



Getting Started Avaya Ethernet Routing Switch 5000 Series

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Chapter 1: Purpose of this document

This document provides getting started concepts and procedures for the Avaya Ethernet Routing Switch 5000 Series. You can use the procedures in this document to connect and initially configure the switch for your network.

This document provides procedures for both the Avaya Command Line Interface (CLI) and Enterprise Device Manager (EDM) for getting started tasks. You can access CLI through either a direct console connection to the switch or by using the Telnet or SSH protocols to connect to the switch remotely. You can access EDM through a web browser to connect to the switch remotely.

The topics discussed in this document are provided with the following assumptions:

- You have a basic knowledge of networks, Ethernet bridging, and IP routing.
- You are familiar with networking concepts and terminology.
- You have basic knowledge of network topologies.
- You have experience with Graphical User Interface (GUI).
- You have experience with the following CLI command modes:
 - User Executive
 - Privileged EXEC
 - Global configuration
 - Interface configuration

Purpose of this document

Chapter 2: Getting started fundamentals

Use the following sections to understand the feature concepts of the ERS 5000 Series and to get up and running quickly.

ACLI opening banner

The banner presented when a user logs in to the switch through ACLI can be configured to a user-defined value. The banner cannot exceed 1539 bytes, or 19 rows by 80 columns plus line termination characters.

When the system starts, the banner displays and prompts the user to enter `Ctrl+Y`. After these characters are entered, the system displays either a menu or the command line interface prompt, depending on previously configured defaults. To navigate between items in the menu, use the up/down arrow keys and select the item with the `Enter` key.

To switch the startup mode between menu and command line, see [Setting the default management interface](#) on page 29.

The banner control setting is saved to NVRAM, and both the banner file and control setting are distributed to all units within a stack.

To customize the opening banner, see [Customizing the opening banner](#) on page 86.

ACLI command modes

Avaya Command Line Interface (ACLI) is a text-based interface used for switch configuration and management. A common command line interface (CLI), ACLI follows the industry standard used for device management across Avaya products.

ACLI command modes occur in order of increasing privileges, each based on user logon permission level. Logon password determines logon permission level.

You can access ACLI directly through a console connection, remotely through a dial-up modem connection, or in-band through a Telnet session.

You can use ACLI interactively or use the **configure network** command to load and execute ACLI scripts, manually loading the script in the console menu or automatically loading the script at startup.

ACLI provides the following command modes:

- User EXEC
- Privileged EXEC
- Global Configuration
- Interface Configuration
- Router Configuration

Mode access is determined by access permission levels and password protection.

If no password is set, you can enter ACLI in User EXEC mode and use the **enable** command to move to the next level (Privileged EXEC mode). However, if you have read-only access, you cannot progress beyond User EXEC mode, the default mode. If you have read-write access you can progress from the default mode through all of the available modes.

User Executive mode is the default ACLI command mode and the initial access mode. Also known as exec mode, it is the most restrictive ACLI mode with only basic commands available; for example, show, ping and logout. User Executive commands are available from the other modes.

Privileged Executive mode is an unrestricted mode that can display all switch settings. If you are logged on with write access, you can access all configuration modes and commands that affect switch operation from Privileged Executive mode.

In Privileged Executive mode, also known as privExec mode, you can perform basic switch level management tasks; for example, downloading software images, setting passwords, and starting the switch. Privileged Executive commands are also available in Global and Interface configuration modes.

Global Configuration mode, also known as config mode, provides commands used to set and display general switch configurations such as IP address, Simple Network Management Protocol (SNMP) parameters, Telnet access, and Virtual Local Area Networks (VLAN).

From the Global Configuration mode, access the Router Configuration Mode by entering one of the following commands:

- router rip
- router ospf
- router vrrp
- router bgp

Interface Configuration mode, also known as config-if mode, provides commands used to configure parameters for each port or VLAN such as speed, duplex mode, and rate limiting.

With sufficient permission, you can use the rules in the following table to move between the command modes.

Command mode and sample prompt	Entrance commands	Exit commands
User EXEC 5530-24TFD>	No entrance command, default mode	exit or logout
Privileged EXEC 5530-24TFD#	enable	exit or logout
Global Configuration 5530-24TFD(config)#	From Privileged EXEC mode, enter configure	To return to Privileged EXEC mode, enter: end or exit To exit ACLI completely, enter: logout
Interface Configuration 5530-24TFD(config-if)#	From Global Configuration mode, to configure a port, enter: interface fastethernet <port_number> To configure a VLAN, enter: interface vlan <vlan_number>	To return to Global Configuration mode, enter: exit To return to Privileged EXEC mode, enter: end To exit ACLI completely, enter: logout
Router Configuration 5530-24TFD(config-router)#	From Global Configuration mode: to configure OSPF, enter: router ospf To configure RIP, enter: router rip To configure VRRP, enter: router vrrp To configure BGP, enter: router bgp	To return to Global Configuration mode, enter: exit To return to Privileged EXEC mode, enter: end To exit ACLI completely, enter: logout

See *Avaya Ethernet Routing Switch 5000 Series Fundamentals* (NN47200-104) for more information about ACLI command modes.

User Access Limitations

ACL I enables the administrator to limit user access through the creation and maintenance of passwords for Telnet and Console access. This is a two-step process that requires first creating the password and then enabling it.

Ensure that **Global Configuration** mode is entered in ACL I before you begin these tasks.

*** Note:**

When a username and password is set to default, the change is only applied to the unit on which the command was run.

Quick Start

You can use the `install` command in Avaya Command Line Interface (ACL I) or the Quick Start menu in Enterprise Device Manager (EDM) to configure the in-band IP Address and netmask, default gateway, read-only and read-write community strings, quick start VLAN, IPv6 in-band address, and IPv6 default gateway.

Configuring with Quick Start using ACL I

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:

- IP address
- Subnet mask
- Default gateway
- Read-only community string

- Read-write community string
- Quick start VLAN

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 ERS 5000 setup utility banner appears.
4. Enter the IP address at the following prompt:
Please provide the in-band IP Address [0.0.0.0]:
5. Enter the sub-net mask at the following prompt:
Please provide the in-band sub-net mask [0.0.0.0]:
6. Enter the default gateway IP address at the following prompt:
Please provide the Default Gateway [0.0.0.0]:
7. Enter the read only community string at the following prompt:
Please provide the Read-Only Community String [*****]:
8. Enter the read write community string at the following prompt:
Please provide the Read-Write Community String [*****]:
9. Enter the VLAN ID for the Quick Start at the following prompt:
Please provide the Quick Start VLAN <1-4094> [1]:
10. Enter the in-band IPv6 address at the following prompt:
Please provide the in-band IPV6 Address/Prefix_length
[: :/0]:
11. Enter the in-band IPv6 default gateway at the following prompt:
Please provide the in-band IPV6 Default Gateway [: :]:

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

Example

```
#####
Welcome to the 5650TD-PWR 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 in-band IP Address[0.0.0.0]:  
Please provide the in-band sub-net mask[0.0.0.0]:  
Please provide the Default Gateway[0.0.0.0]:  
Please provide the Read-Only Community String[*****]:  
Please provide the Read-Write Community String[*****]:  
Please provide the Quick Start VLAN <1-4094> [1]:  
Please provide the in-band IPV6 Address/Prefix_length[::/0]:  
Please provide the in-band IPV6 Default Gateway[::]:  
  
#####  
Basic switch parameters have now been configured and saved.  
  
#####
```

Avaya Energy Saver

You can use Avaya Energy Saver (AES) to reduce network infrastructure power consumption without impacting network connectivity. AES uses intelligent switching capacity reduction in off-peak mode to reduce direct power consumption by up to 40%. AES can also use Power over Ethernet (PoE) port power priority levels to shut down low priority PoE ports and provide more power savings.

The power consumption savings of each switch is determined by the number of ports with AES enabled and by the power consumption of PoE ports that are powered off. If AES for a port is set to disabled, the port is not powered off, irrespective of the PoE configuration. AES turns off the power to a port only when PoE is enabled globally, the port AES is enabled, and the PoE priority for the port is configured to low.

You can schedule AES to enter lower power states during specified periods of time. These time periods can be a complete week, complete weekend, or individual days.

Avaya recommends disabling AES on uplink copper ports since activating or deactivating AES on copper ports will trigger a link down followed rapidly by a link up event. The best solution is to use fiber ports for uplinks since link status will not change when AES is activated or deactivated.

Important:

If a switch is reset while energy-saver is activated, the PoE power saving calculation may not accurately reflect the power saving, and in some cases may display zero savings. This is because the switch did not have sufficient time to record PoE usage between the reset of the switch and energy-saver being reactivated. When energy saver is next activated, the PoE power saving calculation will be correctly updated.

Boot agent image

The Dual Agent feature provides support for two agents for Ethernet Routing Switch 5500 or 5600 series in stand-alone, pure stack or for a mixed (hybrid) stack configuration. Dual Agent functionality is not supported on Ethernet Routing Switch 5510.

The Dual Agent feature provides two agent images, the Agent Primary image and the Agent Secondary image. The Agent Primary image represents the agent image used for the next boot. User is able to select either image for the next boot.

An Ethernet Routing Switch 56xx unit has two combo images in the flash. In another word, an Ethernet Routing Switch 5600 unit has two Ethernet Routing Switch 56xx agent images and two Ethernet Routing Switch 55XX agent images in the flash. An Ethernet Routing Switch 55XX unit has two Ethernet Routing Switch 55XX images in the flash.

In a mixed stack with both Ethernet Routing Switch 5500 units and Ethernet Routing Switch 5600 units, an Ethernet Routing Switch 5600 must be the base unit. For a mixed stack to use the Dual Agent feature, the following conditions must be met:

- All Ethernet Routing Switch 5600 units must have the same agent software version.
- All Ethernet Routing Switch 5500 units must have the same agent software version.
- All unit agent software must have the same Interop Software Version Number (ISVN).

Special Case: If an Ethernet Routing Switch 5510 is the base unit, Dual Agent is disabled in the stack.

The Dual Agent Boot flag determines which agent image is the boot image. The diagnostics and agent software must use the same value for the Dual Agent Boot flag.

If the Dual Agent Boot flag is not set, the unit will boot from Agent 1 (default).

Supported BootP modes

The Avaya Ethernet Routing Switch 5000 Series supports the Bootstrap protocol (BootP).

BootP enables you to retrieve an ASCII configuration file name and configuration server address.

A properly configured BootP server enables the switch to automatically learn its assigned IP address, subnet mask and the IP address of the default router (default gateway).

The Avaya Ethernet Routing Switch 5000 Series has a unique 48-bit hardware address, or MAC address, that is printed on a label on the back panel. Use this MAC address when you configure the network BootP server to recognize the Avaya Ethernet Routing Switch 5000 Series BootP requests.

The supported BootP modes are:

- BootP or Last Address mode
- BootP When Needed (This is the default mode.)
- BootP Always
- BootP Disabled (Disabling BootP also disables DHCP.)

Asset ID configuration

You can define an Asset ID to provide inventory information for the switch, stack, or each unit in a stack. An Asset ID consists of an alphanumeric string of up to 32 characters in length. An Asset ID is useful for recording your company specific asset tracking information, such as an asset tag attached to the unit.

Simple Network Time Protocol

The Simple Network Time Protocol (SNTP) is a subset of the Network Time Protocol. It provides a simple mechanism for time synchronization. NTP enables clocks to be synchronized to a few milliseconds, depending on the clock source and local clock hardware.

SNTP synchronizes to the Universal Coordinated Time (UTC) with an error of less than one second. This feature adheres to the RFC 2030 (MIB is the s5agent). With this feature, the system can obtain the time from any RFC 2030-compliant NTP or SNTP server.

SNTP accuracy is typically in the order of "significant fractions of a second." This accuracy is related to the latencies between the SNTP client device and the NTP server. In a low latency network, the SNTP accuracy can be reduced to the sub-100 millisecond range and, to further increase the accuracy, a simple latency measurement algorithm can be used. The intended accuracy for this implementation is one second, which is sufficient for logs and time displays on user interfaces.

The SNTP feature allows you to set an offset from GMT for the time zone of your location. You can also set a start date and end date and offset for Daylight Savings Time.

The SNTP client implementation for this feature is unicast. The SNTP client operates typically in a unicast mode, but also can use the broadcast and multicast modes.

When SNTP is enabled (the default state is disabled), the system synchronizes with the configured NTP server at bootup (after network connectivity is established) and at user-configurable periods thereafter (the default synchronization interval is 24 hours). The synchronization also can happen upon manual request.

The SNTP feature supports both primary and secondary NTP servers. SNTP attempts to contact the secondary NTP server only if the primary NTP server is unresponsive. When a server connection fails, SNTP retries for a maximum of three times, with five minutes between each retry.

Auto-MDI X

The term auto-MDI/X refers to automatic detection of transmit and receive twisted pairs.

Auto-MDI/X detects, receive, and transmit twisted pairs automatically. When auto-MDI/X is active, any straight or crossover category 5 cable can be used to provide connection to a port. If autonegotiation is disabled, then auto-MDI/X is not active.

Auto-polarity

The term auto-polarity refers to the ability of the port to compensate for positive and negative signals being reversed on the receive cables.

The Avaya Ethernet Routing Switch 5000 Series support auto-polarity. With autonegotiation enabled, auto-polarity automatically reverses the polarity of a pair of pins from positive to negative or negative to positive. This corrects the polarity of the received data, if the port detects that the polarity of the data has been reversed due to a wiring error. If autonegotiation is disabled, auto-polarity is not active.

Autosensing and autonegotiation

The Avaya Ethernet Routing Switch 5000 Series are autosensing and autonegotiating devices:

- The term autosense refers to the ability of a port to sense the speed of an attached device.
- The term autonegotiation refers to a standardized protocol (IEEE 802.3u or 802.3z or 802.3ab) that exists between two IEEE-capable devices. Autonegotiation enables the switch to select the best speed and duplex modes.

Autosensing is used when the attached device is not capable of autonegotiation or is using a form of autonegotiation that is not compatible with the IEEE 802.3z autonegotiation standard.

If it is not possible to sense the duplex mode of the attached device, the Avaya Ethernet Routing Switch 5000 Series reverts to half-duplex mode.

When autonegotiation-capable devices are attached to the Avaya Ethernet Routing Switch 5000 Series, the ports negotiate down from 1000 Mbps speed and full-duplex mode until the attached device acknowledges a supported speed and duplex mode.

Secure File Transfer Protocol

You can use one of two distinct software images for the ERS 5000 Series switch. The secure software image supports the Secure Shell (SSH) network protocol while the standard software image does not include SSH functionality. SSH can replace telnet to provide secure access to the user console menu and ACLI interface. Avaya Ethernet Routing Switches use SSH version 2 for secure remote logon and other secure network services over an insecure network.

For switches running a secure software image, with Secure Shell (SSH) enabled, you can enhance network security by using Secure File Transfer Protocol (SFTP) to transfer files between a switch or stack and an SFTP server that supports SFTP with Secure Shell (SSH) version 2.

SFTP is enabled by default and interacts with SSH client.

To enhance network security, you can use SFTP to transfer files between a switch or stack and an SFTP server. With SFTP over SSH, you can perform the following file transfers with a higher level of security than basic SFTP:

The switch supports the following SFTP functions:

- uploading binary configuration files to an SFTP server
- downloading binary configuration files from an SFTP server
- ASCII configuration files upload and download
- DSA-key authentication support
- password authentication
- host key generation
- 1024-bit DSA-key use for authentication

For more information about SSH, see *Avaya Ethernet Routing Switch 5000 Series — Configuration— Security* (NN47200–501).

Auto Unit Replacement (AUR)

You can use the Auto Unit Replacement (AUR) feature to replace a unit from a stack while retaining the configuration of the unit. This feature requires the stack power to be on during the unit replacement.

The main feature of the AUR is the ability to retain the configuration (CFG) image of a unit in a stack during a unit replacement. The retained CFG image from the old unit is restored to the new unit. Stack power must be on during the procedure because CFG mirror images are retained in the DRAM of the stack.

! Important:

For Auto Unit Replacement to function properly, the new unit and the existing units in the stack must all run the same version of software and diagnostic. In case of a two unit stack, only replacing a non-base unit is currently supported.

You can manually restore an associated configuration (same unit number) of a unit in a stack including base unit (if the stack is of 3 units or bigger).

! Important:

If the base unit is reset before you restore the configuration, the base unit erases the saved configuration information for non-base units.

The following information also relates to this feature:

- The new unit must be the same hardware configuration as the old, including the same number of ports.
- If the administrator adds a new unit with a different hardware configuration, the configuration of this unit is used.
- If the administrator adds a new unit with the same hardware configuration, the previous configuration of the new unit is lost. The configuration is overwritten with the restored configuration from the stack.
- You can enable or disable this feature at any time. The default mode is ENABLE.
- Customer log messages are provided.

! Important:

After booting a stack, use ACLI command `show stack auto-unit-replacement` from a unit console to find out if that unit is ready for replacement.

AUR function

The CFG mirror image is a duplicate CFG image (stored in non-volatile memory) of a unit in a stack. The mirror image does not reside in the same unit with the CFG image. The unit that

contains the CFG image is called the Associated Unit (AU) of the CFG mirror image. The MAC Address of the AU is called the Associated MAC Address (AMA) of the CFG mirror image.

An active CFG Mirror Image is a CFG mirror image that has its AU in the stack. An INACTIVE CFG Mirror Image is a CFG mirror image for which the associated AU is removed from the stack. When a CFG mirror image becomes INACTIVE, the INACTIVE CFG mirror image is copied to another unit.

The stack always keeps two copies of an INACTIVE CFG mirror image in the stack in case one unit is removed. The other unit can still provide the backup INACTIVE CFG mirror image.

The CFG mirror image process is triggered by the following specific events:

- Power cycle
- Adding a unit
- Removing a unit
- Restoring a CFG image
- Synchronizing the CFG mirror images with CFG images

Removing a MAC address from the AUR cache

You can remove the MAC address of a non-operational stack unit from the Auto Unit Replacement (AUR) cache. A non-operational unit can be a switch that is no longer present in the stack, or a stack switch that is being restored within the stack. When you remove the MAC address information of the non-operational unit from the AUR cache, the hardware information is retained in the AUR cache. The next unit joining a stack that matches the unit hardware can replace the non-operational unit, regardless of the MAC address. You cannot remove the MAC address of operational units.

*** Note:**

You can remove a MAC address from the AUR cache to perform an AUR without replacing the physical unit.

Agent Auto Unit Replacement (AAUR)

Agent Auto Unit Replacement (AAUR) is an AUR enhancement to ensure that all units in a stack have the same software image. AAUR inspects units joining a stack and downloads the agent software image to any unit that has a dissimilar image. AAUR is enabled by default.

When you add a unit, AAUR functions in the following manner:

1. The added unit runs in stand-alone mode and AAUR inspects the added unit agent software image.
2. If the added unit agent image differs from the stack agent image, AAUR transfers the stack agent image to the added unit.

- The added unit sends an AAUR request to the cascade up port. If the added unit does not receive an answer, it sends an AAUR request to the cascade down port.

3. The added unit resets, and completes adjacency to the stack upon a reboot.

The log file displays the following messages when AAUR completes successfully:

```
I 2 00:01:56:40 13 AAUR - Info: Receive request for agent image, start transfer
I 2 00:01:56:48 14 AAUR - Info: Agent transfer finished
```

Diagnostic Auto Unit Replacement (DAUR)

Diagnostic Auto Unit Replacement (DAUR) is an AUR enhancement which enables the switch to update the diagnostic image of the non-base unit with the diagnostic image saved in the base unit of a stack. You must enable AAUR on the stack first.

DAUR updates the diagnostic image on added units in the same way that AAUR updates the agent software.

In an AAUR-enabled stack, the DAUR process starts if a unit with a different diagnostic image is connected to the stack. This process updates all the units in the stack.

When you enable or disable AAUR, you automatically enable or disable DAUR. There are no commands to separately enable or disable DAUR.

The log file displays the following messages when DAUR completes successfully:

```
I 2 00:02:01:20 18 DAUR - Info: Receive request for diag image, start transfer
I 2 00:02:01:22 19 DAUR - Info: Diag transfer finished
```

Stack Forced Mode

Stack Forced Mode allows one or both units to become stand-alone switches if a stack of two units fails. With Stack Forced Mode, you can manage one of the stand-alone devices from a failed stack of two with the previous stack IP address.

Stack Forced Mode applies to a stand-alone switch that is part of a stack of two units. When functioning in this mode, the stand-alone switch keeps the previous stack IP settings (IP address, netmask, gateway), and an administrator can reach the device by Telnet or EDM, through an IP connection.

If you enable Stack Forced Mode on a stack, you enable Stack Forced Mode on all units in the stack. Stack Forced Mode becomes active only if the stack of two fails. When one unit fails, the remaining unit (base or non-base unit) keeps the previous stack IP settings. The remaining

unit issues a gratuitous ARP packet when it enters Stack Forced Mode, in order for other devices on the network to update their ARP cache.

If the stack connection between the two units fails (a stack cable failure, for example), both stand-alone units retain the IP settings. To detect if the other stack partner is also using the previous stack IP settings, each device issues an ARP request on the IP address.

When a failure occurs on a Stack Forced Mode stack of two units, the previous non-base unit sends out a gratuitous ARP onto the management network. The gratuitous ARP is sent to determine if the base unit is still operational and using the stack IP address. A failure situation in which both the base unit and non-base unit remain operational, but not part of a stack could be possible if the stack cable is removed or failed. If the previous non-base unit receives a reply from the previous base unit of the stack, the previous non-base unit does not take over ownership of the stack IP address, and uses the local switch IP address if configured. If the previous non-base unit does not receive a response from the previous base-unit, the previous non-base unit takes over ownership of the stack IP address and issues a gratuitous ARP with its own MAC address to ensure that all devices on the management VLAN update their ARP caches appropriately.

Stack Forced Mode allows non-EAP clients connected to the device to still authenticate themselves and maintain connectivity to the network. Non-EAP clients authenticate by the device with RADIUS, which is based on the stack IP address. In Stack Forced Mode, the device retains the IP settings of the stack of two.

The functional unit remains in Stack Forced Mode until a reboot or until it joins a stack.

A settlement timer prevents a unit from entering Stack Forced Mode if several stack failures occur within a few seconds, or if a stack is larger than two units. A unit can enter Stack Forced Mode only if it is joined to a stack of two units for 30 seconds or longer.

If the switch is in Stack Forced Mode and you want to configure an IPv6 address, you must first delete the active IPv6 interface and then configure the switch IPv6 address. If you use Telnet, SSH or EDM to change the settings, you can lose IPv6 connectivity to the switch. Avaya recommends that you change the settings with the Console Interface, or use an IPv4 address for management.

IP blocking

Along with IP Routing, you can use Blocking Mode in two modes: full and none. The following paragraphs show how blocking mode acts for a stack.

You have a stack with IP Routing enabled and some Layer 3 VLANs. Assign VLANs ports from all the units. Set IP blocking-mode to Full on the base unit. Remove all the units from stack. All of the units will run in Layer 2 mode. No Layer 3 settings will be available on these units.

You have a stack with IP Routing enabled, and some Layer 3 VLANs. Assign VLANs ports from all the units. Set the IP blocking-mode to None on the base unit. Remove all of the units

from stack. The Layer 3 settings made on the stack will be available on these units. By default IP blocking-mode is None.

Chapter 3: Connecting to the switch

Connecting a terminal to the switch

Use this procedure to connect a terminal to the console port on the switch.

Before you begin

- Terminal with AC power cord and keyboard. Refer to Avaya Ethernet Routing Switch 5000 Series Quick Install Guide, NN47200–105 for terminal emulation settings.
- RJ45 serial cable. The maximum length for the console port cable is 25 feet (8.3 meters).

