable the Simple Network Management Protocol (SNMP) server:

   ```
   snmp-server enable
   ```

3. Configure the read-only community name:

   ```
   snmp-server community ro
   ```

   **Note:**

   Enter the community string twice.

   If you ran the install script to set up the configuration information, the read-only community name is already configured.

4. Configure the read-write community name:

```
snmp-server community rw
```

**Note:**

Enter the community string twice.

If you ran the install script to set up the configuration information, the read-write community name is already configured.

5. Configure the system name:

   ```
   snmp-server name <text>
   ```

6. Configure the system contact:

   ```
   snmp-server contact <text>
   ```

7. Configure the location:

   ```
   snmp-server location <text>
   ```

8. Configure the SNMP host to add a trap receiver to the trap-receiver table:

   ```
   snmp-server host <host-ip> <community-string>
   ```

## Variable definitions

Use the definitions in the following table to use the **snmp-server name** command.

**Table 5: snmp-server name command**

| Variable | Definition |
|---|---|
| *<text>* | Specify the SNMP system name value. Enter an alphanumeric string of up to 255 characters.<br>**Note:**<br>On the console, the SNMP server name is truncated. On the web interface, the full SNMP server name appears. |

Use the definitions in the following table to use the **snmp-server contact** command.

**Table 6: snmp-server contact command**

| Variable | Definition |
|---|---|
| *<text>* | Specify the SNMP system contact value. Enter an ASCII string of up to 255 characters. |

Use the definitions in the following table to use the **snmp-server location** command.

**Table 7: snmp-server location command**

| Variable | Definition |
|---|---|
| <*text*> | Specify the SNMP system location value. Enter an alphanumeric string of up to 255 characters. |

Use the definitions in the following table to use the **`snmp-server host`** command.

**Table 8: snmp-server host command**

| Variable | Definition |
|---|---|
| <*host-ip*> | Specify an IPv4 or IPv6 address for a host intended to be the trap destination. |
| <*community-string*> | If you are using the proprietary method for SNMP, enter a community string that works as a password and permits access to the SNMP protocol. |

# Enabling logging

Use this procedure to enable the logging of system messages. For more information about logging, see *Logs Reference for Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000, 5900 Series and Virtual Services Platform 7000 Series*, NN47216-600.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To enable system logging, enter the following command at the command prompt:

   ```
   logging remote level informational
   ```

# Configuring Simple Network Time Protocol

The Simple Network Time Protocol (SNTP) feature synchronizes the Universal Coordinated Time (UTC) to an accuracy within 1 second. This feature adheres to the IEEE RFC 2030 (MIB is the s5agent). With this feature, the system can obtain the time from any RFC 2030-compliant NTP/SNTP server.

For more information on SNTP, see *Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-501.

### About this task

Use this procedure to configure the Network Time Protocol (NTP) servers for SNTP.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enter the following command to configure the SNTP server primary IP address:

   ```
   sntp server primary address [<A.B.C.D> |
   <primary_server_ipv6address>]
   ```

3. Enter the following command to configure the SNTP secondary server IP address:

   ```
   sntp server secondary address [<A.B.C.D> |
   <secondary_server_ipv6address>]
   ```

   **Note:**

   SNTP supports primary and secondary NTP servers. The system attempts to access the secondary NTP server only if the primary NTP server is unresponsive.

4. Enter the following command to enable SNTP:

   ```
   sntp enable
   ```

## Variable definitions

Use the definitions in the following table to use the **`sntp server`** command.

| Variable | Definition |
|---|---|
| *<A.B.C.D>* | Enter the IP address of the NTP server. |
| *<primary_server_ipv6address>* | Enter the IPv6 address of the primary NTP server. |
| *<secondary_server_ipv6address>* | Enter the IPv6 address of the secondary NTP server. |

# Configuring real-time clock

### About this task

Configure the real-time clock (RTC) to provide the switch with time information. The RTC provides the switch with time information in the instance that SNTP time is not available.

### Procedure

1. Log on to ACLI to enter User EXEC mode.

2. Enter Privileged EXEC mode:

   ```
   enable
   ```

3. Enter the following command to configure RTC:

   ```
   clock set {hh:mm:ss <1–31> [<1–31> {[MONTH <2005–2099>] [MONTH <1–31> <2005–2099>]} [LINE]}
   ```

## Variable definitions

Use the definitions in the following table to use the **clock set** command.

| Variable | Value |
|---|---|
| *<LINE>* | Specify a string in the format of mmddyyyyhhmmss that defines the current local time. |
| *<hh:mm:ss>* | Specify the current local time in the hh:mm:ss format. |
| *<1–31>* | RTC date |
| *<MONTH>* | RTC month |
| *<2005–2099>* | RTC year |

# Configuring local time zone

Configure the time zone to use an internal system clock to maintain accurate time. The time zone data does not include daylight saving time changes. You must configure daylight saving time.

### About this task

Use this procedure to configure the local time zone.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enter the following command to enable SNTP:

   ```
   sntp enable
   ```

3. Enter the following command to configure the time zone:

   ```
   clock time-zone <zone> <hours> [minutes]
   ```

4. Enter the following command to configure daylight saving time:

```
clock summer-time zone date day month year hh:mm day month year
hh:mm [offset]
```

5. Save the changed configuration.

**Example**

**Configuring the time zone**

```
Switch>enable

Switch#configure terminal

Switch(config)#clock time-zone PST -8
```

This command sets the time zone to UTP minus 8 hours and the time zone is displayed as "PST."

**Configuring daylight saving time**

```
Switch(config)#clock summer-time BST date 28 Mar 2013 2:00 30 Aug 2013
15:00 +60
```

This command sets the daylight saving time to begin at 02:00 on March 28, 2013 and end on August 30, 2013 at 15:00. The change to daylight saving time moves the clock forward by 60 minutes and the time zone is displayed as "BST". These changes to and from daylight saving time occur automatically.

## Variable definitions

Use the definitions in the following table to use the **`clock time-zone`** command.

**Table 9: clock time-zone command**

| Variable | Definition |
|---|---|
| <zone> | Time zone acronym to be displayed when showing system time (up to 4 characters). |
| <hours> | Difference from UTC in hours. This can be any value between -12 and +12. |
| [minutes] | Optional: This is the number of minutes difference from UTC. Minutes can be any value between 0 and 59. |

Use the definitions in the following table to use the **`clock summer-time zone`** command.

**Table 10: clock summer-time zone command**

| Variable | Definition |
|---|---|
| date | Indicates that daylight saving time you set to start and end on the specified days every year. |
| day | Day to start daylight saving time. |
| month | Month to start daylight saving time. |

*Table continues…*

| Variable | Definition |
|---|---|
| year | Year to start daylight saving time. |
| hh:mm | Hour and minute to start daylight saving time. |
| day | Day to end daylight saving time. |
| month | Month to end daylight saving time. |
| year | Year to end daylight saving time. |
| hh:mm | Hour and minute to end daylight saving time. |
| offset | Number of minutes to add during the summertime. |
| zone | The time zone acronym to be displayed when daylight saving time is in effect. If unspecified, the acronym defaults to the time zone acronym that was configured when the time zone was configured. |

# Configuring the clock

In addition to SNTP time configuration, a clock provides the switch with time information. This clock provides the switch information whent SNTP time is not available.

