



Using CLI and EDM on Ethernet Routing Switch 4900 and 5900 Series

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Contents

Chapter 1: About this Document	5
Purpose.....	5
Conventions.....	5
Text Conventions.....	5
Documentation and Training.....	7
Getting Help.....	8
Providing Feedback.....	9
Chapter 2: New in this document	10
Chapter 3: Command Line Interface (CLI)	11
Command Line Interface Fundamentals.....	11
CLI Command Modes.....	11
Command completion.....	13
default command operator.....	15
no command operator.....	17
GREP with CLI show command.....	17
Timestamp in show command outputs.....	18
CLI help.....	18
Command Line Interface Procedures.....	20
CLI Access Procedures.....	20
Configuring the path to the help files using CLI.....	20
CLI configuration files.....	21
GREP CLI show command filters.....	27
Enabling the Web server using CLI.....	31
Disabling the Web server using CLI.....	32
Displaying the Web server status using CLI.....	32
Chapter 4: Enterprise Device Manager (EDM)	33
Enterprise Device Manager concepts.....	33
Tested browsers.....	34
Memory requirements.....	34
Online help.....	35
Interface components.....	35
Switch summary view.....	35
Device Physical View.....	36
EDM window.....	37
Single port configuration for EDM.....	44
Multiple Port Configuration for EDM.....	46
Online help.....	48
Enterprise Device Manager procedures.....	48
Starting EDM.....	48

Contents

Using shortcut menus.....	49
Navigating around EDM.....	49
Undocking tabs.....	50
Docking tabs.....	50
Editing a dialog box.....	50
Inserting an entry in a dialog box.....	51
Deleting an entry from a dialog box.....	51
Editing an object using the shortcut menu.....	51
Editing file system elements.....	52
Configuring multiple interface ports using EDM - Example 1.....	52
Configuring multiple ports using EDM - Example 2.....	53
Graphing statistics.....	54
Configuring the help file path using EDM.....	54
Displaying USB file information using EDM.....	54
Saving current configuration to flash memory manually using EDM.....	55
Enterprise Device Manager configuration files.....	55
ASCII and binary configuration file procedures.....	57
Getting EDM online help files for embedded EDM.....	62
Downloading help files.....	62

Chapter 1: About this Document

This section discusses the purpose of this document, the conventions used, ways to provide feedback, additional help, and information regarding other Extreme Networks publications.

Purpose

This document describes how to use the Command Line Interface (CLI) and Enterprise Device Manager (EDM) interfaces to configure the following products:

- Extreme Networks Ethernet Routing Switch 4900 Series
- Extreme Networks Ethernet Routing Switch 5900 Series

Conventions

This section discusses the conventions used in this guide.

Text Conventions

The following tables list text conventions that can be used throughout this document.

Table 1: Notice Icons





Icon	Alerts you to...
 Important:	A situation that can cause serious inconvenience.
 Note:	Important features or instructions.
 Tip:	Helpful tips and notices for using the product.
 Danger:	Situations that will result in severe bodily injury; up to and including death.

Table continues...



Icon	Alerts you to...
 Warning:	Risk of severe personal injury or critical loss of data.
 Caution:	Risk of personal injury, system damage, or loss of data.

Table 2: Text Conventions

Convention	Description
Angle brackets (< >)	<p>Angle brackets (< >) indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when you enter the command.</p> <p>If the command syntax is <code>cfm maintenance-domain maintenance-level <0-7></code> , you can enter <code>cfm maintenance-domain maintenance-level 4</code>.</p>
Bold text	<p>Bold text indicates the GUI object name you must act upon.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Click OK. • On the Tools menu, choose Options.
Braces ({ })	<p>Braces ({ }) indicate required elements in syntax descriptions. Do not type the braces when you enter the command.</p> <p>For example, if the command syntax is <code>ip address {A.B.C.D}</code>, you must enter the IP address in dotted, decimal notation.</p>
Brackets ([])	<p>Brackets ([]) indicate optional elements in syntax descriptions. Do not type the brackets when you enter the command.</p> <p>For example, if the command syntax is <code>show clock [detail]</code>, you can enter either <code>show clock</code> or <code>show clock detail</code>.</p>
Ellipses (...)	<p>An ellipsis (...) indicates that you repeat the last element of the command as needed.</p> <p>For example, if the command syntax is <code>ethernet/2/1 [<parameter> <value>]...</code>, you enter <code>ethernet/2/1</code> and as many parameter-value pairs as you need.</p>
<i>Italic Text</i>	<p>Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are</p>

Table continues...

Convention	Description
	also used when referring to publication titles that are not active links.
Plain Courier Text	Plain Courier text indicates command names, options, and text that you must enter. Plain Courier text also indicates command syntax and system output, for example, prompts and system messages. Examples: <ul style="list-style-type: none"> • <code>show ip route</code> • <code>Error: Invalid command syntax</code> <code>[Failed] [2013-03-22 13:37:03.303</code> <code>-04:00]</code>
Separator (>)	A greater than sign (>) shows separation in menu paths. For example, in the Navigation tree, expand the Configuration > Edit folders.
Vertical Line ()	A vertical line () separates choices for command keywords and arguments. Enter only one choice. Do not type the vertical line when you enter the command. For example, if the command syntax is <code>access-policy by-mac action { allow deny }</code> , you enter either <code>access-policy by-mac action allow</code> or <code>access-policy by-mac action deny</code> , but not both.

Documentation and Training

Find Extreme Networks product information at the following locations:

[Current Product Documentation](#)

[Release Notes](#)

[Hardware and software compatibility](#) for Extreme Networks products

[Extreme Optics Compatibility](#)

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A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

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*** Note:**

You can modify your product selections or unsubscribe at any time.

4. Select **Submit**.

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- Content errors, or confusing or conflicting information.
- Improvements that would help you find relevant information in the document.
- Broken links or usability issues.

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- Email us at documentation@extremenetworks.com.

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Chapter 2: New in this document

There are no feature changes in this release.

Chapter 3: Command Line Interface (CLI)

This chapter describes the Command Line Interface (CLI). CLI is an industry standard command line interface that you can use for single-device management.

Command Line Interface Fundamentals

The following sections contain conceptual information about the Command Line Interface (CLI).

CLI Command Modes

Command Line Interface (CLI) command modes provide specific sets of CLI commands. When you log onto the switch, you are in User EXEC mode with limited commands. While in a higher mode, you can access most commands from lower modes, except if they conflict with commands of your current mode.

There are two categories of CLI commands: show commands and configuration commands. Show commands can be used from multiple command modes with the same results; they show the same configuration information regardless of the command mode from which the show command is used. Configuration command results, however, may be dependent on the command mode from which a configuration command is used. For example, an enable command used in Global Configuration mode will enable a feature globally for all devices, while the same command used from one of the interface command modes will enable a feature for a specific interface only.

Your user authorization credentials determine what commands are available to you in Privileged EXEC mode and all higher level modes. If you have read-only access, you cannot progress beyond User EXEC mode. If you have read-write access, you can progress through all available modes.

The CLI commands for navigating from lower to higher level modes are listed in the following table. To navigate from higher to lower level modes, use the following commands:

- **exit** to navigate from a higher level mode to a lower level mode, down to Privileged EXEC mode
- **end** from any command mode directly to Privileged EXEC mode
- **disable** to navigate from Privileged EXEC mode to User EXEC mode
- **logout** to terminate the CLI session from any command mode

The following table describes the various command modes, including the CLI commands to access and to exit each mode.

Table 3: CLI command modes

Command mode and sample prompt	Command to access mode	Command to exit mode
User EXEC Switch>	No entrance command, default mode	exit or logout
Privileged EXEC Switch#	enable	exit or logout
Global Configuration Switch(config)#	configure terminal	To return to Privileged EXEC mode, enter end or exit To exit CLI completely, enter logout
Interface Configuration Switch(config-if)# You can configure the following interfaces: <ul style="list-style-type: none"> • Ethernet • Loopback • Management • VLAN 	From Global Configuration mode: To configure a port, enter interface ethernet <port number>. To configure a loopback, enter interface loopback <loopback number>. To configure a management, enter interface mgmt <mgmt 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 CLI completely, enter logout
Router Configuration Switch(configrouter)# You can configure the following routers: <ul style="list-style-type: none"> • RIP • OSPF • VRRP 	From Global or Interface Configuration mode: To configure RIP, enter router rip. To configure OSPF, enter router ospf.	To return to Global Configuration mode, enter exit. To return to Privileged EXEC mode, enter end.

Table continues...

Command mode and sample prompt	Command to access mode	Command to exit mode
<ul style="list-style-type: none"> • ISIS 	To configure VRRP, enter <code>router vrrp</code> . To configure IS-IS, enter <code>router isis</code> .	To exit CLI completely, enter <code>logout</code> .
Application Configuration <code>Switch(config-app)</code>	From Global, Interface or Router Configuration mode, enter <code>application</code> .	To return to Global Configuration mode, enter <code>exit</code> . To return to Privileged EXEC mode, enter <code>end</code> . To exit CLI completely, enter <code>logout</code> .
DHCP Guard Configuration <code>Switch(config-dhcpguard)</code>	From Global, Interface, Router, Application Configuration mode, enter <code>ipv6 dhcp guard policy <policy_name></code> .	To return to Global Configuration mode, enter <code>exit</code> . To return to Privileged EXEC mode, enter <code>end</code> . To exit CLI completely, enter <code>logout</code> .
RA Guard Configuration <code>Switch(config-raguard) #</code>	From Global, Interface, Router, Application Configuration mode, enter <code>ipv6 nd raguard policy <policy_name></code> .	To return to Global Configuration mode, enter <code>exit</code> . To return to Privileged EXEC mode, enter <code>end</code> . To exit CLI completely, enter <code>logout</code> .

Command completion

The CLI provides potential command completions to the command string. Completions are provided by using a question mark (?) or by using the CLI autocompletion feature.

? command completion

The ? command completion is available for any valid command. By typing a command and using a ? as the last argument in the command, the system returns a list of possible command completions from the point of the ?. A short description is provided with each possible completion.

Example

If you enter the following command:

```
Switch:1(config-ospf)#redistribute ?
```

CLI provides a list of completions for the **redistribute ?** command.

```
Switch:1(config-ospf)#redistribute ?
  direct    Configure OSPF redistribution policies for direct routes
  isis      Configure OSPF redistribution policies for isis routes
  rip       Configure OSPF redistribution policies for RIP routes
  static    Configure OSPF redistribution policies for static routes
```

All the parameters listed under redistribute indicate sub-context commands.

You must use one of the available completions, and if necessary, use the command completion help again to find the next completion.

```
Switch:1(config-ospf)#redistribute direct ?
  enable    Enable isis redistribute direct command
<cr>
```

When you see <cr> (Carriage Return/Enter Key) in the list with the additional choices, this means that no additional parameters are required to execute the CLI command. However, the additional choices listed could be peer commands or sub-context commands.

For example, the parameter listed under **redistribute direct ?** is a peer commands. You can enter these peer commands on the same line as the root command, for example **redistribute direct enable**. However, the <cr> indicates that you can also enter the **redistribute direct** command only and this command does not require any additional parameters at this level.

