USER GUIDE

Extreme Network OS Element Manager, 7.1.0

Supporting Network OS 7.1.0

53-1004578-02
15 June 2018

Contents

Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Extreme technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE
A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION
A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names.
	Identifies keywords and operands.
	Identifies the names of GUI elements.
	Identifies text to enter in the GUI.
italic text	Identifies emphasis.
	Identifies variables.
	Identifies document titles.
`Courier font`	Identifies CLI output.

Format	Description
	Identifies command syntax examples.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ **x** | **y** | **z** }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Extreme resources

Visit the Extreme website to locate related documentation for your product and additional Extreme resources.

White papers, data sheets, and the most recent versions of Extreme software and hardware manuals are available at www.extremenetworks.com. Product documentation for all supported releases is available to registered users at www.extremenetworks.com/support/documentation.

Document feedback

Quality is our first concern at Extreme, and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you.

You can provide feedback in two ways:

- Use our short online feedback form at http://www.extremenetworks.com/documentation-feedback-pdf/
- Email us at internalinfodev@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.

Contacting Extreme Technical Support

As an Extreme customer, you can contact Extreme Technical Support using one of the following methods: 24x7 online or by telephone. OEM customers should contact their OEM/solution provider.

If you require assistance, contact Extreme Networks using one of the following methods:

- GTAC (Global Technical Assistance Center) for immediate support
  - Phone: 1-800-998-2408 (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.
  - Email: support@extremenetworks.com. To expedite your message, enter the product name or model number in the subject line.
- GTAC Knowledge - Get on-demand and tested resolutions from the GTAC Knowledgebase, or create a help case if you need more guidance.
- The Hub - A forum for Extreme customers to connect with one another, get questions answered, share ideas and feedback, and get problems solved. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
- Support Portal - Manage cases, downloads, service contracts, product licensing, and training and certifications.

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

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) 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

About This Document

Using the Network OS CLI

For complete instructions and support for using the Extreme Network OS command line interface (CLI), refer to the *Extreme Network OS Command Reference*.

What's new in this document

This document supports NOS 7.1.0.

On October 30, 2017, Extreme Networks, Inc. acquired the data center networking business from Brocade Communications Systems, Inc. This document has been updated to remove or replace references to Brocade Communications, Inc. with Extreme Networks., Inc., as appropriate.

The content has been updated with the following changes:

- Support for Fabric Cluster (FC) mode is deprecated.

Getting Started

Element Manager overview

Element Manager allows you to access a device by connecting to its graphical user interface (GUI) or Web Management interface. Element Manager is a Management application that provides the details of the switch and its ports.

System requirements

Refer to the following information for operating system and browser requirements.

The following table summarizes the certified and tested platforms for each operating systems.

TABLE 1 Certified and tested platforms

Operating system	Browser
Windows 10	Firefox 50, Internet Explorer 11, Chrome 54
Oracle Enterprise Linux 6.7	Firefox 50
Oracle Enterprise Linux 7.1	Firefox 50
Red Hat Enterprise Linux 6.7 Adv	Firefox 50
Red Hat Enterprise Linux 7.1 Adv	Firefox 50
Windows 8.1	Firefox 50, Internet Explorer 11, Chrome 54
Windows 2012 R2	Firefox 50, Internet Explorer 11, Chrome 54
Windows Server 2008 R2 (SP1) Enterprise (64-Bit)	Firefox 50, Internet Explorer 9, Internet Explorer 10, Chrome 54
Windows 7 SP1	Firefox 50, Internet Explorer 9, Chrome 54

TABLE 2 Supported platforms

Operating system	Browser
Windows Server 2008 (SP2) Standard (32-Bit)	Firefox 50, Internet Explorer 9, Chrome 54
Windows 8 Enterprise(32-Bit)	Firefox 50, Internet Explorer 10, Chrome 54
Windows Server 2012 Standard (64-Bit)	Firefox 50, Internet Explorer 10, Chrome 54
RedHat Enterprise Linux 6.3 Advanced (64-Bit)	Firefox 50
SUSE Linux Enterprise Server 11 (SP2) (32-Bit)	Firefox 50
RedHat AS 4.0 (x86 32-bit)	Firefox 50
RedHat Enterprise Server 5 Advanced Platform	Firefox 50
RedHat Enterprise Linux 6.1 Advanced (32-bit)	Firefox 50
Red Hat Enterprise 6.5 Advanced Linux	Firefox 50
SUSE Linux Enterprise Server 10 (32-bit)	Firefox 50
SUSE Linux Enterprise Server 11 (x86 32-bit)	Firefox 50

TABLE 2 Supported platforms (continued)

Operating system	Browser
SUSE Linux Enterprise Server 11.3	Firefox 50
Oracle Linux Enterprise 6.5	Firefox 50
Windows 2000	Firefox 50, Internet Explorer 9
Windows 2003 Server, SP2	Firefox 50, Internet Explorer 9
Windows XP Pro SP3 (x86 32-bit)	Firefox 50, Internet Explorer 9
Windows Server 2003 Std SP2 (x86 32-bit)	Firefox 50, Internet Explorer 9
Windows Server 2008 Standard	Firefox 50, Internet Explorer 9
Windows 7 Professional (x86)	Firefox 50
Solaris 9 (SPARC only) Solaris 10 (SPARC only)	Firefox 50

Launching the Element Manager interface

NOTE

You must log in to a server to monitor your network. You must have an established user account on the switch to log in.

NOTE

Element Manager supports both HTTP and HTTPS. Refer to the *Network OS Security Configuration Guide* for detailed steps to install HTTPS certificates.

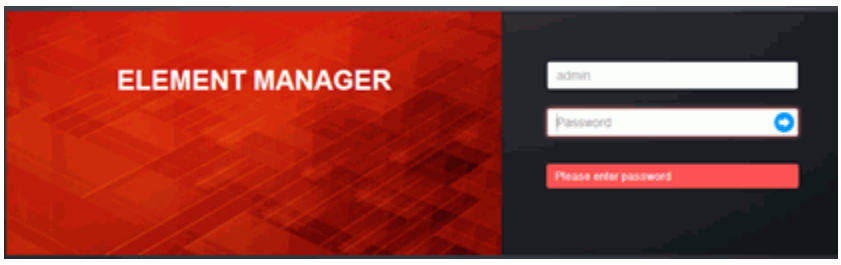
To log in to the Element Manager interface, complete the following steps.