Refer to Avaya Ethernet Routing Switch 5000 Series Installation, NN47200–300 for console port in-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 serial cable to the connector on the terminal.
2. Connect the other end of the serial cable to the console port on the switch.
3. Turn the terminal on.
4. Set the terminal protocol on the terminal or terminal emulation program to VT100 and VT100/ANSI.
5. Connect to the switch using the terminal or terminal emulation application. The Avaya switch banner appears when you connect to the switch through the console port.
6. Enter Ctrl+Y and type the following CLI commands:

```
enable  
install
```

The setup utility prompts you to enter the information requested.

```
#####
Welcome to the 5650TD-PWR 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 in-band IP Address[0.0.0.0]:
Please provide the in-band sub-net mask[0.0.0.0]:
Please provide the Default Gateway[0.0.0.0]:
Please provide the Read-Only Community String[*****]:
Please provide the Read-Write Community String[*****]:
Please provide the Quick Start VLAN <1-4094> [1]:
Please provide the in-band IPV6 Address/Prefix_length[::/0]:
Please provide the in-band IPV6 Default Gateway[::]:
```

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.

*** Note:**

The **show terminal** command can be used at any time to display the current terminal settings. This command takes no parameters.

Procedure

1. Log on to the Privileged EXEC mode in ACLI.
2. At the command prompt, enter the following command:
terminal speed {2400|4800|9600|19200|38400} length <0-132>
width <1-132>

Variable definitions

The following table outlines the parameters of the `terminal` command.

Variable	Value
speed {2400 4800 9600 19200 38400}	Sets the transmit and receive baud rates for the terminal. The speed can be set at one of the five options shown. DEFAULT: 9600
length	Sets the length of the terminal display in lines. DEFAULT: 23 * Note: If the terminal length is set to a value of 0, the pagination is disabled and the display continues to scroll without stopping.
width	Sets the width of the terminal display in characters. DEFAULT: 79

Setting the default management interface

Use this procedure to set the default management interface.

About this task

You can set the default management interface with CLI to suit the preferences of the switch administrator. This selection is stored in NVRAM and propagated to all units in a stack configuration. When the system is started, the banner displays and prompts the user to enter `Ctrl+Y`. After these characters are entered, the system displays either a menu or the command line interface prompt, depending on previously configured defaults. When using the console port, you must log out for the new mode to display. When using Telnet, all subsequent Telnet sessions display the selection.

Procedure

1. Log on to the Privileged EXEC mode in CLI.
2. To set the default management interface to display a menu, enter the following command:
`cmd-interface menu`

3. To set the default management interface to display a command line interface prompt, enter the following command:

```
cmd-interface cli
```

Chapter 4: Configuring the management IP address using ACLI

Setting the IP address

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

*** Note:**

When the IP address or subnet mask is changed, connectivity to Telnet can be lost.

About this task

If the stack or switch parameter is not specified, the system automatically modifies the stack IP address when in stack mode and modifies the switch IP address when in standalone mode.

Procedure

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

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

Obtaining an IP address automatically

Use this procedure to automatically obtain an 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. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command:

```
ip address source {bootp-always | bootp-last-address | boot-  
pwhen- 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. 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.

Clearing the IP address

Use this procedure to clear the IP address and subnet mask 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:
`no ip address {stack | switch | unit}`
-

Setting the 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.

Procedure

1. Log on to the Global Configuration mode in ACLI.
 2. At the command prompt, use the following command to enter the IPv4 or IPv6 address of the default IP gateway:
`ip default-gateway <A.B.C.D> | <WORD>`
-

Deleting the 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`
-

Setting IP address parameters from the ip.cfg file on a USB device

If the switch does not obtain an 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> D NEXTIP, NEXTMask, and NEXTGateway	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

*** 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 1: 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.

Displaying IP-related configuration information

Use this procedure to display the IP configurations, BootP/DHCP mode, stack address, switch address, subnet mask, and gateway 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 the User EXEC mode in ACLI.
 2. At the command prompt, enter the following command:

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

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 <domain name>
```
-

Variable definitions

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

Variable	Value
<i>domain_name</i>	Substitute <i><domain name></i> with the default domain name to be used. A domain name is determined to be valid if it contains alphanumeric characters and contains at least one period (.). The default form of this command is <code>default ip domain-name</code> . The no form of this command is <code>no ip domain-name</code> .

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
<i>ipv6_address</i>	The IPv6 address of the domain name server used by the switch.
<i>ip_address_1</i>	The IP address of the domain name server used by the switch.
<i>ip_address_2</i>	Optional. The IP address of a domain name server to add to the list of servers used by the switch.
<i>ip_address_3</i>	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>] no ip name-server [<ipv6_address> <ip_address_2>] 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.

Chapter 5: Configuring Telnet using ACLI

Use the procedures in this section to enable Telnet and connect to other switches.

Setting Telnet access

Use this procedure to configure the Telnet connection. Then you can use Telnet to access the ACLI and manage the switch.

*** Note:**

Multiple users can access ACLI system simultaneously, through the serial port, Telnet, and modems. The maximum number of simultaneous users is four plus one each at the serial port for a total of 12 users on the stack. All users can configure simultaneously.

Before you begin

- The management port must have an assigned IP address.
- Remote access must be enabled.

Procedure

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

```
telnet-access [enable | disable] [login-timeout <1-10>]
[retry <1-100>] [inactive-timeout <0-60>] [logging {none |
access | failures | all}] [source-ip <1-50> <51-100>
<A.B.C.D> <WORD>] [mask <A.B.C.D>]
```

Variable definitions

The following table describes the parameters for the `telnet-access` command.

Variable	Value
enable disable	Enables or disables Telnet connection. DEFAULT: disable

Variable	Value
login-timeout <1-10>	Specify in minutes the time to wait for Telnet and Console login before the connection closes. Enter an integer between 1 and 10. DEFAULT: 1 minute
retry <1-100>	Specify the number of times the user can enter an incorrect password before closing the connection. Enter an integer between 1 and 100. DEFAULT: 3
inactive-timeout <0-60>	Specify in minutes the duration for an inactive session to be terminated. DEFAULT: 15 minutes
logging {none access failures all}	Specify the events whose details you want to store in the event log: <ul style="list-style-type: none"> • none — Do not save access events in the log. • access — Save only successful access events in the log. • failure — Save failed access events in the log. • all — Save all access events in the log. DEFAULT: all
[source-ip <1-50. <51-50> <A.B.C.D>]	Specify the source IP address from which connections are allowed. Enter the IP address in dotted-decimal notation.
mask <A.B.C.D>	Specify the subnet mask from which connections are allowed; enter IP mask in dotted-decimal notation.
no telnet-access [source-ip [<1-50>]]	Set the no form of this command, which disables the Telnet connection for an IPv4 address and mask pair. When you do not use the optional parameter, the source-ip list is cleared, meaning the first index is set to 0.0.0.0/0.0.0.0, the second to fiftieth indexes are set to 255.255.255.255/255.255.255.255. When you specify a source-ip address, the specified pair is set to 255.255.255.255/255.255.255.255 for indexes between 1 and 50.

Variable	Value
no telnet-access [source-ip [<51-100>]]	Set the no form of this command, which disables the Telnet connection for an IPv6 address and mask pair. When you do not use the optional parameter, the source-ip list is cleared, meaning the fiftyfirst index is set to ::/0, and the fiftysecond to hundredth indexes are set to ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff/128. When you specify a source-ip address, the specified pair is set to ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff/ 128 for indexes between 51 and 100.
default telnet-access	Set the Telnet settings to the default values.

Using Telnet to communicate with another switch

Use this procedure to establish communications with another switch during the current ACLI session.

About this task

You can establish communication with only one external switch at a time using the Telnet command.

Procedure

1. Log on to the User EXEC mode in ACLI.
2. At the command prompt, enter the following command to specify the IP address, or the DNS host name of the unit with which to communicate:

```
telnet <A.B.C.D> | <ipv6_addr> | <dns_host_name>
```

*** Note:**

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

Using ping to test communication with another switch

Use this procedure to determine if communication with another switch can be established.

Procedure

1. Log on to the User EXEC mode in ACLI.
2. At the command prompt, enter the following command to specify the IP address or the DNS host name of the unit to test:

```
ping <A.B.C.D> | <WORD> | <dns_host_name> [datasize
<64-4096>] [{count <1-9999>} | continuous] [{timeout | -t}
<1-120>] [interval <1-60>] [debug]
```

*** Note:**

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

Variable definitions

The following table describes the parameters for the `ping` command.

Variable	Value
<A.B.C.D> <WORD> <dns_host_name>	Specify the IP address, IPv6 address, or the DNS host name of the unit to test.
datasize <64– 4096>	Specify the size of the ICMP packet to be sent. The data size range is from 64 to 4096 bytes.
count <1–9999> continuous	Set the number of ICMP packets to be sent. The continuous mode sets the ping running until the user interrupts it by entering Ctrl +C.
timeout -t <1–120>	Set the timeout using either the timeout with the -t parameter followed by the number of seconds the switch must wait before timing out.
interval <1–60>	Specify the number of seconds between transmitted packets.
debug	Provide additional output information such as the ICMP sequence number and the trip time.

Chapter 6: Configuring the console and USB port using ACLI

Use the procedures in this section to control access to a switch or stack.

Disabling or enabling the console port

Use this procedure to disable or enable the console port.

About this task

You can configure the console port to deny or allow users access to the console port on the switch or stack.

Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to disable the console port on a switch or stack unit:

```
no serial-console [unit <1-8>] [enable]
```
3. At the command prompt, enter the following command to enable the console port on a switch or stack unit:

```
serial-console [unit <1-8>] [enable]
```

OR

```
default serial-console [unit <1-8>] [enable]
```

Displaying the serial console port

Use the following procedure to display the operational status of the serial console ports on all switches.

Procedure

1. Log on to the User EXEC mode in ACLI.

2. At the command prompt, enter the following command:
`show serial-console [unit <1-8>]`

*** Note:**

The unit parameter is valid only for units in a stack.

Disabling or enabling the USB port

Use this procedure to disable or enable the USB port.

About this task

You can configure the USB port to deny or allow users access to the USB ports on the switch or stack.

Procedure

1. Log on to the Global Configuration mode in ACLI
2. At the command prompt, enter the following command to disable the USB port on a switch or stack unit:
`no usb-host-port [unit <1-8>] [enable]`
3. At the command prompt, enter either of the following commands to enable the USB port on a switch or stack unit:
`usb-host-port [unit <1-8>] [enable]`

OR

`default usb-host-port [unit <1-8>] [enable]`

Variable definitions

The following table describes the parameters for the `usb-host-port` command.

Variable	Value
unit<1-8>	Specifies the unit number of a switch in a stack. Value range of 1 to 8. Do not use the unit variable for a stand alone switch.

Displaying the USB ports

Use this procedure to display the operational status of the USB ports on a switch or stack.

Procedure

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

```
show usb-host-port [unit <1-8>]
```
-

Displaying USB files

Use the following command to display the files or directory structure of a USB device on a switch or stack unit.

Before you begin

The USB host port must be enabled.

A supported USB device must be inserted into a USB port on the switch.

About this task

You can display files or directories of a USB device.

Procedure

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

```
show usb-files {ascii <WORD> | binary <WORD> | dir <WORD> | tree | unit <1-8>}
```
-

Variable definitions

The following table describes the parameters for the `show usb-files` command.

Variable	Value
ascii <WORD>	Specifies to display the ASCII contents of a file.

Variable	Value
binary <WORD>	Specifies to display the binary contents of a file.
dir <WORD>	Specifies to display files from a specific directory.
tree	Specifies to list the subdirectory tree recursively
unit <1-8>	Specifies to display files from a USB device in a specific stack unit. Unit value range of 1 to 8.

Chapter 7: Configuring the switch using CLI

Use the procedures in this section to configure your switch for the first time, copy the configuration to a storage device, or retrieve a saved configuration. There are also procedures for displaying or modifying the current configuration on the switch or for restoring the factory default configuration.

Avaya Energy Saver configuration

You can use Avaya Energy Saver (AES) to configure the switch to utilize energy more efficiently.

Configuring global AES

Use the following procedure to enable or disable the energy saving feature for the switch.

About this task

Avaya recommends disabling AES on uplink copper ports since activating or deactivating AES on copper ports will trigger a link down followed rapidly by a link up event. The best solution is to use fiber ports for uplinks since link status will not change when AES is activated or deactivated

! Important:

If a switch is reset while energy-saver is activated, the PoE power saving calculation may not accurately reflect the power saving, and in some cases may display zero savings. This is because the switch did not have sufficient time to record PoE usage between the reset of the switch and energy-saver being reactivated. When energy saver is next activated, the PoE power saving calculation will be correctly updated.

! Important:

Some RIP routes might be cleared when AES is activated or deactivated on the uplink ports. Routes are automatically recovered when routes are relearned.

Using `ip rip advertise-when-down enable` option on the IP interface affected by the link change will help to keep the routes learned.

! Important:

OSPF neighbors can disconnect when AES is activated or deactivated on uplink ports. Because of this link status change, some OSPF routes are cleared from the routing tables and automatically recovered when routes are relearned.

Using the `ip ospf advertise-when-down enable` command for the IP interface affected by the link change will help the routes remain learned.

Procedure

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

```
[no] [default] energy-saver [enable] [efficiency-mode] [poe-power-saving]
```

Variable definitions

The following table describes the parameters for the `energy-saver` command.

Variable	Value
[default]	Configures AES efficiency mode, POE power saving, or global AES to default values (disabled).
efficiency-mode	<p>Enables AES efficiency mode.</p> <p>! Important: You must ensure that SNTP is enabled before you can enable AES efficiency mode.</p> <p>! Important: You must disable AES globally before you can modify AES efficiency mode.</p> <p>! Important: When enabled, AES efficiency mode overrides custom AES scheduling and PoE power saving mode. You will be prompted to confirm that you want to enable AES efficiency mode before proceeding.</p>
enable	Enables AES globally
[no]	Disables AES efficiency mode, PoE power saving, or AES globally.

Variable	Value
poe-power-saving	Enables POE power saving. ! Important: You must disable AES globally before you can modify POE power saving.

Configuring port-based AES

Use this procedure to enable or disable energy saving for the accessed port, an alternate individual port, or a range of ports.

Before you begin

Disable AES globally.

Procedure

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

```
[no] [default] energy-saver [port <portlist>] [enable]
```

Variable definitions

The following table describes the parameters for the **energy-saver port** command.

Variable	Value
[default]	Configures energy savings to default values (disabled).
enable	Enables AES for the accessed port.
[no]	Disables AES for the accessed port, an alternate port, or list of ports.
port <portlist>	Specifies the port or list of ports for AES settings. ! Important: If you omit this parameter, the system uses the port number you specified when you issued the interface command to enter the Interface Configuration mode.

Activating or deactivating AES manually

Use this procedure to have AES enabled, but not activated. Activate AES to ensure the AES is enabled and activated.

Before you begin

- Disable AES globally

Procedure

1. Log on to the Privileged EXEC mode in ACLI.
 2. At the command prompt, enter the following command to activate AES:
`energy-saver activate`
 3. At the command prompt, enter the following command to deactivate AES
`energy-saver deactivate`
-

Configuring AES scheduling

Use this procedure to configure an on and off time interval for the switch to enter lower power states. The time interval can be a complete week, complete weekend, or individual days.

Before you begin

- Disable AES globally

Procedure

1. Log on to the Global Configuration mode in ACLI.
 2. At the command prompt, enter the following command:
`energy-saver schedule {weekday|weekend|monday|tuesday|wednesday|thursday|friday|saturday|sunday} <hh:mm> {activate|deactivate}`
-

Variable definitions

The following table describes the parameters for the `energy-saver schedule` command.

Variable	Value
activate	Specifies the AES on time.
deactivate	Specifies the AES off time.
friday monday saturday sunday thursday tuesday wednesday	Configures AES scheduling for a specific day.
<hh:mm>	Specifies the scheduled AES start time (hour and minutes).
weekday	Configures AES scheduling for all weekdays.
weekend	Configures AES scheduling for Saturday and Sunday.

Configuring AES scheduling to default

Use this procedure to completely disable scheduling for the switch or to disable specific energy saver schedules.

Before you begin

- Disable AES globally

Procedure

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

```
default energy-saver schedule
```
-

Variable definitions

The following table describes the parameters for the `default energy-saver schedule` command.

Variable	Value
friday monday saturday sunday thursday tuesday wednesday	Configures AES scheduling for a specific day to default (disabled).
<hh:mm>	Specifies the scheduled AES start time (hour and minutes).
weekday	Configures AES scheduling for all weekdays to default (disabled).
weekend	Configures AES scheduling for Saturday and Sunday to default (disabled).

Disabling AES scheduling

Use this procedure to discontinue using an on and off time interval for the switch to enter lower power states.

Before you begin

- Disable AES globally

Procedure

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

```
no energy-saver schedule
```

Variable definitions

The following table describes the parameters for the `no energy-saver schedule` command.

Variable	Value
friday monday saturday sunday thursday tuesday wednesday	Disables AES scheduling for a specific day.

Variable	Value
<hh:mm>	Specifies the scheduled AES start time (hour and minutes).
weekday	Disables AES scheduling for all weekdays.
weekend	Disables AES scheduling for Saturday and Sunday.

Viewing AES scheduling

Use this procedure to review configured energy saving schedule information.

Procedure

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

```
show energy-saver schedule
```
-

Viewing AES savings

Use this procedure to review the switch capacity energy saving (Watts) and the PoE energy savings (Watts).

Procedure

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

```
show energy-saver savings
```
-

Viewing the global AES configuration

Use this procedure to review the AES configuration for the switch.

Procedure

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

```
show energy-saver
```

Viewing port-based AES configuration

Use this procedure to review AES configuration for all ports on the switch, an individual port, or range of ports.

Procedure

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

```
show energy-saver interface <portlist>
```
-

Variable definitions

The following table describes the parameters for the `show energy-saver interface` command.

Variable	Value
<portlist>	Specifies a port or range of ports.

Multiple switch configuration management

The Avaya Ethernet Routing Switch 5000 Series supports the storage of two switch configurations in flash memory. The switch can use either configuration and must be reset in order for the configuration change to take effect.

A regular reset of the switch synchronizes any configuration changes to the active configuration whereas a reset to defaults causes the active configuration to be set to factory defaults. The inactive block is not affected.

In stack configurations, all units in the stack must use the same active configuration. If a unit joins a stack, a check is performed between the unit's active configuration and the stack's active configuration. If the two are not the same, the new stack unit resets and loads the stack's active configuration.

Displaying the stored configurations

Use this procedure to show the configurations currently stored on the switch.

Procedure

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

```
show nvram block
```
-

Displaying the current configuration

Use this procedure to display the current configuration of a switch or a stack for switches that support stacking.

Procedure

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

```
show running-config [verbose | module <value>]
```

*** Note:**

If the switch CPU is busy performing other tasks, the output of this command can appear to intermittently start and stop. This is a normal operation to ensure that the switch management tasks receive appropriate priority.

Variable definitions

The following table describes the parameters for the **show running-config** command.

Variable	Value
verbose	Displays all the configuration parameters including defaults and non-defaults.
module <value>	Displays the configuration of an application for any of the following parameters:

Variable	Value
	<p>[802.1AB] [aaur][adac] [arp-inspection] [asset-id][aur][banner] [brouter][core] [default-cmd-interface][dhcp-relay] [dhcp-snooping] [eap] [energy-saver][igmp] [interface] [ip] [ip-source-guard] [ipfix][ipmgr] [ipv6] [l3] [l3-protocols] [lACP] [logging] [mac-security] [mlt] [nsna][pim][poe] [port-mirroring] [qos] [rate-limit] [rmon] [rtc] [slpp] [smlt][snmp] [ssh] [sshc][ssl] [stack][stkmon] [stp] [unicast-storm-control][vlACP] [vlan]</p> <p>* Note: Not all switches support the variables listed for the module <value> parameter.</p>

Restoring the factory default configuration

Use this procedure to reset the switch or stack back to its default configuration.

Procedure

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

```
restore factory-default [-y]
```

The [-y] parameter instructs the switch not to prompt for confirmation.

Copying a configuration to flash memory

Use this procedure to copy the current configuration to one of the flash memory spots.

Procedure

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

```
copy config nvram [block <1-2> name <block_name>]
```

Variable definitions

The following table describes the parameters for the `copy config nvram block` command.

Variable	Value
<1-2>	The flash memory location to store the configuration.
name <block_name>	The name to attach to this block. Names can be up to 40 characters in length with no spaces.

Copying a configuration from flash memory

Procedure

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

```
copy nvram config block <1-2>
```

Substitute <1-2> with the configuration file to load. This command causes the switch to reset so that the new configuration can be loaded.

Copying the running configuration to a USB device

Use this procedure to copy the running configuration file to a USB mass storage device.

Procedure

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

```
copy running-config usb {[module <value>] | [verbose]}  
filename <WORD>
```

Variable definitions

The following table describes the parameters for the `copy running-config usb` command.

Variable	Value
module <value>	<p>Copies the configuration of an application for any of the following parameter values that the switch supports: [banner] [core] [interface] [ip] [ipmgr] [logging] [macsecurity] [mlt] [port-mirroring] [qos] [rate-limit] [rmon] [rtc] [snmp] [stack] [stp] [vlan]</p> <p>* Note: Not all switches support the variables listed for the module <value> parameter.</p>
verbose	Copies all the configuration, including defaults and non-defaults, to the USB.
filename <WORD>	Specifies the name of the file that is created when the configuration is saved to the USB mass storage device.

Restoring a system configuration from a USB device

Use this procedure to restore a configuration file stored on a USB mass storage device.

Procedure

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

```
copy usb config filename <name>
```

*** Note:**

The only parameter for this command is the name of the file to be retrieved from the USB device.

Configuring a TFTP server IP address

Use the following commands to configure a default TFTP server IP address on the switch.

About this task

To save time and prevent input errors, you can store a default TFTP server IP address on the switch so that the system can use that address automatically for the *tftp* parameter in TFTP server related procedures. For example:

- Changing switch software using ACLI
- Copying the running configuration to a TFTP server
- Restoring the system configuration from a TFTP server

Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command To specify a default TFTP server IP address:

```
tftp-server {<A.B.C.D> | <WORD>}
```
3. At the command prompt, enter one of the following commands To clear the default TFTP server IP address:

```
no tftp-server
```

OR

```
default tftp-server
```

Next steps

To display the current TFTP server IP address, enter the following command:

```
show tftp-server
```

Variable definitions

The following table describes the parameters for the **tftp-server** command.

Variable	Value
<A.B.C.D>	Specifies an IPv4 address for the TFTP server.
<WORD>	Specifies an IPv6 address for the TFTP server.

Configuring a SFTP server IP address

Use the following commands to configure a default SFTP server IP address on the switch.

Before you begin

The switch must be running a secure software image to support SFTP.

About this task

To save time and prevent input errors, you can store a default SFTP server IP address on the switch so that the system can use that address automatically for the *sftp* parameter in SFTP server related procedures. For example:

- Changing switch software using ACLI
- Copying the running configuration to a SFTP server
- Restoring the system configuration from a SFTP server

Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to specify a default SFTP server IP address:

```
sftp-server {<A.B.C.D> | <WORD>}
```
3. At the command prompt, enter the following command to clear the default TFTP server IP address:

```
no sftp-server
```

OR

```
default sftp-server
```

Next steps

To display the current TFTP server IP address, enter the following command:

```
show sftp-server
```

Variable definitions

The following table describes the parameters for the `sftp-server` command.