CLI autocompletion

CLI autocompletion is a feature that you can use to automatically fill in the unique parts of a command string rather than typing the entire command. Autocompletion makes the CLI experience easier and prevents mistakes in spelling that force you to re-enter the command.

Autocompletion completes the token in the command as soon as it becomes unique.

The **Tab** key autocompletes the command without executing the command, and places the cursor immediately after the last character. The **Enter** key autocompletes the command and executes it.

Example

To enable redistribution of OSPF direct routes,

```
Switch:1(config-ospf)#redistribute direct
```

When you use **redistribute ?**, you see four possible sub-context commands.

```
direct
  isis
  rip
  static
```

If you type the following without pressing `Enter`:

```
Switch:1(config-ospf)#redistribute direct m
```

and press the `Tab` key, the system completes the command to the following point:

```
redistribute direct metric
```

Two possible completions exist. You can type `-t`, and then press `Tab` to finish the command:

```
Switch:1(config-ospf)#redistribute direct metric-type
```

default command operator

You can reset the modified configuration of a command to the default configuration by using the default operator.

Use the `?` command completion along with the default keyword in each configuration mode, to view the list of commands that support the default operator. For more information, see [Command completion](#) on page 13.

Example

Configure `csnp-interval` to its default value. The default value of `csnp-interval` is 10 seconds.

```
Switch:1>enable
Switch:1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch:1(config)#router isis
Switch:1(config-isis)#show isis
```

```
=====
                        ISIS General Info
=====
                        AdminState : disabled
                        RouterType  : Level 1
                        System ID   : e45d.523c.6484
Max LSP Gen Interval : 900
                        Metric     : wide
Overload-on-startup  : 20
                        Overload   : false
Csnp Interval       : 200
PSNP Interval       : 2
Rxmt LSP Interval   : 5
                        spf-delay  : 100
Router Name         :
ip source-address   :
ipv6 source-address :
ip tunnel source-address :
Tunnel vrf         :
ip tunnel mtu       :
Num of Interfaces   : 1
Num of Area Addresses : 0

inband-mgmt-ip :
backbone       : disabled
Dynamically Learned Area : 00.0000.0000
FAN Member     : Yes
```

Command Line Interface (CLI)

```
Switch:1(config-isis)#default csnp-interval
Switch:1(config-isis)#show isis

=====
                        ISIS General Info
=====
AdminState : disabled
RouterType : Level 1
System ID  : e45d.523c.6484
Max LSP Gen Interval : 900
Metric     : wide
Overload-on-startup : 20
Overload   : false
Csnp Interval : 10
PSNP Interval : 2
Rxmt LSP Interval : 5
  spf-delay : 100
Router Name :
ip source-address :
ipv6 source-address :
ip tunnel source-address :
  Tunnel vrf :
  ip tunnel mtu :
Num of Interfaces : 1
Num of Area Addresses : 0

inband-mgmt-ip :
  backbone : disabled
Dynamically Learned Area : 00.0000.0000
FAN Member : Yes
```

Example

View the IP configuration commands for a VLAN interface that support the default operator.

```
Switch:1>enable
Switch:1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch:1(config)#interface vlan 1
Switch:1(config-if)#default ?
Default settings
ip                Restore default L3 parameters on a VLAN
ipv6              Restore default IPv6 parameters on a VLAN

Switch:1(config-if)#default ip ?
Restore default L3 parameters on a vlan
arp-proxy         Restore default Proxy ARP
dhcp-relay        Disable DHCP relay on this vlan
directed-broadcast Restore default IP directed-broadcast
forward-protocol  Configure to default broadcast forwarding
fwd-nh            Restore default IP forwarding next-hop config settings
igmp              Restore default per-vlan IGMP settings
ipsec             ipsec configuration for an interface
ospf              Restore default OSPF settings
pim               Restore default per-vlan PIM settings
rip               Restore default RIP settings
routing           Disable L3 routing on a VLAN
spb-multicast     Default spb-multicast commands
vrrp              Restore default VR settings
Switch:1(config-if)#default ip igmp ?
<cr>
```


no command operator

You can use the `no` operator in a command to negate a configuration. Based on the functionality of the command, you can perform negations, such as disable, delete, remove, or reset to the default configuration.

Use the `?` command completion along with the `no` keyword to view the list of commands that support the `no` operator in each configuration mode. For more information, see [Command completion](#) on page 13.

Example

Negate the automatic virtual link that provides automatic dynamic backup link for OSPF traffic.

```
Switch:1>enable
Switch:1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch:1(config)#router ospf
Switch:1(config-router)#no auto-vlink
```

Example

Remove an IP address configuration from VLAN.

```
Switch:1>enable
Switch:1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch:1(config)#interface vlan 3
Switch:1(config-if)#no ip address 192.0.2.4
```

Example

View the commands that can negate a configuration in RIP router configuration mode.

```
Switch:1>enable
Switch:1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch:1(config)#router rip
Switch:1(config-rip)#no ?
Negate a command or set its defaults
ipv6          Disable ipv6 configurations
network       Disable rip on an ip network
redistribute  To disable/delete redistribute globally
Switch:1(config-rip)#no network ?
{A.B.C.D}     Network ip address
LabSwitch:1(config-rip)#no network 192.0.2.4 ?
<cr>
```

GREP with CLI show command

You can use Global Regular Expression Print (GREP) with `show` commands to filter the output based on match criteria.

Enter the `show` command followed by the pipe (`|`) character, followed by the GREP filter command. The `show` command output contains only the lines that match the GREP filter pattern.

The following GREP filter commands are supported:

Filter function	Description
count	Counts the number of lines in the output of a command.
match	Displays only the output lines which match the given pattern.
except	Displays only the output lines which do not match the given pattern.
find	Displays the output of a command starting from the first line which matches the given pattern.
no-more	Temporarily disables pagination for the output of an CLI command. When the lines of output exceed the terminal length, the entire output of the command is displayed and message does not appear to continue or quit.
head	Limits the output of a command to the first few lines. If limit is not specified, the first 10 lines appear.
tail	Limits the output of a command to the last few lines. If a number is not specified the last 10 lines are shown.

For more information about the functions, see [GREP CLI show command filters](#) on page 27.

Timestamp in show command outputs

The output for all CLI show commands includes a timestamp header to indicate when the command output was generated. This information can be helpful when communicating with Support.

The following command output shows a timestamp example.

```
Switch#show stack-info
*****
      Command Execution Time: 2019-05-15 12:30:52 GMT+00:00
*****
Unit#  Switch Model      Pluggable Pluggable Pluggable  Pluggable SW Version
      Port      Port      Port      Port
-----
1      5928GTS      (25) None (26) None (27) None (28) None v7.7.0.079
```

CLI help

CLI help is available at all levels.

CLI list

From the User EXEC mode, the CLI list command `show cli list` displays a detailed view of the CLI commands. Additionally, the verbose command, `show cli list verbose` lists the CLI syntax for each command.

Command list

To obtain a list of all commands available from a prompt, enter a question mark (?).

Command options

To obtain a list of all options for a command, at the prompt enter a portion of a command followed by a space and a question mark (?).

Command names

To obtain a correct command name, at the prompt enter a portion of the command name, and then press the **Tab** key. The system displays the first unambiguous match for your selection. For example, when you enter `down + Tab`, the system displays `download`.

Command modes

To obtain a list of CLI command modes available, enter `help modes`.

Commands organized by mode

To obtain a list of CLI commands, organized by command mode, enter `help commands`. A short explanation of each command is included.

Keystroke shortcuts

To make using CLI easier, use the keystroke shortcuts in the following table.

Key combination	Function
Ctrl+A	Start of line
Ctrl+B	Back 1 character
Ctrl+C	Abort command
Ctrl+D	Delete the character indicated by the cursor
Ctrl+E	End of line
Ctrl+F	Forward 1 character
Ctrl+H	Delete character left of cursor (Backspace key)
Tab	Command or parameter completion
Ctrl+K and Ctrl+R	Redisplay line
Ctrl+N or Down arrow	Next history command
Ctrl+P or Up arrow	Previous history command
Ctrl+T	Transpose characters
Ctrl+U	Delete entire line
Ctrl+W	Delete word to left of cursor
Ctrl+X	Delete all characters to left of cursor
Ctrl+z	Exit Global Configuration mode to Privileged EXEC mode
?	Context sensitive help
Esc+C and Exc+U	Capitalize character at cursor
Esc+l	Change character at cursor to lower case
Esc+B	Move back 1 word
Esc+D	Delete 1 word to the right
Esc+F	Move 1 word forward

Command Line Interface Procedures

The following sections contain information about common Command Line Interface (CLI) tasks. You can access CLI during runtime to manage the switch.

CLI Access Procedures

Before you begin

- Connect to the switch with a console cable, connected directly to the console port, or use Telnet.
- To connect to the switch remotely, through Telnet, ensure that you enable remote access, and that the switch IP address is valid.
- Use a terminal, or computer with a terminal emulator, as the CLI command station.
- If you use a console cable and console port, ensure that the terminal emulation program conforms to settings listed in the following table.

Property	Value
Baud Rate	9600 bps
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None
Terminal Protocol	VT100 and VT100/ANSI

Opening a CLI session

Procedure

1. Connect to the switch.
2. Enter the password, if applicable.
3. At the CLI Banner Screen, enter `CTRL+Y`.
4. To access CLI, from the main menu, press **c** or scroll to Command Line Interface.
5. Press **Enter**.

Configuring the path to the help files using CLI

Use this procedure to configure the path to the help files.

Procedure

1. Enter Global Configuration mode:

```
enable
```

```
configure terminal
```

- At the command prompt, enter the following command:

```
edm help-file-path <path name> {tftp <address> {<A.B.C.D> | <IPv6-Address>} | usb unit <1-8>}
```

Variable definitions

Use the definitions in the following table to use the `edm help-file-path` command.

Variable	Definition
<i>path name</i>	Specifies the path you created for EDM help files. The path name is stored in NVRAM.
<i>TFTP <A.B.C.D></i>	Specifies the IPv4 address of the TFTP server. Use this address only for EDM help files. If you do not specify a TFTP server address, the system uses the address specified most recently. ! Important: Because the TFTP server address is stored in NVRAM, each time the system returns to the default configuration, you must reconfigure the path to EDM online help.
<i>TFTP <IPv6-address></i>	Specifies the IPv6 address of the TFTP server. Use this address only for EDM help files. If you do not specify a TFTP server address, the system uses the address specified most recently. ! Important: Because the TFTP server address is stored in NVRAM, each time the system returns to the default configuration, you must reconfigure the path to EDM online help.
usb < <i>unit</i> >	Specifies the unit number where the USB mass storage device that contains the help files resides. The unit number is an integer from 1 through 8.

CLI configuration files

Configuration files are ASCII text files that allow an administrator to change switch configuration quickly.

Use the procedures in the following sections to display, store, and retrieve configuration files, and also to save the current configuration using the CLI.

Procedures to manage binary configuration files are included in the Enterprise Device Manager section.

Viewing current configuration using CLI

Use this procedure to view the current configuration.