1. Open a web browser and enter the IP address of the Element Manager switch in the format `HTTP://IP Address` or `HTTPS://IP Address`, in the **Address** bar.

   If the web server port number does not use the default, you must enter the web server port number in addition to the IP address; for example, *IP_Address:Port_Number*.

   The **Element Manager Log In** dialog box displays.

   FIGURE 1 Element Manager Log In dialog box

2. Enter your user name and password.

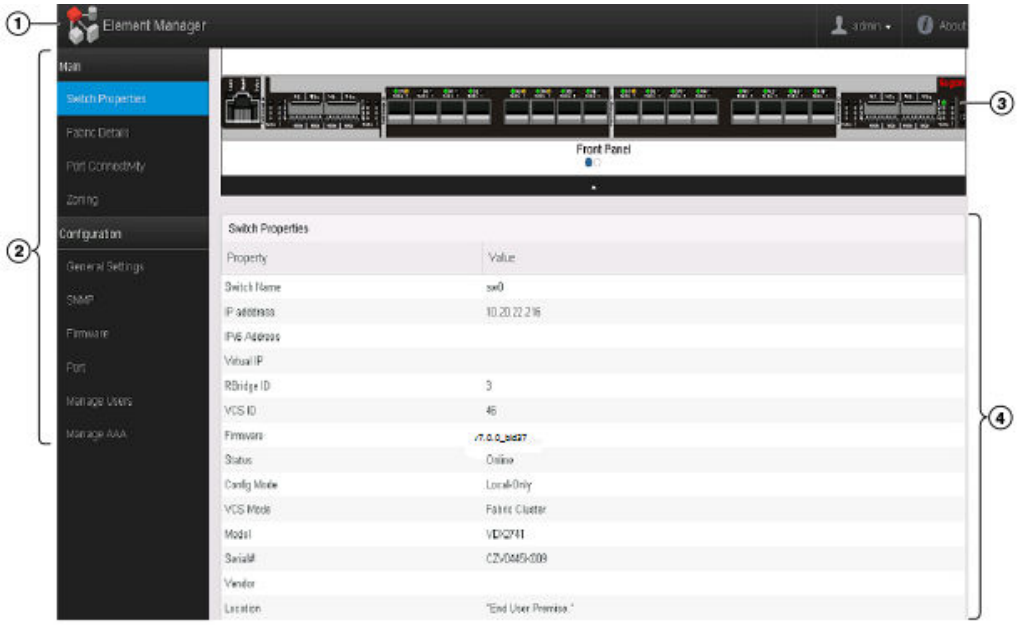
   The defaults are Admin and password, respectively.

3. Click the login icon.

4. Click **OK** on the **Login Banner** dialog box.
The Element Manager interface displays.

> **NOTE**
> The Login Banner dialog box displays only when the login banner is configured.

FIGURE 2 Element Manager interface



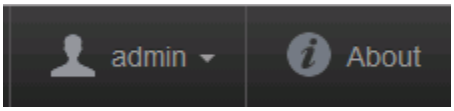
The Element Manager interface consists of the following components:

- 1 - Element Manager banner: Displays the Element Manager user name and status.
- 2 - Navigation toolbar: Provides menus to perform various functions. For more information, refer to Navigation toolbar on page 14.
- 3 - Hardware view: Displays the representative view of the switch.
- 4 - Page contents: Displays a representative view of the switch and the switch properties.

Element Manager toolbar

The Element Manager toolbar is located on the right of the Element Manager banner.

FIGURE 3 Element Manager toolbar



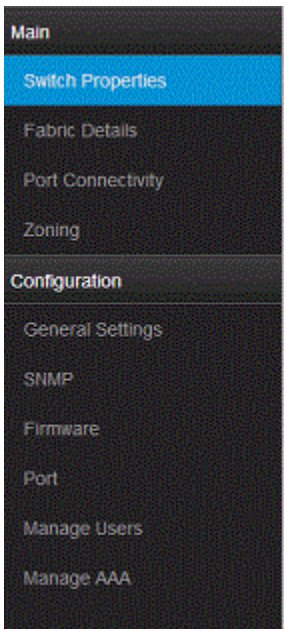
The Element Manager toolbar consists of the following components:

- **User name** banner: Displays the user name. Click the arrow and select **Logout** to log off the Element Manager or select **Reboot** to reboot the switch.
- **About** : Click to display the build and copyright information.

Navigation toolbar

The navigation toolbar is located on the left of the Element Manager interface.

FIGURE 4 Navigation toolbar



The navigation toolbar contains the following menus:

- **Main** menu-: Click to display the switch properties, fabric details, port connectivity, and zoning details of the switch. For more information, refer to Device Properties Overview on page 15.
- **Configuration** menu: Click to add, edit, or delete configurations in the switch. For more information, refer to Application Configuration on page 23.

Logging out

You can end an Element Manager session by selecting **Logout** in the **User name** banner. You may be logged out of a session involuntarily, without explicitly selecting **Logout**, under the following conditions:

- If the user name or password is incorrect, a dialog box displays indicating an authentication failure.
- If the Element Manager is idle for 30 minutes, your session times out.
- If the switch is rebooted.
- If the user that is logged in is deleted.