### About this task

Use this procedure to configure the time source for the switch.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enter the following command:

   ```
   clock source {ntp | sntp | rtc | sysUpTime }
   ```

# Variable definitions

Use the definitions in the following table to use the **`clock source`** command.

| Variable | Definition |
|---|---|
| ntp | Configure NTP as the time source. |
| sntp | Configure SNTP as the time source. |
| rtc | Specifies Real Time Clock (RTC) as the time source. |
| sysUpTime | Configure System Up Time as the time source. |

# Configuring a static route

Create static routes to manually configure a path to destination IP address prefixes.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. Enter the following command to enable IP routing globally:

   ```
   ip routing
   ```

3. Enter the following command to configure an IP address on a VLAN:

   ```
   ip address <ip address> <mask> [<MAC-offset>]
   ```

4. Enter the following command to configure a static route:

   ```
   ip route <destination ip> <mask> <next-hop> {<cost> | disable |
   enable | weight <cost>}
   ```

5. Enter the following command to display all the static routes:

   ```
   show ip route static [<dest-ip>] [-s <subnet> <mask>]
   ```

6. Save the configuration.

## Variable definitions

Use the definitions in the following table to use the **`ip route`** command.

| Variable | Definition |
|---|---|
| *<ipaddr>* | Specify the IP address to attach to the VLAN. |
| *<mask>* | Specify the subnet mask to attach to the VLAN |
| *<MAC-offset>* | Specify the value used to calculate the VLAN MAC address, which is offset from the switch MAC address. The valid range is 1 to 256. Specify the value 1 for the Management VLAN only. If no MAC offset is specified, the switch applies one automatically. |
| *<destination ip>* | Specify the destination IP address for the route being added.<br>0.0.0.0 is considered the default route. |
| *<mask>* | Specify the destination subnet mask for the route being added. |

*Table continues…*

| Variable | Definition |
|---|---|
| <*next-hop*> | Specify the next-hop IP address for the route being added. |
| <*cost*> | Specify the weight, or cost, of the route being added. Range is 1 to 65535. |
| enable | Enable the specified static route. |
| disable | Disable the specified static route. |
| weight <*cost*> | Change the weight, or cost, of an existing static route. Range is 1 to 65535. |

# Enabling remote access

You can enable remote access for telnet, SSH (on SSH software images), SNMP, and webpage access.

For more information, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104 and *Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-501.

## About this task

Use the following procedure to enable and configure remote access to the management features of the switch.

## Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To enable telnet remote access, enter the following command:

   ```
   telnet-access enable
   ```

3. To enable SSH remote access, enter the following command:

   ```
   ssh
   ```

4. To enable SNMP remote access, enter the following command:

   ```
   snmp-server enable
   ```

5. To enable webpage remote access, enter the following command:

   ```
   web-server enable
   ```

### Example

The following is an example of enabling telnet remote access:

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#telnet-access enable
Switch(config)#
```

# Using telnet to log on to the device

### About this task

Use telnet to log on to the device and remotely manage the switch.

### Procedure

1. From a computer or terminal, start a telnet session:

   ```
   telnet <IPv4_address>
   ```

   where <IPv4_address> is the IP address of the switch. The stand-alone units use the default IP address of 192.168.1.1 if the switch does not obtain its IP address from another source.

2. Enter the user ID and password when prompted.

# Enabling the web server management interface

The web server must be enabled to access Enterprise Device manager (EDM). If you do not want EDM to be accessible on the device, disable the web server. By default, the web server is enabled.

### About this task

Use this procedure to enable the web server.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   ```

   ```
   configure terminal
   ```

2. At the command prompt, enter the following command:

   ```
   web-server enable
   ```

# Accessing the switch through the web interface

You can use EDM to configure and maintain your switch through a web-based graphical user interface. You can monitor the switch through a web browser from anywhere on the network.

By default, you can access the web interface using Hypertext Transfer Protocol Secure (HTTPS) only.

For more information about configuring the web server to respond to HTTPS only or to both HTTPS and Hypertext Transfer Protocol (HTTP) client browser requests, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

By default, the web interface uses a 15 minute time-out period. If no activity occurs for 15 minutes, the system logs off the switch web interface, and you must reenter the password information.

To configure inactivity time-out, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

### Before you begin

- Ensure that the switch is running.
- Note the switch IP address.
- Ensure that the web server is enabled.
- Note the user name and password.
- Open one of the supported web browsers.

  For more information about the supported browsers, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104.

### About this task

Use this procedure to access the switch through a web browser.

### Procedure

1. Start your web browser.
2. Type the switch IP address as the URL in the Web address field.

   `http://<IP Address>`

   OR

   `https://<IP Address>`
3. Enter the user name.
4. Enter the password.
5. Click **Log On**.

# Enabling or disabling Quick Configuration

Use the following commands to enable or disable Quick Configuration:

### Before you begin

Quick Configuration requires a stack.

### About this task

The new unit Quick Configuration can store a default configuration that applies to a new unit joining the stack.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To enable Quick Configuration, enter the following command:

   ```
   quickconfig enable
   ```

3. To disable Quick Configuration, enter the following command:

   ```
   no quickconfig enable
   ```

4. To default Quick Configuration, enter the following command:

   ```
   default quickconfig
   ```

### Next steps

Use the **`quickconfig start-recording`** command to record a default configuration that applies to new units joining the stack.

# Recording a Quick Configuration

Use this procedure to record a Quick Configuration:

### Before you begin

Quick Configuration requires a stack.

Quick Configuration must be enabled.

### About this task

You can use the new unit Quick Configuration feature to create a default configuration that applies to any new unit joining the stack. You can record the default values for VLAN IDs, port speed, duplex mode, PVID, tagging, and spanning tree groups for the new unit without the need to reset the stack.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. At the command prompt, enter the following command:

   ```
   quickconfig start-recording
   ```

3. Record your required Quick Configuration by entering one command on each line in ACLI. See the following example.

   **Important:**

   The first two commands must be `enable` and `config term`, otherwise the configuration commands that follow do not apply.

   Use `$` as a wildcard for the slot. The unit number is not known when a new unit joins a stack, so the wildcard can match any slot number.

   To end the recording process enter a `.` on the last line in ACLI.

### Example

The following example records a Quick Configuration for VLAN and port configurations that applies to a new unit joining a stack if Quick Configuration is enabled:

```
enable
config term
vlan port $/13-40 tag untagPvidonly
vlan create 10 name vlan_10 type port
vlan create 20 name vlan_20 type port
vlan members add 10 $/13-40
vlan members add 20 $/13-40
interface fast $/13-34
speed 100
end
.
```

# Configuring a VLAN using ACLI

Use this procedure to create a VLAN using ACLI. Optionally, you can choose to assign the VLAN a name or rename the VLAN.

For more information about configuring a VLAN, see *Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-502.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   ```

   ```
   configure terminal
   ```

2. Enter the following command at the command prompt:

```
vlan create <VID_list> [name <LINE>] type { port { voice-vlan |
remote-span | [<1-8>] { voice-vlan | remote-span } } | protocol
decEther2 | protocol-decOtherEther2 | protocol-ipEther2 | protocol-
ipv6Ether2 | protocol ipx802.2 | protocol-ipx802.3 | protocol-
ipxEther2 | protocol ipxSnap | protocol-Netbios | protocol-
RarpEther2 | protocol sna802.2 | protocol-snaEther2 | protocol-
vinesEther2 | protocol-xnsEther2 | protocol-Userdef {ether
<4096-65534> | llc <1-65534> | snap <1-65534>} | voice-vlan | spbm-
bvlan | spbm-switchedUni [<1-8>]} | [voice-vlan]
```

**Note:**

If you tag protocol VLAN client ports, the system cannot assign frames to the protocol VLAN, regardless of the defined ethertype. Frames are not assigned to the protocol VLAN because untagged packets are assigned to the VLAN identified by the port PVID.

### Example

**Creating a range of port-based VLANs:**

```
Switch(config)#vlan create 100,107,109-113,115 type port
```

**Creating a protocol-based VLAN:**

```
Switch(config)#vlan create 200 type protocol-decEther2
```

**Creating and naming a voice-VLAN:**

```
Switch(config)#vlan create 300 name my_vlan type port voice-vlan
```

**Renaming an existing VLAN:**

```
Switch(config)#vlan name 300 my_vlan2
```

**Creating a VLAN using a user-defined protocol and specifying the frame encapsulation header type:**