Procedure

1. Enter Privileged EXEC mode:
`enable`
2. At the command prompt, enter the following command:
`show running-config`

Saving current configuration to TFTP server using CLI

Procedure

1. Enter Privileged EXEC mode:
`enable`
2. At the command prompt, enter the following command:
`copy running-config tftp [address (<A.B.C.D> | <WORD>)] [filename <WORD>]`

Variable definitions

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

Variable	Value
address<A.B.C.D>	Specifies the address of the TFTP server. • A.B.C.D — specifies the IP address
filename<name>	Specifies the configuration file name.

Variable definitions

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

Variable	Value
address<A.B.C.D>	Specifies the address of the TFTP server. • A.B.C.D — specifies the IP address
filename<name>	Specifies the configuration file name.
module	Copies configuration of an application.
verbose	Copies entire configuration (defaults and non-defaults).

Saving current configuration to SFTP server using CLI

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

```
copy running-config sftp [verbose] [module<applicationModules>]
[filename <WORD>] ([address {<A.B.C.D> | <ipv6addr>}]) username
<WORD> [password]
```

Saving current configuration to USB device using CLI

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

```
copy running-config usb [filename <WORD>] [module
<applicationModules>] [verbose]
```

Saving current configuration to flash memory using CLI

Use this procedure to save the current configuration to flash memory. Note that the system automatically issues the **copy config nvram** command periodically.

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

```
copy config nvram
```

Note:

The current configuration can also be saved to Non-Volatile RAM (NVRAM) using the **write memory** command or the **save config** command. Both of these commands are also issued from Privileged EXEC command mode.

Restoring system configuration from TFTP using CLI

Use this procedure to restore the system configuration from TFTP.

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

```
copy tftp config address <A.B.C.D> filename <name>
```

Variable definitions

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

Variable	Value
address <A.B.C.D>	Specifies the address of the TFTP server. <ul style="list-style-type: none">• A.B.C.D — specifies the IP address
filename <name>	Specifies the configuration file name.

Restoring system configuration from SFTP using CLI

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

```
copy sftp config address <A.B.C.D> | <WORD> filename <name> username  
<WORD> [password]
```

Restoring system configuration from USB device using CLI

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

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

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

Copying stack unit configuration to standalone switch using CLI

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

2. At the prompt, enter `copy [tftp | sftp] config address <A.B.D.C> | <WORD> filename <name> unit <unit number> .`

Downloading a configuration file automatically using CLI

Use this procedure to configure a switch to automatically load a configuration file.

Procedure

1. Enter Privileged EXEC mode:


```
enable
```

- 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>
```

Variable definitions

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

Variable	Value
address <A.B.C.D>	Specifies the address of the TFTP server. <ul style="list-style-type: none"> A.B.C.D — specifies the IP address
filename <name>	Specifies the configuration file name.
username <WORD>	Specifies the username for downloading a configuration file automatically using CLI.
[password]	Specifies the password for downloading a configuration file automatically using CLI.

Use the definitions in the following table to use the configure **network load-on-boot** command.

Variable	Value
load-on-boot { <i>disable</i> <i>use-bootp</i> <i>use-config</i> }	Specifies the setting to automatically load a configuration file when the system starts <ul style="list-style-type: none"> <i>disable</i> — disables the automatic loading of the configuration file <i>use-bootp</i> — specifies loading the ASCII configuration file at startup and using BootP to obtain values for the TFTP address and file name <i>use-config</i> — specifies loading the ASCII configuration file at startup and using the locally configured values for the TFTP address and file name <p>If you omit the variables, the system immediately downloads and runs the ASCII configuration file.</p>

Viewing USB files

Use this procedure to display configuration files stored on a USB device in a unit in a stack.

Before you begin

Insert a USB device in the base unit or in a stack unit.

Procedure

- Enter Privileged EXEC mode:

```
enable
```

- To display files on a USB device inserted in the base unit, enter the following command :

```
show usb-files
```

3. To display files on a USB device inserted in a stack unit, enter the following command :

```
show usb-files unit <unit_number>
```

Displaying USB file information using CLI

Before you begin

Insert USB device in the switch.

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

2. Enter the following command:

```
show usb-host-port all
```

Example

Downloading an ASCII configuration file from a TFTP server or USB device

Use this procedure to download an ASCII configuration file from a TFTP server or USB device to the local ASCII file system. You can then boot the system from the local file system. In a stack, the downloaded ASCII configuration file will be saved in all units.

Procedure

1. Enter Global Configuration mode:

```
enable
```

```
configure terminal
```

2. To download from a TFTP server, enter the following command at the command prompt:
3. To download from a USB device, enter the following command at the command prompt:

Next steps

Proceed with the `boot script` command to boot the system with the local ASCII configuration file.

When the system boots successfully with an ASCII configuration file, the system configuration is saved to the binary configuration. If the system boot fails, the system resets and boots with the current binary configuration.

Variable definitions

The following table describes the parameters for the `copy [tftp] [usb] script` command.

Variable	Value
address <A.B.C.D>	Specifies the address of the TFTP server. <ul style="list-style-type: none"> A.B.C.D — specifies the IPv4 address WORD - specifies the IPv6 address
filename <Word>	Specifies the name of the file to be retrieved.
block <1-2> [name <WORD>]	Specifies the block from which the ASCII configuration file is to be downloaded If you do not specify a name for the block name, the default is the name of the file retrieved.

GREP CLI show command filters

Use the following GREP filter procedures to output only the command lines specified by the filter.

Count filter

This filter counts the number of lines in the output of a command.

Syntax

```
<CLI command> | count
```

Example

```
#show running-config | count
Count: 100 lines
```

Display output matching a pattern

The match filter displays only the output lines that match the given pattern.

Syntax

```
<CLI command> | match <pattern> [field <number>] [ignore-case] [header <number>]
```

Parameter	Description
pattern	Specifies the regular expression to be matched against each line of output. Quotations are required if the parameter contains spaces.
field <number>	Specifies the field in each line to be matched against the pattern. Fields are separated by white spaces and are counted starting with 1 for the left-most field.
ignore-case	Specifies letters to be matched in the pattern regardless of case.
header <number>	Specifies a number of lines from the start of the output to be displayed unchanged before trying to match the pattern. Useful to keep the header of a table intact.

Examples

```
#show interfaces | match 1000 header 3
      Status
Port Trunk Admin Oper Link LinkTrap Negotiation Speed Duplex Control
-----
5          Enable Up   Up   Disabled Enabled  1000Mbps Full  Asymm
9          Enable Up   Up   Enabled  Enabled  1000Mbps Full  Asymm

#show interfaces | match disabled field 5 ignore-case
5          Enable Up   Up   Disabled Enabled  1000Mbps Full  Asymm
11         Enable Down Down Disabled Enabled
```

Ignore output that matches a pattern

The ignore filter displays only the output lines that do not match the given pattern. The lines matching the pattern are discarded.

Syntax

```
<CLI command> | except <pattern> [field <number>] [ignore-case] [header <number>]
```

Parameter	Description
pattern	Specifies the regular expression to be matched against each line of output. Quotations are required if the parameter contains spaces.
field <number>	Specifies the field in each line to be matched against the pattern. Fields are separated by white spaces and are counted starting with 1 for the left-most field.
ignore-case	Specifies letters to be matched in the pattern regardless of case.
header <number>	Specifies a number of lines from the start of the output to be displayed unchanged before trying to match the pattern. Useful to keep the header of a table intact.

Example

```
#show interfaces | except down ignore-case header 3
      Status
Port Trunk Admin Oper Link LinkTrap Negotiation Speed Duplex Control
-----
5          Enable Up   Up   Disabled Enabled  1000Mbps Full  Asymm
9          Enable Up   Up   Enabled  Enabled  1000Mbps Full  Asymm
```

Display output from the first match of a pattern

The find filter displays the output of a command starting from the first line that matches the given pattern.

Syntax

```
<CLI command> | find <pattern> [field <number>] [ignore-case] [header <number>]
```

Parameter	Description
pattern	Specifies the regular expression to be matched against each line of output. Quotations are required if the parameter contains spaces.
field <number>	Specifies the field in each line to be matched against the pattern. Fields are separated by white spaces and are counted starting with 1 for the left-most field.
ignore-case	Specifies letters to be matched in the pattern regardless of case.
header <number>	Specifies a number of lines from the start of the output to be displayed unchanged before trying to match the pattern. Useful to keep the header of a table intact.

Example

```
#show interfaces | find 47 header 3
      Status
Port Trunk Admin Oper Link LinkTrap Auto Negotiation Speed Duplex Flow Control
-----
47          Enable Down Down Enabled Enabled
48          Enable Down Down Enabled Enabled
49          Enable Down Down Enabled Disabled 10Gbps Full Asymm
50          Enable Down Down Enabled Disabled 10Gbps Full Asymm
51          Enable Down Down Enabled Disabled 10Gbps Full Asymm
52          Enable Down Down Enabled Disabled 10Gbps Full Asymm
```

Do not paginate output of a single command

The no-more command filter temporarily disables pagination for the output of an CLI command. When the lines of output exceed the terminal length, you are not prompted to continue or to quit but the entire output of the command continues to be displayed. The effect is similar to setting terminal length 0 but only for the current command.

Example

```
#show interfaces | no-more
```

Display only the first few lines of output

The head filter limits the output of a command to the first few lines. If a number is not specified then the first 10 lines are shown.

Syntax

```
<CLI command> | head [<number>]
```

Parameter	Description
<number>	Specifies the number of lines to keep from the beginning of the output.

Example

```
#show interfaces | head
      Status
Port Trunk Admin Oper Link LinkTrap Auto Negotiation Speed Duplex Flow Control
-----
1          Enable Down Down Enabled Enabled
2          Enable Down Down Enabled Enabled
3          Enable Down Down Enabled Enabled
```

```

4          Enable  Down  Down  Enabled  Enabled
5          Enable  Up    Up    Disabled Enabled    1000Mbps Full  Asymm
6          Enable  Down  Down  Enabled  Enabled
7          Enable  Down  Down  Enabled  Enabled
    
```

Display only the last few lines of output

The tail filter limits the output of a command to the last few lines. If a number is not specified, then the last 10 lines are shown.

Syntax

<CLI command> | tail {[<number>] | from-line <number> } [header <number>]

Parameter	Description
<number>	Specifies the number of lines to keep from the end of the output.
from-line <number>	Specifies the line from which to start the output.
[header]	Same description as for the other commands which allow it.

Example

```

#show interfaces | tail 3
50          Enable  Down  Down  Enabled  Disabled  10Gbps  Full  Asymm
51          Enable  Down  Down  Enabled  Disabled  10Gbps  Full  Asymm
52          Enable  Down  Down  Enabled  Disabled  10Gbps  Full  Asymm
    