Device Properties Overview

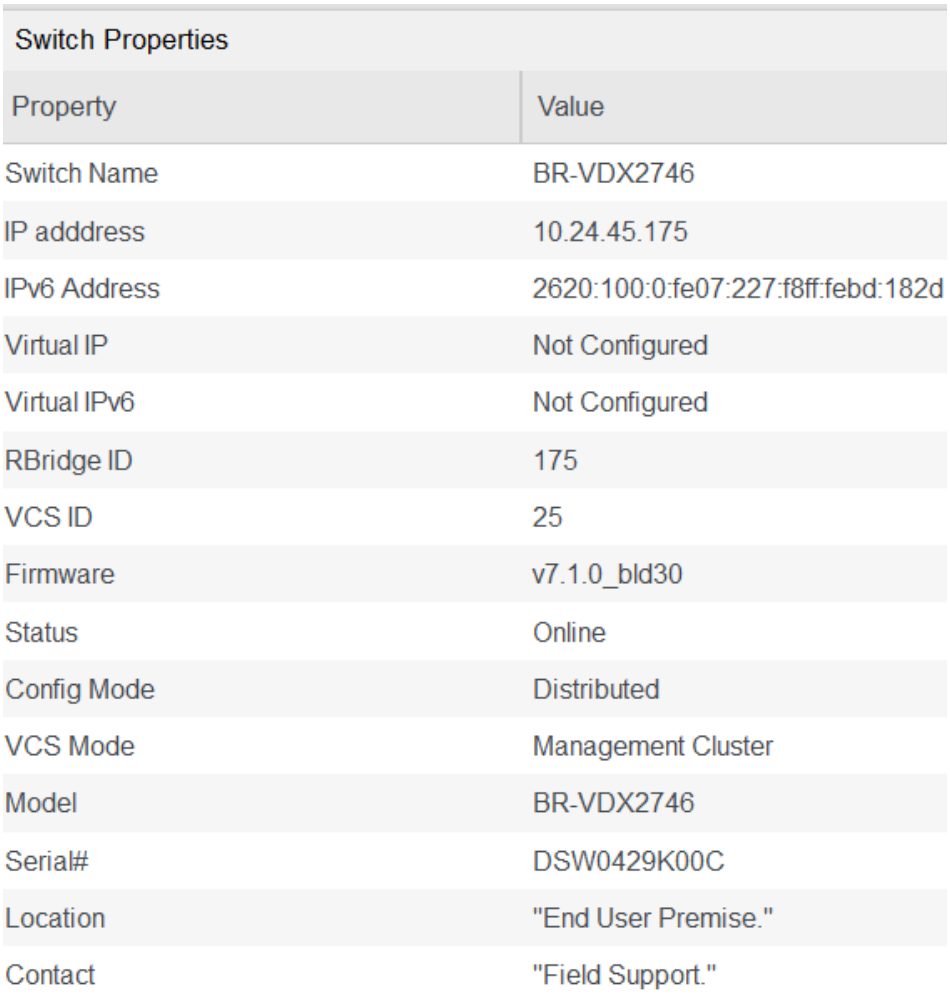
Properties overview

The **Main** menu provides options to display the switch properties, fabric details, port connectivity, and zoning details for fabrics and devices in the Element Manager.

Viewing the switch properties

To view properties of a switch, select **Switch Properties**.
The **Switch Properties** pane displays as shown in following figure.

FIGURE 5 Switch Properties pane



Switch Properties

Property	Value
Switch Name	BR-VDX2746
IP adddress	10.24.45.175
IPv6 Address	2620:100:0:fe07:227:f8ff:febd:182d
Virtual IP	Not Configured
Virtual IPv6	Not Configured
RBridge ID	175
VCS ID	25
Firmware	v7.1.0_bld30
Status	Online
Config Mode	Distributed
VCS Mode	Management Cluster
Model	BR-VDX2746
Serial#	DSW0429K00C
Location	"End User Premise."
Contact	"Field Support."

The Switch Properties pane displays details of the switch. The fields in the following table are not editable.

Property	Description
Switch Name	The name of the switch.
IP address	The IP address (IPv4 or IPv6) of the switch.
IPV6 Address	The IPv6 address of the switch.
Virtual IP	The Virtual IP address of the cluster.
Virtual IPv6	The Virtual IPv6 address of the cluster.
RBridge ID	The routing bridge identifier associated with the VCS fabric member.
VCS ID	The VCS ID number for the fabric or switch.
Firmware	The firmware version of the switch.

Property	Description
Status	The status of the switch; whether it is reachable, not reachable, or degraded.
Config Mode	The configuration mode.
VCS Mode	The VCS mode of the switch, where the cluster is configured.
Model	The model number of the switch that varies for each vendor.
Serial #	The serial number of the switch.
Vendor	The name of the switch vendor.
Location	The physical location of the switch.
Contact	The name of the person or group you should contact about the switch.
Description	The description of the switch.
Switch Time	The current time on the switch.
I/O Module Bay	The chassis vital product data (VPD) information.

Fabric details

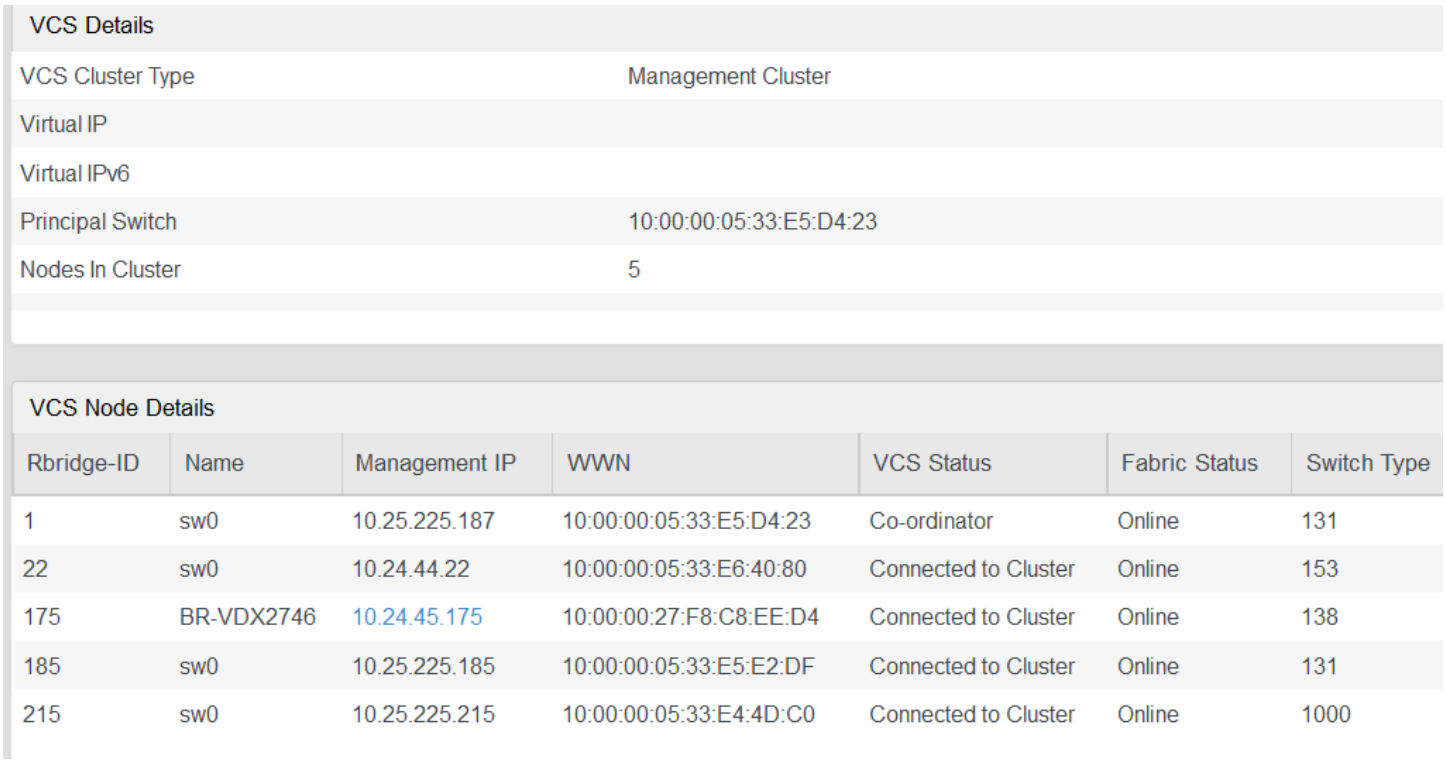
Fabric details display the members and the status of the fabric in the Element Manager.