```
Switch(config)#vlan create 500 type protocol-userdef ether 6004
```

**Creating an SPBM-BVLAN:**

```
Switch(config)#vlan create 600 type spbm-bvlan
```

**Creating an RSPAN VLAN:**

```
Switch(config)#vlan create 700 type port remote-span
```

**Displaying a range of VLANs:**

```
Switch(config)#show vlan id  100,107,109-113,115,200,300,500,600,700
Id   Name                 Type     Protocol         PID     Active IVL/SVL Mgmt
---- -------------------- -------- ---------------- ------- ------ ------- ----
100  VLAN #100            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
107  VLAN #107            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
109  VLAN #109            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
110  VLAN #110            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
```

```
111  VLAN #111            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
112  VLAN #112            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
113  VLAN #113            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
115  VLAN #115            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
200  VLAN #200            Protocol Declat Ether2    0x6004  Yes    IVL     No
       Port Members: NONE
300  my_vlan2             Voice    None             0x0000  Yes    IVL     No
       Port Members: NONE
500  VLAN #500            Protocol Ether2 User-Def. 0x1774  Yes    IVL     No
       Port Members: NONE
600  VLAN #600            B-VLAN   None             0x0000  Yes    IVL     No
       Port Members: NONE
700  VLAN #700            Port     None             0x0000  Yes    IVL     No
       Port Members: NONE
Total VLANs: 13
```

# Variable definitions

Use the definitions in the following table to use the **`vlan create`** command.

| Variable | Definition |
|---|---|
| <*VID_list*> | Enter as an individual VLAN ID to create a single VLAN or enter as a range of VLAN IDs to create multiple VLANs simultaneously. A VLAN ID can range from 1 to 4094.<br>**Note:**<br>VLAN ID values 4001 through 4008 are reserved and cannot be used. |
| name <*line*> | Specify a unique alphanumeric name for an individual VLAN.<br>**Note:**<br>Do not enter a value for this parameter when you are creating multiple VLANs simultaneously. |
| type | Enter the type of VLAN to create:<br>• port—Port-based<br>• protocol—Protocol-based (see the following list) |
| remote-span | Specify as RSPAN VLAN. |
| protocol-decEther2 | Specify a decEther2 protocol-based VLAN. |
| protocol-ipEther2 | Specify an ipEther2 protocol-based VLAN. |
| protocol-decOtherEther2 | Specifies a decOtherEther2 protocol-based VLAN. |
| protocol-ipv6Ether2 | Specify an ipv6Ether2 protocol-based VLAN. |
| protocol-ipx802.2 | Specify an ipx802.2 protocol-based VLAN. |
| protocol-ipx802.3 | Specify an ipx802.3 protocol-based VLAN. |

*Table continues…*

| Variable | Definition |
|---|---|
| protocol-ipxEther2 | Specify an ipxEther2 protocol-based VLAN. |
| protocol-ipxSnap | Specify an ipxSnap protocol-based VLAN. |
| protocol-Netbios | Specify a NetBIOS protocol-based VLAN. |
| protocol-RarpEther2 | Specify a RarpEther2 protocol-based VLAN. |
| protocol-sna802.2 | Specify an sna802.2 protocol-based VLAN. |
| protocol-snaEther2 | Specify an snaEther2 protocol-based VLAN. |
| protocol-Userdef | Specify a user-defined protocol-based VLAN.<br>Enter<br>• `<4094-65534> {<1-8> \| voice-vlan}`—Ethernet II user-defined VLAN with this Protocol ID, where <1-8> is Spanning Tree Group ID<br>• `ether <4096-65534>` —Ethernet II user-defined VLAN with this Protocol ID<br>• `llc <1-65534>` —LLC user-defined VLAN with this Protocol ID<br>• `snap <1-65534>` —SNAP user-defined VLAN with this Protocol ID |
| protocol-xnsEther2 | Specify an xnsEther2 protocol-based VLAN. |
| protocol-vinesEther2 | Specify a vinesEther2 protocol-based VLAN. |
| <1-8> | Specify the Spanning Tree Group ID. |
| spbm-bvlan | Specify as SPBM B-VLAN. |
| spbm-switchedUni | Specify as SPBM switched UNI. |
| voice-vlan | Specify as Voice VLAN. |

# Configuring VLAN using EDM

You can create a VLAN by IP subnet, port, protocol, or source MAC address using EDM.

You can assign an IP address to the VLAN. You can also assign a MAC-offset value that allows you to manually change the default MAC address.

### Before you begin

Ensure you follow the VLAN configuration rules for the switch. For more information about the VLAN configuration rules and about configuring a VLAN, see *Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-502.

### About this task

Use this procedure to create a VLAN and assign an IP address to a VLAN to enable routing on the VLAN.

### Procedure

1. In the navigation tree, expand the following folders: **Configuration** > **VLAN**.
2. Click **VLANs**.
3. On the **Basic** tab, click **Insert**.
4. In the **Id** field, enter an unused VLAN ID, or use the ID provided.
5. In the **Name** field, type the VLAN name, or use the name provided.
6. In the **StgId** field, specify the IDs to associate STG with the selected VLAN or VLANs.
7. In the **Type** box, select the type of VLAN you want to create.
   - To create a VLAN by port, select **byPort**.
   - To create a VLAN by protocol, select **byProtocolId**. This activates additional fields to configure protocol-based VLANs, including a selection of various protocols.
8. Select **VoiceEnabled** to indicate whether a VLAN is voice VLAN.
9. Select **RspanEnabled** to indicate whether a VLAN is RSPAN enabled.

## Field descriptions

Use the descriptions in the following table to create a VLAN using EDM.

| Field | Description |
|---|---|
| Id | Specify the ID for the VLAN. |
| Name | Specify an alphanumeric name for the VLAN. If you do not type a name, the switch default name is applied. |
| StgId | Specify the Spanning Tree Group (STG) to associate with the selected VLAN or VLANs. This is a read-only value.<br>**Important:**<br>This column is available only when the Spanning Tree administration operating mode is **avayaSTG** mode. When the operating mode is Multiple Spanning Tree Protocol (MSTP) or Rapid Spanning Tree Protocol (RSTP), this column is not available. |
| Type | Indicate the type of VLAN. This is a read-only value. Values include:<br>• byPort—VLAN by Port<br>• byProtocolId—VLAN by Protocol ID |

*Table continues…*

| Field | Description |
|---|---|
| | • spbm-bvlan—Backbone VLAN for the Shortest Path Bridging MAC (SPBM)<br>• spbm-switchedUni—To create one endpoint on one Service Instance ID (I-SID) and another endpoint on another I-SID. |
| VoiceEnabled | Indicate whether VLAN is a voice VLAN (true) or not (false). |
| RspanEnabled | Indicate whether VLAN is an RSPAN VLAN (true) or not (false). |
| ProtocolId | Indicate the protocol identifier for the VLAN. The protocol ID is significant only when the VLAN type is byProtocolId.<br>Values include:<br>• ip<br>• ipx802dot3<br>• ipx802dot2<br>• ipxSnap<br>• ipxEthernet2<br>• appleTalk<br>• decLat<br>• decOtherEther2<br>• sna802dot2<br>• snaEthernet2<br>• netBios<br>• xns<br>• vines<br>• ipv6<br>• usrDefined<br>• rarp |

# Installing a license file

Use this procedure to install a license file.

If the switch is reset to default, the license file must be reinstalled to reenable licensed features. Resetting a switch to default removes the license file from its storage area in NVRAM. Store the license file on a TFTP server accessible by the switch or stack before starting the installation

procedure. For switches equipped with a USB port, you can also use a USB mass storage device to copy the license file to the switch.

### About this task

Install a license file on the switch to enable licensed features.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. Enter the following command:

   ```
   copy [tftp | usb] license <tftp_ip_address> filename
   <license_file_name>
   ```

3. Restart the switch.

### Example

### Installing a license using USB in ERS 5900

1. Insert a USB mass storage device into a USB port on the front of the switch.
2. To copy a license from a USB mass storage device, use the following commands:

   ```
   Switch>enable
   ```

   ```
   Switch#copy usb license filename 5900.xml
   ```

   The switch generates the following message:

   ```
   License successfully downloaded.
   ```

**Important:**

You must restart the system to activate the license.

# Saving the configuration

After you change the configuration, you must save the changes. Save the configuration to a file to retain the configuration settings.

**Note:**

File Transfer Protocol (FTP) and TFTP support both IPv4 and IPv6 addresses, with no difference in functionality or configuration.

### Before you begin

Enable the Trivial File Transfer Protocol (TFTP) on the switch.

### About this task

Use this procedure to save the configuration.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. At the command prompt, enter the following command:

   ```
   save config
   ```

# Storing the configuration files

Before and after you upgrade your switch software, make copies of the configuration files. If an error occurs, use backup configuration files to return to a previous state. You can store the files in binary or ASCII format. Use the following procedure to store the configuration file in binary format. For more information about storing the file in ASCII format, see *Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-501.

Avaya recommends that you keep several copies of backup files.

### Before you begin

If you use File Transfer Protocol (FTP) or Trivial File Transfer Protocol (TFTP), ensure that you enabled the FTP or TFTP server. FTP and TFTP support both IPv4 and IPv6 addresses, with no difference in functionality or configuration.

### About this task

Use this procedure to copy the saved configuration to a file in binary format.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. At the command prompt, enter the following command:

   ```
   copy config usb {filename <filename> | unit <1-8>
   ```

# Variable definitions

Use the definitions in the following table to use the **`copy config usb`** command.

| Variable | Definition |
|---|---|
| *<filename>* | The name of the file to be retrieved. |
| *<1-8>* | The unit number in which the USB device is inserted, if the unit is a part of the stack. |

# Shutting down the switch

The switch administrator can use this feature to safely shut down the switch without interrupting a process or corrupting the software image. After you issue the command, the configuration is saved, auto-save functionality is temporarily disabled, and you are notified that it is safe to power off the switch. If you cancel the shutdown, auto-save functionality returns to the state in which it was previously functioning.

**Important:**

Any configurations or login performed on the switch after you initiate the shutdown command are not saved to NVRAM and are lost after the reset.

### About this task

Use this procedure to shut down the switch.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. At the command prompt, enter the following command:

   ```
   shutdown [force][minutes-to-wait <1-60>] [cancel]
   ```

## Variable definitions

Use the definitions in the following table to use the **`shutdown`** command.

| Variable | Definition |
|---|---|
| force | Instruct the switch to skip the shutdown confirmation prompt. |
| minutes-to-wait <1-60> | Specify the number of minutes that pass before the switch resets itself. The default wait time is 10 minutes. |
| cancel | Cancel all scheduled switch shutdowns. |

# Reloading a remote switch after configuration

This procedure is intended to be used by system administrators to reload a remote switch when configuration is complete. The configuration is not explicitly saved after the `reload` command is issued. This means that any configuration changes must be explicitly saved before the switch reloads

Use this procedure to disable auto-saving configuration changes and safeguard against a configuration error when you perform dynamic configuration changes on a remote switch. If you make an error while configuring a remote switch that results in the loss of connectivity (for example, an error in the IP address or VLAN), the reload loads the last saved configuration to re-establish connectivity.

This procedure temporarily disables auto-save functionality until the reload occurs. If you cancel the reload, auto-save functionality returns to any previous setting.

**Caution:**

You must perform a timed reload command before making dynamic configuration changes to safeguard against the loss of remote connectivity.

### About this task

Use this procedure to reload a remote switch.

### Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. At the command prompt, enter the following command:

   ```
   reload [force] [minutes-to-wait] [cancel]
   ```

## Variable definitions

Use the definitions in the following table to use the **`reload`** command.

| Variable | Definition |
|---|---|
| force | Instruct the switch to skip the shutdown confirmation prompt. |
| minutes-to-wait <*1-60*> | Specify the number of minutes before the switch resets itself. The default wait time is 10 minutes. |
| cancel | Cancel all scheduled switch shutdowns. |

# Chapter 5: Configuring management IP addresses using ACLI

This chapter provides procedural information you can use to assign, clear, and view in-band and out-of-band management IP addresses and gateway IP addresses.

## Configuring an in-band management IP address

Use this procedure to configure the in-band management IPv4 address, subnet mask, and default gateway for a switch or stack.

**Important:**

Changing or clearing the in-band management IP address or subnet mask disconnects any active IP management connections.

### About this task

You can dynamically change the in-band management IP address using Telnet, SSH, SNMP, HTTP, and HTTPS.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable

   configure terminal
   ```