```

Regular expressions

Match, except, and find filters require a pattern parameter, which is a regular expression.

Pattern parameter	Description
regular expression	Zero or more branches separated by the pipe symbol ' '. It matches anything that matches one of the branches.
branch	Zero or more pieces, concatenated. For instance, it matches a match for the first, followed by a match for the second.
piece	An atom possibly followed by '*', '+', or '?'. An atom followed by '*' matches a sequence of 0 or more matches of the atom. An atom followed by '+' matches a sequence of 1 or more matches of the atom. An atom followed by '?' matches a match of the atom, or the null string.
atom	A regular expression in parentheses (matching a match for the regular expression), a range, '.' (matching any single character), '^' (matching the null string at the beginning of the input string), '\$' (matching the null string at the end of the input string), a '\' followed by a single character (matching that character), or a single character with no other significance (matching that character).
range	A sequence of characters enclosed in '[']. It normally matches any single character from the sequence. If the sequence begins with '^', it matches any single character not from the rest of the sequence. If two characters in the sequence are separated by '-', this is shorthand for the full list of ASCII characters between them (for example, '[0-9]' matches any decimal digit). To

Table continues...

Pattern parameter	Description
	include a literal `]' in the sequence, make it the first character (following a possible `^). To include a literal `-', make it the first or last character.
	If the pattern includes white spaces then it must be enclosed in quotation marks.
	To match characters which have a special meaning – one of *.+?^\$()[\] – they must be escaped. They must be preceded by a single backslash if the pattern is not in quotation marks and by double backslash if the pattern is enclosed in quotes.

Regular expression examples

Regular expression	Description
est	Matches a string containing “est”. For example, “testing”.
A(d+)r	Matches a string containing an ‘A’ followed by at least one ‘d’ followed by ‘r’. For example, “Address”.
^1	Matches a ‘1’ only at the beginning of a line.
192\.[0-9]+\.[0-9]+\.[0-9]+	Matches a string representing a valid IPv4 address starting with 192.
“192\.[0-9]+\.[0-9]+\.[0-9]+”	Matches a string representing a valid IPv4 address starting with 192 when the pattern is enclosed in quotes. The un-escaped ‘.’ means “any single character” which would make the regular expression accept invalid addresses as well.

Enabling the Web server using CLI

The Web server is enabled by default. If you have assigned an IP address to the switch you can access EDM.

If you have disabled the Web server, use this procedure to enable and manage the Web server using CLI. After you enable the Web server you can start EDM.

Procedure

1. Enter Global Configuration mode:

```
enable
configure terminal
```

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

```
web-server enable
```

Disabling the Web server using CLI

Use this procedure to disable the Web server using CLI. After you disable the Web server, you cannot start EDM.

Procedure

1. Enter Global Configuration mode:

```
enable
```

```
configure terminal
```

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

```
no web-server
```

```
web-server disable
```

Displaying the Web server status using CLI

Use the following procedure to display the status of the Web server using CLI.

Procedure

1. Enter Global Configuration mode:

```
enable
```

```
configure terminal
```

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