Viewing fabric details

To view details of a fabric, select **Fabric Details**.

The **Fabric Details** pane displays as shown in the following figure.

FIGURE 6 Fabric Details pane



VCS Details

VCS Cluster Type	Management Cluster
Virtual IP	
Virtual IPv6	
Principal Switch	10:00:00:05:33:E5:D4:23
Nodes In Cluster	5

VCS Node Details

Rbridge-ID	Name	Management IP	WWN	VCS Status	Fabric Status	Switch Type
1	sw0	10.25.225.187	10:00:00:05:33:E5:D4:23	Co-ordinator	Online	131
22	sw0	10.24.44.22	10:00:00:05:33:E6:40:80	Connected to Cluster	Online	153
175	BR-VDX2746	10.24.45.175	10:00:00:27:F8:C8:EE:D4	Connected to Cluster	Online	138
185	sw0	10.25.225.185	10:00:00:05:33:E5:E2:DF	Connected to Cluster	Online	131
215	sw0	10.25.225.215	10:00:00:05:33:E4:4D:C0	Connected to Cluster	Online	1000

The **Fabric Details** pane displays the following components:

- **VCS Details**: Displays the information about the VCS cluster. The following table describes the details of the VCS cluster.

TABLE 3 VCS details

Detail	Description
VCS Cluster Type	Determines whether VCS is in Logical Chassis/Management Cluster.
Virtual IP	Determines whether the cluster is configured with a virtual IP address.
Virtual IPv6	Determines whether the cluster is configured with a virtual IPv6 address.
Principal Switch	The WWN of the principal switch in the cluster.
Nodes In Cluster	The number of nodes in the cluster.

- **VCS Node Details**: Displays the details of the VCS node. The following table describes the details of the VCS nodes.

TABLE 4 VCS node details

Detail	Description
RBridge-ID	The RBridge ID number of the switch.
Name	The name of the switch.
Management IP	The management IP address of the switch. You can select the IP address and launch the Element Manager application for that particular IP address.
WWN	The world wide name of the switch that will be restored.
VCS Status	The VCS status of the switch.

TABLE 4 VCS node details (continued)

Detail	Description
Fabric Status	The fabric status of the switch.
Switch Type	The type of the switch.

Port connectivity

The **Port Connectivity** pane displays the ports and devices connected to the switch.

Viewing the port connectivity

To view ports that are connected to the switch, select **Port Connectivity**.

The **Port Connectivity** pane displays as shown in the following figure.

FIGURE 7 Port Connectivity pane

Port Connectivity

Interface	MAC Address	Status	Line Protocol State	Line Protocol State Info	Neighbour Port	Neighbour WWN	Neighbour Type
FortyGigabitEthernet 3/0/45	50:EB:1A:61:42:5B	down	down	(admin down)			
FortyGigabitEthernet 3/0/46	50:EB:1A:61:42:5C	down	down	(admin down)			
FortyGigabitEthernet 3/0/47	50:EB:1A:61:42:5D	down	down	(admin down)			
FortyGigabitEthernet 3/0/48	50:EB:1A:61:42:5E	up	down	(link protocol down)			
TenGigabitEthernet 3/0/1	50:EB:1A:61:42:2F	up	down	(link protocol down)			
TenGigabitEthernet 3/0/2	50:EB:1A:61:42:30	up	up	(connected)	6600.1E10.00A9	6600.1e10.00a9	
TenGigabitEthernet 3/0/3	50:EB:1A:61:42:31	up	down	(link protocol down)			
TenGigabitEthernet 3/0/4	50:EB:1A:61:42:32	up	down	(link protocol down)			
TenGigabitEthernet 3/0/5	50:EB:1A:61:42:33	up	down	(link protocol down)			
TenGigabitEthernet 3/0/6	50:EB:1A:61:42:34	up	down	(link protocol down)			
TenGigabitEthernet 3/0/7	50:EB:1A:61:42:35	up	down	(link protocol down)			
TenGigabitEthernet 3/0/8	50:EB:1A:61:42:36	up	down	(link protocol down)			
TenGigabitEthernet 3/0/9	50:EB:1A:61:42:37	up	down	(link protocol down)			
TenGigabitEthernet 3/0/10	50:EB:1A:61:42:38	up	down	(link protocol down)			
TenGigabitEthernet 3/0/11	50:EB:1A:61:42:39	up	down	(link protocol down)			
TenGigabitEthernet 3/0/12	50:EB:1A:61:42:3A	up	up	(connected)	6600.1E10.0139	6600.1e10.0139	

The Port Connectivity pane displays the details of the ports connected to the switch. The following table describes the details of the ports connected to the switch.