2. To assign or modify the in-band management IP address for a switch or stack, enter the following at the command prompt:

   ```
   ip address [switch | stack | unit <1-8>] <A.B.C.D> [netmask
   <A.B.C.D>] [default-gateway <A.B.C.D>]
   ```

   **Note:**

   You configure the stack in-band management IP address on the stack base unit.

   **Important:**

   Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management

default gateway. Once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.

3. To clear the in-band management IP address and the default gateway, enter the following commands at the command prompt:

```
no ip address [switch | stack | unit <1–8>]

no ip default-gateway
```

**Example**

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ip address stack 172.16.1.80 netmask 255.255.255.0 default-gateway
172.16.1.1
Switch(config)#ip address switch 172.16.1.81
Switch(config)#ip address unit 2 172.16.1.82
Switch(config)#ip address unit 3 172.16.1.83
```

## Variable definitions

The following table describes the parameters for the **`ip address`** command.

| Variable | Value |
|---|---|
| *switch* | Specifies an in-band management IP address for an individual switch (standalone or stack unit). |
| *stack* | Specifies an in-band management IP address for the stack. |
| unit *<1–8>* | Specifies an in-band management IP address for a specific stack unit. Values range from 1–8. |
| <A.B.C.D> | Specifies an in-band management IPv4 address. |
| netmask *<A.B.C.D>* | Specifies the subnet mask associated with the in-band management IP address for a standalone switch or for a specific switch unit within a stack.<br>**Note:**<br>Although netmask appears as an optional parameter with the **`ip address`** command, Avaya recommends that you change the netmask when you dynamically change the in-band management IP address for a switch or stack. |
| default-gateway *<A.B.C.D>* | Specifies the default gateway IP address. |
| **Note:** | |

*Table continues…*

| Variable | Value |
|---|---|
| If you do not specify a parameter with the **ip address** command, the system automatically modifies the stack IP address when in stack mode, and modifies the switch IP address when in standalone mode. | |

# Obtaining an in-band management IP address automatically

Use this procedure to automatically obtain an in-band management IP address, subnet mask and default gateway on the switch or stack.

### About this task

When you use DHCP, the switch or stack can also obtain up to three DNS server IP addresses.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. At the command prompt, enter the following command:

   ```
   ip address source {bootp-always | bootp-last-address | bootp-when-needed | configured-address | dhcp-always | dhcp-last-address | dhcp-when-needed}
   ```

## Variable definitions

The following table describes the parameters for the **ip address source** command.

| Variable | Value |
|---|---|
| bootp-always | Always use the BootP server. |
| bootp-last-address | Use the last BootP server. |
| bootp-when-needed | Use the BootP server when needed.<br>DEFAULT: bootp-when-needed |
| configured-address | Use the manually configured IP configuration. |
| dhcp-always | Always use the DHCP server. |
| dhcp-last-address | Use the last DHCP server. |
| dhcp-when-needed | Use DHCP client when needed. |

# Displaying in-band management information

Use this procedure to display the stack and switch in-band management IP addresses, BootP/DHCP mode, stack address, switch address, subnet mask, and the in-band default-gateway IP address.

### About this task

This command displays the parameters for what is configured, what is in use, and the last BootP/DHCP. If you do not enter any parameters, this command displays all IP-related configuration information.

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. At the command prompt, enter the following command:

```
show ip [address] [address source] [bootp] [default-gateway]
```

# Configuring an out-of-band management IPv4 address

Use this procedure to configure the out-of-band management IPv4 address, subnet mask, and default gateway for a switch or stack.

### Before you begin

You must connect the RJ-45 cable for link-up to the out-of-band management port on the rear panel.

### About this task

When you physically connect the Ethernet RJ-45 out-of-band management port for a standalone switch or stack to your network, and assign an IPv4 address and subnet to the port, you can use out-of-band management to access the switch or stack using Telnet, SSH, SNMP, HTTP, and HTTPS.

**Note:**

The out-of-band management IP address must be different than the switch or stack in-band management IP address and must belong to a different subnet.

### Procedure

1. Enter Global Configuration mode:

```
enable

configure terminal
```

2. To assign or modify an out-of-band management IP address for a switch or stack, enter the following command at the command prompt:

```
ip mgmt {[address [switch | stack | unit <1-8>] <A.B.C.D>
[<subnet_mask>]] | [netmask <A.B.C.D>] | [default-gateway
<A.B.C.D>] }
```

**Note:**

You must configure the stack out-of-band management IP address on the base unit.

**Important:**

Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management default gateway. Once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.

3. To clear the out-of-band management IP address for a switch or stack, enter the following command at the command prompt:

   ```
   no ip mgmt address [switch | stack]
   ```

4. To clear the out-of-band management default gateway, enter the following command at the command prompt:

   ```
   no ip mgmt default-gateway
   ```

### Example

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ip mgmt address stack 172.16.100.80 netmask 255.255.255.0
Switch(config)#ip mgmt address switch 172.16.100.81 netmask 255.255.255.0
Switch(config)#ip mgmt default-gateway 172.16.100.85
```

## Variable definitions

The following table describes the parameters for the **`ip mgmt address`** command.

| Variable | Value |
|---|---|
| switch | Specifies an out-of-band management IP address for an individual switch (standalone or stack unit). |
| stack | Specifies an out-of-band management IP address for the stack. |
| unit *<1–8>* | Specifies an out-of-band management IP address for a specific stack unit. Values range from 1 to 8.<br>**Note:**<br>The unit parameter is available only in a stack environment. |

*Table continues…*

| Variable | Value |
|---|---|
| *<A.B.C.D>* | Specifies an out-of-band management IPv4 address.<br>DEFAULT: 0.0.0.0 |
| *<subnet_mask>* | Specifies the management subnet mask.<br>DEFAULT: 0.0.0.0 |
| netmask *<A.B.C.D>* | Specifies the subnet mask associated with the out-of-band management IP address.<br>DEFAULT: 0.0.0.0<br>**Note:**<br>Although netmask appears as an optional parameter with the **`ip mgmt address`** command, Avaya recommends that you change the netmask when you dynamically change the out-of-band management IP address for a switch or stack. |
| default-gateway *<A.B.C.D>* | Specifies the management default gateway. Only specify an out-of-band default gateway if you are not routing the management IP. |
| **Important:**<br>The out-of-band management IP addresses for all stack units must belong to the same subnet. | |

# Displaying out-of-band management information

Use this procedure to display IPv4 address out-of-band management configuration information for a switch or stack.

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. At the command prompt, enter the following command:

   ```
   show ip mgmt [switch | all | route]
   ```

3. To display the management port link status, enter the following command:

   ```
   show mgmt-port status
   ```

### Example

```
Switch>show ip mgmt all

Unit  Ip Address      Netmask         Gateway         Link / Speed  Status
----- --------------- --------------- --------------- ------------- ---------
Stack 149.4.5.178     255.255.255.240 149.4.5.177     Up 1000F            Enabled
1     149.4.5.179     255.255.255.240 149.4.5.177     Up 1000F            Enabled
2     149.4.5.180     255.255.255.240 149.4.5.177     Up 1000F            Enabled
```

**Note:**

In a stack environment, the base unit is identified as Stack in the Unit column.

## Variable definitions

The following table describes the parameters for the **show ip mgmt** command.

| Variable | Value |
|---|---|
| *all* | Displays out-of-band management configuration information for all units within a stack. |
| *route* | Displays management VLAN information. |
| **Note:**<br>If you do not enter a variable with the **show ip mgmt** command, out-of-band management configuration information for the local switch is displayed. | |

# Configuring a management route

Use this procedure to configure a management route. In Layer 3 mode, If you configure management routes you can access both the out-of-band and in-band management addresses.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To assign an IP management route, enter the following command at the command prompt:

   ```
   ip mgmt route <destination-IP> <destination-netmask> <destination-gateway>
   ```

3. To clear an IP management route, enter the following command at the command prompt:

   ```
   no ip mgmt route <destination-IP> <destination-netmask> <destination-gateway>
   ```

## Variable definitions

The following table describes the parameters for the **ip mgmt route** command.

| Variable | Value |
|---|---|
| *<destination-IP>* | Specifies the destination IPv4 address. |
| *<destination-netmask>* | Specifies the destination IPv4 subnet mask. |
| *<destination-gateway>* | Specifies the destination IPv4 gateway. |

# Configuring an in-band management IPv6 address

Use this procedure to configure the in-band management IPv6 address for a switch or stack.

**Important:**

Changing or clearing the in-band management IPv6 address disconnects any active IP management connections.

## About this task

You can dynamically change the in-band management IPv6 address using Telnet, SSH, SNMP, HTTP, and HTTPS.

## Procedure

1. Enter Global Configuration mode:

   ```
   enable

   configure terminal
   ```

2. To assign or modify the in-band management IPv6 address for a switch or stack, enter the following at the command prompt:

   ```
   ipv6 address [switch | stack | unit <1-8>] <WORD>
   ```

   **Note:**

   You configure the stack in-band management IPv6 address on the stack base unit.

   **Important:**

   Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management default gateway. Once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.

3. To assign the default gateway, enter the following at the command prompt:

   ```
   ipv6 default-gateway <WORD>
   ```

4. To clear the in-band management IPv6 address and the default gateway, enter the following commands at the command prompt:

   ```
   no ipv6 address [switch | stack | unit <1-8>]
   ```

```
no ipv6 defaul-gateway
```

### Example

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ipv6 address stack 2005::2/64
Switch(config)#ipv6 default gateway 2005::1
Switch(config)#ipv6 address switch 2005::3
Switch(config)#ipv6 address unit 2 2005::4
Switch(config)#ipv6 address unit 3 2005::5
```

## Variable definitions

The following table describes the parameters for the **ip address** command.

| Variable | Value |
|---|---|
| *switch* | Specifies an in-band management IPv6 address for an individual switch (standalone or stack unit). |
| *stack* | Specifies an in-band management IPv6 address for the stack. |
| unit <*1–8*> | Specifies an in-band management IPv6 address for a specific stack unit. Values range from 1–8. |
| <WORD> | Specifies an in-band management IPv6 address. |
| default-gateway <*WORD*> | Specifies the default gateway IPv6 address. |
| **Note:**<br>If you do not specify a parameter with the **ipv6 address** command, the system automatically modifies the stack IPv6 address when in stack mode, and modifies the switch IPv6 address when in standalone mode. | |

# Displaying in-band IPv6 management information

Use this procedure to display the stack and switch in-band management IPv6 addresses, and the in-band default-gateway IPv6 address.

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. To display the configured in-bank management IPv6 address, enter the following at the command prompt:

   ```
   show ipv6 address [stack][switch][unit <1-8>]
   ```

3. To display IPv6 default-gateway information, enter the following at the command prompt:

   ```
   show ipv6 default-gateway
   ```

### Example