```
show web-server
```


Chapter 4: Enterprise Device Manager (EDM)

This chapter describes the Enterprise Device Manager (EDM).

Related links

[Enterprise Device Manager concepts](#) on page 33

[Interface components](#) on page 35

[Enterprise Device Manager procedures](#) on page 48

[Enterprise Device Manager configuration files](#) on page 55

Enterprise Device Manager concepts

To manage the switch from a centralized location Extreme Networks offers optional, product-specific EDM plug-ins for Configuration and Orchestration Manager (COM) that include other features, such as centralized syslog, trap viewer, troubleshooting and diagnostic tools. For more information, or to purchase plug-ins, go to <https://extremeportal.force.com>.

The following table compares EDM functions in the embedded version to COM plug-in version.

Table 4: EDM functions: embedded version compared to COM plug-in version

EDM functions	Embedded version	Plug-in version
100% device configuration: device view, device-specific configuration	Yes, with COM 2.0 and higher	Yes, with COM 2.0 and higher
Stackable Device Web User Interface features	Yes	No
Centralized off-box multi-user element management: <ul style="list-style-type: none">• user and device credential manager• user preference• SSO-based user access control	No	Yes

Table continues...

EDM functions	Embedded version	Plug-in version
<ul style="list-style-type: none"> • user-based Device Access Control (read only and read-write) • authentication through third party (RADIUS, Microsoft AD, Sun AM) 		
Centralized EDM plug-in management (downloadable install and uninstall, upgrade, patch, and inventory view)	No	Yes
User activity log and audit trail	No	Yes
Device performance monitoring and polling	Limited	High performance and low latency
Device-specific single device wizards and template	No	Yes
Centralized syslog and trap viewer	No	Yes
Troubleshooting and diagnostic tools (ping, CLI Manager, path-trace)	No	Yes

EDM is an embedded application that you can use for single device element management and configuration through a standard Web browser. Because EDM is embedded into Ethernet Routing Switch software, and the switch operates as a Web server, you do not require additional client software.

Tested browsers

EDM has been tested with the following web browsers:

- Microsoft Internet Explorer 11.0
- Mozilla Firefox 45.0.2

Related links

[Enterprise Device Manager \(EDM\)](#) on page 33

Memory requirements

If you install Configuration and Orchestration Manager on a PC to manage your switch, the PC must have at least 500 MB of free disk space.

There are no memory requirements to use EDM through a Web browser.

Related links

[Enterprise Device Manager \(EDM\)](#) on page 33

Online help

Online help is context-sensitive and appears in a separate window in the Web browser.

To obtain help for the current topic, click the **help** button on the toolbar in the work area.

If you are not using EDM through COM, you need to download the help file to a TFTP server and configure the EDM Help file path. For more information, see [Configuring the path to the help files using CLI](#) on page 20.

Related links

[Enterprise Device Manager \(EDM\)](#) on page 33

[Enterprise Device Manager \(EDM\)](#) on page 33

Interface components

This section describes Enterprise Device Manager interface components.

The Enterprise Device Manager window includes the following parts:

- Navigation tree toolbar
 - Switch Summary View
 - Device Physical View
 - EDM window
 - Navigation tree
 - Menu bar
 - Tool bar
 - Work area
-

Switch summary view

The EDM initial view displays a switch summary view in the work area.

The Switch Summary tab displays basic switch information. This information-only display derives from the configuration tab Edit, Chassis, Chassis.

Following is a list of the fields on the Switch Summary tab:

- hardware model
- hardware version
- firmware version
- software version
- system uptime
- system object identifier
- system contact
- system name
- system location

A Stack Information panel appears at the bottom of the switch summary view work area that provides a description of your switch or the units in your switch stack.

This information includes the following:

- Unit number (for stacks) – also lists which unit is the base unit in a stack
- Switch type
- Description
- Running software version

Device Physical View

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

Objects in the Device Physical View are

- a stand-alone switch, called a unit
- a switch stack, called a chassis
- a port

From the Device Physical View you can

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

To select an object, click the object. The system outlines the object in yellow, indicating that the object selected.

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

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

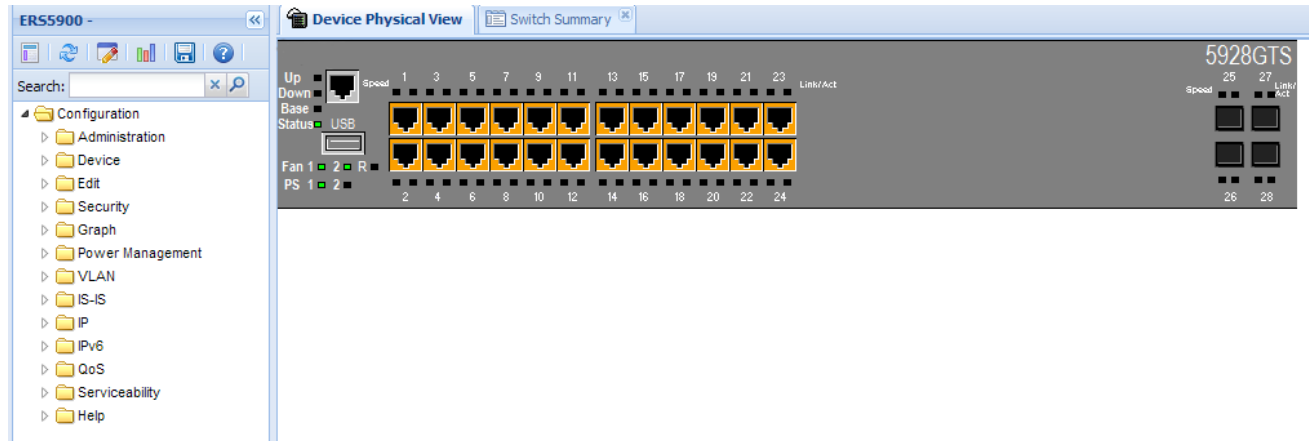


Figure 1: Device Physical View

*** Note:**

Depending on your hardware model, your switch might appear different than the figure shown in this section.

EDM window

The EDM window contains the following parts:

1. navigation tree—the navigation pane on the left side of the window that displays available command folders in a tree format
2. menu bar—the area at the top of the window that displays primary and secondary tabs that you accessed during the session; the tabs remain available until you close them
3. toolbar—the area just below the menu bar that provides quick access to the most common operational commands such as **Apply**, **Refresh**, and **Help**
4. work area—the main area on the right side of the window that displays the dialog boxes where you view or configure switch parameters

*** Note:**

Depending on your hardware model, information displayed may appear different than the figure shown in this section.

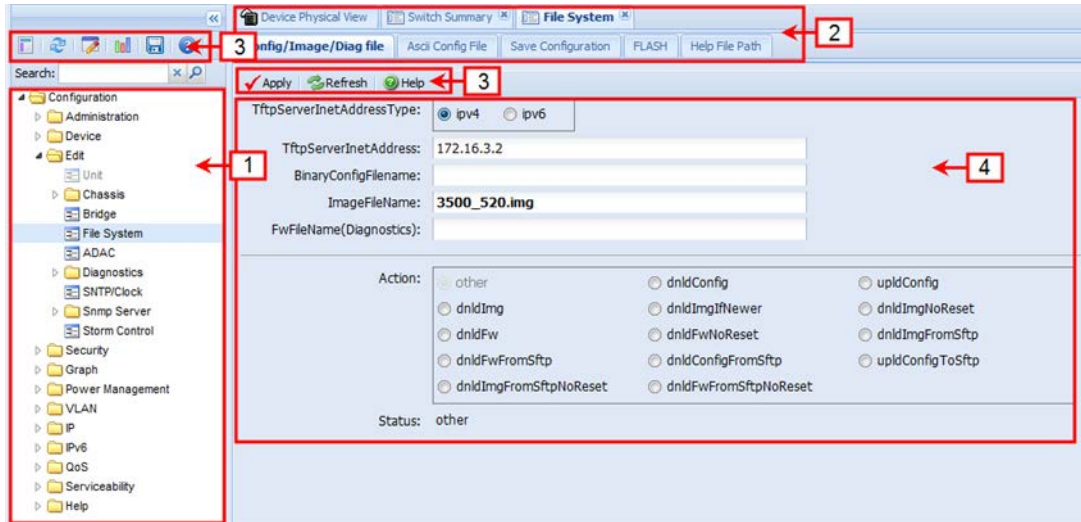


Figure 2: EDM window

Navigation tree

The navigation tree displays available command topics as folders in a tree, as described in the table below.

Table 5: Folders and subfolders in the navigation tree

Folder	Description
Administration	Use the selections in the Administration folder to perform the following functions: <ul style="list-style-type: none"> • Quick Start — sets up IP/Community/VLAN • Remote Access — enables or disables Telnet, SNMP, Web Page, and SSH • Run Script — configures parameters for the switch • MIB Web Page — performs a MIB Walk
Device	Rediscover Device — Use the Rediscover Device selection to refresh the session. <p>⚠ Caution:</p> <p>All existing tabs are lost.</p>
Edit	Opens edit dialog boxes for the objects selected in the navigation tree. Use the selections in the Edit folder to view or change parameters for the currently-selected object. <ul style="list-style-type: none"> • Unit • Chassis: Chassis, Switch/Stack, Ports, and Environment • Bridge • File System

Table continues...

Folder	Description
	<ul style="list-style-type: none"> • ADAC • Diagnostics: Port Mirrors, Topology, System Log. 802.1AB: LLDP, Port MED, Vendor Specific • SNTP/Clock • Fabric Attach • Snmp Server: MIB View, User, Community, Host, Notification Control • Storm Control
Security	<p>Use the selections in the Security folder to view or change security settings.</p> <ul style="list-style-type: none"> • General • MAC Security • DHCP Snooping • Dynamic ARP Inspection (DAI) • IP Source Guard (IPSG) • 802.1X/EAP • Web/Telnet/Console • SSH/SSL • RADIUS • TACACS+
Graph	<p>Use the selections in the Graph folder to view statistics and produce graphs of the statistics on the following tabs:</p> <ul style="list-style-type: none"> • Chassis • Port — to view or graph statistics for a port, first select a port on the Device Physical View.
Power Management	<p>The Power Management tab is available only for switches equipped with Power over Ethernet (PoE). Use the tabs associated with the subfolders in the Power Management folder to view and configure Power over Ethernet (PoE) settings and to view and configure Energy Saver settings.</p> <p>Subfolders in the Power Management folder are:</p> <ul style="list-style-type: none"> • PoE • Energy Saver
VLAN	<p>Use the selections in the VLAN folder to configure or view information about the following:</p> <ul style="list-style-type: none"> • VLANs • Spanning Tree: Globals, STG, RSTP, MSTP

Table continues...

Folder	Description
	<ul style="list-style-type: none"> • MLT/LACP • SLPP
IP	<p>Use the selections in the IP folder to set up IP functions on tabs in the following sub-folders:</p> <ul style="list-style-type: none"> • IP • TCP/UDP • RIP • IGMP • DHCP Relay • DHCP Server • UDP Forwarding • Policy
IPv6	<p>Use the selections in the IPv6 folder to set up IPv6 routing functions on tabs in the following sub-folders:</p> <ul style="list-style-type: none"> • IPv6 • TCP/UDP
QoS	<p>Use the selections in the QoS folder to configure quality of service and set up QoS policies and filters using tabs in the following sub-folders:</p> <ul style="list-style-type: none"> • QoS Devices • QoS Rules • QoS • QoS Agent • QoS UBP/Traffic Profile
Serviceability	<p>Use the selections in the Serviceability folder to navigate to the following sub-folders:</p> <ul style="list-style-type: none"> • RMon for remote monitoring and configuration of <ul style="list-style-type: none"> - Alarms - Control • SLA Mon for Service Level Agreement monitoring
Help	<p>Use the tabs associated with the subfolders in the Help folder to access help and support for the following:</p> <ul style="list-style-type: none"> • Device Manager Basic • Extreme Portal • Legend: Up, Down, No Link, Standby, Testing, Unmanageable, and Loopback.

To open a folder or sub-folder, you can click the arrowhead to the left of the folder or double-click the folder to display the available commands tabs.

To close a folder, click the arrowhead once.

To access a command tab, double-click the selection in the navigation tree.

Navigation tree toolbar







You can use the toolbar above the navigation tree to perform common functions more easily.

Toolbar:



Figure 3: Toolbar

Following is a description of the toolbar button functions:

Button	Description
	Switch Summary – you can use the Switch Summary toolbar button to open or reopen the switch summary tab
	Refresh Status – in addition to the existing refresh methods you can use the Refresh Status toolbar button to refresh the device status
	Edit Selected – in addition to the existing edit methods, and depending on which object you select on the Device Physical View, you can use this toolbar button to open Edit > Chassis, Edit > Unit, or Edit > Ports tabs. If you do not select an object from the Device Physical View and you click the Edit Select toolbar button, the Edit > Chassis tab opens.
	Graph Selected – depending on which object you select on the Device Physical View, you can use this toolbar button to open Graph > Chassis or Graph > Port tabs. If you do not make a selection on the Device Physical View, or if you select Unit, the Graph > Chassis tab opens.
	Save Config — this button allows you to save the current configuration. A window appears asking if you want to save the configuration: click OK to save the configuration or click Cancel to cancel the Save operation.
	Help Setup Guide – this button connects you to the help setup guide for embedded EDM and it replaces the link that appeared on the top right of work panes.

Under the toolbar is the Search function window. You can use the Search function window to find a specific sub-folder or selection in the navigation tree.

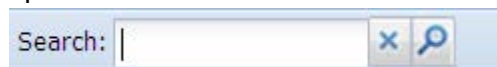


Figure 4: Search function window

Enter the sub-folder or selection you are looking in the Search window and click the magnifying glass to perform the search. The navigation tree displays the sub-folder that best matches your search criteria.

Menu bar

The menu bar appears above the work area and consists of two rows of tabs.

The top row displays tabs that were accessed from the navigation tree during the active session. The tabs in this row, called primary tabs, are docked and available to reopen on demand. The docked tabs appear in the sequence that you accessed them.

When you click a primary tab from the menu bar, the associated secondary tabs appear in the second row and the default dialog box appears in the work area. Click any secondary tab to display its associated dialog box.

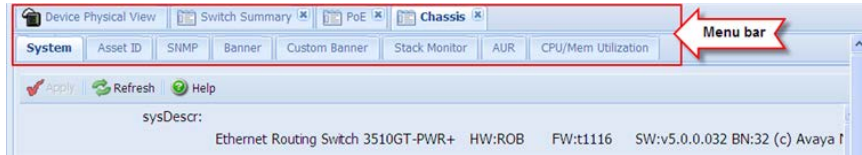


Figure 5: Menu bar

If you want to open a dialog without displacing the current open dialog, you can go to the tab on the menu bar and undock the tab by using your mouse to drag and drop it into the work area. You can drag the dialog box to any location on the screen and you can toggle between the open dialog boxes to compare information and make changes. When you no longer need the undocked tab, you can use the three buttons on the upper right side of the tab to temporarily shrink it, re-dock it, or close it.

In both rows of the menu bar, arrows can appear on the left and right sides when the number of open tabs exceeds the available space. You can use the arrows to scroll to a tab, or you can select the tab from the navigation tree.

To reduce the number of open tabs, you can click the X button on the top right of a tab to close it.

Tool bar

The tool bar, located below the menu bar, contains buttons that provide quick access to commonly used operational commands. Depending on the tab selected, different buttons can appear.

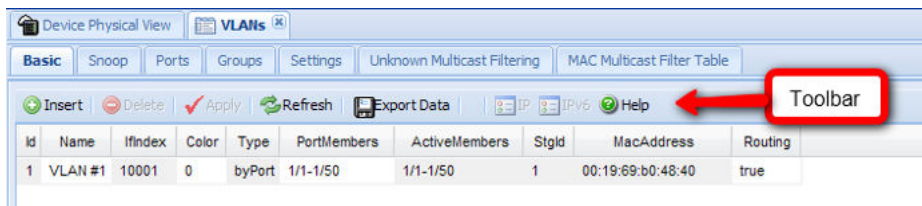


Figure 6: Tool Bar

The following table describes common tool bar buttons.

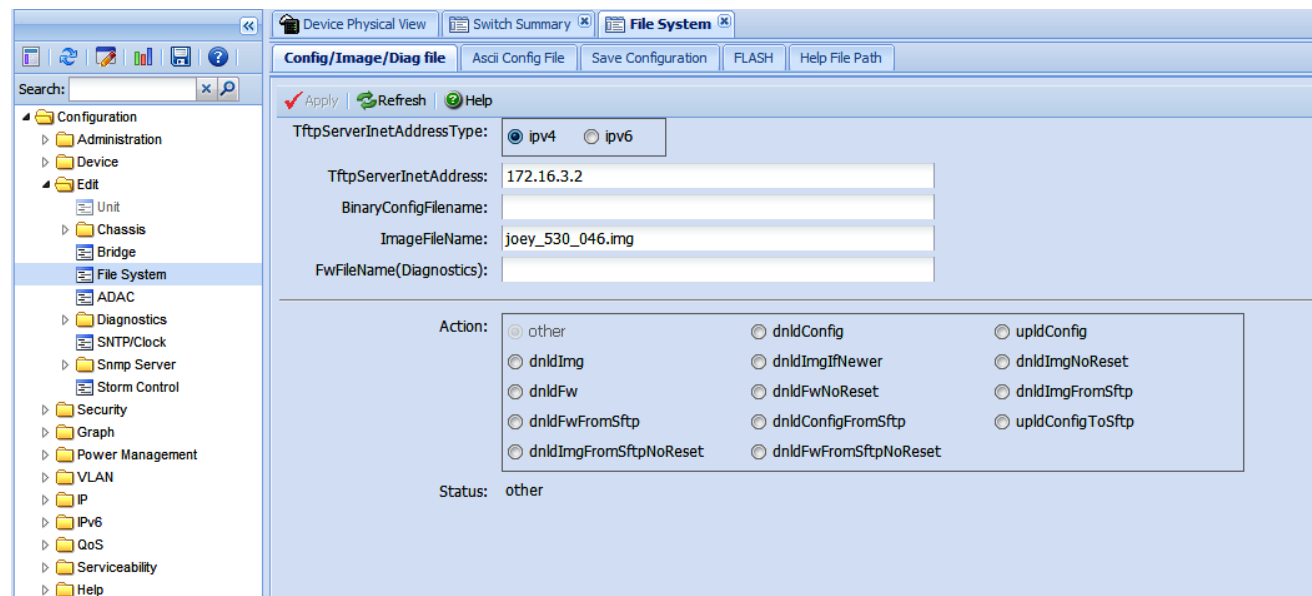
Table 6: Common tool bar buttons

Button	Name	Description
	Apply	Executes parameter changes
	Refresh	Refreshes screen data