TABLE 5 Port connectivity

Detail	Description
Interface	The interface number of the switch.
MAC Address	The MAC address of the interface.
Status	The status of the interface.
Line Protocol State	The link status of the interface.
Line Protocol State Info	The connection status between two switches.
Neighbor Port	The interface name and number of the connected port
Neighbor WWN	The WWN of the connected switch and device.
Neighbor Type	The type of the device or switch that is connected.

Zoning

The **Zoning** pane displays the active zone configurations, zones, and zone members. All the fields displayed for zoning are read-only.

To view zone details, select **Zoning**.

The **View By** options are **Zone**, **Target**, and **Initiator**. The default is **Zone**.

The following are the various ways zoning details are displayed for each **View By** option:

- **Zone** view — Displays all the targets and initiators in the zone.

```
    Zoneconfig1
Zone1
        Zonemember1
```

- **Target** view — Displays all the targets and offline devices in the zone.

```
Target
  Zone1
```

- **Initiator** view — Displays all the initiators and offline devices in the zone.

```
Initiator
  Zone1
```

FIGURE 8 Zoning pane - Initiator view

Application Configuration

Configurable preferences

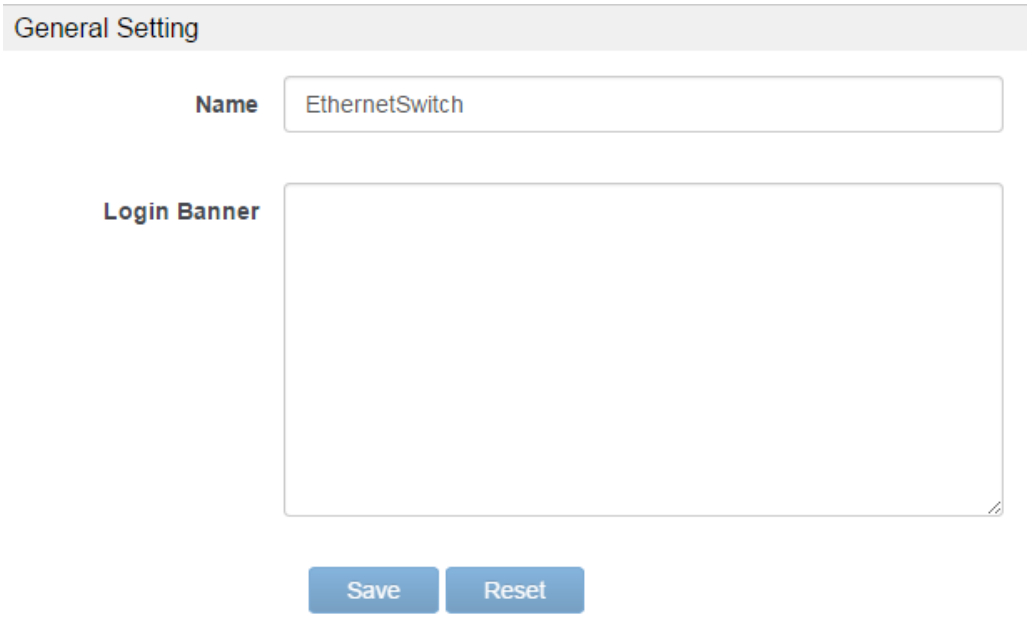
The **Configuration** menu allows you to view the configurations in a switch.

The application configuration is pre-populated with the current values on the switch.

Viewing the properties of the switch

1. Select **General Settings**.
   The **General Setting** pane displays as shown in the following figure.

   FIGURE 9 General Setting pane



2. View the host name in the **Name** field.

   The name can be from 1 through 30 alphanumeric characters in length and allows the underscore (_) and hyphen (-) characters. You cannot use other characters in this field. The host name must begin with an alphanumeric character.

3. View the login banner message of the switch in the **Login Banner** field.

   The login banner can be from 1 through 2048 characters in length and you can use any characters in this field.

Viewing SNMPv3 trap recipients

You can view SNMPv3 trap recipients forwarded by the server.

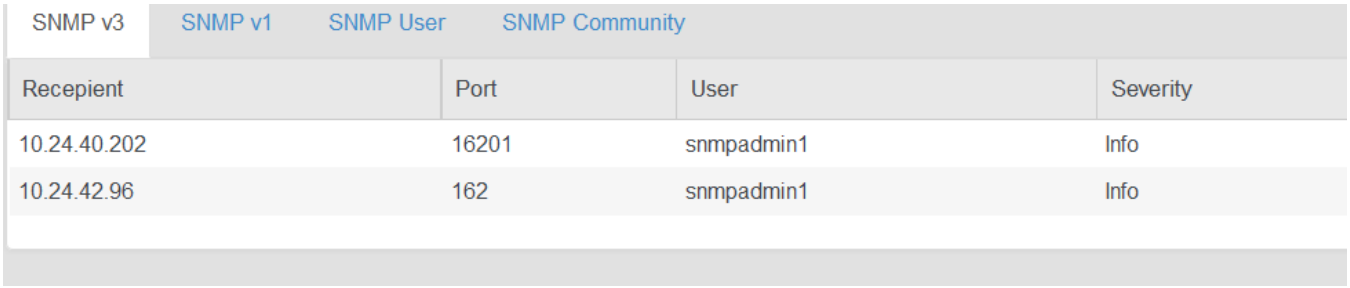
Viewing SNMPv3 trap recipients

To view SNMPv3 trap recipients, complete the following steps.

1. Select **SNMP**.
   The **SNMP** pane displays.
2. Select the **SNMP v3** tab.

   The **SNMP v3** tab displays only six registered SNMPv3 trap recipients.

   FIGURE 10 SNMP v3 tab



   The following table describes the details of the registered SNMPv3 trap recipients.