Variable	Value
<A.B.C.D>	Specifies an IPv4 address for the SFTP server.
<WORD>	Specifies an IPv6 address for the SFTP server.

Copying the running configuration to a TFTP or SFTP server

Use this procedure to copy the running configuration file to a TFTP or SFTP server.

Before you begin

The switch must be running a secure software image to support SFTP.

Procedure

1. Log on to the Privileged EXEC mode in ACLI.
 2. At the command prompt, enter the following command to copy the running configuration to a TFTP server:


```
copy running-config tftp address {<A.B.C.D> | <WORD>}
  {[module <value>] | [verbose]} filename <WORD>
```
 3. At the command prompt, enter the following command to copy the running configuration to a SFTP server:


```
copy running-config sftp address {<A.B.C.D> | <WORD>}
  {[module <value>] | [verbose]} filename <WORD> username
  <WORD>
```
-

Variable definitions

The following table describes the parameters for the `copy running-config` command.

Variable	Value
address {<A.B.C.D> <WORD>}	Specifies the address of the server to be used: <ul style="list-style-type: none"> • <i>A.B.C.D</i> specifies the IP address. • <i>WORD</i> specifies the IPv6 address.
verbose	Copies all the configuration parameters including defaults and non-defaults.
module <value>	Copies the configuration of an application for any of the following parameter values that the switch supports: [banner] [core] [interface] [ip] [ipmgr] [logging] [mlt] [port-mirroring] [qos] [rate-limit] [rmon] [rtc] [snmp] [stp] [vlan] <p>* Note:</p> <p>Not all switches support the variables listed for the module <value> parameter.</p>
filename <WORD>	Specifies the name of the file that is created when the configuration is saved to the server.
username <WORD>	Specifies the username to access the SFTP server. <p>* Note:</p> <p>If password authentication is configured, a password is required.</p>

Restoring a system configuration from a TFTP or SFTP server

Use this procedure to restore a configuration file stored on a TFTP or SFTP server.

Before you begin

The switch must be running a secure software image to support SFTP.

Procedure

1. Log on to the Privileged EXEC mode in ACLI.
2. At the command prompt, enter the following command to restore a configuration file from a TFTP server:

```
copy tftp config address {<A.B.C.D> | <WORD>} filename <name>
```
3. At the command prompt, enter the following command to restore a configuration file from a SFTP server:

```
copy sftp config address {<A.B.C.D> | <WORD>} filename <name>
username <WORD>
```

Variable definitions

The following table describes the parameters for the `copy tftp config` and `copy sftp config` commands.

Variable	Value
address {<A.B.C.D> <WORD>}	Specifies the address of the server to be used: <ul style="list-style-type: none"> • <i>A.B.C.D</i> specifies the IP address. • <i>WORD</i> specifies the IPv6 address.
filename <name>	The name of the file to be retrieved.
username <WORD>	Specifies a username to access the SFTP server. <p>* Note:</p> <p>If password authentication is configured, a password is required.</p>

Loading a configuration file automatically at startup from USB

Use the following command to configure loading and executing a file from a USB device during boot.

About this task

You can enable a switch or stack to load and execute a script file from a USB device during boot.

Procedure

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

```
configure usb load-on-boot {disable | use-config} filename  
<name>
```

Next steps

To view the USB load on boot settings, enter the following command:

```
show config-usb-loadonboot
```

Variable definitions

The following table describes the parameters for the `configure usb load-on-boot` command.

Variable	Value
{disable use-config}	Specifies the settings for automatically loading a configuration file from USB when the system boots: <ul style="list-style-type: none">• <code>disable</code> disables the automatic loading of the ASCII configuration file.• <code>use-config</code> specifies loading the ASCII configuration file at boot from a USB device.

Variable	Value
	<p>* Note:</p> <p>If you omit this parameter, the system immediately downloads and runs the ASCII configuration file.</p>
filename <name>	Specifies the name of the configuration file to use in this process.

Configuring an automatic file download at startup

Use the following command to configure loading and executing a file from the network during boot.

About this task

You can enable a switch or stack to load and execute a script file and configure parameters to automatically download a configuration file from the network during boot.

Procedure

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

```
configure network load-on-boot {disable | use-bootp | use-config} address <A.B.C.D> filename <name>
```

Next steps

To view the network load on boot settings, enter the following command:

```
show config-network
```

Variable definitions

The following table describes the parameters for the `configure network load-on-boot` command.

Variable	Value
{disable usebootp useconfig}	Specifies the settings for automatically loading a configuration file when the system boots:

Variable	Value
	<ul style="list-style-type: none"> • <code>disable</code> disables the automatic loading of the config file. • <code>use-bootp</code> specifies loading the ASCII configuration file at boot and using BootP to obtain values for the TFTP address and filename. • <code>use-config</code> specifies loading the ASCII configuration file at boot and using the locally configured values for the TFTP address and filename. <p>* Note: If you omit this parameter, the system immediately downloads and runs the ASCII config file.</p>
<code>address <A.B.C.D></code>	Specifies the IP address of the desired TFTP server.
<code>filename <name></code>	Specifies the name of the configuration file to use in this process.

Configuring Autosave

Use the following commands to enable or disable the Autosave feature.

Procedure

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

With Autosave enabled, the system checks for new configuration data every minute, and automatically saves new data to NVRAM. While Autosave is enabled, the AUR feature performs normally.

3. At the command prompt, enter the following command to disable Autosave:
`no autosave enable`

With Autosave disabled, the unit will not save the new configuration data to NVRAM. The user can use AUR to restore all the configuration data that is configured before the feature is disabled. With AUR, You can also restore all the configuration data that is configured before the ACLI command `copy config nvram` is executed. When resetting a stack with Autosave disabled, the stack will form with the configuration from NVRAM of each unit in the stack. The original configuration of a

unit is restored if the user replaces that unit in the stack without having to use the `copy config nvram` command.

Displaying hardware information

Use this procedure to display hardware information about the status of the switch.

Procedure

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

```
show system [verbose]
```

*** Note:**

With the verbose option, you can display additional information such as fan status, power status, and the switch serial number.

Configuring the Asset ID

Use the following commands to configure the Asset ID for the switch, stack, or unit.

About this task

You can configure an Asset ID to provide inventory information for the switch, stack, or each unit in a stack. An Asset ID consists of an alphanumeric string of up to 32 characters in length. An Asset ID is useful for recording your company specific asset tracking information, such as an asset tag attached to the unit.

Procedure

1. Logon to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to configure the Asset ID string:

```
asset-id [stack|unit <1-8>] <WORD>
```
3. To disable the Asset ID string, enter the following command:

```
no asset-id [stack|unit <1-8>]
```
4. To default the Asset ID string, enter the following command:

```
default asset-id [stack|unit <1-8>]
```

Example

The following example configures an Asset ID of AVA1234 for unit 3 in the stack:

```
asset-id unit 3 AVA1234
```

* Note:

To configure the Asset ID of a standalone switch, do not enter a stack or unit parameter.

Next steps

To verify the Asset ID string settings for both a switch and stack, use the `show sys-info` command. For more information, see [Displaying system information](#) on page 84.

To verify the Asset ID string settings for a stack only, use the `show system` command. For more information, see [Displaying consolidated system information](#) on page 85.

To verify the Asset ID string settings for a switch only, use the `show system verbose` command. For more information, see [Displaying verbose system information](#) on page 85.

Variable definitions

The following table describes the parameters for the `asset-id` command.

Variable	Value
stack	Configure the Asset ID of the stack.
unit <1-8>	Configure the Asset ID of a unit in the stack. Unit value of 1 to 8.
<WORD>	Enter the Asset ID. Alphanumeric up to 32 characters. You can specify the Asset ID within double quotation marks (i.e. " ") to include embedded spaces.

Configuring SNMP

Use this procedure to configure Simple Network Management Protocol (SNMP) to monitor devices running software that supports the retrieval of SNMP information.

Procedure

1. Log on to the Global Configuration mode in ACLI.

2. At the command prompt, enter the following command to enable SNMP. (The default setting is disabled.)

```
snmp-server enable
```
 3. Enable authentication traps.

```
snmp-server authenticationtrap enable
```
 4. Set the read-only community name (requirement: enter community string twice).

```
snmp-server community ro
```
 5. Set the read-write community name (requirement: enter community string twice).

```
snmp-server community rw
```
 6. Set contact information.

```
snmp-server contact "whatever you want"
```
 7. Set building name and closet information.

```
snmp-server location <Building/Closet-number>
```
 8. Maintain coherent Syslog messages.

```
snmp-server name <switch_ipaddress>
```
 9. Set IP address of trap receiver.

```
snmp-server host <host IP> <community-string>
```
 10. Verify configuration.

```
show sys-info
```
 11. Verify configuration.

```
show snmp host
```
-

Configuring VLANs and tagged uplinks

Use the following procedure to configure Virtual Local Area Networks (VLAN) and tagged uplinks, .

Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to automatically remove an untagged port from current VLAN and update PVID when the port is added to a different VLAN. (The setting appears at the bottom of the VLAN configuration information.)

```
vlan configcontrol automatic
```
3. Enable tagging on the uplink.

- ```
vlan ports <uplink port> tagging tagall
```
4. Discard untagged frames.  

```
vlan ports <uplink port> filter-untagged-frame enable
```
  5. Break Spanning Tree Protocol (STP) for Voice over Internet Protocol (VoIP).  

```
vlan ports ALL filter-unregistered-frame disable
```
  6. Create the port based VLAN and assign the 802.1q identifier.  

```
vlan create <vid> type port
```
  7. Name the VLAN according to conventions.  

```
vlan name <vid> <name>
```
  8. Add ports to appropriate VLANs.  

```
vlan members add <vid> <port_listing>
```
  9. Set the management VLAN.  

```
vlan mgmt <vid>
```
  10. Remove all ports from VLAN 1.  

```
vlan members remove 1 ALL
```
  11. Set the PVID on the uplink.  

```
vlan ports <uplink_port> pvid <vid>
```
  12. Verify VLAN configuration.  

```
show vlan
```
  13. Verify configuration of PVID and port type.  

```
show vlan interface info
```
- 

---

## Configuring IGMP

Use this procedure to configure Internet Group Management Protocol (IGMP) to manage multicast group members that IP multicast routers use to learn the existence of multicast group members on their directly attached subnets.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to enable IGMP snooping on each appropriate VLAN.  

```
vlan igmp <vid> snooping enable
```
3. Enable IGMP proxy on each appropriate VLAN.

```
vlan igmp <vid> proxy enable
```

4. Show IGMP information for each appropriate VLAN.

```
show vlan igmp <vid>
```

---



---

## System clock configuration

The following sections provide information you can use to configure the switch system clock.

You can perform clock tasks such as setting the clock source, setting the local time zone, configuring Simple Network Time Protocol (SNTP), configuring SNTP synchronization, or configuring daylight savings time.

---

### Setting the real-time clock

Use this procedure to set the real-time clock (RTC), providing 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 the Privileged EXEC mode in ACLI.
2. At the command prompt, enter the following command:

```
clock set {<LINE> | <hh:mm:ss>}
```

---

### Variable definitions

The following table describes the parameters for 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.                                |

---

## Setting the default clock source

Use this procedure to set the default clock source for the switch.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`clock source {sntp | rtc | sysUpTime}`
- 

## Variable definitions

The following table describes the parameters for the `clock source` command.

| Variable  | Value                                                             |
|-----------|-------------------------------------------------------------------|
| sntp      | Specifies Simple Network Time Protocol (SNTP) as the time source. |
| rtc       | Specifies Real Time Clock (RTC) as the time source.               |
| sysUpTime | Specifies System Up Time as the time source.                      |

---

## Resetting the clock source to factory default

Use this procedure to restore the clock source to factory defaults.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`default clock source`
-

---

## Enabling or disabling SNTP

Use the following procedure to enable or disable Simple Network Time Protocol (SNTP).

### About this task

The Simple Network Time Protocol (SNTP) feature synchronizes the Universal Coordinated Time (UCT) 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.

Using SNTP provides a real-time timestamp for the software, shown as Greenwich Mean Time (GMT). If SNTP is enabled, the system synchronizes with the configured NTP server at boot-up and at user-configurable periods thereafter (the default synchronization interval is 24 hours). The first synchronization is not performed until network connectivity is established. SNTP supports primary and secondary NTP servers. The system tries the secondary NTP server only if the primary NTP server is unresponsive.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command to enable SNTP:  
`sntp enable`
3. At the command prompt, enter the following command to disable SNTP:  
`no sntp enable`

#### Important:

The default setting for SNTP is *disabled*.

---

---

## Configuring the SNTP server

Use this procedure to configure the primary and secondary SNTP server IP addresses.

### About this task

You can configure the Network Time Protocol (NTP) servers for SNTP.

#### Important:

If problems occur when you use SNTP, try various NTP servers. Some NTP servers can be overloaded or currently inoperable. The system retries connecting with the NTP server a maximum of three times, with 5 minutes between each retry.

## Procedure

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

```
sntp server primary address [<ipv6address> | <A.B.C.D>]
```
3. At the command prompt, enter the following command to configure the SNTP secondary address:  

```
sntp server secondary address [<ipv6address> | <A.B.C.D>]
```
4. At the command prompt, enter the following command to clear an SNTP address:  

```
no sntp server {primary | secondary}
```

## Variable definitions

The following table describes the parameters for the `sntp server` command.

| Variable      | Value                                      |
|---------------|--------------------------------------------|
| <ipv6address> | Enter the IPv6 address of the SNTP server. |
| <A.B.C.D>     | Enter the IP address of the SNTP server.   |
| primary       | Specifies the primary SNTP server.         |
| secondary     | Specifies the secondary SNTP server.       |

## Setting SNTP sychronization

Use the following commands to perform a manual synchronization or to configure a recurring synchronization.

### Before you begin

SNTP must be enabled.

### About this task

You can perform and manual synchronization with the SNTP server, or configure a recurring synchronization with the secondary SNTP server in hours relative to the initial synchronization.

### Procedure

1. Log on to the Global Configuration mode in ACLI.

2. At the command prompt, enter the following command to force a manual synchronization:

```
sntp sync-now
```

3. At the command prompt, enter the following command to configure a recurring synchronization:

```
sntp sync-interval <0-168>
```

**! Important:**

Enter the number of hours between a recurring SNTP server synchronization. 0 is boot time only, 168 is once a week.

---

## Synchronizing the clock with SNTP

Use the following procedure to enable the RTC to synchronize with the SNTP clock.

### Before you begin

SNTP must be enabled.

### About this task

You can configure the RTC to synchronize with the SNTP clock when the SNTP clock synchronizes.

### Procedure

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

```
clock sync-rtc-with-ntp enable
```

---

## Disabling clock and SNTP synchronization

Use this procedure to disable the syncing of the RTC with the SNTP clock when the SNTP clock synchronizes.

### Procedure

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

```
no clock sync-rtc-with-ntp enable
```

---

## Resetting clock synchronization to default

Use this procedure to restore the synchronizing of the RTC with the SNTP clock to factory defaults.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`default clock sync-rtc-with-ntp enable`
- 

---

## Setting the local time zone

Use the following procedure to configure the clock time zone.

### Before you begin

SNTP must be enabled.

### About this task

You can configure your switch clock for your local time zone.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`clock time-zone <zone> <hours> [minutes]`
- 

### Example

The following command sets the time zone to UTP minus 8 hours and the time zone displays as PST.

```
clock time-zone PST -8
```

## Variable definitions

The following table describes the parameters for the `clock time-zone` command.

| Variable  | Value                                                                                                                                                                  |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <zone>    | Specifies the time zone acronym to display when showing system time (up to 4 characters), for example EST for Eastern Standard Time, or PST for Pacific Standard Time. |
| <hours>   | Enter the difference from UTC in hours. Value range between -12 and +12.                                                                                               |
| [minutes] | Optional: Enter the difference from UTC in minutes. Value range between 0 and 59.                                                                                      |

---

## Setting daylight savings time

Use the following procedure to set the daylight savings time change dates.

### About this task

You can configure the clock change dates for daylight savings time.

### Procedure

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

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

---

### Example

The following command sets the daylight savings time to begin on March 13 2011 at 2AM and end on November 6 2011 at 2AM.

```
clock summer-time PST date 13 March 2011 2:00 6 November 2011 2:00 +60
```

## Variable definitions

The following table describes the parameters for the `clock summer-time` command.

| Variable                        | Value                                                                                                                                             |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>&lt;zone&gt;</code>       | Specifies the time zone acronym to display when daylight savings time is in effect. If unspecified, the default is the current time zone acronym. |
| <code>date</code>               | Specifies daylight savings time to start and end on the following dates.                                                                          |
| <code>&lt;day&gt;</code>        | Specifies the start day.                                                                                                                          |
| <code>&lt;month&gt;</code>      | Specifies the start month.                                                                                                                        |
| <code>&lt;year&gt;</code>       | Specifies the start year.                                                                                                                         |
| <code>&lt;hh:mm&gt;</code>      | Specifies the hour and minute to start daylight savings time.                                                                                     |
| <code>&lt;end-day&gt;</code>    | Specifies the end day.                                                                                                                            |
| <code>&lt;end-month&gt;</code>  | Specifies the end month.                                                                                                                          |
| <code>&lt;end-year&gt;</code>   | Specifies the end year.                                                                                                                           |
| <code>&lt;end-hh:mmy&gt;</code> | Specifies the hour and minute to end daylight savings time.                                                                                       |
| <code>[offset]</code>           | Specifies the number of minutes to add for daylight savings time. (-840 to 840)                                                                   |

---

## Setting recurring daylight savings time

Use this procedure to configure recurring daylight savings time start and end dates.

### About this task

You can configure the clock daylight savings time to recur annually.

### Procedure

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

```
clock summer-time recurring {<startWeek:1-5|last>}
<start:DAY> <start:MONTH> <start:dd:mm> {<endWeek:1-5>|
last>} <end:DAY> <end:MONTH> <end:hh:mm> [offset <1-1440>]
```

## Example

The following command configures the recurring daylight savings time to start on day 13 of the third week in March, and end on day 6 of the second week in November.

```
clock summer-time recurring 3 13 March 02:00 2 6 November 02:00 offset
60
```

## Variable definitions

The following table describes the parameters for the `clock summer-time recurring` command.

| Variable                                      | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>&lt;startWeek:1-5&gt;   last&gt;</code> | <p>Specifies the week of the month (starting on Sunday) you want recurring daylight savings time to start. Values include:</p> <ul style="list-style-type: none"> <li><code>&lt;1-5&gt;</code> — the first to the fifth week for months of the year that include five Sundays.</li> <li><code>last</code> — the last week of months of the year that do not include five Sundays.</li> </ul> <p><b>* Note:</b></p> <p>For the <code>&lt;1-5&gt;</code> parameter, weeks count from the first day of the month, not calendar weeks. Therefore, weeks 1-4 may not always apply. Week 5 may not apply in certain years. In that case, summer time start/end uses the last parameter.</p> <p>For years without a Sunday in the fifth week of March, summer time starts on the last Sunday of March.</p> |
| <code>&lt;start:DAY&gt;</code>                | Specifies the day recurring daylight savings time starts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>&lt;start:MONTH&gt;</code>              | Specifies the month recurring daylight savings time starts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>&lt;start:hh:mm&gt;</code>              | Specifies the hour and minutes of the day recurring daylight savings time starts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Variable                                    | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>&lt;endWeek:1-5&gt;   last&gt;</code> | <p>Specifies the week of the month (starting on Sunday) you want recurring daylight savings time to end. Values include:</p> <ul style="list-style-type: none"> <li>• <code>&lt;1-5&gt;</code> — the first to the fifth week for months of the year that include five Sundays.</li> <li>• <code>last</code> — the last week of months of the year that do not include five Sundays.</li> </ul> <p><b>* Note:</b></p> <p>For the <code>&lt;1-5&gt;</code> parameter, weeks count from the first day of the month, not calendar weeks. Therefore, weeks 1-4 may not always apply. Week 5 may not apply in certain years. In that case, summer time start/end uses the last parameter.</p> |
| <code>&lt;end:DAY&gt;</code>                | Specifies the day recurring daylight savings time ends                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>&lt;end:MONTH&gt;</code>              | Specifies the month recurring daylight savings time ends.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <code>&lt;end:hh:mm&gt;</code>              | Specifies the hour and minutes of the day recurring daylight savings time ends.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>offset&lt;1-1440&gt;</code>           | Specifies the time change in minutes when daylight savings time starts and ends. The offset is added when daylight savings time begins, and subtracted when daylight savings time ends. Value range is 1 to 1440 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

---

## Configuring boot parameters

Use this procedure to perform a soft-boot of the switch or stack.

### Procedure

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

```
boot [default] [partial-default] [primary] [secondary] [unit
<1-8>]
```

**\* Note:**

When you reset to factory defaults, the switch or stack retains the last reset count and reason for last reset; these two parameters do not default to factory defaults. Stack operational mode is retained only when resetting to partial-default.

---

## Variable definitions

The following table describes the parameters for the `boot` command.

| Variable        | Value                                                                      |
|-----------------|----------------------------------------------------------------------------|
| default         | Reboot the stack or switch and use the factory default configurations.     |
| partial-default | Reboot the stack or switch and use partial factory default configurations. |
| primary         | Reboot the stack or switch and use the primary agent image.                |
| secondary       | Reboot the stack or switch and use the secondary agent image.              |
| unit <1–8>      | Specify the unit number to reboot.                                         |

---

## Configuring DHCP modes

Use this procedure to configure DHCP modes and automatically obtain an IP address, subnet mask and default gateway on the switch or stack. When you use DHCP, the switch or stack can also obtain up to three DNS server IP addresses.

### Procedure

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

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

---

## Variable definitions

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

| Variable           | Value                                         |
|--------------------|-----------------------------------------------|
| configured-address | Use the manually configured IP configuration. |
| dhcp-always        | Always use the DHCP server.                   |
| dhcp-lastaddress   | Use the last DHCP server.                     |
| dhcp-when-needed   | Use DHCP client when needed.                  |

---

## Configuring BootP parameters

Use this procedure to configure BootP on the current instance of the switch or server. This command is used to change the value of BootP from the default value, which is BootPwhen-needed.

### About this task

The BootP default value is BootP-when-needed. This enables the switch to be booted and the system to automatically seek a BootP server for the IP address.

- If an IP address is assigned to the device and the BootP process times out, the BootP mode remains in the default mode of BootP-when-needed.
- If the device does not have an assigned IP address and the BootP process times out, the BootP mode automatically changes to BootP disabled. But this change to BootP disabled is not stored, and the BootP reverts to the default value of BootP-when-needed after rebooting the device.

When the system is upgraded, the switch retains the previous BootP value. When the switch is defaulted after an upgrade, the system moves to the default value of BootP-when-needed.

### Procedure

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

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

---

## Variable definitions

The following table describes the parameters for the `ip bootp server` command.

| Variable | Value                                                                        |
|----------|------------------------------------------------------------------------------|
| always   | Specifies to use BootP always.                                               |
| disable  | Specifies to use BootP never.                                                |
| last     | Specifies to use BootP or the last known address.                            |
| needed   | Specifies to use BootP only when needed. DEFAULT: This is the default value. |

---

## Displaying BootP and DHCP modes

Use this procedure to display the IP configurations, BootP/DHCP mode, stack address, switch address, subnet mask, and gateway address.