```
Switch>show ipv6 address

Switch Address: 2005::2/64
Stack Address:  2005::3/64

Switch>show ipv6 default-gateway

Default Gateway: 2005::1
Status: NotActive
```

**Note:**

The status of the default gateway is active when the IPv6 address configured is reachable.

# Configuring an out-of-band management IPv6 address

Use this procedure to configure the out-of-band management IPv6 address and default gateway for a switch or stack.

### About this task

When you physically connect the Ethernet RJ-45 out-of-band management port for a standalone switch or stack to your network, and assign an IPv6 address and subnet to the port, you can use out-of-band management to access the switch or stack using Telnet, SSH, SNMP, HTTP, and HTTPS.

**Note:**

In Layer 3 mode, both interfaces of the switch are reachable if the routes are configured. If you are initiating the connection from the switch interfaces (serial, Telnet, SSH), the out-of-band management route takes precedence. For example, if you execute a traceroute to a distant host, the out-of-band route is chosen.

**Note:**

The out-of-band management IP address must be different than the switch or stack in-band management IP address and must belong to a different subnet.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable

   configure terminal
   ```

2. To activate the IPv6 interface on the switch, enter the following command at the command prompt:

   ```
   ipv6 mgmt interface
   ```

3. To configure a stand alone switch out-of-band management IPv6 address, enter the following command at the command prompt:

```
ipv6 mgmt address <WORD>
```

4. To assign or modify an out-of-band management IPv6 address for a switch, stack or unit, enter the following command at the command prompt:

   ```
   ipv6 mgmt address [switch | stack | unit <1-8>] <WORD>
   ```

   **Note:**

   You must configure the stack out-of-band management IPv6 address on the base unit.

   **Important:**

   Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management default gateway. Once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.

5. To configure the default-gateway, enter the following command at the command prompt:

   ```
   ipv6 mgmt default—gateway <WORD>
   ```

6. To configure a static route for the management port, enter the following command at the command prompt:

   ```
   ipv6 route <WORD> mgmt
   ```

   ```
   ipv6 route <WORD> mgmt [cost <1-65535> | enable | preference <1-255>]
   ```

7. To display the IPv6 address out-of-band management configuration, enter the following commands at the command prompt:

   ```
   show ipv6 mgmt address [switch | stack | unit <1-8>]
   ```

   ```
   show ipv6 mgmt default—gateway
   ```

   ```
   show ipv6 mgmt interface
   ```

8. **(Optional)** To configure the default out-of-band management IPv6 address, enter the following command at the command prompt:

   ```
   default ipv6 mgmt address [switch | stack | unit <1-8>]
   ```

9. **(Optional)** To configure the default out-of-band IPv6 management default gateway, enter the following command at the command prompt:

   ```
   default ipv6 mgmt default-gateway
   ```

10. **(Optional)** To configure the default IPv6 interface process-redirect on the switch, enter the following command at the command prompt:

    ```
    default ipv6 mgmt interface [ process-redirect ]
    ```

11. **(Optional)** To clear the out-of-band management IPv6 address, enter the following command at the command prompt:

```
no ipv6 mgmt address [switch | stack | unit <1–8>]
```

12. **(Optional)** To clear the out-of-band IPv6 management default gateway, enter the following command at the command prompt:

```
no ipv6 mgmt default-gateway
```

### Example

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ipv6 mgmt address stack 4149:4:4:360::2/59
% IPV6 Oob management interface does not exist
Switch(config)#ipv6 mgmt interface
Switch(config)#ipv6 mgmt address stack 4149:4:4:360::2/59
Switch(config)#show ipv6 mgmt interface
2013-08-06 17:28:49 GMT+02:00    UTC time: 2013-08-06 15:28:49
================================================================================
                 Interface Information
 ==============================================================================
IFINDX VLAN-ID  MTU  PHYSICAL          ADMIN    OPER  RCHBLE  RETRAN  TYPE
ADDRESS           STATE    STATE TIME    TIME
------------------------------------------------------------------------------
55001  1        1500 00:19:e1:55:07:00 enabled  up    30000   1000    ETHER
================================================================================
                 Address Information
================================================================================
INTF   IPV6                                    TYPE    ORIGIN    STATUS INDEX  ADDRESS
--------------------------------------------------------------------------------
55001  4149:4:4:360::2                         UNICAST MANUAL    PREFERRED
55001  fe80::219:e1ff:fe55:700                 UNICAST LINKLAYER PREFERRED

1 out of 1 Total Num of Interface Entries displayed.

2 out of 8 Total Num of Address Entries displayed.
```

## Variable definitions

The following table describes the parameters for the **`ipv6 mgmt address`** command.

| Variable | Value |
|---|---|
| <*WORD*> | Specifies an out-of-band management IPv6 address or IPv6 address and prefix length.<br>DEFAULT for IPv6: 0::0/0 |
| switch | Specifies an out-of-band management IP address for an individual switch (standalone or stack unit). |
| stack | Specifies an out-of-band management IP address for the stack.<br>DEFAULT: 0:0:0:0:0:0:0:0 |
| unit <*1–8*> | Specifies an out-of-band management IP address for a specific stack unit. Values range from 1 to 8. |

*Table continues…*

| Variable | Value |
|---|---|
| | **Note:**<br>The unit parameter is available only in a stack environment. |
| **Important:**<br>The out-of-band management IP addresses for all stack units must belong to the same subnet. | |

The following table describes the parameters for the **ipv6 mgmt** command.

| Variable | Value |
|---|---|
| default-gateway <*WORD*> | Specifies the management default gateway. Only specify an out-of-band default gateway if you do not route the management IP.<br>WORD specifies an IPv6 address.<br>Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management default gateway. After you configure an out-of-band management default gateway, the in-band management address is reachable only through a directly attached subnet for the management VLAN.<br>DEFAULT for IPv6: 0:0:0:0:0:0:0:0 |
| interface | Specifies the management default interface. |

The following table describes the parameters for the **ipv6 route** command.

| Variable | Value |
|---|---|
| <*WORD*> mgmt | Specifies a static route for the management port.<br>WORD specifies an IPv6 address route. |
| cost <*1-65535*> | Specifies the cost. |
| enable | Specifies if the IPv6 static route is enabled. |
| preference <*1-255*> | Specifies the preference. |

The following table describes the parameters for the **show ipv6 mgmt** command.

| Variable | Value |
|---|---|
| address unit <*1–8*> | Indicates information about the management IPv6 address from every unit in the stack. |
| default-gateway | Indicates information about the management default gateway. |
| interface | Indicates all of the IPv6 addresses. |

# Displaying out-of-band management IPV6 information

## Procedure

1. Log on to ACLI to enter User EXEC mode.
2. To display all addresses for IPv6 interfaces, enter the following command at the command prompt:

   ```
   show ipv6 address interfaces
   ```

3. To display IPv6 management addresses, enter the following command at the command prompt:

   ```
   show ipv6 mgmt address [unit <1-8>]
   ```

4. To display IPv6 management default-gateway information, enter the following command at the command prompt:

   ```
   show ipv6 mgmt default-gateway
   ```

5. To display IPv6 management interface information, enter the following command at the command prompt:

   ```
   show ipv6 mgmt interface
   ```

6. To display the neighbor table for the IPv6 management port, enter the following command at the command prompt:

   ```
   show ipv6 neighbor interface mgmt
   ```

7. To display the routing table for the IPv6 management port, enter the following command at the command prompt:

   ```
   show ipv6 route mgmt
   ```

## Example

```
Switch(config)#show ipv6 mgmt address
2013-08-06 17:32:00 GMT+02:00    UTC time: 2013-08-06 15:32:00