   TABLE 6 SNMPv3 trap recipient details

Detail	Description
Recipient	The IP address of the trap recipient.
Port	The port that is used to transfer data from the recipient and switch.
User	The configured SNMPv3 user.
Severity	The severity level (information, debug, critical, error, none, or warning) of the SNMPv3 trap.

SNMP toolbar

You can view the SNMPv3 trap recipient, SNMPv1 trap recipient, SNMP user, or SNMP community from the SNMP toolbar located on the upper-left of the **SNMP** pane.

Viewing SNMPv1 trap recipients

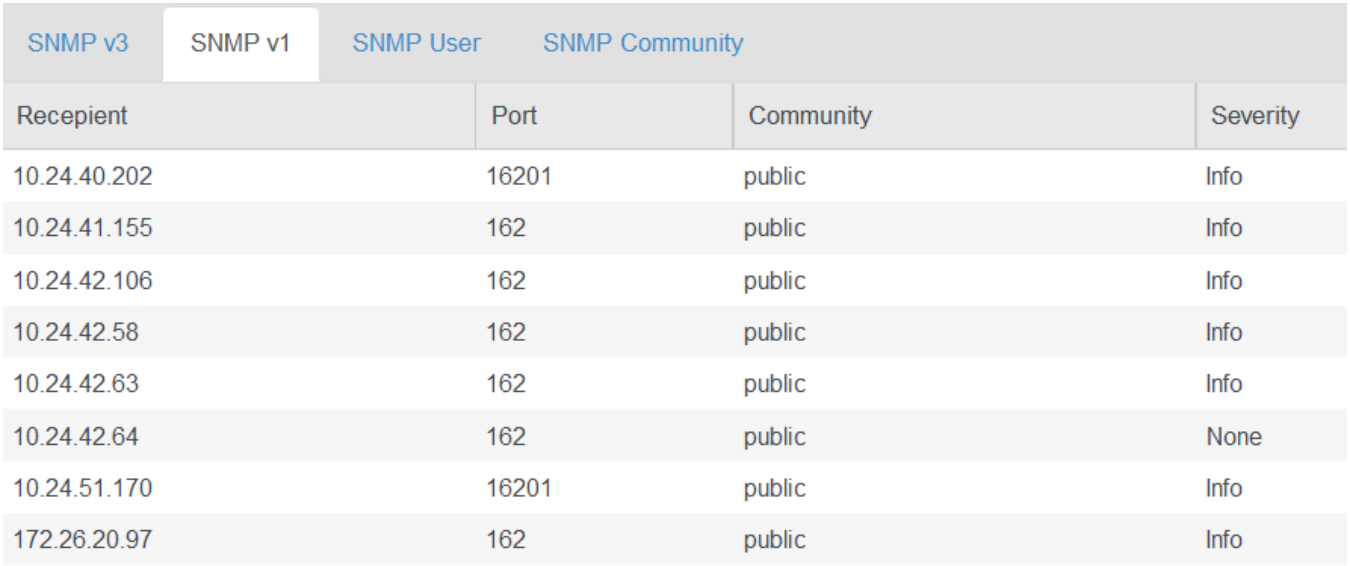
You can view SNMPv1 trap recipients forwarded by the server.

Viewing SNMPv1 trap recipients

To view SNMPv1 trap recipients, complete the following steps.

1. Select **SNMP**.
   The **SNMP** pane displays.
2. Select the **SNMP v1** tab as shown in the following figure.
   The **SNMP v1** tab displays only six registered SNMPv1 trap recipients.

FIGURE 11 SNMP v1 tab



The following table describes the details of the registered SNMPv1 trap recipients.

TABLE 7 SNMPv1 trap recipient details

The following table describes the details of the registered SNMPv1 trap recipients. Detail	Description
Recipient	The IP address of the trap recipient.
Port	The port number that is used to transfer data from the recipient and switch.
Community	The configured SNMPv1 community string.
Severity	The severity level (information, debug, critical, error, none, or warning) of the SNMPv1 trap.

Viewing an SNMPv3 user

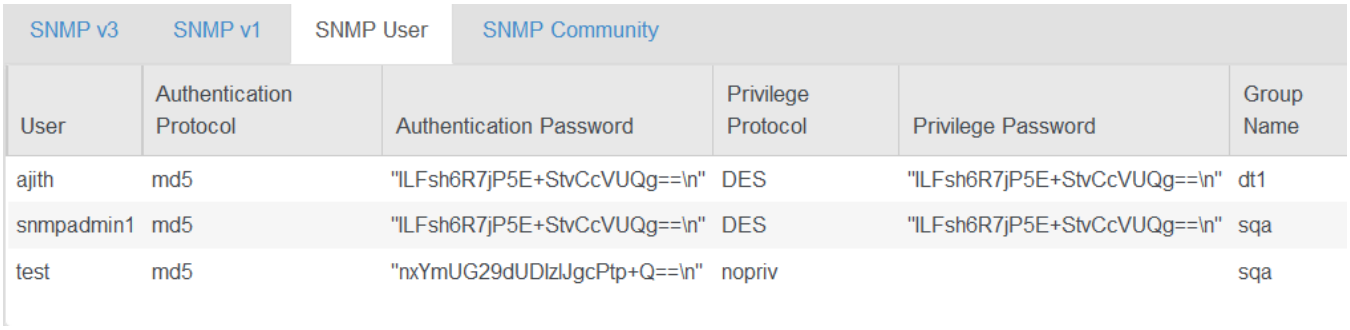
You can view an SNMPv3 user forwarded from the server.

Viewing an SNMPv3 user

To view an SNMPv3 user, complete the following steps.

1. Select **SNMP**.
   The **SNMP** pane displays.
2. Select the **SNMP User** tab as shown in the following figure.
   The **SNMP User** tab displays up to 10 registered SNMP users.

FIGURE 12 SNMP User tab



The following table describes the details of the registered SNMPv3 users.

TABLE 8 SNMP user details

Detail	Description
User	The user name of the SNMP user.
Authentication Protocol	The authentication protocol.
Authentication Password	The encrypted password for SNMP authentication.
Privilege Protocol	The privileged protocol.
Privilege Password	The encrypted password for SNMP users.
Group Name	The name of the group to which the user is associated.