### Procedure

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

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

---

## Variable definitions

The following table describes the parameters for the `show ip` command.

| Variable | Value                                                                                                                                                                                                                                     |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| bootp    | Displays BootP/DHCP-related IP information. The possibilities for status returned are: <ul style="list-style-type: none"> <li>• BootP Always</li> <li>• BootP or Last Address</li> <li>• BootP When Needed</li> <li>• Disabled</li> </ul> |

| Variable          | Value                                                                                                                                                                                                                                                                                                                           |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <ul style="list-style-type: none"> <li>• DHCP Always</li> <li>• DHCP or Last Address</li> <li>• DHCP When Needed</li> </ul>                                                                                                                                                                                                     |
| dhcp client lease | Displays DHCP client lease information. The command displays information about configured lease time and lease time granted by the DHCP server.                                                                                                                                                                                 |
| default-gateway   | Displays the IP address of the default gateway.                                                                                                                                                                                                                                                                                 |
| address           | Displays the current IP address.                                                                                                                                                                                                                                                                                                |
| address source    | Displays the BootP or DHCP client information. The possibilities for status returned are: <ul style="list-style-type: none"> <li>• BootP Always</li> <li>• BootP or Last Address</li> <li>• BootP When Needed</li> <li>• Disabled</li> <li>• DHCP Always</li> <li>• DHCP or Last Address</li> <li>• DHCP When Needed</li> </ul> |

---

## Displaying system information

Use this procedure to display detailed system information for the switch or stack.

### Procedure

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

```
show sys-info
```



---

## Displaying consolidated system information

Use this procedure to display consolidated information about the system.

### Procedure

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

```
show system
```
- 

---

## Displaying verbose system information

Use this procedure to display a verbose view of system information for a switch or stack.

### Procedure

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

```
show system verbose
```
- 

---

## Displaying switch technical information

Use this procedure to display detailed technical information about system status, hardware, software, and switch operation

### Procedure

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

```
show tech
```
-

---

## Customizing the opening banner

You can customize the banner that appears when you connect to the Ethernet Routing Switch 5000 Series. You can customize the text that reads **AVAYA**. However you cannot customize the second line that reads **Enter [Ctrl]+y to begin**.

The Banner Control feature provides an option to specify the banner text. If you choose not to display the banner, the system enters the ACLI command mode through the default command interface. You do not have to press the **Ctrl+y** keys.

The Banner display that you select is used for subsequent console sessions. For executing the new mode in the console, you must logout. For Telnet access, all subsequent sessions use the selected mode.

---

## Displaying the current banner

Display the current banner.

### Procedure

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

```
show banner [custom | static]
```

---

## Variable definitions

The following table describes the parameters for the **show banner** command.

| Variable   | Value                                                                  |
|------------|------------------------------------------------------------------------|
| static     | Displays default banner                                                |
| custom     | Displays custom banner                                                 |
| (if empty) | Displays static, custom or disabled status if parameter is not entered |

---

## Customizing the opening ACLI banner

Specifies the banner displayed at startup; either static or custom.

## Procedure

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

```
[no] banner [custom | static | disabled | <1-19> LINE]
```
- 

## Variable definitions

The following table describes the parameters for the **banner** command.

| Variable    | Value                                                                            |
|-------------|----------------------------------------------------------------------------------|
| static      | Displays the default agent-banner                                                |
| custom      | Displays the custom agent-banner                                                 |
| disabled    | Skips the agent-banner display                                                   |
| <1-19> LINE | Fills the Nth line of the custom banner (1<N<19) with the text specified in LINE |
| no          | Clears all lines of a previously stored custom banner                            |

---

## Enabling feature license files

With the following procedures, you can copy the software license file to your switch and display or clear the existing license information:

---

### Copying a software license file to the switch

Use this procedure to copy the features software license file from a TFTP server to your switch.

#### Procedure

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

```
copy tftp license <A.B.C.D> <WORD>
```
  - 3.
-

## Next steps

After you copy the license to the switch, you must perform a reboot to activate the license.

**\* Note:**

The software license is copied to NVRAM. If you reset the switch to default, this removes the software license from the switch. In this case, you must recopy the license file to the switch and reboot to reactivate the licensed features.

## Variable definitions

The following table describes the parameters for the `copy tftp license` command.

| Variable  | Value                                                       |
|-----------|-------------------------------------------------------------|
| <A.B.C.D> | Specifies the TFTP server address.                          |
| <WORD>    | Specifies the software license filename on the TFTP server. |

---

## Viewing the software licenses on the switch

Use this procedure to display the existing software licenses on the switch.

### Procedure

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

```
show license { <1-10> | all }
```

---

## Variable definitions

The following table describes the parameters for the `show license` command.

| Variable | Value                                  |
|----------|----------------------------------------|
| <1-10>   | Specifies the license to be displayed. |
| all      | Displays all licenses.                 |

---

## Deleting software licenses on the switch

Use this procedure to delete the existing software licenses on the switch.

### Procedure

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

```
clear license { <1-10> | all }
```

---

## Variable definitions

The following table describes the parameters for the `clear license` command.

| Variable | Value                                |
|----------|--------------------------------------|
| <1-10>   | Specifies the license to be cleared. |
| all      | Clears all licenses.                 |



# Chapter 8: Configuring and testing ports using ACLI

Use the procedures in this section to configure port features such as the port speed, duplex operation, autonegotiation settings, and autotopology.

---

## Configuring Custom Autonegotiation Advertisements

Use the following procedures to configure Custom Autonegotiation Advertisement (CANA).

Custom Autonegotiation Advertisement (CANA) customizes the capabilities that are advertised. It also controls the capabilities that are advertised by the Avaya Ethernet Routing Switch 5000 Series as part of the auto-negotiation process.

---

### Configuring CANA

Use this procedure to configure CANA.

#### Procedure

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

```
auto-negotiation-advertisements
```

---

### Variable definitions

The following table describes the parameters for the `auto-negotiation-advertisements` command.

| Variable | Value                           |
|----------|---------------------------------|
| 10–full  | Advertises 10Mbps full-duplex.  |
| 10–half  | Advertises 10Mbps half-duplex.  |
| 100–full | Advertises 100Mbps full-duplex. |

| Variable          | Value                                                        |
|-------------------|--------------------------------------------------------------|
| 100-half          | Advertises 100Mbps half-duplex.                              |
| 1000-full         | Advertises 1000Mbps full-duplex.                             |
| asymm-pause-frame | Advertises use of asymmetric pause frames half-duplex.       |
| none              | Specifies not to advertise anything during auto-negotiation. |
| pause-frame       | Advertises use of pause frames.                              |
| port              | Specifies the port or list of ports.                         |

---

## Displaying the current autonegotiation advertisements

Use this procedure to display the current autonegotiation advertisements.

### Procedure

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

```
show auto-negotiation-advertisements [port <portlist>]
```

## Variable definitions

The following table describes the parameters for the `show auto-negotiation-advertisements` command.

| Variable        | Value                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------|
| port <portlist> | Specifies the port or list of ports for which you want the current auto-negotiation advertisements displayed. |

---

## Setting the port speed

Use this procedure to set the speed of the port.

## Procedure

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

```
speed [port <portlist>] {10 | 100 | 1000 | 10000 | auto}
```

---

## Variable definitions

The following table describes the parameters for the `speed` command.

| Variable                            | Value                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>port&lt;portlist&gt;</code>   | <p>Specifies the port numbers for which to configure the speed. Enter the port numbers you want to configure.</p> <p><b>* Note:</b><br/>If you omit this parameter, the system uses the port number you specified in the interface command.</p>                                                                                                                          |
| <code>10 100 1000 10000 auto</code> | <p>Sets speed to:</p> <ul style="list-style-type: none"> <li>• 10 means 10 Mbps</li> <li>• 100 means 100 Mbps</li> <li>• 1000 means 1000 Mbps or 1 Gbps</li> <li>• 10000 means 10000 Mbps or 10 Gbps</li> <li>• auto means autonegotiation</li> </ul> <p><code>default speed [port &lt;portlist&gt;]</code> sets the speed of the port to the factory default speed.</p> |

---

## Setting the port duplex operation

Use this procedure to specify the duplex operation for a port.

### Procedure

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

```
duplex [port <portlist>] {full | half | auto}
```

## Variable definitions

The following table describes the parameters for the `duplex` command.

| Variable           | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| port<portlist>     | <p>Specifies the port numbers for which to reset the duplex mode. Enter the port number you want to configure. The default value is autonegotiation.</p> <p><b>* Note:</b></p> <p>If you omit this parameter, the system uses the port number you specified in the interface command.</p>                                                                                                                                                                                                                                                                                           |
| full   half   auto | <p>Sets duplex to:</p> <ul style="list-style-type: none"> <li>• full means full-duplex mode</li> <li>• half means half-duplex mode</li> <li>• auto means autonegotiation</li> </ul> <p><b>* Note:</b></p> <p>Enabling/disabling autonegotiation for <b>speed</b> also enables/disables it for <b>duplex</b> operation.</p> <p>When you set the duplex mode for autonegotiation, ensure that the other side of the link is also set for autonegotiation.</p> <p>default duplex [port &lt;portlist&gt;] sets the duplex operation for a port to the factory default duplex value.</p> |

## Displaying interfaces

Use this procedure to display the current status of all interfaces or for a specific port.

### About this task

The status of all port interfaces on the switch or stack can be viewed, including Multi-Link Trunk membership, link status, autonegotiation and speed.

## Procedure

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

```
show interfaces [admin-disabled | admin-enabled | gbic-info |
link-down | link-up | names | verbose] [<portlist>]
```

---

## Variable definitions

The following table describes the parameters for the **show interfaces** command.

| Variable       | Value                                                         |
|----------------|---------------------------------------------------------------|
| admin-disabled | Display the interfaces with administration disabled.          |
| admin-enabled  | Display the interfaces with administration enabled.           |
| gbic-info      | Display the gbic details.                                     |
| link-down      | Display the interfaces with link down.                        |
| link-up        | Display the interfaces with link up.                          |
| names          | Display the interface names.                                  |
| verbose        | Display the port status information for various applications. |
| <portlist>     | Specifies the ports that you want to display.                 |

---

## Displaying interface configurations

Use this procedure to display the current configuration of all interfaces or for a specific port.

### About this task

The configuration of all port interfaces on the switch or stack can be viewed, including port configuration, VLAN interface, VLAN port member, and Spanning-Tree configuration.

### Procedure

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

```
show interfaces <portlist> config
```

---

## Variable definitions

The following table describes the parameters for the `show interfaces config` command.

| Variable                      | Value                                         |
|-------------------------------|-----------------------------------------------|
| <code>&lt;portlist&gt;</code> | Specifies the ports that you want to display. |

---

## Enabling or disabling Autotopology

Use this procedure to enable, disable, or reset the Autotopology protocol.

### About this task

Autotopology enables a network management system (NMS) to reconstruct the network topology by collecting topology tables from each device that implements the autotopology network management module (NMM) behavior. NMM behavior is comprised of two activities:

- listening for SynOptics Network Management Protocol (SONMP) packets that are used to construct the topology table
- generating SONMP packets that other NMMs are listening for

The switch sends out two types of multicast packets every 10 seconds to all forwarding ports: Flatnet hello and Segment hello. It listens for only one type of multicast, Flatnet hello. The SONMP packets received are used to construct a topology table. The switch supports a maximum of 100 NMM topology table entries and 50 bridge topology table entries.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command to enable Autotopology:  
`autotopology`
  3. At the command prompt, enter the following command to disable Autotopology:  
`no autotopology`
  4. At the command prompt, enter the following command to reset Autotopology to the factory default:  
`default autotopology`
-

---

## Displaying Autotopology settings

Use this procedure to display the global autotopology settings.

### Procedure

1. Log on to the Privileged EXEC mode in ACLI.
  2. At the command prompt, enter the following command:  
`show autotopology settings`
- 

---

## Displaying the Autotopology nmm table

Use this procedure to display the Autotopology network management module (NMM) table.

### Procedure

1. Log on to the Privileged EXEC mode in ACLI.
  2. At the command prompt, enter the following command:  
`show autotopology nmm-table`
- 

---

## Configuring flow control

Use this procedure to control the traffic rates on ports during congestion.

### Procedure

1. Log on to the Interface Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`flowcontrol [port <portlist>] {asymmetric | symmetric | auto  
| disable}`
-

## Variable definitions

The following table describes the parameters for the `flowcontrol` command.

| Variable                                             | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>port&lt;portlist&gt;</code>                    | Specifies the port numbers to configure for flow control.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>asymmetric   symmetric   auto   disable</code> | <p>Sets the mode for flow control:</p> <ul style="list-style-type: none"> <li>• asymmetric means PAUSE frames can only flow in one direction.</li> <li>• symmetric means PAUSE frames can flow in either direction.</li> <li>• auto sets the port to automatically determine the flow control mode.</li> <li>• disable disables flow control on the port.</li> </ul> <p>DEFAULT: auto<br/> <code>no flowcontrol [port &lt;portlist&gt;]</code> disables flow control.<br/> <code>default flowcontrol [port &lt;portlist&gt;]</code> set the flow control to auto, which automatically detects the flow control.</p> |

**\* Note:**

If you omit either of these parameters, the system uses the ports you specified in the interface command but only those ports that have speed set to 1000/full.

## Rate limiting configuration

The rate limiting feature allows you to configure the threshold limits for broadcast and multicast packets ingressing on a port for a given time interval. The ERS 5000 Series drops packets received above the threshold value if the traffic ingressing on the port exceeds the threshold.

When the volume of either packet type is high, placing severe strain on the network (often referred to as a “storm”), you can set the ingress rate of those packet types to not exceed a specified percentage of the total available bandwidth or a specified number of packets per second.

Rate Limiting counts packets from the beginning of each second. When the number of packets reaches the value of the rate limit, all remaining packets are dropped until the end of the

second. As a result, the packets are not evenly distributed over the course of a second. For this reason, rate limiting utilization counters/calculations can appear to be inaccurate.

**\* Note:**

Rate Limiting behaves differently when the egress (out) port speed is less than the ingress (in) port speed.

When rate limiting is enabled on an ingress port and the egress port operates at a slower speed, traffic is sent to the egress port at the ingress port's (wire) speed. Egress rate limiting is done through a token bucket, and is not averaged over each second. Once the token bucket is full, traffic is dropped, as indicated in the *Dropped on no Resources* counter. When rate limiting is enabled on an ingress port, this behavior can have an effect on unicast packets.

**Clarification of behavior:**

Rate limit counts packets on the ingress port until the limit is reached and then drops everything until the end of the second. On a 1 Gbps ingress port, the first 10% of the 1Gb (100Mb) is allowed in the first tenth of the second and sent to the 100Mbps egress port. However, the 100Mbps port cannot handle 100Mb in a tenth of a second, as it can only handle 10Mb in a tenth of a second, and the rest is dropped.

**\* Note:**

If a packet with an unknown destination MAC is received (including during a FDB ageout) and rate limiting is set for either packet type of broadcast or both (broadcast and multicast), the rate limiting feature counts the unknown unicast packets in the same way as the broadcast packets. The system drops (filters) these unknown unicast packets.

**\* Note:**

Note the actual traffic received rate in the following scenario:

- rate-limiting is performed at 10% (or by setting any percent value threshold)
- the speed ratio between the inbound port and the client port is 10:1 (for example 10 Gbps inbound link and 1 Gbps client port link)
- inbound broadcast or multicast traffic throughput on the inbound link is more than 10% of the link-rate speed

The client port will receive  $0.1 * (\text{inbound traffic rate})$  and not the expected 1 Gbps broadcast or multicast traffic.

Example:

- inbound port link rate = 10Gbps, client outbound link rate = 1 Gbps, rate-limiting set to both at 10%
- inbound traffic rate = 3 Gbps broadcast traffic

The actual client traffic received rate =  $(0.1 * 3 \text{ Gbps})$  and not the expected 1 Gbps.

## Displaying rate-limit configuration

Use this procedure to display the rate-limit configuration.

### Procedure steps

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

```
show rate-limit
```

## Variable definitions

The following table outlines the parameters of the `show rate-limit` command.

**Table 1: show rate-limit parameters**

| Variable       | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Port           | Specifies the switch port numbers that correspond to the field values in that row of the screen (for example, the field values in row 2 apply to switch port 2). Note that the values applied in the Switch or Stack row (last 2 rows) affect all standalone switch ports or all switch ports in a stack.                                                                                                                                                                                                              |
| Packet Type    | Displays the packet type selected for rate-limiting or viewing. <ul style="list-style-type: none"> <li>• Both — both multicast and broadcast packet types</li> <li>• Multicast</li> <li>• Broadcast</li> </ul> Default value is Both.                                                                                                                                                                                                                                                                                  |
| Limit          | Displays the percentage of port bandwidth allowed for forwarding the packet types specified in the Packet Type field. When the threshold is exceeded, any additional packets (specified in the Packet Type field) are discarded. Range is None, 1% to 10%. Default value is None. <p><b>* Note:</b></p> Rate-limiting is disabled if this field is set to None. This allows you to select and view the percentage of specific packet types present in the network, without inadvertently limiting the forwarding rate. |
| Last 5 Minutes | Specifies the percentage of packets (of the type specified in the Packet Type field) received by the port in the last 5 minutes. This field provides a running average of network activity and is updated every 15 seconds.                                                                                                                                                                                                                                                                                            |

| Variable      | Value                                                                                                                                                                                                                                                                                                                                           |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | Note that this field indicates the receiving port's view of network activity, regardless of the rate-limiting setting.                                                                                                                                                                                                                          |
| Last Hour     | Specifies the percentage of packets (of the type specified in the Packet Type field) received by the port in the last hour. This field provides a running average of network activity and is updated every 5 minutes.<br>Note that this field indicates the receiving port's view of network activity, regardless of the rate-limiting setting. |
| Last 24 Hours | Specifies the percentage of packets (of the type specified in the Packet Type field) received by the port in the last 24 hours. This field provides a running average of network activity and is updated every hour.<br>Note that this field indicates the receiving port's view of network activity, regardless of the rate-limiting setting.  |

## Configuring rate limiting

Use this procedure to configure rate limiting for either multicast or broadcast traffic, or both.

### Procedure steps

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

```
rate-limit [port <portlist>] {multicast | broadcast | both}
{<0-10> | percent <0-10> | pps <0-262143>}
```
3. To disable rate limiting, enter the following command:

```
no rate-limit [port <portlist>]
```
4. To restore the rate limiting to the default setting, enter the following command:

```
default rate-limit [port <portlist>]
```

### Variable definitions

The following table describes the parameters for the `rate-limit` command.

| Variable   | Value                                                           |
|------------|-----------------------------------------------------------------|
| <portlist> | Specifies the port numbers on which to configure rate limiting. |

| Variable                                           | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                    | <p><b>* Note:</b><br/>If you omit this parameter, the system uses the port number(s) you specified in the <b>interface</b> command</p>                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p>multicast   broadcast   both</p>                | <p>Specifies the type of traffic for which to apply rate limiting:</p> <ul style="list-style-type: none"> <li>• multicast — applies rate limiting to multicast packets</li> <li>• broadcast — applies rate limiting to broadcast packets</li> <li>• both — applies rate limiting to both multicast and broadcast packets</li> </ul>                                                                                                                                                                                                        |
| <p>percent &lt;0–10&gt;   pps &lt;0–262143&gt;</p> | <p>Specifies the mode for setting the rates of the incoming traffic:</p> <ul style="list-style-type: none"> <li>• percent &lt;0–10&gt; — enter an integer from 1 to 10 to set the rate-limiting percentage</li> <li>• pps &lt;0–262143&gt; — enter an integer from 1 to 262143 to set the rate-limiting packets per second</li> </ul> <p>For 10 Gbps links, the default value for limiting both broadcast and multicast is 10 percent.<br/>When using pps mode, the limit on 10 Gbps links cannot be configured to a value under 1000.</p> |

**\* Note:**

The rate-limit parameter of the ERS 5000 can be expressed as a percentage of total traffic. (ERS 5000 supports multicast/broadcast storm control as either a percentage or packets per second.)

When measuring the broadcast rate limit as a percentage, the rate limiting feature calculation is based on packets that are a fixed (not measured) average packet size of 500 bytes, rather than octets. To obtain the actual value, use the following equation (the average packet size is 500 bytes):

$$( \text{Line speed (bit/sec)} / \text{average packet size} \times 8 ) \times ( \text{Rate Limit} / 100 ) = \text{Packets per second}$$

# Chapter 9: Managing Power Over Ethernet (PoE) using ACLI

---

## Setting the method to detect power devices

Set the method the Ethernet Routing Switch 5000–PWR uses to detect the power devices connected to the front ports.

You must ensure that this setting is the correct one for the IP appliance you use with the switch. Please note this setting applies to the entire switch, not port-by-port. So, you must ensure that this setting is configured correctly for all the IP appliances on a specified switch.

### Procedure

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

```
poe poe-pd-detect-type [unit <1-8>] {802dot3af |
802dot3af_and_legacy }
```

---

## Variable definitions

The following table describes the parameters for the `poe poe-pd-detect-type` command.

| Variable                         | Value                                                                                                                                                                                                                             |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| unit <1-8>                       | Specifies the unit in the stack to set the detection mode.                                                                                                                                                                        |
| 802dot3af   802dot3af_and_legacy | Sets the detection method the switch uses to detect power needs of devices connected to the front ports: <ul style="list-style-type: none"><li>• 802dot3af</li><li>• 802dot3af_and_legacy</li></ul> DEFAULT: 802dot3af_and_legacy |

| Variable | Value                                                                                                                                                       |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | <p><b>! Important:</b><br/>Ensure that the power detection method you choose for the ERS 5000–PWR matches that used by the IP devices you are powering.</p> |

## Setting a power usage threshold

Set a percentage usage threshold above which the system sends a trap for each Ethernet Routing Switch 5000–PWR.

### Procedure

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

```
poe poe-power-usage-threshold [unit <1-8>] {<1-99>}
```

## Variable definitions

The following table describes the parameters for the `poe poe-power-usage-threshold` command.

| Variable   | Value                                                                                                                 |
|------------|-----------------------------------------------------------------------------------------------------------------------|
| unit <1-8> | Specifies the unit in the stack to set the detection mode.                                                            |
| <1-99>     | Specifies the percentage of total available power you want the switch to use prior to sending a trap.<br>DEFAULT: 80% |

## Enabling or disabling PoE traps

Enable or disable the traps for the PoE functions on the Ethernet Routing Switch 5000–PWR +.

## Procedure

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

```
[no] snmp-server notification-control
{pethPsePortOnOffNotification |
pethMainPowerUsageOnNotification |
pethMainPowerUsageOffNotification}
```

---

## Variable definitions

The following table describes the parameters for the **snmp-server notification-control** command.

| Variable                                                                                                                       | Value                                   |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <i>pethPsePortOnOffNotification</i>  <br><i>pethMainPowerUsageOnNotification</i>  <br><i>pethMainPowerUsageOffNotification</i> | Specifies a notification type           |
| no                                                                                                                             | Disables the traps for the PoE function |

---

## Displaying the current PoE configuration

Display the current PoE configuration of the Ethernet Routing Switch 5000–PWR and settings for each PoE port.

### Procedure

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

```
show poe-main-status
```

---

### Example

The following figure provides a sample output of the **show poe-main-status** command.

```
5650TD-PWR#enable
5650TD-PWR+#show poe-main-status
PoE Main Status - Stand-alone

Available DTE Power : 350 Watts
DTE Power Status : Normal
DTE Power Consumption : 0 Watts
```

```
DTE Power Usage Threshold : 80 %
PD Detect Type : 802.3af and Legacy
Power Supply 1 : AC-DC-48V-600W
Power Supply 2 : Unavailable
Power Status : 1- OK 2- Not Present
```

**! Important:**

The Power Source Present listing displays the current power source for the switch: AC Only.

## Displaying PoE port status

Display the administration status, detection status, power limit, port priority, and the PD classification for each port.