Mgmt Switch Address: ::/0
Mgmt Stack Address:  4149:4:4:360::2/59
```

```
Switch(config)#show ipv6 neighbor interface mgmt
2013-08-06 17:32:45 GMT+02:00    UTC time: 2013-08-06 15:32:45
================================================================================
                  Neighbor Information
================================================================================
NET ADDRESS/                                PHYS   TYPE    STATE      LAST
PHYSICAL ADDRESS                            INTF                      UPD
--------------------------------------------------------------------------------
4149:4:4:360::/                             O-1    LOCAL   REACHABLE  0
00:19:e1:55:07:00
4149:4:4:360::1/                            O-1    DYNAMIC REACHABLE  17061
00:19:e1:4d:7c:9c
4149:4:4:360::2/                            O-1    LOCAL   REACHABLE  16847
00:19:e1:55:07:00
fe80::219:e1ff:fe55:700/                    O-1    LOCAL   REACHABLE  16847
00:19:e1:55:07:00
```

```
4 out of 13 Total Num of Neighbor Entries displayed.
```

# Enabling or disabling the out-of-band management port

Use this procedure to administratively enable or disable the Ethernet RJ-45 out-of-band management port.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. To disable the out-of-band management port, enter the following command at the command prompt:

   ```
   ip mgmt shutdown [all | unit <1-8>]
   ```

3. To enable the out-of-band management port, enter the following command at the command prompt:

   ```
   no ip mgmt shutdown [all | unit <1-8>]
   ```

### Result

After you use the **`no ip mgmt shutdown [all | unit <1–8>]`** command to enable an out-of-band management port, there is a delay of approximately 90 seconds before the port is reachable.

# Variable definitions

The following table describes the parameters for the **`ip mgmt shutdown`** and **`no ip mgmt shutdown`** commands.

| Variable | Value |
|---|---|
| all | Specifies to enable or disable the management port of all units in a stack. |
| unit *<1–8>* | Specifies a specific switch unit within a stack for which to enable or disable the out-of-band management port. |

# Setting in-band management IP address parameters from the ip.cfg file on a USB device

If the switch does not obtain an in-band management IP address through BootP, you can load the IP address and optionally new switch software and configuration from the USB memory device using the `ip.cfg` file.

**Note:**

The file name, `ip.cfg`, is case-insensitive.

If a properly formatted file exists on a USB port, the switch uses that `ip.cfg` as the first option, rather than the last. You can specify one or more of the optional parameters in the `ip.cfg` file. All of the parameters are optional.

The following table describes the `ip.cfg` file parameters:

| Parameter | Description |
|---|---|
| IP <*A.B.C.D*> \| <*WORD*> | Specifies the IP address for the switch. A.B.C.D is IPv4 address, WORD is IPv6 address. |
| Mask <*xx.xx.xx.xx*> | Specifies the IPv4 network mask. Example: 255.255.255.0 |
| Gateway <*A.B.C.D*> \| <*WORD*> | Specifies the default gateway. A.B.C.D is IPv4 address, WORD is IPv6 address. |
| SNMPread <*string*> | Specifies the SNMP read community string. Example: public |
| SNMPwrite <*string*> | Specifies the SNMP write community string. Example: private |
| VLAN <*number*> | Specifies the management VLAN-ID. Example: VLAN 1 |
| USBdiag <*string*> | Specifies the filename of the diagnostic image to load from the USB. Example: vsp7000/vsp7000_10.0.1.10.bin |
| USBascii <*string*> | Specifies the filename of the ASCII config file to load from the USB. Example: customer1.cfg |
| USBagent <*string*> | Specifies the filename of the agent image to load from the USB and specifies IPs for next boot. Example: vsp7000/vsp7000_10.0.1.0.img |
| NEXTIP, NEXTMask, and NEXTGateway | Specifies IP addresses, nework mask, and gateway to be used once the switch is booted. |

**Note:**

If you download an ASCII file or diag/image with an `ip.cfg` file, the specific ASCII file or diag/image must be present on the USB device.

The `ip.cfg` file loads information from the ASCII configuration file in order of precedence. For example, the stack IP becomes 181.30.30.113 no matter what IP address is in the `ip.txt` file if you have an `ip.cfg` file with the following commands:

```
USBascii ip.txt IP 181.30.30.113
Mask 255.255.255.0
Gateway 181.30.30.254
```

The stack IP will be the IP address defined in the `ip.txt` file if you have an `ip.cfg` file with the following commands:

```
IP 181.30.30.113
Mask 255.255.255.0
Gateway 181.30.30.254
USBascii ip.txt
```

**Note:**

The `ip.cfg` file runs only on a base or standalone unit. The file cannot be more than 4096 bytes or contain more than 200 lines.

The following figure shows an example of an `ip.cfg` file.

```
#Any lines starting with a # are comments
#IP <xx.xx.xx.xx> specifies the IP address for the switch

IP 172.16.1.23

#Mask <xx.xx.xx.xx> specifies the network mask Mask 255.255.255.0
#Gateway <xx.xx.xx.xx> specified the default gateway Gateway 172.16.1.1
#SNMPread <string> specified the SNMP read community string SNMPread public
#SNMPwrite <string> specified the SNMP write community string SNMPwrite private
#VLAN <number> specified the management VLAN-ID VLAN 1
#USBdiag <string> specifies the filename of the diagnostic image to load (noreset)

USBdiag ers5600/ers5600_5.1.0.4.bin

#USBagent <string> specifies the filename of the agent image to load (noreset)

USBagent ers5600/ers5600_5.2.0.0.img

#USBascii <string> specifies the filename of the ASCII config file to load

USBascii customer1.cfg

#NEXTIP <xx.xx.xx.xx> specifies the IP address for the switch NEXTIP 172.16.1.23
#NEXTMask <xx.xx.xx.xx> specifies the network mask NEXTMask  255.255.255.0
#NEXTGateway <xx.xx.xx.xx> specified the default gateway NEXTGateway 172.16.1.1
```

**Figure 3: ip.cfg file example**

If the `ip.cfg` file specifies an image or agent code, the switch loads the software, even if the same version is already installed on the switch. Ensuring that the appropriate software is always upgraded on the units is the correct operation of `ip.cfg`.

Use the factory default command to reset the switch to the factory default after you insert the USB memory device in the USB port. The USB memory device must contain the properly formatted `ip.cfg` file in the root directory.

**Note:**

The system does not display a message to indicate the `ip.cfg` file progress, you need to connect to the switch after 3 minutes of booting to verify the `ip.cfg` operation. You can typically confirm the successful download of `ip.cfg` by using the ACLI **`show ip`** command. If

the USB `ip.cfg` file download succeeded, all parameters read from the file show are present in the switch and part of the runtime configuration.

# Configuring a Domain Name Server

Use this procedure to set the default DNS domain name for the switch.

**Note:**

This default domain name is appended to all DNS queries or commands that do not already contain a DNS domain name.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command:

   `ip domain-name <DNS_domain name>`

## Variable definitions

The following table describes the parameters for the **`ip domain-name`** command.

| Variable | Value |
|---|---|
| *<DNS_domain_name>* | Specify the default domain name to be used.<br>The default form of this command is default ip domain-name.<br>The no form of this command is no ip domain-name. |

# Resolving domain names to IP addresses

Use this procedure to set the domain name servers the switch uses to resolve a domain name to an IP address.

### About this task

A switch can have up to three domain name servers specified for this purpose.

**Note:**

To enter all three server addresses you must enter the command three times, each with a different server address.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command:

```
ip name-server [<ipv6_address> | <ip_address_1>]
ip name-server [<ipv6_address> | <ip_address_2>]
ip name-server [<ipv6_address> | <ip_address_3>]
```

## Variable definitions

The following table describes the parameters for the **`ip name-server`** command.

**Note:**

The IPv6 parameter is valid only for switches that support IPv6.

| Variable | Value |
|---|---|
| *ipv6_address* | The IPv6 address of the domain name server used by the switch. |
| *ip_address_1* | The IP address of the domain name server used by the switch. |
| *ip_address_2* | Optional. The IP address of a domain name server to add to the list of servers used by the switch. |
| *ip_address_3* | Optional. The IP address of a domain name server to add to the list of servers used by the switch. |
| no ip name-server [<ipv6_address> \| <ip_address_1>]<br>no ip name-server [<ipv6_address> \| <ip_address_2>]<br>no ip name-server [<ipv6_address> \| <ip_address_3>] | The no form of this command removes domain name servers from the list of servers used by the switch to resolve domain names to an IP address. |

# Clearing the IP address

Use this procedure to clear the IPv4 address and subnet mask or IPv6 address for a switch or a stack.

**Note:**

When the IP address or subnet mask is changed, connectivity to Telnet can be lost. Any new Telnet connection can be disabled and is required to connect to the serial console port to configure a new IP address.

### About this task

This command sets the IP address and subnet mask for a stack, switch, or unit to all zeros (0).

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command for IPv4 addresses:

   ```
   no ip address {stack | switch | unit <1-8>}
   ```

   OR

   for IPv6 addresses, enter the following command:

   ```
   no ipv6 address {stack | switch | unit <1-8>}
   ```

## Setting the in-band default IP gateway address

Use this procedure to set the default IP gateway address for a switch or a stack.

**Note:**

When the IP gateway is changed, connectivity to Telnet can be lost.

**Important:**

Only one management default gateway can operate for each unit or stack. The out-of-band management default gateway takes precedence over the in-band management default gateway. Once an out-of-band management default gateway is configured, the in-band management address is reachable only through a directly attached subnet for the management VLAN.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. To configure the IPv4 address of the default gateway, enter the following command at the command prompt:

   ```
   ip default-gateway <A.B.C.D>
   ```

## Deleting the in-band default IP gateway address

Use this procedure to delete the default IP gateway address.

**Note:**

When the IP gateway is changed, connectivity to Telnet can be lost.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command:

   ```
   no ip default-gateway
   ```

   OR

   ```
   no ipv6 default-gateway
   ```

# Chapter 6: Configuring management IP addresses using EDM

This chapter provides procedural information you can use to assign, clear, and view in-band and out-of-band management IP addresses and gateway IP addresses.

## Configuring out-of-band management using EDM

Use this procedure to configure the out-of-band management IP address, subnet mask, and default gateway.

### About this task

When you physically connect Ethernet RJ-45 management port for standalone switch or stack to your network and assign an IP address to the port, you can use the management port to access the switch or stack using Telnet, SSH, SNMP, HTTP, and HTTPS.

**Note:**

The out-of-band management IP address must be different than the switch or stack in-band management IP address.

### Procedure

1. From the navigation pane, double-click **Edit**.
2. In the Edit tree, click **Chassis**.
3. In the Chassis tree, click **Switch/Stack**.
4. In the Switch/Stack work area, click the **Management IP** tab.
5. To configure out-of-band management parameters for a switch, double-click table cells as required.
6. On the toolbar, click **Apply**.
7. On the toolbar, you can click **Refresh** to verify the out-of-band management configuration.

## Variable definitions

| Variable | Value |
|---|---|
| **Unit** | Indicates a stack switch unit, for which to configure an out-of-band management IP address. Values range from 1 to 8.<br>For a stack environment, a **Unit** value of 1 specifies the base unit.<br>For a standalone switch, the **Unit** value is 1. |
| **IpMgmtAddress** | Specifies an out-of-band management IP address for the selected switch.<br>DEFAULT for IPv4: 0.0.0.0 |
| **IpMgmtNetMask** | Specifies the subnet mask associated with the out-of-band management IP address.<br>DEFAULT for IPv4: 0.0.0.0 |
| **IpMgmtGateway** | Specifies the IP address for the out-of-band management default gateway.<br>DEFAULT for IPv4: 0.0.0.0<br>DEFAULT for IPv6: 0:0:0:0:0:0<br>**Important:**<br>If you configure an out-of-band default gateway, the device disables the in-band default gateway. The out-of-band management default gateway takes precedence over the in-band management default gateway. |
| **Ipv6MgmtAddress** | Specifies an out-of-band management IP address for the selected switch.<br>Specifies the IPv6 address associated with the physical dedicated out-of-band management port of a component. For a stackable system in stack mode, this IPv6 address always applies to the individual units in the stack.<br>DEFAULT for IPv6: 0::0/0 |
| **Ipv6MgmtNetMask** | Specifies the subnet mask associated with the out-of-bank management IP address.<br>Specifies the IPv6 address associated with the physical dedicated out-of-band management port of a component. For a stackable system in stack mode, this netmask always applies to the individual units in the stack. |

*Table continues…*

| Variable | Value |
|---|---|
| | DEFAULT for IPv6: 0::0/0 |
| **IpMgmtShutdown** | Specifies whether to enable or disable the management port for the unit. A value of true disables the port.<br>DEFAULT: false |

# Chapter 7: Verification

This chapter contains information about how to verify that your provisioning procedures result in a functional switch.

## Pinging an IP device

You can ping a device to test the connection between a switch and another network device. After you ping a device, the switch sends an Internet Control Message Protocol (ICMP) packet to the target device. If the device receives the packet, it sends a ping reply. After the switch receives the reply, a message appears that indicates traffic can reach the specified IP address. If the switch does not receive a reply, the message indicates the address does not respond.

### About this task

Use this procedure to ping a device.

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. At the command prompt, enter the following command:

   ```
   ping <IP_address>
   ```

   where <IP_address> is an IPv4 or IPv6 address.

## Verifying the software release

### About this task

Use this procedure to display the currently-loaded and operational software load

### Procedure

1. Log on to ACLI to enter User EXEC mode.
2. At the command prompt, enter the following command:

   ```
   show boot [diag | image [primary | secondary]]
   ```

**Example**

The following displays the output from the **show boot** command.

```
Switch#show boot
Unit  Agent Image Secondary Image Active Image Diag Image Active Diag
----- ----------- --------------- ------------ ---------- -----------
1     7.0.0.066   7.0.0.042       7.0.0.066    0.0.0.2c   0.0.0.2c
* - Unit requires reboot for new Active Image to be made operational.
# - Unit requires reboot for new Diag to be made operational.

Switch#show boot diag
Unit  Diag Image Active Diag
----- ---------- -----------
1     0.0.0.2c    0.0.0.2c
# - Unit requires reboot for new Diag to be made operational.


Switch#show boot image
Unit  Agent Image Secondary Image Active Image
----- ----------- --------------- ------------
1     7.0.0.066   7.0.0.042       7.0.0.066
* - Unit requires reboot for new Active Image to be made operational.

Switch#show boot image primary
Unit  Agent Image Active Image
----- ----------- ------------
1     7.0.0.163   7.0.0.163
* - Unit requires reboot for new Active Image to be made operational.
```

## Variable definitions

Use the definitions in the following table to use the **show boot** command.

| Variable | Definition |
|---|---|
| diag | Displays only information for the agent load. |
| image [primary \| secondary] | Displays information about the image load. Options are:<br>• primary—display primary image software version.<br>• secondary—display secondary image software version. |

**Important:**

When the currently loaded and operational software status is displayed for a stack, the unit number is replaced by the word **All**.

# Displaying local alarms

You can view local alarms to monitor alarm conditions.

Local alarms are raised and cleared by applications running on the switch. Local alarms are an automatic mechanism run by the system and do not require any additional user configuration. The

raising and clearing of local alarms also creates a log entry for each event. Check alarms occasionally to ensure no alarms require additional operator attention.

### About this task

Use this procedure to display local alarms.

### Procedure

1. Enter Global Configuration mode:

   ```
   enable
   configure terminal
   ```

2. At the command prompt, enter the following command :

   ```
   show rmon alarm
   ```