Viewing an SNMP community

You can view an SNMP community forwarded by the server.

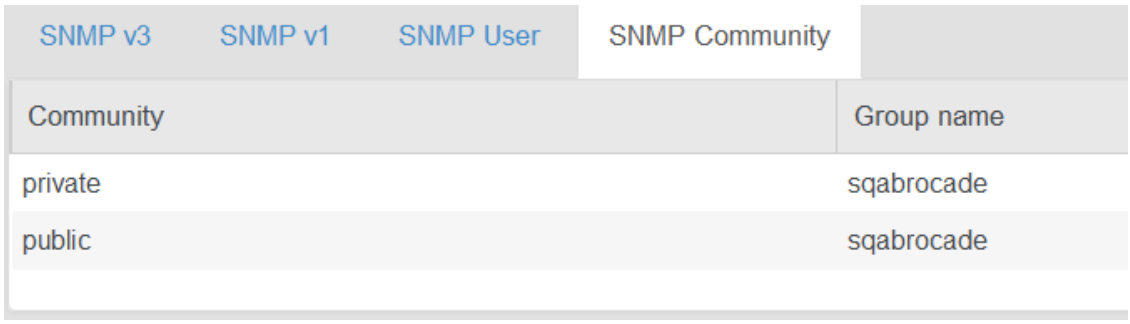
Viewing an SNMP community

To view an SNMP community, complete the following steps.

1. Select **SNMP**.
   The **SNMP** pane displays.

2. Select the **SNMP Community** tab as shown in the following figure.

FIGURE 13 SNMP Community tab



The following table describes the details of the registered SNMP communities.

TABLE 9 SNMP community details

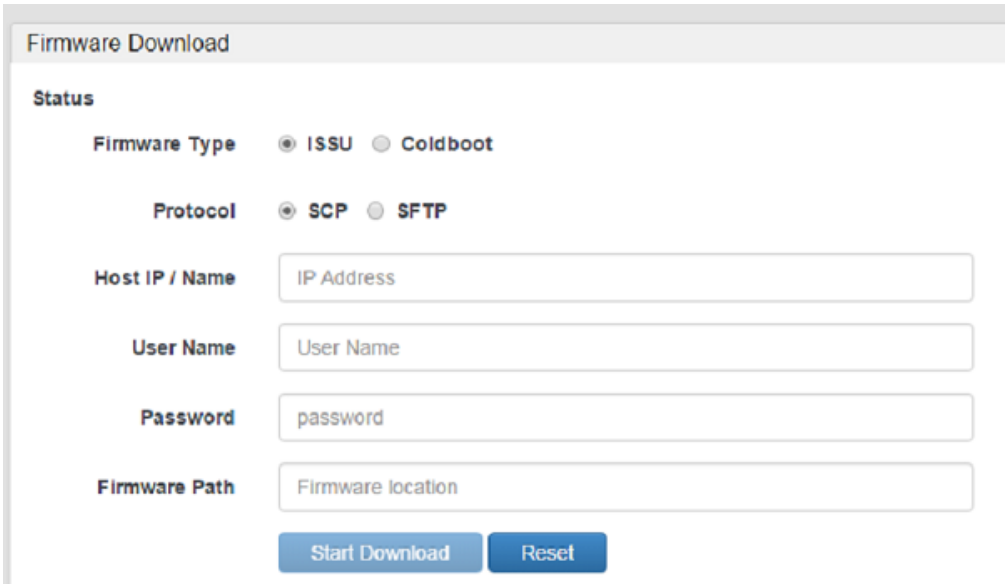
Detail	Description
Community	The unique name of the SNMP community.
Group name	The name of the group to which the user is associated.

Viewing the firmware

The firmware details can be viewed from an SCP, SFTP, or FTP server. Extreme VDX 2746 does not support FTP.

Select**Firmware**.
The **Firmware Download** pane displays as shown in the following figure.

FIGURE 14 Firmware Download pane

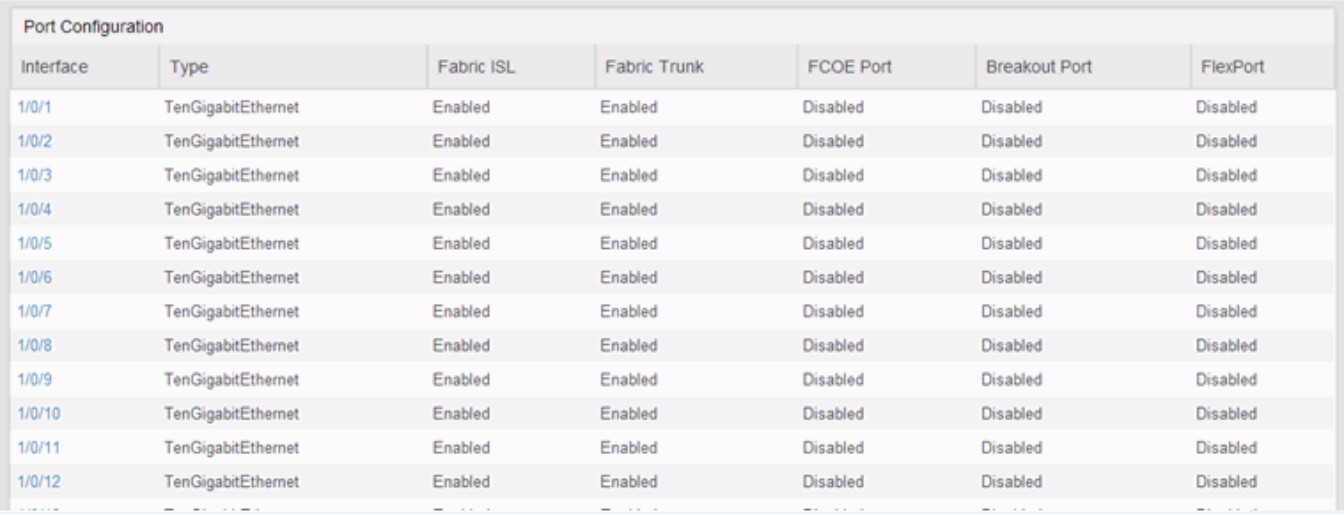


Viewing the port

To view the port, complete the following steps.