The DTE Power Status displays error messages if the port is not providing power. The following messages can appear:

- Detecting — port detecting IP device requesting power
- Delivering power — port delivering requested power to device
- Invalid PD — port detecting device that is not valid to request power
- Deny low priority — power disabled from port because of port setting and demands on power budget
- Overload — power disabled from port because port is overloaded
- Test — port in testing mode
- Error — none of the other conditions apply
- Disabled — the port has been administratively disabled

### Procedure

1. Log on to ACLI in User Exec command mode.
2. At the command prompt, enter the following command:  
`show poe-port-status [port <portlist>]`

### Example

The following figure provides a sample output of the `show poe-port-status` command.

```
5650TD-PWR#show poe-port-status
 Admin Current Limit
Port Status Status Classification (Watts) Priority-----

1 Enable Detecting 0 16 Low
2 Enable Detecting 0 16 Low
3 Enable Detecting 0 16 Low
4 Enable Detecting 0 16 Low
```

```

5 Enable Detecting 0 16 Low
6 Enable Detecting 0 16 Low
7 Enable Detecting 0 16 Low
8 Enable Detecting 0 16 Low
9 Enable Detecting 0 16 Low
10 Enable Detecting 0 16 Low
11 Enable Detecting 0 16 Low
12 Enable Detecting 0 16 Low
13 Enable Detecting 0 16 Low
14 Enable Detecting 0 16 Low
15 Enable Detecting 0 16 Low
16 Enable Detecting 0 16 Low
17 Enable Detecting 0 16 Low
18 Enable Detecting 0 16 Low
19 Enable Detecting 0 16 Low
----More (q=Quit, space/return=Continue)----

```

## Variable definitions

The following table describes the parameters for the `show poe-port-status` command.

| Variable        | Value                                                                                                                |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| port <portlist> | Enter the ports for which you want to display the status. If you omit this parameter, the system displays all ports. |

## Displaying PoE power measurement

Display the voltage, current and power values for each powered device connected to each port.

### Procedure

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

```
show poe-power-measurement [port <portlist>]
```

### Example

The following figure provides a sample output from the `show poe-power-measurement` command.

```

5650TD-PWR#enable
5650TD-PWR#show poe-power-measurement
Port Volt(V) Current(mA) Power(Watt)

1 0.0 0 0.000
2 0.0 0 0.000
3 0.0 0 0.000

```

```

4 0.0 0 0.000
5 0.0 0 0.000
6 0.0 0 0.000
7 0.0 0 0.000
8 0.0 0 0.000
9 0.0 0 0.000
10 0.0 0 0.000
11 0.0 0 0.000
12 0.0 0 0.000
13 0.0 0 0.000
14 0.0 0 0.000
15 0.0 0 0.000
16 0.0 0 0.000
17 0.0 0 0.000
18 0.0 0 0.000
19 0.0 0 0.000
20 0.0 0 0.000
----More (q=Quit, space/return=Continue)----

```

## Variable definitions

The following table describes the parameters for the `show poe-power measurement` command.

| Variable        | Value                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| port <portlist> | Enter the ports for which you want to display the power measurements. If you omit this parameter, the system displays all ports. |

## Disabling or enabling port power

Use this procedure to disable or enable Power Over Ethernet to a port.

### Procedure

1. Log on to the Interface Configuration mode in ACLI.
2. At the command prompt, enter the following command to disable Power Over Ethernet to a port:  

```
poe poe-shutdown [port <portlist>]
```
3. At the command prompt, enter the following command to enable Power Over Ethernet to a port:  

```
no poe poe-shutdown [port <portlist>]
```

---

## Variable definitions

The following table describes the parameters for the `poe poe-shutdown` command.

| Variable                          | Value                                                                                                                                                                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>port&lt;portlist&gt;</code> | <p>Specifies the ports for which PoE is enabled or disabled.</p> <p><b>* Note:</b></p> <p>If you omit this parameter, the system uses the port number you specified in the interface command.</p> |

---

## Setting port power priority

Use this procedure to set the port power priority.

### Procedure

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

```
poe poe-priority [port <portlist>] {critical | high | low}
```
- 

---

## Variable definitions

The following table describes the parameters for the `poe-priority` command.

| Variable                           | Value                                                                                                                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>port&lt;portlist&gt;</code>  | <p>Specifies the ports for which to set the priority.</p> <p><b>* Note:</b></p> <p>If you omit this parameter, the system uses the port number you specified in the interface command.</p> |
| <code>low   high   critical</code> | Specifies the PoE priority for the port.                                                                                                                                                   |

---

## Setting power limit for channels

Use this procedure to set the power limit for channels.

### Procedure

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

```
poe poe-limit [port <portlist>] <3-16>
```
- 

---

## Variable definitions

The following table describes the parameters for the `poe-limit` command.

| Variable                          | Value                                                                                                                                                                        |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>port&lt;portlist&gt;</code> | Specifies the ports for which to set the limit.<br><br>* <b>Note:</b><br>If you omit this parameter, the system uses the port number you specified in the interface command. |
| <code>&lt;3-16&gt;</code>         | Specifies the power range limit from 3 to 16 Watts.                                                                                                                          |

# Chapter 10: Updating switch software using ACLI

Use the procedures in this section to update the switch software, which is a necessary part of switch configuration and maintenance.

## Before you begin

- The switch must be assigned a valid IP address.
- A Trivial File Transfer Protocol (TFTP) server is present on the network that is accessible by the switch and that has the desired software version loaded.
- If you change the switch software with software stored on a USB mass storage device, ensure that the mass storage device has the desired software version loaded on it and is inserted into the front panel USB port.
- Ensure that ACLI is in Privileged EXEC mode.

## About this task

---

## Changing switch software

Use this procedure to specify the download target image and change the software version running on the switch.

### About this task

You can update either active image or non-active image. Once the image download is done, the unit resets and restarts with the new image regardless of the value of the Next Boot image indicator. In case of image download without reset, the new image in the flash will be the Next Boot image.

The software download process occurs automatically without user intervention. This process deletes the contents of the flash memory and replaces it with the desired software image. Do not interrupt the download process. Depending on network conditions, this process can take up to 10 minutes.

### Procedure

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

```
download [address <A.B.C.D> | <WORD>] [primary | secondary]
{image <image_name> | image-if-newer <image_name> | diag
<image_name>} [no-reset] [usb | sftp | tftp]
```

3. Press Enter.

---

### Example

The switch is not operational during the download process. You can track the progress of the download process by observing the front panel LEDs.

When the download process is complete, the switch automatically resets unless the `no-reset` parameter was used. The software image initiates a self-test and returns a message when the process is complete.

The following shows an example of this message.

```
Downloading Image [/]
Saving Image [-]
Finished Upgrading Image
```

---

## Variable definitions

The following table describes the parameters for the `download` command.

**\* Note:**

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

| Variable                    | Value                                                                                                                                                                                                                                                                                       |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address<A.B.C.D>   <WORD>   | Specifies the IP or IPv6 address of the TFTP or SFTP server to be used. The address parameter is optional and if omitted the switch defaults to the TFTP server specified by the <code>tftpserver</code> command unless software download is to take place using a USB mass storage device. |
| primary   secondary         | Specifies the image to download: primary or secondary.                                                                                                                                                                                                                                      |
| image <image_name>          | Specifies the name of the software image to be downloaded from the TFTP server.                                                                                                                                                                                                             |
| image—if—newer <image_name> | Specifies the name of the software image to be downloaded from the TFTP server if newer than the currently running image.                                                                                                                                                                   |
| diag <image_name>           | Specifies the name of the diagnostic image to be downloaded from the TFTP server.                                                                                                                                                                                                           |

| Variable                                                                                                                                                                       | Value                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| no-reset                                                                                                                                                                       | Stops the switch from resetting after the software download is complete.                                                                                                |
| usb   tftp   sftp                                                                                                                                                              | Specifies the software download source. USB is performed using a USB mass storage device. TFTP is performed using a TFTP server. SFTP is performed using a SFTP server. |
| <p><b>* Note:</b><br/>The <code>image</code>, <code>image-if-newer</code>, and <code>diag</code> parameters are mutually exclusive and only one can be executed at a time.</p> |                                                                                                                                                                         |

## Toggling the Dual Agent next boot image

Use this procedure to toggle the next boot image.

### About this task

The Next Boot image in Dual Agent is an agent image that is stored in the flash memory to be used for the next boot. In Dual Agent, there are two agent images in the flash memory, but only one image is assigned as the Next Boot image at a time.

When an agent image is downloaded to the switch, the unit resets and boots up with the newly downloaded image regardless of the value of the Next Boot image indicator. If an agent image is downloaded to the switch without a reset of the unit, the newly downloaded image becomes the Next Boot image.

You can change the Next Boot image at any time. The Next Boot image indicator (a value to indicate which agent image in the flash memory is used in the next boot) is stored in the NVRAM. This value, combined with other factors in the stack discovery process, determines which Dual Agent image the switch uses.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. At the command prompt, enter the following command:  
`toggle-next-boot-image`

**\* Note:**

You must restart the switch or stack after this command to use the next boot image as the new primary image.

---

## Displaying agent images

Use this procedure to show the agent image information for agent images stored in the flash memory.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`show boot image`
- 

---

## Selecting the Dual Agent secondary boot image

Use this procedure to use the secondary boot image.

### Procedure

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

**\* Note:**

The switch or stack will restart automatically with the new image.

---

# Chapter 11: Shutting down and resetting a switch using ACLI

Use the procedures in this section to use the `shutdown` command for safely shutting down a switch or stack and the `reload` command to configure remote devices.

## About this task

The `shutdown` command provides a mechanism for safely shutting down a switch or stack without interfering with device processes or corrupting the software image. After this command is issued, the configuration is saved, auto-save functionality is temporarily disabled, and configuration changes are not allowed until the switch or stack restarts. If the shutdown is cancelled, auto-save functionality returns to the state in which it was previously functioning.

The `reload` command operates in a similar fashion to the `shutdown` command. However, the `reload` command is intended more to be used by system administrators using the command functionality to configure remote devices and reset them when the configuration is complete.

The `reload` command differs from the `shutdown` command in that the configuration is not explicitly saved after the command is issued. This means that any configuration changes must be explicitly saved before the switch or stack reloads. The `reload` command does temporarily disable auto-save functionality until the reload occurs. Cancelling the reload returns auto-save functionality to any previous setting.

---

## Shutting down the switch

Use this procedure to shut down a switch or stack.

### Procedure

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

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

---

## Variable definitions

The following table describes the parameters for the `shutdown` command.

| Variable               | Value                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------------|
| force                  | Forces the shutdown without confirmation.                                                               |
| minutes-to-wait <1-60> | Specifies the number of minutes to wait before the shutdown occurs.<br>DEFAULT: 10                      |
| cancel                 | cancel a scheduled shutdown any time during the time period specified by the minutes-to-wait parameter. |

---

## Reloading remote devices

Use this procedure to reload a switch or stack.

### About this task

You can use the reload command 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, VLAN, etc), the reload loads the last saved configuration to reestablish connectivity.

 **Caution:**

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

### Procedure

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

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

---

### Example

The following example shows use of the reload command as a safeguard during dynamic configuration changes:

Instruct the switch to reboot in 30 minutes and load the configuration from NVRAM. During the 30 minute countdown, autosave of the configuration is disabled.

```
reload force minutes-to-wait 30
```

Execute dynamic switch configuration commands. The commands take effect immediately and are not saved to NVRAM.

Test your configuration changes. If problems occurred, when the 30 minute countdown expires the switch reboots and loads the previous configuration. If no problems occurred, and switch connectivity is maintained, you can perform one of the following tasks before the 30 minute countdown expires.

Save the new configuration.

```
copy config nvram
```

Cancel the previous reload command.

```
reload cancel
```

---

## Variable definitions

The following table describes the parameters for the `reload` command.

| Variable               | Value                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------------|
| force                  | Forces the reload without confirmation.                                                                |
| minutes-to-wait <1-60> | Specifies the number of minutes to wait before the reload occurs.<br>DEFAULT: 10                       |
| cancel                 | Cancels a scheduled reload any time during the time period specified by the minutes-to-wait parameter. |



# Chapter 12: Configuring a Virtual Fabric using ACLI

Use the procedures in this section to configure a Virtual Fabric (stack) using ACLI. You can configure New Unit Quick Configuration, Auto Unit Replacement features, and Stack Forced Mode.

---

## Stacking capabilities

You can use the Avaya Ethernet Routing Switch 5000 Series switches in either of the following configurations:

- stand-alone
- stack

The Avaya Ethernet Routing Switch 5000 Series switches have a built-in cascade port to stack up to eight units.

A stack can consist of any combination of Avaya Ethernet Routing Switch 5000 Series switches.

**! Important:**

All units in the stack must use the same software version.

To set up a stack, perform the following procedure.

### Procedure steps

1. Power down all switches.
2. Set the Unit Select switch in the back of the non base units to the off position.
3. Set the Unit Select switch in the back of the base unit to base position.
4. Ensure all the cascade cables are properly connected and screwed into the unit.
5. Power up the stack.

**! Important:**

In a hybrid stack of Avaya Ethernet Routing Switch 5000 Series, you must set an Avaya Ethernet Routing Switch 5600 Series switch type as the base unit.

---

## Stack monitor

The Avaya Ethernet Routing Switch 5000 series stacks support the following two modes of operation:

- Pure
- Hybrid

You can create a pure stack with up to eight Avaya Ethernet Routing Switch 5500 Series switches or eight Avaya Ethernet Routing Switch 5600 Series switches.

You can create a hybrid or mixed stack of up to eight switches that is a combination of Avaya Ethernet Routing Switch 5500 Series switches and Avaya Ethernet Routing Switch 5600 Series switches.

### **!** Important:

In a hybrid stack of Avaya Ethernet Routing Switch 5000 Series, you must set an Avaya Ethernet Routing Switch 5600 Series switch type as the base unit.

Stack manager is responsible for the following functions that form and maintain a stack.

- Base unit selection.
- Unit discovery.
- Unit number assignment.
- Database exchange.
- Join stack handling.
- Programming the hardware for the stack to function as a system.

Stack manager also handles link events from the Hello module when a unit is added or removed from the stack. Based on the event, the stack manager again runs through the state machine to discover the newly added unit or change the stack configuration. Stack manager supports following stack configurations:

- Ring topology: All the units are connected as a ring.
- Upstream: All the non-base units are upstream to the base unit.
- Downstream: All the non-base units are downstream to the base unit.
- Up Down: Non base units are both upstream and downstream of the base unit.

Stack manager supports a maximum of eight switches in a pure or hybrid stack. Although the design does not restrict the number of ports in a stack, Avaya recommends that the number does not exceed 400 ports.

To create a hybrid stack, you must first set the mode parameter on the Avaya Ethernet Routing Switch 5600 Series switches to hybrid mode. Avaya Ethernet Routing Switch 5500 Series switches do not have a mode parameter.

---

## Configuring a hybrid stack with stack manager

Use this procedure to configure a mixed (hybrid) stack with stack manager.

### Procedure

1. Upgrade the existing stack with release 6.x software.
  2. Cable in one Ethernet Routing Switch 5600 Series switch into this stack.  
Once the new Ethernet Routing Switch 5600 Series switch joins the stack, it will have learned the entire configuration from the base unit and programmed its NVRAM. This switch can now be configured as base unit.
  3. To configure the Ethernet Routing Switch 5600 Series switch as the base unit, turn the power off to the whole stack and set the base unit switch on the Ethernet Routing Switch 5500 Series switch to Off and set the base unit switch on the Ethernet Routing Switch 5600 Series switch to On.
  4. Turn the power on to the stack. The Ethernet Routing Switch 5600 Series switch is now the base unit in the stack.  
You can add more Ethernet Routing Switch 5600 Series switches to the stack up to the maximum of eight units.
- 

---

## Viewing the stack operation mode

Use this procedure to display the stack operation mode.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. At the command prompt, enter the following command:  
`show stack oper-mode`
-

## Configuring a pure or hybrid stack

Use this procedure to configure the stack as pure or mixed.

### About this task

You can configure the operating mode on all the Ethernet Routing Switch 5600 Series switches in the stack. Ethernet Routing Switch 5500 Series switches do not have a configurable operating mode as the software operates in only one mode.

This command is available only on the Ethernet Routing Switch 5600 Series switches in the stack or on an Ethernet Routing Switch 5600 Series stand-alone switch.

### Procedure

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

```
stack oper-mode {pure|hybrid}
```

## Variable definitions

The following table describes the parameters for the `stack oper-mode` command.

| Variable | Value                                                                                                                                                                                                                                                                            |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pure     | Sets stack manager for an Ethernet Routing Switch 5600 Series stack or stand-alone.                                                                                                                                                                                              |
| hybrid   | <p>Sets stack manager for a hybrid Ethernet Routing Switch 5500 Series and Ethernet Routing Switch 5600 Series stack.</p> <p><b>* Note:</b><br/>                     You must use an Ethernet Routing Switch 5600 Series switch as the base unit in a hybrid or mixed stack.</p> |

---

## 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. Log on to the Global Configuration mode in ACLI.
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. Log on to the Privileged EXEC mode in ACLI.
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
.
```

---

## Enabling or disabling AUR

Use the following commands to enable or disable Auto Unit Replacement (AUR).

### Before you begin

AUR requires a stack configuration

### About this task

You can use the Auto Unit Replacement (AUR) feature to replace a unit in a stack and automatically restore the saved configuration image from the old unit to the new unit.

## Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. To enable AUR, enter the following command:  
`stack auto-unit-replacement enable`
  3. To disable AUR, enter the following command:  
`no stack auto-unit-replacement enable`
  4. To default AUR, enter the following command:  
`default stack auto-unit-replacement enable`
- 

---

## Displaying AUR

Use the following procedure to view the AUR configuration.

### Before you begin

AUR requires a stack configuration.

### Procedure

1. Log on to the Privileged EXEC mode in ACLI.
  2. At the command prompt, enter the following command:  
`show stack auto-unit-replacement`
- 

---

## Enabling or disabling AUR configuration saves

Use the following commands to enable or disable AUR automatic configuration saves.

### Before you begin

AUR requires a stack configuration

### About this task

You can configure AUR to enable or disable automatic configuration saves for non-base units.

## Procedure

1. Log on to the Global Configuration mode in ACLI.
  2. To enable AUR automatic configuration saves, enter the following command:  
`stack auto-unit-replacement config save enable`
  3. To disable AUR automatic configuration saves, enter the following command:  
`stack auto-unit-replacement config save disable`
- 

---

## Saving or restoring AUR configurations

Use the following commands to save or restore a configuration.

### Before you begin

AUR requires a stack configuration.

### About this task

You can manually save or restore an AUR configuration to a non-base unit.

## Procedure

1. Log on to the Privileged EXEC mode in ACLI.
2. To save a configuration, enter the following command:  
`stack auto-unit-replacement config save unit <1-8>`
3. To restore a configuration, enter the following command:  
`stack auto-unit-replacement config restore unit <1-8>`

**\* Note:**

You must enter a valid unit number of 1 to 8 to save or restore a configuration to a specific unit in a stack.

---

## Removing MAC addresses from AUR cache

Use the following procedure to remove a MAC address from the AUR cache for a non-operational unit.

### Before you begin

AUR requires a stack configuration.

You require a stack of at least three units.

### About this task

You can remove the MAC address of a non-operational stack unit from the Auto Unit Replacement (AUR) cache. A non-operational unit can be a switch that is no longer present in the stack, or a stack switch that is being restored within the stack. When you remove the MAC address information of the non-operational unit from the AUR cache, the hardware information is retained in the AUR cache. The next unit joining a stack that matches the unit hardware can replace the non-operational unit, regardless of the MAC address. You cannot remove the MAC address of operational units.

### Procedure

1. Log on to the Privileged EXEC mode in ACLI.
2. To verify that the stack unit is non-operational, enter the following command:  

```
show stack auto-unit-replacement mac-addresses
```
3. To remove the MAC address of a non-operational unit, enter the following command:  

```
stack auto-unit-replacement remove-mac-address unit <1-8>
```

### Example

Verify the operational status of the stack.

```
show stack auto-unit-replacement mac-addresses
```

| UNIT # | PHYSICAL ADDRESS  | OPERATIONAL |
|--------|-------------------|-------------|
| Unit 1 | 00-1C-9C-4A-78-00 | YES         |
| Unit 2 | 00-1A-8F-E7-38-00 | YES         |
| Unit 3 | 00-1C-9C-BB-74-00 | YES         |

You cannot remove the MAC address of an operational unit. Prepare the unit for replacement, remove the unit from the stack, and verify the operational status.

```
show stack auto-unit-replacement mac-addresses
```

| UNIT # | PHYSICAL ADDRESS | OPERATIONAL |
|--------|------------------|-------------|
|--------|------------------|-------------|

|        |                   |     |
|--------|-------------------|-----|
| Unit 1 | 00-1C-9C-4A-78-00 | YES |
| Unit 2 | 00-1A-8F-E7-38-00 | YES |
| Unit 3 | 00-1C-9C-BB-74-00 | NO  |

Remove the MAC address for the non-operational unit.

```
stack auto-unit-replacement remove-mac-address unit 3
```

Verify that the MAC address is deleted for the non-operational unit.