	Help	Displays context-sensitive online help for the current dialog box
	Insert	Opens an insert dialog box Submits the entry from the insert dialog box The insert buttons appear only on panes where you can insert entries.
	Delete	Removes a selected entry
	Cancel	Cancels an operation

Work area

The work area, on the right side of the EDM page, displays the switch Device Physical View and dialog boxes related to the menu selections in the navigation tree. You can use the work area to view and configure switch parameters from the dialog boxes that appear in the work area.

See the following figure for an example of the work area for the File System, Config/Image/Diag file dialog.

**Figure 7: EDM work area**

*** Note:**

Depending on your hardware model, information displayed may appear different than the figure shown in this section.

Single port configuration for EDM

*** Note:**

Depending on your hardware model, information displayed may appear different than the figures shown in this section.

You can apply configuration changes to single ports by using one of the following methods:

- From the Device Physical View, you can right-click a port and select Edit from the drop-down menu, then click the appropriate tab.

The following figure displays the drop-down menu for the selected port in the Device Physical View.

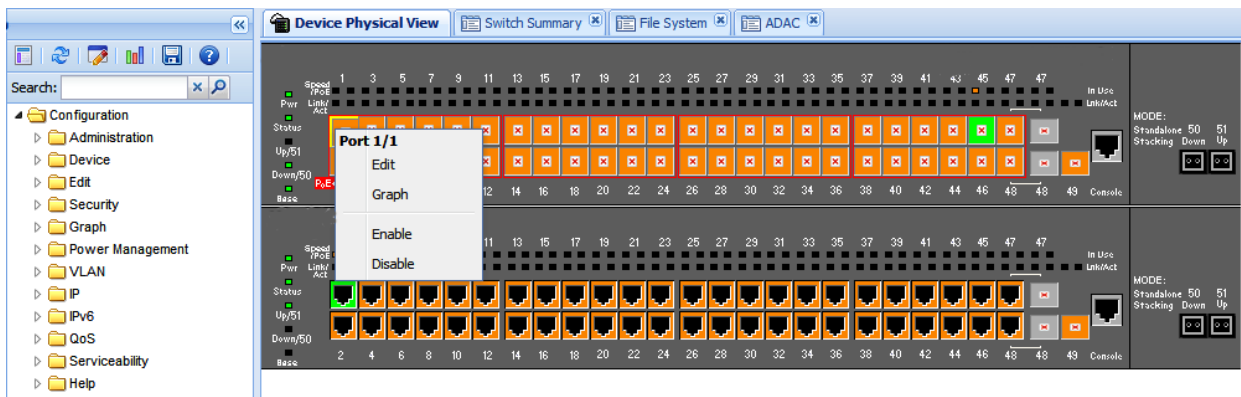


Figure 8: Device Physical View - port edit

The following figure displays the port edit work area with the VLAN tab selected.

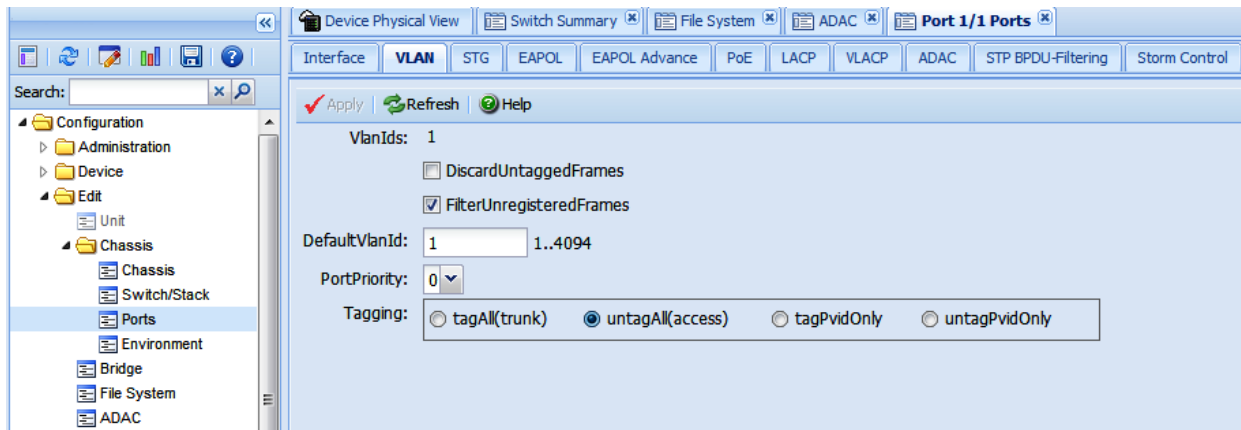


Figure 9: Port edit -VLAN tab

- From the Navigation tree you can select any tab from the Edit, Chassis, Ports work flow and double-click a cell under an editable parameter column heading in the appropriate port row of the table.

The following figure displays the Edit, Chassis, Ports work area with the Interface tab selected.

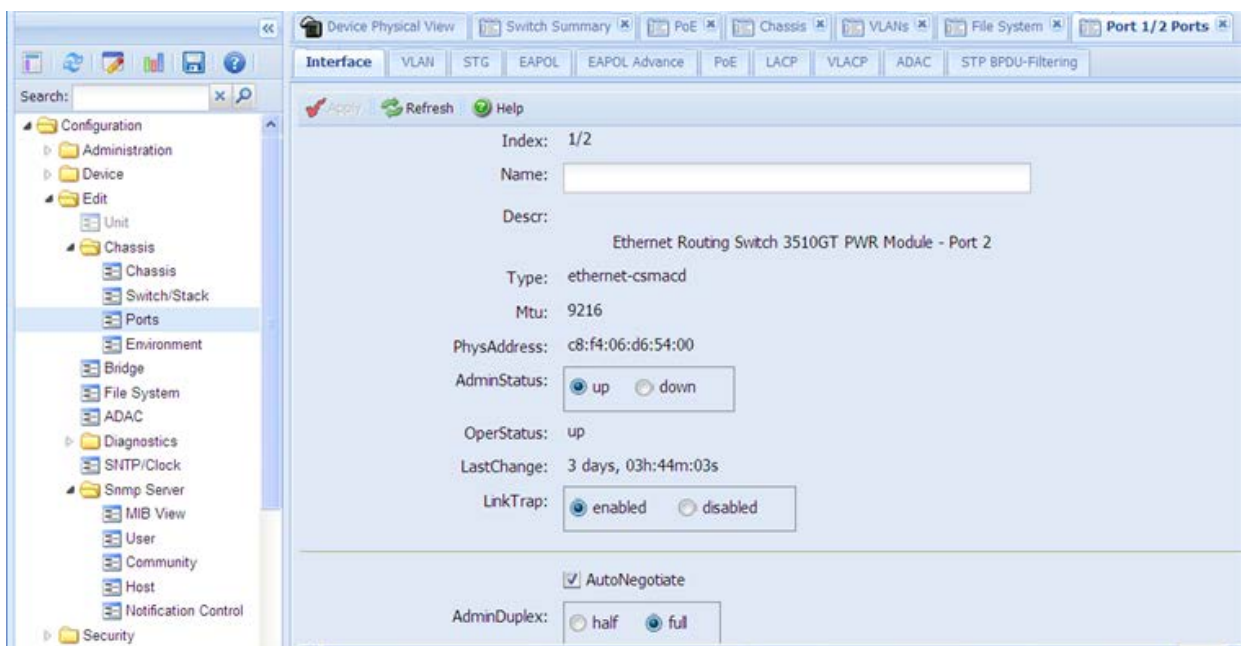


Figure 10: Edit, Chassis, Ports - Interface tab

- From the Navigation tree you can select a port-related tab from a specific, applicable feature work area (for example, VLAN, VLANs, Ports), and double-click a cell under an editable parameter column heading in the appropriate port row of the table.

The following figure displays the VLAN, VLANs, Ports tab work area.

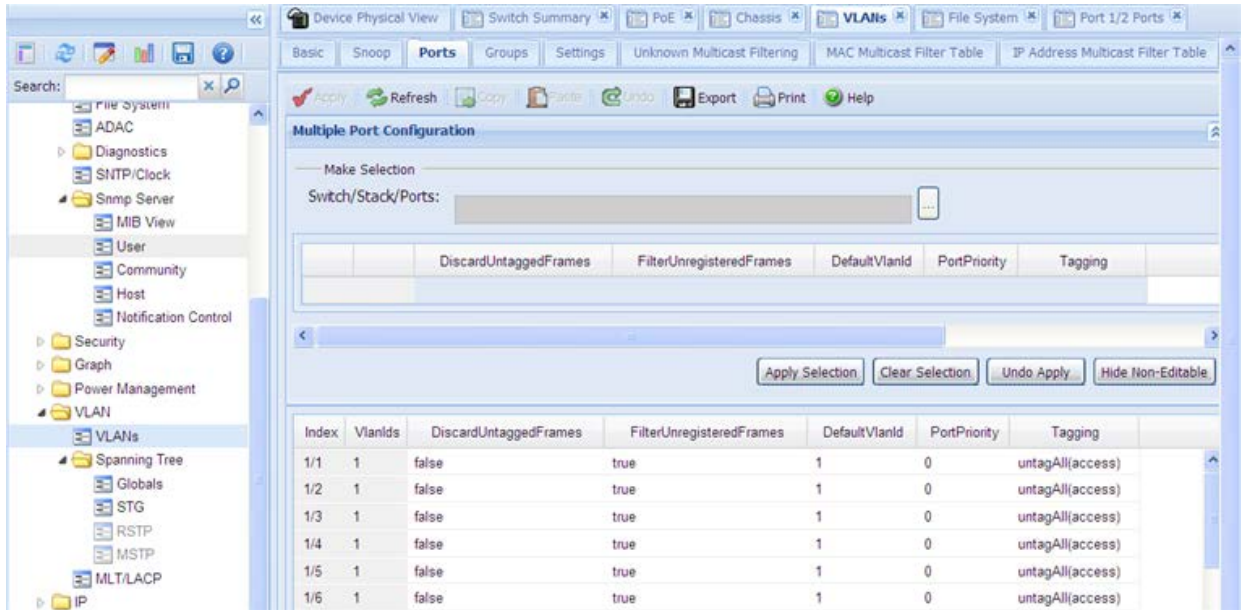


Figure 11: VLAN, VLANs - Ports tab

Multiple Port Configuration for EDM

* Note:

Depending on your hardware model, information displayed may appear different than the figures shown in this section.

When you need to apply the same configuration changes to more than one port, you can use the Multiple Port Configuration function available on all tabs in the Edit, Chassis, Ports work flow, or on port-related tabs for specific, applicable feature work areas (for example, VLAN, VLANs, Ports).

The following sections use the Edit, Chassis, Ports, Interface tab work area to describe the available Multiple Port Configuration functions.

In the work area for any of the Edit, Chassis, Ports tabs, the following two panes appear in the default view:

- Multiple Port Configuration pane—provides port selection for one port, several ports, or all ports, and configurable port parameters
- Tab work pane—displays existing configuration information for the feature and configurable cells for individual ports

With Multiple Port Configuration you can perform the following:

- Hide non-editable fields from the multiple configuration pane so that you choose to view only those fields that can be configured.
- Select an individual port or a group of ports from the Port Editor.

- Select all ports from the Port Editor.
- Double-click any or all of the editable fields to change the configuration parameter.
- Clear your selections.
- Apply your selections.
- Undo the application of your selections.

You can expand or collapse the Multiple Port Configuration pane by clicking the Multiple Port Configuration task bar. The Multiple Port Configuration pane is expanded by default.

The following figure displays the tabs available in the Edit, Chassis, Ports work flow, with the Interface tab selected and the Multiple Port Configuration pane expanded.

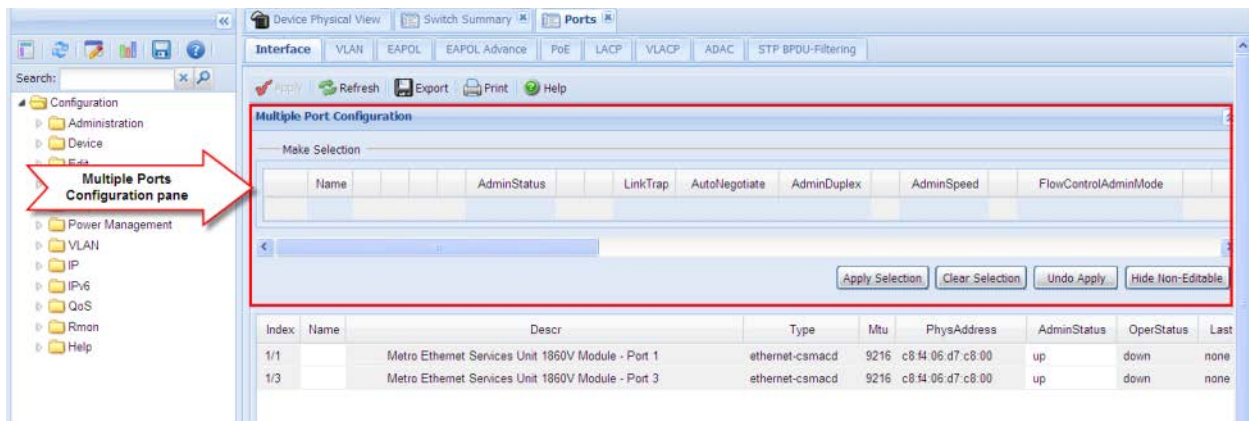


Figure 12: Interface tab — Multiple Port Configuration pane expanded

The following figure displays the Edit, Chassis, Ports, Interface tab with the Multiple Port Configuration pane collapsed.

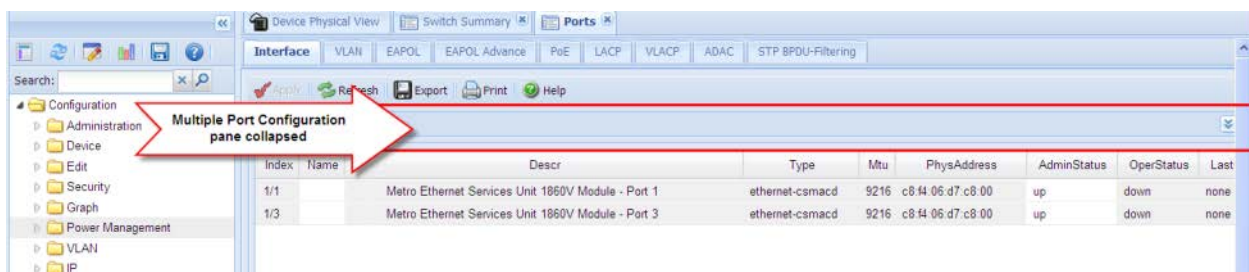


Figure 13: Interface tab — Multiple Port Configuration pane collapsed

Changes you make to a port configuration using Multiple Port Configuration are applied to the switch configuration only after you click **Apply** on the work area toolbar.

The following figure displays the location of the **Apply** button on the work area toolbar.



Figure 14: Toolbar Apply button

Online help

Online help is context-sensitive and appears in a separate window in the Web browser.

To obtain help for the current topic, click the **help** button on the toolbar in the work area.

If you are not using EDM through COM, you need to download the help file to a TFTP server and configure the EDM Help file path. For more information, see [Configuring the path to the help files using CLI](#) on page 20.

Related links

[Enterprise Device Manager \(EDM\)](#) on page 33

[Enterprise Device Manager \(EDM\)](#) on page 33

Enterprise Device Manager procedures

This section contains procedures for starting and using Enterprise Device Manager (EDM) on your switch. You can use EDM software on the switch; you do not need to install a client-based application on your computer.

Starting EDM

To configure and maintain your switch through a Web-based graphical user interface, start EDM.

Before you begin

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

Procedure

1. In a supported Web browser, enter the IP address of the switch using one of the following formats:
 - http://<IP Address>
 - https://<IP Address>
2. Enter the user name.
3. Enter the password.
4. Click **Log On**.

Using shortcut menus

In the EDM Device Physical View you can use shortcut menus to edit objects and apply changes.

Procedure

1. In the **Device Physical View**, select an object.
2. Right-click the object.
3. Select a function from the list.

Shortcut Menu Field Descriptions

Use the data in this table to use shortcut menus to edit objects and apply changes.

Name	Description
Unit	
Edit	Display the Edit unit dialog box and tabs
Refresh	Refreshes switch status
Refresh Port Tooltips	Refreshes the port tooltip data. Port tooltip data contains: Slot/Port, PortName, and PortOperSpeed
Port	
Edit	Displays the Edit port dialog box and tabs
Graph	Displays the graph port dialog box and tabs
Enable	Enables the port administratively
Disable	Shuts down the port administratively

Navigating around EDM

Use the following procedure to navigate around EDM.

Procedure

1. In the navigation pane, click the arrowhead to the left of a folder to display the sub-level folders in the tree.
2. If there is a sub-folder, double-click the folder or click the arrowhead beside it, to open the sub-folder.
3. The primary tabs appear under the folders and sub-folders. Click a tab to open it in the work area.

Undocking tabs

To improve certain types of configuration, you can view more than one tab at a time. To view more than one tab, you use the undock function to activate a previously-opened tab from the menu bar.

Important:

When you undock a tab to make changes, then return to another open tab, in order to see the effects of the changes, you must click the **Refresh** button on the tool bar.

Procedure

1. From the menu bar, drag and drop the tab you want to open.
2. To reposition the tab in the work area, click and drag the title bar of the tab.

Docking tabs

You can re-dock an undocked tab using one of the following methods.

Procedure

To re-dock a tab, do one of the following:

- On the undocked tab, click the dock-back button (the middle button on the top right of the panel)
- On the undocked tab, click the collapse button (left button on the top right of the panel) to temporarily minimize the panel.

Editing a dialog box

Use this procedure to edit a dialog box.

Procedure

1. In the work area, double-click the field you want to edit.
2. Select a value from the list of predetermined values or enter the value for a field without preset values.

! **Important:**

Enter an IP address in decimal format: <xxx> <xxx> <xxx> <xxx>.

Enter a MAC address in hexadecimal format: xx:xx:xx:xx:xx:xx.

Time is a value based on the delta from the switch boot-up time.

3. Click **Apply**.

Inserting an entry in a dialog box

Use this procedure to insert an entry in a dialog box.

Procedure

1. On the tool bar, click **Insert**.
2. Enter changes in the Insert dialog box.
3. Click **Insert** to submit the entry and return to the active tab in the work area.
4. On the toolbar, click **Apply** to commit the change to the configuration. The system refreshes the view and errors display in a browser popup.

Deleting an entry from a dialog box

Use this procedure to delete an entry from a dialog box.

Procedure

1. Highlight the entry.
2. Click **Delete**.

Editing an object using the shortcut menu

You can edit objects in the Device Physical View from the navigation tree or the shortcut menu. Use this procedure to edit an object using the shortcut menu.

About this task

Changes are not applied to the running configuration until you click **Apply**.

Procedure

1. On the Device Physical View, you can
 - right click an object
 - press Ctrl+click to select several objects, then right click

- click and drag to select a group of objects, then right click
 - click an entire device, then right click
2. From the list, click **Edit**.
 3. Edit the applicable tab in the work area.
 4. Click **Apply**.

Editing file system elements

Use this procedure to edit file system elements.

Procedure

1. Click the **Edit** arrowhead to open the Edit menu.
2. Double-click **File System** to open the File System tab in the work area.

File System Work Area Field Descriptions

The following table describes the tabs in the File System work area.

Name	Description
Config/Image/Diag file	Use this tab to view information about and acquire image, configuration, and firmware files.
Ascii Config File	Use this tab to acquire ASCII configuration files.
Save Configuration	Use this tab to save the current configuration manually or automatically.

Configuring multiple interface ports using EDM - Example 1

Use this procedure as an example for configuring multiple interface ports using the Multiple Port Configuration function and the **Edit, Chassis, Ports, Interface** work flow.

Before you begin

- Select ports on the Device Physical View.

Procedure

1. In the navigation tree, double-click **Edit**.
2. In the Edit tree, double-click **Chassis**.
3. In the Chassis tree, click **Ports**.
4. Click the **Interface** tab.

5. To change the configuration of the selected ports, in the Multiple Port Configuration pane, double-click the cell beneath the column heading that represents the parameter you want to change and do one of the following:
 - Select a value from a drop-down list.
 - Type a value in the cell.
6. In the Make Selection pane, click **Apply Selection**. The changes appear in the table.
7. On the Interface tab toolbar, click **Apply** to apply the changes to the switch configuration.

Configuring multiple ports using EDM - Example 2

Use this procedure to configure multiple ports using the Multiple Port Configuration functions and the **Security, MAC Security, AutoLearn** workflow. When you use this workflow you can select ports directly from the Multiple Port Configuration pane on the **Configuration** tab.

Procedure

1. In the navigation tree, double-click **Security**.
2. In the Security tree, double-click **MAC Security**.
3. Click the **AutoLearn** tab.
4. In the work area, in the Make Selection section of the Multiple Port Configuration pane, click the Switch/Stack/Ports ellipsis (...) to open the Port Editor dialog.
5. In the Port Editor window, click the ports you want to configure.

 **Note:**

If you want to configure all ports, click **All**.

6. Click **OK** to return to the Make Selection pane.

The ports you selected appear in the Switch/Stack/Ports box.

7. To change the configuration of the selected ports, in the Multiple Port Configuration pane, double-click the cell beneath the column heading that represents the parameter you want to change and do one of the following:
 - Select a value from a drop-down list.
 - Type a value in the cell.
8. In the Make Selection pane, click **Apply Selection**.
The changes appear in the table.
9. On the **AutoLearn** tab toolbar, click **Apply** to apply the changes to the configuration.

Graphing statistics

You can graph statistics for an entire device, a group of ports, or a single port.

Before you begin

On a Device Physical View select one of the following:

- a port
- a group of ports
- a device

Procedure

1. In the navigation tree, double-click **Graph**.
2. In the Graph tree, select one of the following:
 - **Chassis**
 - **Port**
3. In the work area, select a tab.
4. On the tab, select information to graph. To export the information to another application, on the task bar click **Export Data**.
5. To create the graph, on the task bar, click a graph type.

Configuring the help file path using EDM

Use this procedure to configure the path to the help files.

Procedure

1. In the navigation tree, double-click **Edit** or click the Edit arrowhead to open the Edit menu.
2. Click **File System** to open the File System work area.
3. In the work area, click the **Help File Path** tab.
4. In the Path dialog box, enter the path to the help file storage location.

Example