Select **Port**.
The **Port Configuration** pane displays as shown in the following figure.

FIGURE 15 Port Configuration pane



The following table describes the details of the ports connected to the switch.

TABLE 10 Port Configuration pane details

Detail	Description
Interface	The name of the interface. You can select an interface to perform port configuration.
Type	The port type of the switch.
Fabric ISL	The fabric ISL state (Enabled or Disabled) of the port. This is a read-write field.
Fabric Trunk	The fabric trunk state (Enabled or Di sabled) of the port. This is a read-write field.
FCOE Port	The FCoE state (Enabled or Disabled) of the port. This is a read-write field.
Breakout Port	The breakout state (Enabled or Disabled) of the port. This is a read-write field.
FlexPort	The state (Ethernet or Fiber Channel) of the external ports. This is a read-write field.

Managing user accounts

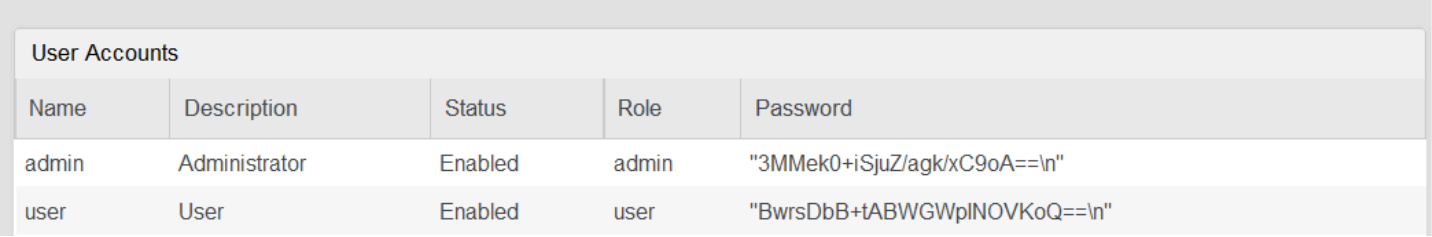
Element Manager allows you to manage accounts of users who manage devices on the network.

Viewing configured users

To view configured users, click **Configuration** > **Manage User**.

The **User Accounts** pane displays as shown in the following figure.

FIGURE 16 User Accounts pane



The following table describes the user account details

TABLE 11 User Accounts pane details

Detail	Description
Name	The user name.
Description	The description of the user (for example, Administrator).
Status	The status of the user (Enabled or Disabled).
Role	The role of the user (for example, Administrator or User).
Password	The encrypted password of the user.

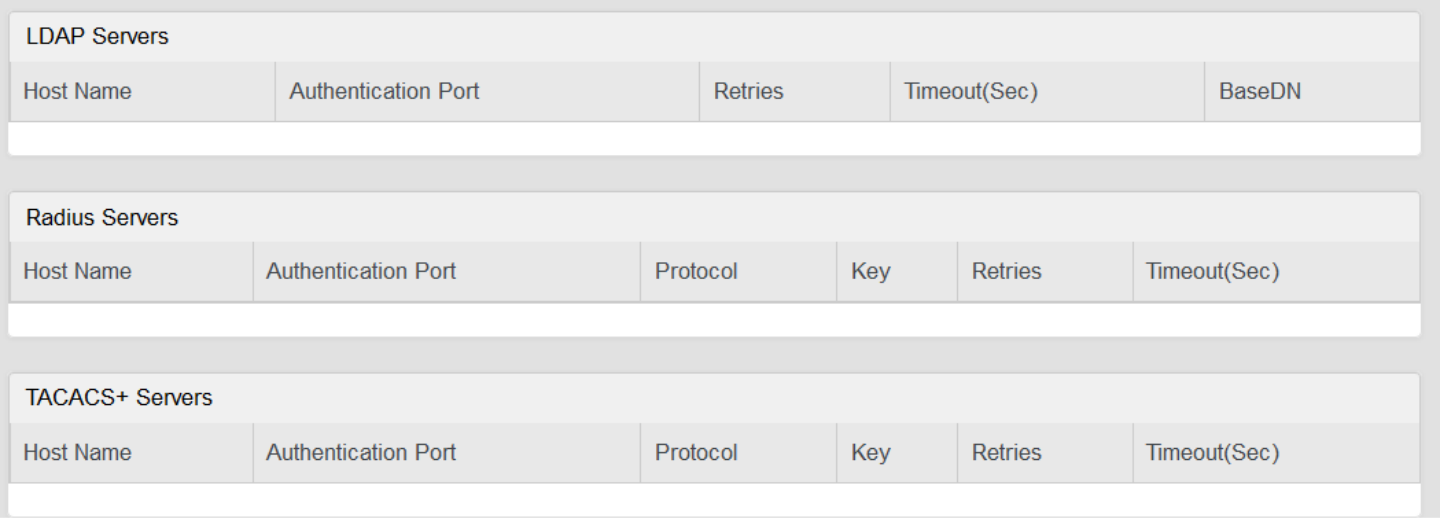
Viewing the AAA servers

You can configure Element Manager to authenticate users against an external server (RADIUS, TACACS+, or LDAP).

Viewing RADIUS, TACACS+, or LDAP server authentication

To view TACACS+, RADIUS, or LDAP server authentication, click **Configuration** > **Manage AAA**. The **Manage AAA** pane displays as shown in the following figure.

FIGURE 17 Manage AAA pane



The following table describes the RADIUS and TACACS+ details in the Manage AAA pane.

TABLE 12 RADIUS and TACACS+ details in the Manage AAA pane

Details	Description
Host Name	The name and IP address of the server.
Authentication Port	The port used for authentication.
Protocol	The encryption protocol used for authorization and authentication.
Key	The encryption key.
Retries	The number of times to retry the process.
Timeout	The timeout in seconds.

The following table describes the LDAP details in the Manage AAA pane.

TABLE 13 LDAP details in the Manage AAA pane

Details	Description
Host Name	The name and IP address of the server.
Authentication Port	The port used for authentication.
Retries	The number of times to retry the process.
Timeout	The timeout in seconds.
BaseDN	The domain name of the LDAP server.