```
show stack auto-unit-replacement mac-addresses
```

| UNIT # | PHYSICAL ADDRESS  | OPERATIONAL |
|--------|-------------------|-------------|
| Unit 1 | 00-1C-9C-4A-78-00 | YES         |
| Unit 2 | 00-1A-8F-E7-38-00 | YES         |
| Unit 3 | 00-00-00-00-00-00 | NO          |

Add a new unit with a matching hardware configuration to the stack. Regardless of the new unit MAC address, the AUR configuration copies to the new unit and the new unit reboots. Once booted, the new unit joins the stack.

---

## Enabling or disabling AAUR

Use the following commands to enable or disable Agent Auto Unit Replacement (AAUR).

**\* Note:**

AAUR is recommended and enabled by default.

### Before you begin

AAUR requires a stack configuration

### About this task

You can use the Agent Auto Unit Replacement (AAUR) feature to ensure that all units in a stack run the same software image.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. To enable AUR, enter the following command:  

```
stack auto-unit-replacement-image enable
```

**\* Note:**

Diagnostic Auto Unit Replacement (DAUR) is configured with AAUR. There are no commands to separately enable or disable DAUR.

3. To disable AUR, enter the following command:

```
no stack auto-unit-replacement-image enable
```

4. To default AUR, enter the following command:

```
default stack auto-unit-replacement-image enable
```

The default is enabled.

---

---

## Displaying the AAUR configuration

Use the following procedure to view the AAUR configuration.

### Before you begin

AAUR requires a stack configuration.

### Procedure

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

```
show stack auto-unit-replacement-image
```

**\* Note:**

Diagnostic Auto Unit Replacement (DAUR) is configured with AAUR. There are no commands to separately display DAUR.

---

---

## Enabling or disabling Stack Forced Mode

Use the following commands to enable or disable Stack Forced Mode.

### Before you begin

Stack Forced Mode requires a stack configuration of two units.

### About this task

You can use Stack Forced Mode to manage one of the stand-alone units from a broken stack of two with the previous stack IP address. When Stack Forced Mode is enabled, it only activates if the stack fails.

### Procedure

1. Log on to the Global Configuration mode in ACLI.
2. To enable Stack Forced Mode, enter the following command:  
`stack forced-mode`
3. To disable Stack Forced Mode, enter the following command:  
`no stack forced-mode`
4. To default Stack Forced Mode, enter the following command:  
`default stack forced-mode`  
The default is disabled.

---

### Next steps

Use the following command to display the current Stack Forced Mode configuration:

```
show stack forced-mode
```

---

## Displaying Stack Forced Mode

Use the following procedure to view the Stack Forced Mode configuration.

### Before you begin

Stack Forced Mode requires a stack configuration of two units.

### Procedure

1. Log on to the Privileged EXEC mode in ACLI.
2. At the command prompt, enter the following command:  
`show stack forced-mode`

# Chapter 13: Configuring the switch using EDM

Use the procedures in this section to configure your switch for the first time using Enterprise Device Manager (EDM).

---

## Configuring Quick Start

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 remote access

Use the following procedure to configure remote access for a switch or stack.

### Procedure

1. From the navigation tree, double-click **Administration**.
2. In the Administration tree, click **Remote Access**.
3. In the work area, click the **Setting** tab.
4. In the Telnet Access Setting section, select a value from the **Access** list.
5. In the Telnet Access Setting section, select a value from the **Use List** list.
6. In the SNMP Remote Access Setting section, select a value from the **Access** list.
7. In the SNMP Remote Access Setting section, select a value from the **Use List** list.
8. In the Web Page Remote Access Setting section, select a value from the **Use List** list.
9. In the SSH Remote Access Setting section, select a value from the **Access** list.

**\* Note:**

SSH Remote Access is only available in secure software builds.

10. In the SSH Remote Access Setting section, select a value from the **Use List** list.

**\* Note:**

SSH Remote Access is only available in secure software builds.

11. On the toolbar, click **Apply**.
- 

---

## Variable Definitions

The data in the following table describes configuring remote access for a switch or stack using EDM.

| Variable                            | Value                                                     |
|-------------------------------------|-----------------------------------------------------------|
| <b>Telnet Remote Access Setting</b> | Specifies the remote access settings for telnet sessions. |

| Variable                              | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | <p>If you need to describe a series of choices for the field, use an unordered list as follows:</p> <ul style="list-style-type: none"> <li>• <b>Access:</b> allows or denies telnet access to the switch or stack.</li> <li>• <b>Use List:</b> Enables (Yes) or disables (No) the use of remote access list Telnet information.</li> </ul>                                                                                                                           |
| <b>SNMP Remote Access Setting</b>     | <p>Specifies the remote access settings for SNMP.</p> <p>If you need to describe a series of choices for the field, use an unordered list as follows:</p> <ul style="list-style-type: none"> <li>• <b>Access:</b> allows or denies SNMP access to the switch or stack.</li> <li>• <b>Use List:</b> Enables (Yes) or disables (No) the use of remote access list SNMP information.</li> </ul>                                                                         |
| <b>Web Page Remote Access Setting</b> | <p>Specifies the remote access settings for Web Page.</p> <p>If you need to describe a series of choices for the field, use an unordered list as follows:</p> <ul style="list-style-type: none"> <li>• <b>Use List:</b> Enables (Yes) or disables (No) the use of remote access list web page information.</li> </ul>                                                                                                                                                |
| <b>SSH Remote Access Setting</b>      | <p>Specifies the remote access settings for SSH.</p> <p><b>* Note:</b><br/>SSH is only available in secure software builds.</p> <p>If you need to describe a series of choices for the field, use an unordered list as follows:</p> <ul style="list-style-type: none"> <li>• <b>Access:</b> allows or denies SSH access to the switch or stack.</li> <li>• <b>Use List:</b> Enables (Yes) or disables (No) the use of remote access list SSH information.</li> </ul> |

---

## Configuring system parameters

Use the following procedure to view and modify the system level configuration.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, double-click **Chassis**.
  3. In the Chassis tree, click **Chassis**.
  4. In the work area, click the **System** tab.
  5. In the **sysContact** field, type the system administrator contact information.
  6. In the **sysName** field, type the system name.
  7. In the **sysLocation** field, type the system location.
  8. To enable authentication traps, select the **Authentication Traps** check box.  
**OR**  
To disable authentication traps, clear the **Authentication Traps** check box.
  9. In the **ReBoot** section, click a radio button.
  10. In the **AutoPvid** section, click a radio button.
  11. In the **StackInsertionUnitNumber** field, type a value.
  12. To enable jumbo frames, select the **JumboFramesEnabled** check box.  
**OR**  
To disable jumbo frames, clear the **JumboFramesEnabled** check box.
  13. To enable serial security, select the **SerialSecurityEnable** check box.  
**OR**  
To disable serial security, clear the **SerialSecurityEnable** check box.
  14. In the **BootMode** section, click a radio button.
  15. On the toolbar, click **Apply**.
-

## Variable definitions

The following information describes the system level configuration.

| Variable                        | Value                                                                                                                                                                                                                                                                                   |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>sysDescr</b>                 | Indicates the device specific information.                                                                                                                                                                                                                                              |
| <b>sysUpTime</b>                | Indicates the amount of time since the last system reboot.                                                                                                                                                                                                                              |
| <b>sysObjectID</b>              | Indicates the system object identification number.                                                                                                                                                                                                                                      |
| <b>sysContact</b>               | Specifies the contact information for the system administrator. Value can include a name or email address.                                                                                                                                                                              |
| <b>sysName</b>                  | Specifies a unique name to describe this system.                                                                                                                                                                                                                                        |
| <b>sysLocation</b>              | Specifies the physical location of this system.                                                                                                                                                                                                                                         |
| <b>serNum</b>                   | Indicates the serial number of the switch.                                                                                                                                                                                                                                              |
| <b>AuthenticationTraps</b>      | <p>Enables or disables authentication traps.</p> <ul style="list-style-type: none"> <li>• When enabled, SNMP traps are sent for all SNMP access authentications.</li> <li>• When disabled, no SNMP traps are received.</li> </ul>                                                       |
| <b>Reboot</b>                   | <p>Specifies the action to reboot the switch.</p> <ul style="list-style-type: none"> <li>• running — the switch remains running.</li> <li>• bootPrimary — reboots the switch with the Primary image.</li> <li>• bootSecondary — reboots the switch with the Secondary image.</li> </ul> |
| <b>AutoPvid</b>                 | When enabled, a VLAN ID can be automatically assigned to any port.                                                                                                                                                                                                                      |
| <b>stackInsertionUnitNumber</b> | <p>Specifies the unit number to assign to the next unit joining the stack. Values range from 0–8.</p> <p><b>!</b> <b>Important:</b></p> <p>You can use this to manually specify a unit number to the next unit joining a stack. Once used, the value returns to 0, and</p>              |

| Variable                      | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | auto unit numbering resumes. You cannot edit the unit number of an existing stack unit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>JumboFramesEnabled</b>     | Enables or disables jumbo frames.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>SerialSecurityEnable</b>   | Enables or disables the serial security feature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>NextBootMgmtProtocol</b>   | Indicates the transport protocols to use after the next reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CurrentMgmtProtocol</b>    | Indicates the current supported transport protocols.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>BootMode</b>               | <p>Specifies the use of BootP or DHCP server to assign an IPv4 address for the management VLAN at the next reboot.</p> <ul style="list-style-type: none"> <li>• other — read only</li> <li>• bootpDisabled — use the configured server IP address</li> <li>• bootpAlways — always use the BootP server</li> <li>• bootpWhenNeeded — use the BootP server when needed</li> <li>• bootPOrLastAddress — use the BootP server last used</li> <li>• dhcpAlways — always use the DHCP server</li> <li>• dhcpWhenNeeded — use the DHCP server when needed</li> <li>• dhcpOrLastAddress — use the DHCP server last used</li> </ul> |
| <b>CurrentImageVersion</b>    | Indicates the switch version number of the agent image currently running.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>NextBootDefaultGateway</b> | Indicates the IP address of the default gateway for the agent to use on reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CurrentDefaultGateway</b>  | Indicates the IP address of the default gateway that is currently in use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>NextBootLoadProtocol</b>   | Indicates the transport protocol that the agent uses to load the configuration information and agent image on reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Variable                | Value                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------------|
| <b>LastLoadProtocol</b> | Indicates the transport protocol last used to load the configuration information and agent image. |

---

## Displaying unit information

Use this procedure to display information for a single unit on the switch.

### Procedure

1. In the **Device Physical View**, select the unit.
  2. From the navigation tree, double-click **Edit**.
  3. From the Edit tree, click **Unit**.
- 

---

## Unit field descriptions

The following table describes the fields on the Unit tab.

| Name                 | Description                                 |
|----------------------|---------------------------------------------|
| <b>Type</b>          | Specifies the type number.                  |
| <b>Descr</b>         | Specifies the type of switch.               |
| <b>Ver</b>           | Specifies the version number of the switch. |
| <b>SerNum</b>        | Specifies the serial number of the switch.  |
| <b>BaseNumPorts</b>  | Specifies the base number of ports.         |
| <b>TotalNumPorts</b> | Specifies the total number of ports.        |

---

## Displaying the PoE information for a unit

Use this procedure to display PoE information for a single unit.

**\* Note:**

You can only view PoE parameters by selecting a single unit.

## Procedure

1. In the **Device Physical View**, select the unit.
  2. From the navigation tree, double-click **Edit**.
  3. From the Edit tree, click **Unit**.
  4. Select the **PoE** tab.
- 

---

## PoE field descriptions

The following table outlines the parameters of the **PoE** tab.

| Name                               | Description                                                                                                                                                                                                                                                |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power</b>                       | Displays the total power available to the Avaya Ethernet Routing Switch.                                                                                                                                                                                   |
| <b>OperStatus</b>                  | Displays the power state of the Avaya Ethernet Routing Switch <ul style="list-style-type: none"> <li>• on</li> <li>• off</li> <li>• faulty</li> </ul>                                                                                                      |
| <b>Consumption Power</b>           | Displays the power being used by the Avaya Ethernet Routing Switch.                                                                                                                                                                                        |
| <b>UsageThreshold</b>              | Enables you to set a percentage of the total power usage of the Avaya Ethernet Routing Switch based on which system sends a trap. <p><b>* Note:</b><br/>You must have the traps enabled (see NotificationControlEnable) to receive a power usage trap.</p> |
| <b>Notification Control Enable</b> | Enables you to enable or disable sending traps if the switch's power usage exceeds the percentage set in the Usage Threshold field.                                                                                                                        |
| <b>PowerDeviceDetectType</b>       | Enables you to set the power detection method that the switch uses to detect a                                                                                                                                                                             |

| Name | Description                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | request for power from a device connected to all ports on the switch: <ul style="list-style-type: none"> <li>• <b>802.3af.</b></li> <li>• <b>802.3afAndLegacySupport</b></li> </ul> |

---

## Configuring Asset ID

Use the following procedure to configure an Asset ID for a switch or stack.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, double-click **Chassis**.
  3. In the Chassis tree, click **Chassis**.
  4. In the work area, click the **Asset ID** tab.
  5. In the table, double-click a cell in the **AssetID** column for the unit you want to configure.
  6. Type an Asset ID value in the **AssetID** field.
  7. On the toolbar, click **Apply**.
- 

---

## Variable definitions

The following table describes configuring an Asset ID.

| Variable      | Value                                |
|---------------|--------------------------------------|
| <b>Stack</b>  | Specifies the Asset ID of the stack. |
| <b>Unit 1</b> | Specifies the Asset ID of unit 1.    |
| <b>Unit 2</b> | Specifies the Asset ID of unit 2.    |

 **Note:**

You can specify an Asset ID of up to eight units.

---

## Selecting the ACLI banner type

Use this procedure to select the type of banner that is displayed in the Avaya Command Line (ACLI) Telnet screen.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, double-click **Chassis**.
  3. In the Chassis tree, click **Chassis**
  4. In the Chassis work area, click the **Banner** tab.
  5. In the **BannerControl** section, click a radio button.
  6. Click **Apply**.
- 

---

## Variable definitions

The following table describes the variables associated with ACLI banner types.

| Variable        | Value                                  |
|-----------------|----------------------------------------|
| <b>Static</b>   | Uses the predefined static banner.     |
| <b>Custom</b>   | Uses the previously set custom banner. |
| <b>Disabled</b> | Prevents the display of any banner.    |

---

## Customizing the ACLI banner

Use this procedure to customize banner that is displayed on the Avaya Command Line (ACLI) Telnet screen.

### Before you begin

Select **custom** for the ACLI banner type.

### Procedure

1. From the navigation tree, double-click **Edit**.

2. In the Edit tree, double-click **Chassis**.
  3. In the Chassis tree, click **Chassis**.
  4. In the Chassis work area, click the **Custom Banner** tab.
  5. Select a row (switch), configure as required.
  6. On the toolbar, click **Apply**.
  7. On the toolbar, you can click **Refresh** verify the configuration.
- 

## Variable definitions

The following table describes the variables associated with customizing the ACLI banner.

| Variable    | Value                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------|
| <b>Type</b> | Indicates whether the banner type is for a standalone (switch) or a stack (stack).                             |
| <b>Id</b>   | Indicates the line of text within a custom banner.                                                             |
| <b>Line</b> | Specifies the banner character string. The custom banner is 19 lines high and can be up to 80 characters long. |

## Managing an ASCII configuration file

Use the following procedure to automatically download, manually download, or manually upload an ASCII configuration file.

### About this task

An ASCII configuration file contains the switch configuration. You can download, store, or retrieve the ASCII configuration file from a TFTP server or USB device.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. From the Edit tree, click **File System**.
3. In the work area, click the **Ascii Config File** tab.
4. To transfer the configuration file using TFTP or SFTP, in the **TftpServerInetAddressType** field, click a radio button.

5. To transfer the configuration file using TFTP or SFTP, in the **TftpServerInetAddress** field, type the IP address of the TFTP server.
6. In the **AsciiConfigFilename** field, type the name of the configuration file.
7. To transfer the configuration file using USB, in the **UsbTargetUnit** field, type a value.

**! Important:**

You must enter a value in the **UsbTargetUnit** field for TFTP or SFTP configuration file transfers.

8. To automatically download the configuration file, in the **AsciiConfigAutoDownload** field, click a radio button.
9. To manually download and retrieve the configuration file, in the **AsciiConfigManualDownload** field, click a radio button.
10. To manually upload specific application configurations, in the **Application** field, select the applications.
11. To manually upload and store the configuration file, in the **AsciiConfigManualUpload** field, click a radio button.

**! Important:**

To manually upload specific applications only, you must select a Verbose upload option.

12. On the toolbar, click **Apply**.
13. To verify the status of the configuration file transfer, view the **AsciiConfigAutoDldStatus**, **AsciiConfigManualDldStatus**, or the **AsciiConfigManualUpldStatus** field.

---

## Variable definitions

The following table describes managing an ASCII configuration file.

| Variable                         | Value                                                                          |
|----------------------------------|--------------------------------------------------------------------------------|
| <b>TftpServerInetAddressType</b> | Specifies the TFTP or SFTP server IP address type as IPv4 or IPv6.             |
| <b>TftpServerInetAddress</b>     | Specifies the TFTP or SFTP server IP address.                                  |
| <b>AsciiConfigFileName</b>       | Specifies the file name of the ASCII configuration file to download or upload. |

| Variable                          | Value                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UsbTargetUnit</b>              | <p>Specifies the unit or server type. Values include:</p> <ul style="list-style-type: none"> <li>• 1 to 8 — units in a stack</li> <li>• 9 — standalone unit</li> <li>• 0 — TFTP server</li> <li>• 10 — SFTP server</li> </ul>                                                                                                                           |
| <b>AsciiConfigAutoDownload</b>    | <p>Specifies if the ASCII configuration file is downloaded during boot. Values include:</p> <ul style="list-style-type: none"> <li>• disabled — Automatic downloading is disabled</li> <li>• useBootp — Use BootP to obtain TFTP server settings, the TFTPServerInetAddress is not used</li> <li>• useConfig — Use the TFTPServerInetAddress</li> </ul> |
| <b>AsciiConfigAutoDldStatus</b>   | <p>Indicates the file transfer status. Values include:</p> <ul style="list-style-type: none"> <li>• InProgress — Download in progress, wait 2 minutes, and then click Refresh</li> <li>• Passed — Download completed successfully</li> <li>• Failed — Download failed</li> </ul>                                                                        |
| <b>AsciiConfigManualDownload</b>  | <p>Specifies the manual file download method. Values include:</p> <ul style="list-style-type: none"> <li>• downloadNow — Download from the TFTP server</li> <li>• downloadFromUsb — Download from a USB storage device</li> </ul>                                                                                                                       |
| <b>AsciiConfigManualDldStatus</b> | <p>Indicates the file transfer status. Values include:</p> <ul style="list-style-type: none"> <li>• InProgress — Download in progress, wait 2 minutes, and then click Refresh</li> <li>• Passed — Download completed successfully</li> <li>• Failed — Download failed</li> </ul>                                                                        |
| <b>Applications</b>               | <p>Specifies the application configurations to transfer in Verbose mode.</p>                                                                                                                                                                                                                                                                            |

| Variable                           | Value                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AsciiConfigManualUpload</b>     | <p>Specifies the manual file upload method. Values include:</p> <ul style="list-style-type: none"> <li>• uploadNow — Upload to the TFTP server</li> <li>• uploadToUsb — Upload to a USB storage device</li> <li>• uploadVerboseNow — Upload specific applications to the TFTP server</li> <li>• uploadVerboseToUsb — Upload specific applications to a USB storage device</li> </ul> |
| <b>AsciiConfigManualUpldStatus</b> | <p>Indicates the file transfer status. Values include:</p> <ul style="list-style-type: none"> <li>• InProgress — Download in progress, wait 2 minutes, and then click Refresh</li> <li>• Passed — Download completed successfully</li> <li>• Failed — Download failed</li> </ul>                                                                                                     |

---

## Saving the current configuration

Use the following procedure to configure Autosave or manually save the current configuration.

### About this task

The current configuration is regularly saved to the flash memory if Autosave is enabled. You can use the following procedure to manually save the current configuration.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **File System**.
3. In the work area, click the **Save Configuration** tab.
4. Select the **AutosaveToNvramEnabled** check box to enable automatically saving the configuration to flash memory (Autosave), or clear the check box to disable Autosave.
5. To manually save the current configuration, click the **copyConfigToNvram** radio button.
6. On the toolbar, click **Apply**.

- On the toolbar, click **Refresh**.

---

## Variable definitions

The following table describes saving the current configuration.

| Variable                      | Value                                                                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AutosaveToNvramEnabled</b> | Specifies if Autosave is enabled or disabled. If enabled (selected), the system automatically saves the configuration to the flash memory.                                                      |
| <b>Action</b>                 | Specifies the action you want to perform. <ul style="list-style-type: none"> <li>other — read only and default</li> <li>copyConfigToNvram — manually saves the current configuration</li> </ul> |
| <b>Status</b>                 | Indicates the current status.                                                                                                                                                                   |

---

## Configuring SNTP

Use the following procedure to configure Simple Network Time Protocol (SNTP).

### About this task

You can configure the switch clock to SNTP, configure the SNTP server IP addresses, and configure the SNTP synchronization intervals.

### Procedure

- From the navigation tree, double-click **Edit**.
- In the Edit tree, click **SNTP/Clock**.
- In the work area, click the **Simple Network Time Protocol** tab.
- In the **PrimaryServerInetAddressType** field, click a radio button to select IPv4 or IPv6.
- In the **PrimaryServerInetAddress** field, type the primary IP address.
- In the **SecondaryServerInetAddressType** field, click a radio button to select IPv4 or IPv6.
- In the **SecondaryServerInetAddress** field, type the secondary IP address.

8. In the **State** field, click a radio button.
9. In the **SyncInterval** field, type a value.
10. In the **ManualSyncRequest** field, click the radio button to synchronize the switch clock with the NTP server.
11. On the toolbar, click **Apply**.

---

## Variable definitions

The following table describes configuring SNTP.

| Variable                              | Value                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PrimaryServerInetAddressType</b>   | Specifies the IP address type of the primary SNTP server. Values include IPv4 or IPv6.                                                                                                                                                                                                                                                                                                        |
| <b>PrimaryServerInetAddress</b>       | Specifies the IP address of the primary SNTP server.                                                                                                                                                                                                                                                                                                                                          |
| <b>SecondaryServerInetAddressType</b> | Specifies the IP address type for the secondary SNTP server. Values include IPv4 or IPv6.                                                                                                                                                                                                                                                                                                     |
| <b>SecondaryServerInetAddress</b>     | Specifies the IP address of the secondary SNTP server.                                                                                                                                                                                                                                                                                                                                        |
| <b>State</b>                          | <p>Specifies if SNTP is used to synchronize the switch clock to the Coordinated Universal Time (UTC)</p> <ul style="list-style-type: none"> <li>• disabled — the switch cannot synchronize the clock using SNTP.</li> <li>• enabled (unicast) — the switch synchronizes to UTC on boot when network access is available, and periodically synchronizes based on the Sync Interval.</li> </ul> |
| <b>SyncInterval</b>                   | Specifies the frequency, in hours, to attempt synchronization with the NTP servers. Values range from 0 to 168. 0 indicates to synchronize only during boot.                                                                                                                                                                                                                                  |
| <b>ManualSyncRequest</b>              | Specifies to immediately attempt a synchronization with the NTP servers.                                                                                                                                                                                                                                                                                                                      |
| <b>LastSyncTime</b>                   | Indicates the last synchronization time in UTC.                                                                                                                                                                                                                                                                                                                                               |

| Variable                             | Value                                                                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LastSyncSourceInetAddressType</b> | Indicates the IP source address type of the NTP server during the last synchronization.                                                                    |
| <b>LastSyncSourceInetAddress</b>     | Indicates the IP source address of the NTP server during the last synchronization.                                                                         |
| <b>NextSyncTime</b>                  | Indicates the next scheduled synchronization time in UTC.                                                                                                  |
| <b>PrimaryServerSyncFailures</b>     | Indicates the number of times the switch failed to synchronize with the primary server address. Synchronization with the secondary server can still occur. |
| <b>SecondaryServerSyncFailures</b>   | Indicates the number of times the switch failed to synchronize with the secondary server address.                                                          |
| <b>CurrentTime</b>                   | Indicates the current switch time in UTC.                                                                                                                  |

---

## Configuring the local time zone

Use the following procedure to configure the local time zone.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, click **SNTP/Clock**.
  3. In the work area, click the **Time Zone** tab.
  4. In the **TimeZone** field, select the time zone offset.
  5. In the **TimeZoneAcronym** field, type a time zone acronym.
  6. On the toolbar, click **Apply**.
- 

---

## Variable definitions

The following table describes configuring the local time zone

| Variable        | Value                                                                           |
|-----------------|---------------------------------------------------------------------------------|
| <b>TimeZone</b> | Specifies the local time zone of the switch, measured as an offset in 15 minute |

| Variable               | Value                                       |
|------------------------|---------------------------------------------|
|                        | increments from Greenwich Mean Time (GMT).  |
| <b>TimeZoneAcronym</b> | Specifies the time zone acronym to display. |

---

## Configuring daylight savings time

Use the following procedure to configure the start and end of the daylight savings time period.

### Before you begin

Recurring daylight savings time must be disabled.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, click **SNTP/Clock**.
  3. In the work area, click the **Daylight Saving Time** tab.
  4. In the **Offset** field, type a value.
  5. In the **TimeZoneAcronym** field, type a value.
  6. In the **StartYear** field, type a value.
  7. In the **StartMonth** field, type a value.
  8. In the **StartDay** field, type a value.
  9. In the **StartHour** field, type a value.
  10. In the **StartMinutes** field, type a value.
  11. In the **EndYear** field, type a value.
  12. In the **EndMonth** field, type a value.
  13. In the **EndDay** field, type a value.
  14. In the **EndHour** field, type a value.
  15. In the **EndMinutes** field, type a value.
  16. To enable daylight savings time, click the **Enabled** check box. To disable daylight savings time, clear the check box.
  17. Click **Apply**.
-

---

## Variable definitions

The following table describes configuring daylight savings time.

| Variable               | Value                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offset</b>          | Specifies the change of time in minutes when daylight savings time (DST) starts and ends. The offset is added when DST starts and is subtracted when DST time ends.      |
| <b>TimeZoneAcronym</b> | Specifies the time zone acronym to display.                                                                                                                              |
| <b>StartYear</b>       | Specifies the year to start DST.                                                                                                                                         |
| <b>StartMonth</b>      | Specifies the month to start DST.                                                                                                                                        |
| <b>StartDay</b>        | Specifies the day to start DST.                                                                                                                                          |
| <b>StartHour</b>       | Specifies the hour to start DST.                                                                                                                                         |
| <b>StartMinutes</b>    | Specifies minutes in the specific hour to start DST.                                                                                                                     |
| <b>EndYear</b>         | Specifies the year to end DST.                                                                                                                                           |
| <b>EndMonth</b>        | Specifies the month to end DST.                                                                                                                                          |
| <b>EndDay</b>          | Specifies the day to end DST.                                                                                                                                            |
| <b>EndHour</b>         | Specifies the hour to end DST.                                                                                                                                           |
| <b>EndMinutes</b>      | Specifies the minutes in the specific hour to end DST.                                                                                                                   |
| <b>Enabled</b>         | <p>Specifies if DST is enabled or disabled. Check to enable, clear to disable.</p> <p><b>!</b> <b>Important:</b><br/>Configure all DST fields before you enable DST.</p> |

---

## Configuring recurring daylight savings time

Use the following procedure to configure recurring daylight savings time start and end times.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **SNTP/Clock**.

3. In the work area, click the **Summer Time Recurring** tab
4. To enable recurring daylight savings time, click the **Recurring** check box. To disable recurring daylight savings time, clear the check box.
5. In the **RecurringStartMonth** field, select a month from the list.
6. In the **RecurringStartWeek** field, click a radio button.
7. In the **RecurringStartDay** field, select a day from the list.
8. In the **RecurringStartHour** field, select an hour from the list.
9. In the **RecurringStartMinute** field, type a value.
10. In the **RecurringEndMonth**, select a month from the list.
11. In the **RecurringEndWeek**, click a radio button.
12. In the **RecurringEndDay** field, select a day from the list.
13. In the **RecurringEndHour** field, select an hour from the list.
14. In the **RecurringEndMinute** field, type a value.
15. In the **RecurringOffset** field, type a value.
16. On the toolbar, click **Apply**.

---

## Variable definitions

The following table describes configuring recurring daylight savings time.

| Variable                     | Value                                                                                                                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Recurring</b>             | Specifies to enable or disable recurring daylight savings time. Click to enable, clear to disable.                                                                                                                                                           |
| <b>RecurringStartMonth</b>   | Specifies the month of each year to start DST.                                                                                                                                                                                                               |
| <b>RecurringStartWeek</b>    | Specifies the week of the month to start DST. If week 5 is selected and not available in a certain year, recurring start uses the 'last' option. For example, in a year without a Sunday in the fifth week of March, DST starts on the last Sunday of March. |
| <b>RecurringStartDay</b>     | Specifies the day to start DST.                                                                                                                                                                                                                              |
| <b>RecurringStartHour</b>    | Specifies the hour to start DST.                                                                                                                                                                                                                             |
| <b>RecurringStartMinutes</b> | Specifies minutes in the specific hour to start DST.                                                                                                                                                                                                         |

| Variable                   | Value                                                                                                                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RecurringEndMonth</b>   | Specifies the month to end DST.                                                                                                                                                                                                                            |
| <b>RecurringEndWeek</b>    | Specifies the week of the month to end DST. If week 5 is selected and not available in a certain year, recurring end uses the 'last' option. For example, in a year without a Sunday in the fifth week of October, DST ends on the last Sunday of October. |
| <b>RecurringEndDay</b>     | Specifies the day to end DST.                                                                                                                                                                                                                              |
| <b>RecurringEndHour</b>    | Specifies the hour to end DST.                                                                                                                                                                                                                             |
| <b>RecurringEndMinutes</b> | Specifies the minutes in the specific hour to end DST.                                                                                                                                                                                                     |
| <b>RecurringOffset</b>     | Specifies the time in minutes to change the time when DST starts and ends. The offset is added to the current time when DST starts, and is subtracted when DST ends.                                                                                       |

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## Avaya Energy Saver configuration

You can use Avaya Energy Saver (AES) to configure the switch to utilize energy more efficiently.

---

### Configuring global AES

Use this procedure to configure AES for a single switch or a stack

#### Procedure

1. From the navigation tree, double-click **Power Management**
  2. In the Power Management tree, click **Energy Saver**.
  3. In the work area, click the **Energy Saver Globals** tab.
  4. Select (to enable) or deselect (to disable) AES parameters as required.
  5. On the toolbar, click **Apply**.
  6. On the toolbar, you can click **Refresh** to update the work area data display.
-

## Variable Definitions

The following table outlines the parameters of the **Energy Saver Globals** tab.

| Variable              | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EnergySaverEnabled    | Enables or disables energy saving for the switch.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| PoePowerSavingEnabled | Enables or disables AES PoE power save mode for the switch. When enabled, AES PoE power saver mode provides the capability to control power consumption savings for only ports that have AES enabled, and PoE priority configured to low.                                                                                                                                                                                                                                              |
| EfficiencyModeEnabled | <p>Enables or disables AES efficiency mode for the switch. When enabled, AES efficiency mode enables AES globally and for each port, enables AES PoE power save mode, and configures AES scheduling to predetermined values (on time 18:00 and off time 07:30 daily).</p> <p><b>! Important:</b><br/>AES efficiency mode overrides custom AES scheduling and PoE power saving mode. You will be prompted to confirm that you want to enable AES efficiency mode before proceeding.</p> |
| EnergySaverActive     | Activates or deactivates the Avaya Energy Saver.                                                                                                                                                                                                                                                                                                                                                                                                                                       |

---

## Configuring the AES schedule

Use this procedure to configure the start or end of a time interval for the switch to enter lower power states. The time interval can span a complete week, a complete weekend, multiple days, or be configured within an individual day.

### Before you begin

- Disable AES globally

### Procedure

1. From the navigation tree, double-click **Power Management**.
2. In the Power Management tree, click **Energy Saver**.

3. In the work area, click the **Energy Saver Schedules** tab.
  4. Click **Insert**.
  5. To choose a day for the AES schedule on time, click a button in the **ScheduleDay** section.
  6. To choose an hour of the day for the AES schedule on time, type a value in the **ScheduleHour** box.
  7. To choose a portion of an hour for the AES schedule on time, type a value in the **ScheduleMinute** box.
  8. To configure the selected day, hour, and minutes as the AES schedule on time, click the **activate** button in the **ScheduleAction** section.  
Activate is selected by default.
  9. To configure the selected day, hour, and minutes as the AES schedule off time, click the **deactivate** button in the **ScheduleAction** section.
  10. Click **Insert**.
- 

## Variable Definitions

The following table describes the fields of **Insert Energy Saver Schedule** window.

| Variable       | Value                                                           |
|----------------|-----------------------------------------------------------------|
| ScheduleDay    | Indicates the day on which this schedule entry takes effect.    |
| ScheduleHour   | Indicates the hour on which this schedule entry takes effect.   |
| ScheduleMinute | Indicates the Minute on which this schedule entry takes effect. |
| ScheduleAction | Activates or deactivates the energy savings.                    |

---

## Modifying an AES schedule on and off time status

Use this procedure to change an existing schedule off time to on time or to change an existing schedule on time to off time.

### Before you begin

- Disable AES globally

### Procedure

1. From the navigation tree, double-click **Power Management**.
  2. In the Power Management tree, click **Energy Saver**.
  3. In the work area, click the **Energy Saver Schedules** tab.
  4. To select a schedule time to edit, click a schedule day.
  5. In the schedule day row double-click the cell in the **ScheduleAction** column.
  6. Select a value from the list—**activate** to configure the schedule time as the on time, or **deactivate** to configure the schedule time as the off time.
  7. Click **Apply**.
- 

---

## Configuring port-based AES

Use this procedure to configure port-based AES to enable or disable energy saving for individual ports, or all ports on a switch or stack.

### Procedure

1. From the navigation tree, double-click **Power Management**.
2. In the Power Management tree, click **Energy Saver**.
3. In the work area, click the **Ports** tab.
4. In the **Multiple Port Configuration** area, click the **Switch/Stack/Ports** elipsis (...).
5. Click a port or ports, or click **All**.
6. Click **Ok**.  
The portlist appears in the **Switch/Stack/Ports** box.
7. In the **Multiple Port Configuration** area double-click the cell under **EnergySaverEnabled**.  
Select **true** to enable AES or **false** to disable AES for the port(s).

8. Click **Apply Selection**.
  9. On the toolbar, click **Apply**.
  10. Repeat steps 4 to 9 to enable AES for additional ports as required.
  11. Click **Apply**.
  12. On the toolbar, you can click **Refresh** to update the work area data display.
- 

## Variable definitions

The following table outlines the parameters of the **Ports** tab.

| Variable           | Value                                                                     |
|--------------------|---------------------------------------------------------------------------|
| Port               | Indicates the port.                                                       |
| EnergySaverEnabled | Indicates whether the Avaya Energy Saver feature is enabled for the port. |

---

## Viewing AES information

Use this procedure to display energy saving information for an individual switch or switches in a stack.

### Procedure

1. From the navigation tree, double-click **Power Management**.
  2. In the Power Management tree, click **Energy Saver**.
  3. In the work area, click the **Energy Savings** tab.
  4. On the toolbar, you can click **Refresh** update the data.
- 

## Variable definitions

The following table outlines the parameters of the **Energy Savings** tab.

| Variable           | Value                                                         |
|--------------------|---------------------------------------------------------------|
| UnitIndex          | Indicates the unit number of the switch.                      |
| UnitSavings(watts) | Indicates the total power capacity being saved on the switch. |

## Configuring the switch using EDM

| Variable          | Value                                                    |
|-------------------|----------------------------------------------------------|
| PoeSavings(watts) | Indicates the total PoE power being saved on the switch. |

# Chapter 14: Configuring and testing ports using EDM

Use the procedures in this section to configure port features such as the port speed, duplex operation, and autotopology using Enterprise Device Manager (EDM).

---

## Configuring interface ports

Use the following procedure to configure one or more interface ports.

### Before you begin

You must select one or multiple ports from the **Device Physical View** tab.

### About this task

You can view and configure the configuration for the interface ports on the switch or stack.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **Chassis**.
3. In the Chassis tree, click **Ports**.
4. In the work area, click the **Interface** tab.
5. To select an interface port to edit, click a port row the **Index** column.
6. In the port row, double-click the cell in the **Name** column, type a character name.
7. In the port row, double-click the cell in the **AdminStatus** column and select a value from the list.
8. In the port row, double-click the cell in the **LinkTrap** column and select a value from the list.
9. In the port row, double-click the cell in the **AutoNegotiate** column and select a value from the list.
10. In the port row, double-click the cell in the **AdminDuplex** column and select a value from the list.
11. In the port row, double-click the cell in the **AdminSpeed** column and select a value from the list.

12. Repeat steps 5 through 11 to configure additional interface ports.
13. On the toolbar, click **Apply**.
14. To view and verify the current configuration, click **Refresh**.

## Variable definitions

The following table describes configuring interface ports.

| Variable           | Value                                                                                                                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Index</b>       | Indicates a unique value assigned to each interface port.                                                                                                                                                                                                                                                      |
| <b>Name</b>        | Specifies a name for the port.                                                                                                                                                                                                                                                                                 |
| <b>Descr</b>       | Indicates the description for the port.                                                                                                                                                                                                                                                                        |
| <b>Type</b>        | Indicates the media type for the port.                                                                                                                                                                                                                                                                         |
| <b>Mtu</b>         | Indicates the size of the largest packet that can be sent or received, in octets.                                                                                                                                                                                                                              |
| <b>PhysAddress</b> | Indicates the MAC address assigned to the port.                                                                                                                                                                                                                                                                |
| <b>AdminStatus</b> | <p>Specifies the current administrative state of the port. Values include:</p> <ul style="list-style-type: none"> <li>• up</li> <li>• down</li> </ul> <p>All ports start in an up state on a managed system. The AdminStatus changes do down due to administrator action or the configuration information.</p> |
| <b>OperStatus</b>  | <p>Indicates the current operational state of the port. Values include:</p> <ul style="list-style-type: none"> <li>• up — port is ready to transmit and receive traffic</li> <li>• down — port is not ready to transmit and receive traffic</li> <li>• testing — port is currently being tested</li> </ul>     |
| <b>LastChange</b>  | Indicates the value of sysUpTime at the time the interface entered into the current state. If the current state occurred before the last reinitialization of the local management subsystem, the value is zero.                                                                                                |

| Variable                   | Value                                                                                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LinkTrap</b>            | Specifies if traps are generated for this port.                                                                                                                         |
| <b>AutoNegotiate</b>       | Specifies if Autonegotiation is enabled or disabled on the port.                                                                                                        |
| <b>AdminDuplex</b>         | Specifies the duplex mode of the port. Values include: <ul style="list-style-type: none"> <li>• half</li> <li>• full</li> </ul>                                         |
| <b>OperDuplex</b>          | Indicates the current duplex mode of the port.                                                                                                                          |
| <b>AdminSpeed</b>          | Specifies the speed of the port. Values include: <ul style="list-style-type: none"> <li>• mbps10</li> <li>• mbps100</li> <li>• mbps1000</li> <li>• mbps10000</li> </ul> |
| <b>OperSpeed</b>           | Indicates the current speed of the port.                                                                                                                                |