```
tftp://A.B.C.D/file_name
```

Displaying USB file information using EDM

About this task

Displays the general information of the files on a USB flash device.

Procedure

1. From the navigation tree, click **Edit**.
2. Click **File System**.
3. Click the **USB Files** tab.

Saving current configuration to flash memory manually using EDM

Use this procedure to save the current configuration to flash memory manually.

Procedure

1. In the navigation tree, double-click **Edit** to open the Edit tree.
2. Double-click **File System**.
3. Click the **Save Configuration** tab.
4. Deselect **AutosaveToNvramEnabled** — this option is enabled by default.
5. In **Action**, choose **copyConfigToNvram**.
6. On the toolbar, click **Apply**.

Enterprise Device Manager configuration files

You can use Enterprise Device Manager procedures in the following sections to:

- store the current switch ASCII configuration on a TFTP server
- retrieve an ASCII configuration file from a TFTP server to apply to a switch
- store a binary configuration file from a TFTP server
- retrieve a binary configuration file from a TFTP server
- manually save the current configuration to flash memory
- designate a configuration to download automatically at switch startup

You can check file upload transfer status of ASCII configuration files in the `ScriptLastStatusChange` field on the `Edit > File System > Ascii Config Script Files` tab. During upload transfer, the status is `manualUploadInProgress`. To check changes to file transfer status, click **Refresh**. After the file transfer is complete the status displays as either `manualUploadPassed` or `manualUploadFailed`.

You can check file download transfer status of ASCII configuration files in the `ScriptLastStatusChange` field on the **Ascii Config Script Files** tab. During download transfer, the status is `manualDownloadInProgress`. To check changes to file transfer status, click **Refresh**.

After the file transfer is complete, the status displays as either `manualDownloadPassed` or `manualDownloadFailed`.

You can also designate an ASCII configuration file to download automatically at switch startup.

To control which ASCII configuration files load automatically, at switch startup use the fields in the table on the `Edit > File System > Ascii Config Script Files` .

The **Ascii Config Script Files** table provides a way to control which ASCII configuration files are loaded, and in which order, because you can designate the path to an ASCII configuration file, a boot priority value, and a script index priority for each entry in the table.

Depending on which script source you designate for an entry, the system uses the designated paths in the Ascii Config Script Files table in one of the following ways:

- The system uses BootP to download the designated ASCII configuration file from the network, according to the specified IP address and file name.
- The system downloads the designated ASCII configuration file from a TFTP or SFTP server, according to the specified IP address and file name.
- The system downloads the ASCII configuration file from a USB device, according to the specified file name.

In the **boot priority** column on the Ascii Config Script Files tab, if you designate a non-zero boot priority value for any but the first row, the switch attempts to load the configuration file at startup. The first entry in the configuration files table is assigned a fixed boot priority value of 0 and it is not available to load at startup.

The switch attempts to load each ASCII configuration file with a non-zero priority value, in ascending order, until a script file loads successfully. If ASCII configuration file boot priority values are equal, the switch attempts to load the configuration files according to their script index order.

In the **Script Source** column in the Ascii Config Script Files table, if you designate a USB device in a stand-alone switch as the load-on-boot path to the ASCII configuration file, the switch downloads the specified configuration file from the USB port of the switch.

If you designate a USB device in a stack unit as the load-on-boot path to the ASCII configuration file entry, the system downloads the specified configuration file from the USB port of the designated unit or, if no unit is designated, from the USB port of the base unit.

If the system cannot download the configuration file, or if the script does not execute successfully, the script operational status changes to `autoDownloadFailed` and the system downloads the next entry in the table.

When the configuration file downloads and executes without errors, the operational status for the entry changes to `autoDownloadPassed`.

ASCII and binary configuration file procedures

Perform the procedures in this section to use EDM to manage ASCII and binary configuration files. For more information about fields on the **Config/ImageDiag file** tab, used to manage binary configuration files, see [Config Image Diag file tab field descriptions job aid](#) on page 61.

Procedures for USB devices apply only to switch models equipped with USB ports.

Storing current ASCII configuration on a TFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.
3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the TFTP server address and the configuration file name in the following format:

```
tftp://<ip address>/<filename>
```

The entry is limited to a maximum of 327 characters.

5. Double-click the **ScriptManual** field and then click **Upload**.
6. On the toolbar, click **Apply**.

Storing current ASCII configuration on a SFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.
3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the SFTP server address and the configuration file name in the following format:

```
sftp://<ip address>/<filename>
```

The entry is limited to a maximum of 327 characters.

5. Double-click the **ScriptManual** field and then click **Upload**.
6. On the toolbar, click **Apply**.

Storing current ASCII configuration on a USB device using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.

3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type:
`usb://<filename>` to store the configuration file on a USB device in a stand-alone unit
or
`usb://<unit number>/<filename>` to store the configuration file on a USB device in a unit in a stack.
5. Double-click the **ScriptManual** field and then click **Upload**.
6. On the toolbar, click **Apply**.

Downloading an ASCII Configuration from a TFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.
3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the TFTP server IP address and configuration file name in the following format:
`tftp://<ip address>/<filename>`
5. Double-click the **ScriptManual** field and then click **Download**.
6. On the toolbar, click **Apply**.

Downloading an ASCII configuration from a SFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.
3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the SFTP server IP address and configuration file name in the following format:
`sftp://<ip address>/<filename>`
5. Double-click the **ScriptManual** field and then click **Download**.
6. On the toolbar, click **Apply**.

Downloading an ASCII configuration from a USB device using EDM

Procedure

1. From the navigation tree, double-click **Edit** to open the Edit tree.
2. Click **File System**.

3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the configuration file name in the following format:

`usb://<filename>` for a USB device in a standalone unit

or

`usb://<unit number>/<filename>` for a USB device in a unit in a stack

5. Double-click the **ScriptManual** field, and then click **Download**.
6. On the toolbar, click **Apply**.

Downloading a configuration file automatically using EDM

Procedure

1. From the navigation tree, double-click **Edit**.
2. Click **File System**.
3. Click the **Ascii Config Script Files** tab.
4. Double-click the **ScriptSource** field and type the TFTP server IP address and the configuration file name in the following format:

`tftp://<ip address>/<filename>`.

Substitute `usb://<filename>` to retrieve a configuration from a USB device in a standalone unit or `usb://<unit number>/<filename>` if the USB device resides in a unit in a stack.

If you retrieve the configuration file from a BOOTP server, type `bootp://` in the **ScriptSource** field.

5. Double-click the **ScriptBootPriority** field and type a digit between 1 and 127 for the script priority. Use **0** if you are not using the entry at startup.
6. On the toolbar, click **Apply**.

Storing a binary configuration file on a TFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit**.
2. Click **File System**.
3. Click the **Config/Image/Diag file** tab.
4. In the **TftpServerInetAddressType** dialog box, click the applicable address type button.
5. In the **TftpServerInetAddress** field, enter the TFTP server IP address.
6. In the **BinaryConfigFilename** field, enter the configuration file name.
7. In the **BinaryConfigUnitNumber** field enter the stack unit number or, for a stand-alone switch, enter **0**.

8. In the **Action** box, click **upldConfig**.
9. On the toolbar, click **Apply**.

Storing a binary configuration file on a USB device using EDM

Procedure

1. From the navigation tree, double-click **Edit** .
2. Click **File System**.
3. Click the **Config/Image/Diag file** tab.
4. In the **BinaryConfigFilename** field, enter the configuration file name.
5. In the **BinaryConfigUnitNumber** field enter the stack unit number or, for a stand-alone switch, enter 0.
6. In the **UsbTargetUnit** field, enter the stack number where the USB device is inserted.
7. In the **Action** field, click **upldConfigtoUsb**.
8. On the toolbar, click **Apply**.

Downloading a binary configuration file from a TFTP server using EDM

Procedure

1. From the navigation tree, double-click **Edit**.
2. Click **File System**.
3. Click the **Config/Image/Diag file** tab.
4. In the **TftpServerIpAddress** field, enter the TFTP server IP address.
5. In the **BinaryConfigFilename** field, enter the configuration file name.
6. In the **BinaryConfigUnitNumber** field, enter the stack unit number, or for a stand-alone switch, enter 0.
7. In the **Action** field, click **dnldConfig**.
8. On the toolbar, click **Apply**.

Downloading a binary configuration file from a USB device using EDM

Procedure

1. From the navigation tree, double-click **Edit**.
2. Click **File System**.
3. Click the **Config/Image/Diag file** tab.
4. In the **BinaryConfigFilename** field, enter the configuration file name.
5. In the **BinaryConfigUnitNumber** field, enter the stack unit number, or for a stand-alone switch, enter 0.

6. In the **UsbTargetUnit** field, enter the stack unit number where the USB resides.
7. In the **Action** field, click **dnldConfigFromUsb**.
8. On the toolbar, click **Apply**.

Job aid—Config/Image/Diag file tab field descriptions

The following table provides information about fields on the Config/Image/Diag file tab.

Field name	Description
TftpServerInetAddressType	Specifies the IP version of the TFTP server address
TftpServerInetAddress	Specifies the TFTP server IP address
BinaryConfigFilename	Specifies the name of the binary configuration file
BinaryConfigUnitNumber	Specifies the unit number of a switch in a stack
ImageFileName	Specifies the software image file name
FWFileName(Diagnostics)	Specifies the diagnostics file name
USBTargetUnit	Specifies the unit number containing the USB port
Action	<ul style="list-style-type: none"> • dnldConfigFromUSB—Downloads a configuration to the switch from a USB device. • DnldImgIfNewer—Downloads a new software image to the switch only if it is newer than the current image. • dnldFw—Downloads a new diagnostic software image to the switch. • dnldImgFromUsbNoReset —Downloads the diagnostic image from a USB and does not reset the switch. • dnldConfig—Downloads a configuration file to the switch. • upldConfigToUsb—Uploads a configuration file to a USB device. • dnldImgNoReset—Downloads a new software image to the switch without a switch reset. • dnldFwNoReset—Downloads a new diagnostic software image to the switch without a switch reset. • upldConfig—Uploads a configuration file to the switch from a designated location. • dnldImg—Downloads a new software image to the switch. • dnldImgFromUsb—Downloads a new software image to the switch from a USB device. • dnldFwFromUsb—Downloads a new diagnostic software image to the switch from a USB device. • dnldImgFromSftp—Downloads a new software image to the switch from the SFTP server. This option replaces the

Table continues...

Field name	Description
	<p>software image on the switch regardless of whether it is newer or older than the current image.</p> <ul style="list-style-type: none"> • dnldFwFromSftp—Downloads a new diagnostic software image to the switch from the SFTP server. This option replaces the image regardless of whether it is newer or older than the current image. • dnldConfigFromSftp—Downloads a configuration to the switch from the SFTP server. • upldConfigToSftp—Uploads a configuration to the SFTP server. • dnldImgFromSftpNoReset—Downloads the agent image from a SFTP server and does not reset the switch. • dnldFwFromSftpNoReset—Downloads the diagnostic image from a SFTP server and does not reset the switch.
Status	Displays the status of the most recent action since last switch restart.

Getting EDM online help files for embedded EDM

Because help files are not included with the embedded EDM software files on the switch, you need to download the help files to a TFTP destination and use CLI to configure a path from your switch to the help files.

You can also use a USB mass storage device to contain help files for switches equipped with a USB port.

If you are using COM to manage your switch, help resides with COM and you do not need to use these procedures.

Downloading help files

Use this procedure to download help files.

Before you begin

- An available TFTP server — ensure that the TFTP path differs from the path you use to download switch software.

Important:

Do not install EDM help files on Flash.

Procedure

1. To obtain EDM help files for the embedded element manager, do one of the following;
 - Go to <https://extremeportal.force.com> and locate the help file for the appropriate product.
 - Select the help file from the software CD ROM contained in the Base Software License Kit.
2. Download the help file to a TFTP server or a USB mass storage device.