| <b>Mltd</b>                | Indicates the MultiLink Trunk assigned to the port.                                                                                                                     |
| <b>PortActiveComponent</b> | Indicates the port components active for a shared port.                                                                                                                 |

---

## Configuring Rate Limiting

Use the following procedure to configure Rate Limiting on interface ports.

### Before you begin

You must select one or multiple ports from the **Device Physical View** tab.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **Chassis**.
3. In the Chassis tree, click **Ports**.
4. In the work area, click the **Rate Limit** tab.
5. To select an interface port to rate limit, click a port row the **Index** column.

6. In the port row, double-click the cell in the **AllowedRate** column and select a value from the list.
  7. In the port row, double-click the cell in the **AllowedRatePps** column and select a value from the list.
  8. In the port row, double-click the cell in the **Enable** column and select a value from the list.
  9. On the toolbar, click **Apply**.
- 

---

## Variable definitions

The following table describes configuring Rate Limiting

| Variable              | Value                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------------|
| <b>Index</b>          | Indicates the unique identifier for a port.                                                            |
| <b>TrafficType</b>    | Indicates the type of traffic to configure with rate limiting. Values include broadcast and multicast. |
| <b>AllowedRate</b>    | Specifies the rate limiting percentage. Values range from 0 percent (none) to 10 percent..             |
| <b>AllowedRatePps</b> | Values range from 0 to 262143                                                                          |
| <b>Enable</b>         | Specifies if rate limiting is enabled or disabled. Values include true (enabled) or false (disabled).  |

---

## Testing port cables

Use this procedure to initiate a TDR test.

### About this task

The 5000 Series switch is equipped with a Time Domain Reflectometer (TDR). The TDR provides a diagnostic capability to test connected cables for defects (such as short pin and pin open). Use the TDR tab to initiate cable diagnostic tests on attached cables.

The cable diagnostic tests only apply to Ethernet copper ports; fiber ports cannot be tested. You can initiate a test on multiple ports at the same time.

When you test a cable with the TDR, if the cable has a 10/100 MB/s link, the link is broken during the test and restored only when the test is complete. Use of the TDR does not affect 1 GB/s links.

**\* Note:**

The accuracy margin of cable length diagnosis is between three to five meters. Avaya suggests the shortest cable for length information be five meters long.

## Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.
3. In the Chassis tree, click **Ports**.
4. In the work area, click the **TDR** tab.
5. Select the **StartTest** option.
6. Click **Apply**.

---

## TDR field descriptions

The following table outlines the parameters for the **TDR** tab.

| Name               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>StartTest</b>   | Enables the TDR test.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>TestDone</b>    | Indicates whether a TDR test is complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>CableStatus</b> | <p>Indicates the status of the cable as a whole. The status of a cable is, in a sense, a summation of the status of its pairs. If all the pairs are normal, the cable is normal. If the cable consists of zero or more normal pairs and one or more open pairs, the cable is considered open. If the cable consists of shorted pairs and normal pairs, it is considered shorted. Any combination of open and shorted pairs is considered simply failed.</p> <ul style="list-style-type: none"> <li>• <b>cableFail</b></li> <li>• <b>cableNormal</b></li> <li>• <b>cableOpen</b></li> <li>• <b>cableShorted</b></li> <li>• <b>cableNotApplicable</b></li> <li>• <b>cableUntested</b></li> </ul> |

| Name                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pair1Status</b>   | <p>The status of a single pair in the cable:</p> <ul style="list-style-type: none"> <li>• <b>pairFail</b></li> <li>• <b>pairNormal</b></li> <li>• <b>pairOpen</b></li> <li>• <b>pairShorted</b></li> <li>• <b>pairNotApplicable</b></li> <li>• <b>pairNotTested</b></li> <li>• <b>pairForce</b></li> </ul> <p><b>* Note:</b><br/>If a 10MB or 100MB link is established without autonegotiation, Pair 1 will return Forced mode. The pair length is meaningless in this case.</p> |
| <b>Pair1Length</b>   | Pair Length, in meters, measured by Time Domain Reflectometry.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Pair2Status</b>   | The status of a single pair in the cable.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Pair2Length</b>   | Pair Length, in meters, measured by Time Domain Reflectometry.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Pair3Status</b>   | The status of a single pair in the cable.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Pair3Length</b>   | Pair Length, in meters, measured by Time Domain Reflectometry.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Pair4Status</b>   | The status of a single pair in the cable.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Pair4Length</b>   | Pair Length, in meters, measured by Time Domain Reflectometry.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>CableLength</b>   | Length of cable in meters based on average electrical length of 4 pairs. Measurement can be done when traffic is live or not.                                                                                                                                                                                                                                                                                                                                                     |
| <b>Pair1Polarity</b> | The polarity of a single pair in the cable. This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                                                                                                                                                                                                                                                                                  |
| <b>Pair1Swap</b>     | <p>The pair swap in the cable:</p> <ul style="list-style-type: none"> <li>• <b>normal</b></li> <li>• <b>swapped</b></li> <li>• <b>invalid</b></li> <li>• <b>error</b></li> </ul>                                                                                                                                                                                                                                                                                                  |

| Name                 | Description                                                                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                                                                     |
| <b>Pair1Skew</b>     | Pair skew is measured in nanoseconds. Skew measurement only can be performed when the cable gigabit link is up, regardless of traffic activity. A value of -1 means an error occurred when trying to get the length.     |
| <b>Pair2Polarity</b> | The polarity of a single pair in the cable. This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                         |
| <b>Pair2Swap</b>     | The pair swap in the cable. This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                                         |
| <b>Pair2Skew</b>     | Pair skew is measured in nanoseconds. Skew measurement only can be performed when the cable gigabit link is up, regardless of traffic activity. A value of -1 means an error occurred when trying to get the length.     |
| <b>Pair3Polarity</b> | The polarity of a single pair in the cable. This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                         |
| <b>Pair3Swap</b>     | The pair swap in the cable. This capability is available only when the cable gigabit link is up, regardless of traffic activity.                                                                                         |
| <b>Pair3Skew</b>     | Pair skew is measured in nanoseconds. Skew measurement only can be performed when the cable gigabit link is up, regardless of traffic activity. A value of -1 means an error occurred when trying to get the length.     |
| <b>Pair4Polarity</b> | The polarity of a single pair in the cable.                                                                                                                                                                              |
| <b>Pair4Swap</b>     | The pair swap in the cable.                                                                                                                                                                                              |
| <b>Pair4Skew</b>     | Differential cable pair length in meters. Skew measurement only can be performed when the cable gigabit link is up, regardless of traffic activity. A value of -1 means an error occurred when trying to get the length. |



# Chapter 15: Updating switch software using EDM

Use the procedures in this section to update the switch software, which is a necessary part of switch configuration and maintenance.

## Before you begin

- The switch must be assigned a valid IP address.
- A Trivial File Transfer Protocol (TFTP) server is present on the network that is accessible by the switch and that has the desired software version loaded.
- If you change the switch software with software stored on a USB mass storage device, ensure that the mass storage device has the desired software version loaded on it and is inserted into the front panel USB port.

## About this task

The ERS 5500 Series supports the Dual Agent feature. This feature provides two agent images: the Agent Primary image and the Agent Secondary image. The Agent Primary image represents the agent image used for the next boot. You can select either image for the next boot. The Dual Agent Boot flag determines which agent image is the boot image. The diagnostics and agent software must use the same value for the Dual Agent Boot flag. If the Dual Agent Boot flag is not set, the unit will boot from Agent 1 (default).

During the software download process, the port LEDs light one after another in a chasing pattern. This chasing pattern is initially fast as the software image is downloaded but gradually slows as the switch erases the flash memory. This pattern speeds up again as the switch programs the new image into the flash memory. When the process is complete, the port LEDs are no longer lit and the switch resets.

---

## Displaying boot image information

Use the following procedure to display boot image information for the switch or stack.

### About this task

You can use the boot image tab to display the primary, secondary, and current boot images configured for your system.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **File System**.

3. In the work area, click the **Boot Image** tab.
  4. On the toolbar, click **Refresh**
  5. View the primary, secondary, and running boot images for all units.
  6. To switch the boot image, click the **Boot Image Toggle** check box.
  7. On the toolbar, click **Apply**.
- 

---

## Variable definitions

The following table describes displaying boot images.

| Variable                                           | Value                                                                                               |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Boot Image Toggle</b>                           | Specifies to switch the boot image used during the next switch boot. Click the check box to enable. |
| <b>Unit &lt;1 to 8&gt; Primary Image version</b>   | Indicates the version number of the primary boot image.                                             |
| <b>Unit &lt;1 to 8&gt; Secondary Image version</b> | Indicates the version number of the secondary boot image.                                           |
| <b>Unit &lt;1 to 8&gt; Running Image version</b>   | Indicates the version number of the boot image currently running.                                   |

---

## Managing the configuration and image files

Use the following procedure to upgrade, save, or restore a binary configuration, image, or diagnostic file.

### About this task

You can use the Config/Image/Diag file tab to transfer binary files to or from a TFTP server or a USB storage device. You can upgrade the switch agent image or diagnostic image.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, click **File System**.
3. In the work area, click the **Config/Image/Diag file** tab.
4. To transfer files using a TFTP server, In the **TFTPServerInetAddressType** field, click a radio button.

5. To transfer files using a TFTP server, in the **TFTPServerInetAddress** field, type an IP address.
6. To transfer a configuration file, in the **BinaryConfigFilename** field, type a filename.
7. To transfer a configuration file, in the **BinaryConfigUnitNumber** field, enter a value.
8. To transfer an agent image file, in the **ImageFileName** field, type a filename.
9. To transfer a diagnostic image file, in the **FWFileName(Diagnostics)** field, type a filename.
10. In the **Usb TargetUnit** field, type a value.

**! Important:**

You must enter a value in the Usb TargetUnit field. Type 1 to 8 for a unit, 9 for a standalone unit, 0 for TFTP server, or 10 for SFTP server.

11. To download an agent image file as primary or secondary, in the **Image** field, click a radio button.
12. In the **Action** field, click a radio button.
13. On the toolbar, click **Apply**.
14. In the **Status** field, view and verify the status of your action.

---

## Result

The transfer process occurs immediately after clicking Apply. You can only perform one action at a time.

**! Important:**

If you are downloading an agent image, the process erases the contents of flash memory and replaces it with the new image. Do not interrupt the download process. Depending on network conditions, the process can take up to 10 minutes. When the download process is complete, the switch can automatically reset and the new software image initiates a self test. During the agent image download process, the switch is not operational.

---

## Variable definitions

The following table describes managing binary configuration, image, and diagnostic files.

| Variable                         | Value                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------------|
| <b>TftpServerInetAddressType</b> | Specifies the IP address type of the TFTP or SFTP server. Values include IPv4 or IPv6. |

| Variable                       | Value                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TftpServerInetAddress</b>   | Specifies the IP address of the TFTP or SFTP server.                                                                                                                                                                                                                                                                                                                                                                  |
| <b>BinaryConfigFilename</b>    | Specifies the binary configuration file currently associated with the switch. This field only applies to binary configuration files.                                                                                                                                                                                                                                                                                  |
| <b>BinaryConfigUnitNumber</b>  | Specifies the unit number portion of the configuration file to be used for the standalone unit configuration. Values range from 0 to 8. If 0, the unit number is ignored. This field only applies to binary configuration files.                                                                                                                                                                                      |
| <b>ImageFileName</b>           | Specifies the name of the image file currently associated with the switch. You can change this field to the filename of the software image to be downloaded.                                                                                                                                                                                                                                                          |
| <b>FwFileName(Diagnostics)</b> | Specifies the name of the diagnostic file currently associated with the switch. You can change this field to the filename of the software image to be downloaded.                                                                                                                                                                                                                                                     |
| <b>Usb TargetUnit</b>          | <p>Specifies the unit number for USB, or the transfer type to use during the upload or download operation. Values include:</p> <ul style="list-style-type: none"> <li>• 1 to 8 — USB on unit 1 to 8</li> <li>• 9 — USB on a standalone unit</li> <li>• 0 — TFTP server</li> <li>• 10 — SFTP server</li> </ul>                                                                                                         |
| <b>Image</b>                   | Specifies if the image to download is the primary or secondary image.                                                                                                                                                                                                                                                                                                                                                 |
| <b>Action</b>                  | <p>Specifies the action to perform during the file transfer. Values include:</p> <ul style="list-style-type: none"> <li>• other — no action</li> <li>• dnldConfig — Downloads the configuration file from a TFTP or SFTP server</li> <li>• upldConfig — Uploads the configuration file to a TFTP or SFTP server</li> <li>• dnldConfigFromUsb — Downloads the configuration file from a USB storage device.</li> </ul> |

| Variable      | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <ul style="list-style-type: none"> <li>• <code>upldConfigToUsb</code> — Uploads the configuration file to a USB storage device.</li> <li>• <code>dnldImg</code> — Downloads the agent image file from a TFTP or SFTP server.</li> <li>• <code>dnldImgIfNewer</code> — Only downloads if newer than current image.</li> <li>• <code>dnldImgNoReset</code> — Downloads the agent image and does not reset the switch.</li> <li>• <code>dnldImgFromUsb</code> — Downloads the agent image from a USB storage device.</li> <li>• <code>dnldFw</code> — Downloads the diagnostic image from a TFTP server.</li> <li>• <code>dnldFwNoReset</code> — Downloads the diagnostic image and does not reset the switch.</li> <li>• <code>dnldFwFromUsb</code> — Downloads the diagnostic image from a USB storage device.</li> </ul> |
| <b>Status</b> | <p>Indicates the status of the last action since the last switch reboot. Values include:</p> <ul style="list-style-type: none"> <li>• <code>other</code> — No action has taken place.</li> <li>• <code>inProgress</code> — The selected action is currently in process.</li> <li>• <code>success</code> — The selected action completed successfully.</li> <li>• <code>fail</code> — The selected action failed.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                              |



# Chapter 16: Configuring a Virtual Fabric using EDM

Use the procedures in this section to configure a Virtual Fabric (stack) using Enterprise Device Manager (EDM).

---

## Configuring Auto Unit Replacement

Use the following procedure to configure Auto Unit Replacement (AUR).

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.
3. In the Chassis tree, click **Chassis**.
4. In the work area, click the **AUR** tab.
5. To enable AUR, select the **AutoUnitReplacementEnable** check box. To disable AUR, clear the check box.
6. To enable AUR configuration saves, select the **AutoUnitReplacementSaveEnabled** check box. To disable AUR saves, clear the check box.
7. In the **AutoUnitReplacementForceSave** field, type a value.
8. In the **AutoUnitReplacmentRestore** field, type a value.
9. On the toolbar, click **Apply**.

---

## Variable definitions

The following table describes configuring Auto Unit Replacement.

| Variable                          | Value                                                                       |
|-----------------------------------|-----------------------------------------------------------------------------|
| <b>AutoUnitReplacementEnabled</b> | Specifies if AUR is enabled or disabled. Check to enable, clear to disable. |

| Variable                              | Value                                                                                                                                                   |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AutoUnitReplacementSaveEnabled</b> | Specifies if AUR automatic saves of unit configuration images is enabled or disabled. Check to enable, clear to disable.                                |
| <b>AutoUnitReplacementForceSave</b>   | Specifies to manually save a specific non-base unit configuration image to the base unit. Value range of 0 to 8.                                        |
| <b>AutoUnitReplacementRestore</b>     | Specifies to manually restore the configuration of a specific non-base unit from the saved configuration image on the base-unit. Value range of 0 to 8. |

---

## Configuring the base unit

Use the following procedure to configure the base unit. and to display base unit information.

### About this task

You can use the Base Unit Info tab to reset the base unit, to enter a location for the base unit, or to view base unit status information.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.
3. In the Chassis tree, click **Switch/Stack**.
4. In the work area, click the **Base Unit Info** tab.
5. In the **AdminStat** field, click a radio button.
6. In the **Location** field, type a character string.
7. On the toolbar, click **Apply**.

---

## Variable definitions

The following table describes configuring and displaying the base unit status.

| Variable     | Value                                  |
|--------------|----------------------------------------|
| <b>Type</b>  | Indicates the switch type.             |
| <b>Descr</b> | Indicates the switch port description. |

| Variable                  | Value                                                                                                                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ver</b>                | Indicates the switch hardware version.                                                                                                                                                                                                                                          |
| <b>SerNum</b>             | Indicates the switch serial number.                                                                                                                                                                                                                                             |
| <b>LstChng</b>            | Indicates the sysUpTime when the interface entered the operational state. If you entered the current state prior to the last reinitialization of the local network management subsystem, the value is zero.                                                                     |
| <b>AdminState</b>         | Specifies the administrative state of the base unit switch. Values include enable or reset.<br><br> <b>Important:</b><br>In a stack configuration, the reset option resets only the base unit. |
| <b>OperState</b>          | Indicates the operational state of the switch.                                                                                                                                                                                                                                  |
| <b>Location</b>           | Specifies the physical location of the switch.                                                                                                                                                                                                                                  |
| <b>RelPos</b>             | Indicates the relative position of the switch.                                                                                                                                                                                                                                  |
| <b>BaseNumPorts</b>       | Indicates the number of base ports on the switch.                                                                                                                                                                                                                               |
| <b>TotalNumPorts</b>      | Indicates the total number of ports on the switch.                                                                                                                                                                                                                              |
| <b>IpAddress</b>          | Indicates the base unit IP address.                                                                                                                                                                                                                                             |
| <b>RunningSoftwareVer</b> | Indicates the version of the running software.                                                                                                                                                                                                                                  |

---

## Configuring stack units

Use the following procedure to configure stack units, and to display stack unit information.

### About this task

You can use the Stack Info tab to reset stack units, to enter a location for stack units, or to view stack unit status information.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.

3. In the Chassis tree, click **Switch/Stack**.
  4. In the work area, click the **Stack Info** tab.
  5. In a unit row, double-click the **Location** cell and type a character string.
  6. In a unit row, double-click the **AdminState** cell and select a value from the list.
  7. On the toolbar, click **Apply**.
- 

## Variable definitions

The following table describes configuring and displaying the stack unit status.

| Variable                  | Value                                                                                                                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indx</b>               | Indicates the unique identifier number for the stack unit.                                                                                                                                                  |
| <b>Descr</b>              | Indicates the stack unit port description.                                                                                                                                                                  |
| <b>Location</b>           | Specifies the physical location of the stack unit.                                                                                                                                                          |
| <b>LstChng</b>            | Indicates the sysUpTime when the interface entered the operational state. If you entered the current state prior to the last reinitialization of the local network management subsystem, the value is zero. |
| <b>AdminState</b>         | Specifies the administrative state of the stack unit. Values include enable or reset.                                                                                                                       |
| <b>OperState</b>          | Indicates the operational state of the stack unit.                                                                                                                                                          |
| <b>Ver</b>                | Indicates the stack unit hardware version.                                                                                                                                                                  |
| <b>SerNum</b>             | Indicates the stack unit serial number.                                                                                                                                                                     |
| <b>BaseNumPorts</b>       | Indicates the number of base ports on the stack unit.                                                                                                                                                       |
| <b>TotalNumPorts</b>      | Indicates the total number of ports on the stack unit.                                                                                                                                                      |
| <b>IpAddress</b>          | Indicates the stack unit IP address.                                                                                                                                                                        |
| <b>RunningSoftwareVer</b> | Indicates the version of the running software.                                                                                                                                                              |

---

## Renumbering stack units

Use the following procedure to change the unit number of switches in a stack.

### Before you begin

A stack configuration is required to change unit numbers in a stack.

### Procedure

1. From the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.
3. In the Chassis tree, click **Switch/Stack**.
4. In the work area, click the **Stack Numbering** tab.
5. To select a switch unit, click a unit row.
6. In the unit row, double-click the cell in the **New Unit Number** column and select a number from the list.
7. On the toolbar, click **Apply**.

---

### Result

A warning message appears indicating that renumbering a unit results in an automatic reset of the stack.

---

## Variable definitions

The following table describes renumbering a unit in a stack.

| Variable                   | Value                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Current Unit Number</b> | Indicates the current unit number of the switch.                                                          |
| <b>Descr</b>               | Indicates the port description of the switch.                                                             |
| <b>New Unit Number</b>     | Specifies a new unit number for the switch. The stack automatically resets if you change the unit number. |

---

## Viewing stack mode properties

Use this procedure to view the stack mode properties of the switch.

### Procedure

1. From the navigation tree, double-click **Edit**.
  2. In the Edit tree, double-click **Chassis**.
  3. In the Chassis tree, click **Chassis**.
  4. In the work area, click the **Stack Mode** tab.
- 

---

## Stack Mode field descriptions

The following table outlines the parameters of the **Stack Mode** tab.

| Name                         | Description                        |
|------------------------------|------------------------------------|
| <b>CurrentOperationMode</b>  | Specifies the operational mode.    |
| <b>NextBootOperationMode</b> | Specifies the boot operation mode. |

# Chapter 17: Managing Power over Ethernet (PoE) using EDM

---

## Managing switch PoE

Use this procedure to display and manage Power over Ethernet (PoE) for a switch unit.

### Procedure

1. From the Device Physical View, click a switch unit with PoE ports.
  2. From the navigation tree, click **Edit**.
  3. In the Edit tree, click **Unit**.
  4. In the work area, click the **PoE** tab.
  5. In the **UsageThreshold%**, type a value.
  6. Perform one of the following:
    - To enable the sending of traps if the switch power usage exceeds the configured threshold percentage, select the **NotificationControlEnable** check box.
- OR**
- To disable the sending of traps if the switch power usage exceeds the configured threshold percentage, clear the **NotificationControlEnable** check box.
7. In the **PoweredDeviceDetectType** section, click a radio button.
  8. On the toolbar, click **Apply**.
-

## PoE tab field descriptions

The following table outlines the parameters of the **PoE** tab.

| Name                             | Description                                                                                                                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power(watts)</b>              | Displays the total power (in watts) available to the switch.                                                                                                                                                                                   |
| <b>OperStatus</b>                | Displays the power state of the switch: <ul style="list-style-type: none"> <li>• on</li> <li>• off</li> <li>• faulty</li> </ul>                                                                                                                |
| <b>ConsumptionPower(watts)</b>   | Displays the power (in watts) being used by the switch.                                                                                                                                                                                        |
| <b>UsageThreshold%</b>           | Lets you set a percentage of the total power usage of the switch above which the system sends a trap. <p><b>! Important:</b><br/>You must enable the traps (NotificationControlEnable) to receive a power usage trap.</p>                      |
| <b>NotificationControlEnable</b> | Lets you enable or disable sending traps if the switch power usage exceeds the percentage set in the UsageThreshold% field.                                                                                                                    |
| <b>PoweredDeviceDetectType</b>   | Lets you set the power detection type that the switch uses to detect a request for power from a device connected to all ports on the switch: <ul style="list-style-type: none"> <li>• 802.3af</li> <li>• 802.3af and legacy support</li> </ul> |
| <b>PowerPairs</b>                | A read-only field that displays the status of the RJ-45 pin pairs that the switch uses to send power to the ports on the switch.                                                                                                               |

## Viewing PoE information for switch ports

Use this procedure to display the PoE configuration for switch ports.

## Procedure

1. From the **Device Physical View**, select a port.
2. In the navigation tree, click **Edit**.
3. In the Edit tree, click **Chassis**.
4. Click **Ports**.
5. In the work area, click the **PoE** tab.

---

## PoE tab field descriptions

The following table describes the fields on the PoE tab.

| Name                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AdminEnable</b>          | Lets you enable or disable PoE on this port. By default, PoE is enabled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>PowerPairs</b>           | Displays the status of the RJ-45 pin pairs that the switch uses to send power to the prots on the switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>DetectionStatus</b>      | <p>Displays the operational status of the power-device detecting mode on the specified port:</p> <ul style="list-style-type: none"> <li>• <b>disabled</b>: detecting function disabled.</li> <li>• <b>searching</b>: detecting function is enabled and the system is searching for a valid powered device on this port.</li> <li>• <b>deliveringPower</b>: detection found a valid powered device and the port is delivering power.</li> <li>• <b>fault</b>: power-specific fault detected on port</li> <li>• <b>test</b>: detecting device in test mode.</li> <li>• <b>otherFault</b></li> </ul> <p><b>! Important:</b><br/>Avaya recommends against using the test operational status.</p> |
| <b>PowerClassifications</b> | Classification is a way to tag different terminals on the Power over LAN network according to their power consumption. Devices such as IP telephones, WLAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Name                     | Description                                                                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | access points, and others can be classified according to their power requirements.                                                                     |
| <b>PowerPriority</b>     | Lets you set the power priority for the specified port to: <ul style="list-style-type: none"> <li>• critical</li> <li>• high</li> <li>• low</li> </ul> |
| <b>PowerLimit(watts)</b> | Specifies the maximum power that the switch can supply to a port.<br>RANGE: 3 to 32 Watts<br>DEFAULT: 16 Watts                                         |
| <b>Voltage (volts)</b>   | Indicates the voltage measured in Volts.                                                                                                               |
| <b>Current(amps)</b>     | Indicates the current measured in amps.                                                                                                                |
| <b>Power(watts)</b>      | Indicates the power measured in watts.                                                                                                                 |

# Appendix A: Factory default configuration

## Factory default configuration settings

| Setting                              | Factory Default Configuration Value         |
|--------------------------------------|---------------------------------------------|
| Unit Select switch                   | non-Base                                    |
| Unit                                 | 1                                           |
| BootP Request Mode                   | BootP When Needed                           |
| In-Band Stack IP Address             | 0.0.0.0 (no IP address assigned)            |
| In-Band Switch IP Address            | 0.0.0.0 (no IP address assigned)            |
| In-Band Subnet Mask                  | 0.0.0.0 (no subnet mask assigned)           |
| Default Gateway                      | 0.0.0.0 (no IP address assigned)            |
| Read-Only Community String           | public                                      |
| Read-Write Community String          | private                                     |
| Trap IP Address                      | 0.0.0.0 (no IP address assigned)            |
| Community String                     | Zero-length string                          |
| Authentication Trap                  | Enabled                                     |
| Autotopology                         | Enabled                                     |
| sysContact                           | Zero-length string                          |
| sysName                              | Zero-length string                          |
| sysLocation                          | Zero-length string                          |
| Aging Time                           | 300 seconds                                 |
| Find an Address                      | 00-00-00-00-00-00 (no MAC address assigned) |
| Select VLAN ID [1]                   |                                             |
| MAC Address Security                 | Disabled                                    |
| MAC Address Security SNMPLocked      | Disabled                                    |
| Partition Port on Intrusion Detected | Disabled                                    |
| Partition Time                       | 0 seconds (the value 0 indicates forever)   |
| DA Filtering on Intrusion Detected   | Disabled                                    |
| Generate SNMP Trap on Intrusion      | Disabled                                    |

Factory default configuration

| Setting                    | Factory Default Configuration Value     |
|----------------------------|-----------------------------------------|
| Clear by Ports             | NONE                                    |
| Learn by Ports             | NONE                                    |
| Current Learning Mode      | Not Learning                            |
| Trunk                      | blank field                             |
| Security                   | Disabled                                |
| Port List                  | blank field                             |
| Find an Address            | blank field                             |
| MAC Address                | 00-00 00-00 -00-00                      |
| Allowed Source             | blank field                             |
| Display/Create MAC Address | 00-00-00-00-00-00                       |
| Create VLAN                | 1                                       |
| Delete VLAN                | blank field                             |
| VLAN Name                  | VLAN #                                  |
| Management VLAN            | Yes (VLAN #1)                           |
| VLAN Type                  | Port-based                              |
| Protocol ID (PID)          | None                                    |
| User-Defined PID           | 0x0000                                  |
| VLAN State                 | Active (VLAN # 1)                       |
| Port Membership            | All ports assigned as members of VLAN 1 |
| Unit                       | 1                                       |
| Port                       | 1                                       |
| Filter Untagged Frames     | No                                      |
| Filter Unregistered Frames | Yes                                     |
| Port Name                  | Unit 1, Port 1                          |
| PVID                       | 1                                       |
| Port Priority              | 0                                       |
| Tagging                    | Untag All                               |
| AutoPVID                   | Enabled                                 |
| Unit                       | 1                                       |
| Port                       | 1                                       |
| PVID                       | 1 (read only)                           |

| Setting                           | Factory Default Configuration Value         |
|-----------------------------------|---------------------------------------------|
| Port Name                         | Unit 1, Port 1 (read only)                  |
| Unit                              | 1                                           |
| Linktrap                          | On                                          |
| Autonegotiation                   | Enabled (for all ports)                     |
| Speed/Duplex                      | (See Autonegotiation)                       |
| Trunk                             | 1 to 12 (depending on configuration status) |
| Trunk Members (Unit/Port)         | Blank field                                 |
| STP Learning                      | Normal                                      |
| Trunk Mode                        | Basic                                       |
| Trunk Status                      | Disabled                                    |
| Trunk Name                        | Trunk #1 to Trunk #12                       |
| Traffic Type                      | Rx and Tx                                   |
| Port                              | 1                                           |
| Monitoring Mode                   | Disabled                                    |
| Monitor/Unit Port                 | Zero-length string                          |
| Unit/Port X                       | Zero-length string                          |
| Unit/Port Y                       | Zero-length string                          |
| Address A                         | 00-00-00-00-00-00 (no MAC address assigned) |
| Address B                         | 00-00-00-00-00-00 (no MAC address assigned) |
| Rate Limit Packet Type            | Both                                        |
| Limit                             | None                                        |
| VLAN                              | 1                                           |
| Snooping                          | Disabled                                    |
| Proxy                             | Disabled                                    |
| Robust Value                      | 2                                           |
| Query Time                        | 125 seconds                                 |
| Static Router Ports               | - (for all ports)                           |
| Multicast Group Membership screen |                                             |
| Unit                              | 1                                           |
| Port                              | 1                                           |
| Console Port Speed                | 9600 Baud                                   |

Factory default configuration

| Setting                            | Factory Default Configuration Value                                                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Console Switch Password type       | None                                                                                                          |
| Console Stack Password type        | None                                                                                                          |
| Telnet Stack Password type         | None                                                                                                          |
| Telnet Switch Password type        | None                                                                                                          |
| Console Read-Only Switch Password  | Passwords are user for non-SSH software images and userpasswd for SSH software images.                        |
| Console Read-Write Switch Password | Passwords are secure for non-SSH software images and securepasswd for SSH software images.                    |
| Console Read-Only Stack Password   | Passwords are user for non-SSH software images and userpasswd for SSH software images.                        |
| Console Read-Write Stack Password  | Passwords are secure for non-SSH software images and securepasswd for SSH software images.                    |
| Radius password/server             | secret                                                                                                        |
| New Unit Number                    | Current stack order                                                                                           |
| Renumber units with new setting?   | No                                                                                                            |
| Group                              | 1                                                                                                             |
| Bridge Priority                    | 8000                                                                                                          |
| Bridge Hello Time                  | 2 seconds                                                                                                     |
| Bridge Maximum Age Time            | 20 seconds                                                                                                    |
| Bridge Forward Delay               | 15 seconds                                                                                                    |
| Add VLAN Membership                | 1                                                                                                             |
| Tagged BPDU on tagged port         | <ul style="list-style-type: none"> <li>• STP Group 1--No</li> <li>• Other STP Groups--Yes</li> </ul>          |
| STP Group State                    | <ul style="list-style-type: none"> <li>• STP Group 1--Active</li> <li>• Other STP Groups--InActive</li> </ul> |
| VID used for tagged BPDU           | 4001-4008 for STGs 1-8, respectively                                                                          |
| STP Group                          | 1                                                                                                             |
| Participation                      | Normal Learning                                                                                               |
| Priority                           | 128                                                                                                           |
| Path Cost                          | 1                                                                                                             |
| STP Group                          | 1                                                                                                             |

| Setting                                                 | Factory Default Configuration Value                                                                                                                               |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STP Group                                               | 1                                                                                                                                                                 |
| TELNET Access/SNMP                                      | By default, SNMP access is disabled in the SSH image and enabled in the non-SSH image. Telnet is enabled by default in both SSH and non-SSH images. Use list: Yes |
| Login Timeout                                           | 1 minute                                                                                                                                                          |
| Login Retries                                           | 3                                                                                                                                                                 |
| Inactivity Timeout                                      | 15 minutes                                                                                                                                                        |
| Event Logging                                           | All                                                                                                                                                               |
| Allowed Source IP Address (50 user-configurable fields) | First field: 0.0.0.0 (no IP address assigned)                                                                                                                     |
|                                                         | Remaining 49 fields: 255.255.255.255 (any address is allowed)                                                                                                     |
| Allowed Source Mask (50 user-configurable fields)       | First field: 0.0.0.0 (no IP address assigned)                                                                                                                     |
|                                                         | Remaining 49 fields: 255.255.255.255 (any address is allowed)                                                                                                     |
|                                                         | Remaining 49 fields: ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff/128 (any IPv6 address is allowed)                                                                    |
| Image Filename                                          | Zero-length string                                                                                                                                                |
| Diagnostics image filename                              | Zero-length string                                                                                                                                                |
| TFTP Server IP Address                                  | 0.0.0.0 (no IP address assigned)                                                                                                                                  |
| Start TFTP Load of New Image                            | No                                                                                                                                                                |
| Configuration Image Filename                            | Zero-length string                                                                                                                                                |
| Copy Configuration Image to Server                      | No                                                                                                                                                                |
| Retrieve Configuration Image from Server                | No                                                                                                                                                                |
| ASCII Configuration Filename                            | Zero-length string                                                                                                                                                |
| Retrieve Configuration file from Server                 | No                                                                                                                                                                |
| Auto Configuration on Reset                             | Disabled                                                                                                                                                          |
| High Speed Flow Control Configuration                   |                                                                                                                                                                   |
| VLAN Configuration Control                              | Strict                                                                                                                                                            |
| Agent Auto Unit Replacement                             | Enabled                                                                                                                                                           |

Factory default configuration