

# ExtremeCloud IQ Controller RADIUS Authentication

Using ExtremeCloud IQ SiteEngine

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# Preface

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.

## **Text Conventions**

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as Extreme Networks switches or SLX routers, the product is referred to as *the switch* or *the router*.

Icon	Notice type	Alerts you to
	Тір	Helpful tips and notices for using the product
	Note	Useful information or instructions
•	Important	Important features or instructions
<u>.</u>	Caution	Risk of personal injury, system damage, or loss of data
	Warning	Risk of severe personal injury

### Table 1: Notes and warnings

Convention	Description
screen displays	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words <i>enter</i> and <i>type</i>	When you see the word <i>enter</i> in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says <i>type</i> .
<b>Key</b> names	Key names are written in boldface, for example <b>Ctrl</b> or <b>Esc</b> . If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press <b>Ctrl+Alt+Del</b>
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.
NEW!	New information. In a PDF, this is searchable text.

### Table 2: Text

### Table 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
<i>italic</i> text	Italic text indicates variable content.
[ ]	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.
х   у	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, such as passwords, are enclosed in angle brackets.
	Repeat the previous element, for example, member [member].
\	In command examples, the backslash indicates a "soft" line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

# 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 Other Resources such as articles, white papers, and case studies

### **Open Source Declarations**

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### Training

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit the Extreme Networks Training page.

## Help and Support

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

### **Extreme Portal**

Search the GTAC (Global Technical Assistance Center) knowledge base; manage support cases and service contracts; download software; and obtain product licensing, training, and certifications.

### The Hub

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 2800. 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

## Subscribe to Product Announcements

You can subscribe to email notifications for product and software release announcements, Field Notices, and Vulnerability Notices.

- 1. Go to The Hub.
- 2. In the list of categories, expand the Product Announcements list.
- 3. Select a product for which you would like to receive notifications.
- 4. Select Subscribe.
- 5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

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

# Send Feedback

The User Enablement team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

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

To send feedback, email us at documentation@extremenetworks.com.

Provide as much detail as possible including the publication title, topic heading, and page number (if applicable), along with your comments and suggestions for improvement.



# **Configuring RADIUS Authenticated Management Access on ExtremeCloud IQ Controller with ExtremeControl**

Configuring RADIUS Authenticated Management Access on page 8

# Configuring RADIUS Authenticated Management Access

This document is intended for SEs and partners that are familiar with ExtremeCloud IQ Controller and ExtremeControl (the authentication feature of ExtremeCloud IQ Site Engine). Only the primary touchpoints between these products are covered.

The following prerequisite configuration is assumed:

- ExtremeCloud IQ Controller is configured and added to ExtremeCloud IQ Site Engine.
- ExtremeCloud IQ Site Engine has a working LDAP connection with a directory service such as Microsoft Active Directory.

This document assumes the following firmware and software versions.

- ExtremeCloud IQ Controller build version 10.05.02.009 with AP Firmware 10.1.0.0-036R.
- ExtremeCloud IQ Site Engine build version 22.9.10.73.

## Overview

A brief summary of the interactions between ExtremeCloud IQ Controller and ExtremeControl can be broken down into the following steps:

- 1. The Administrator attempts to log into ExtremeCloud IQ Controller with previously configured login credentials using his/her login credentials, RADIUS authentication occurs.
- 2. ExtremeCloud IQ Controller sends a RADIUS request to ExtremeControl for administrative login access.
- 3. ExtremeControl performs and LDAP lookup, authenticates and authorizes the RADIUS request as per its configuration and passes back a RADIUS ACCEPT message: Filter-id set to Administrator Access Type Attribute set to mgmt=su.
- 4. ExtremeCloud IQ Controller allows the administrator to login.

# ExtremeCloud IQ Controller Configuration

The first step to configuring ExtremeCloud IQ Controller is to configure a AAA policy, then add the RADIUS server to the Authentication Order.

1. Configure ExtremeControl as a designated RADIUS server

From ExtremeCloud IQ Controller, go to **Onboard** > **AAA Policy** > **Add**.

Ext	remeCloud <sup>®</sup> IQ Cont	roller	ے 🞝 😋	min 👻 E6120 Small 10.05.02.0019				
::	Default AAA C Authentication Method LDAP Configuration Authenticate Locally for N	Default AAA Configuration ConFiguration ConFiguration ConFigure Default AAA CONFigure De						
\$	RADIUS SERVERS	LDAP CONFIGURATIONS LOCAL PASSWORD REPOSITORY						
°O i	RADIUS Servers	Search Q Exact match		Add				
2	IP Address			=				
8	10.49.224.60							



Note

When viewing content online, you can zoom in on screen shots to view them better.

### 2. Configure the RADIUS server settings

Add a RADIUS authentication server that points to ExtremeControl.

RADIUS server IP address: Accept the default port settings.

**Shared Secret**: This is the default shared secret used by Xcontrol. This setting can be used for testing and proof of concept. For a real deployment, it is expected that the shared secret will be changed from the defaults. Save the settings.

RADIUS Server IP address	
10.49.224.36	
Response Window [Seconds]	
20	
Authentication Timeout Duration [Seconds]	
2	
Authentication Retry Count	
1	
Authorization Client UDP Port	
1812	
Proxy RADIUS Accounting Requests	
Accounting Client UDP Port	
1813	
Shared Secret	
	-
✓ Mask	
Advanced	

### 3. Add RADIUS Server to Authentication Order

- a. Go to Administration > Accounts > RADIUS.
- b. Under Authentication Order, select Add to add the RADIUS option.
- c. Authentication Order

Order the servers as Local first and RADIUS second until the configuration has been tested in order to avoid getting locked out of ExtremeCloud IQ Controller management interface due to bad configuration.

### d. RADIUS Server

To add the properties of the RADIUS server, under RADIUS Servers, select **Add** and select **IP Address** to display a list of available RADIUS servers.

Enter the NAS IP, NAS ID details and set the authentication method to MS-CHAPv2.

e. Save these settings.

ACCOUNTS RADIUS				
Authentication Order	Add			Save Test
	Order Authentication Mode			
	1 LOCAL			
	2 RADIUS	<u> </u>		
RADIUS Servers	Add			
	Order IP Address	NAS IP Address	NAS ID	Authentication Method
	1 10.49.224.60 ¥	10.49.224.42	хіq-с -	MS-CHAP v2 V



### Note

Do not test the configuration until you have configured ExtremeControl to handle the management access login requests from ExtremeCloud IQ Controller.

## ExtremeControl Configuration

From ExtremeControl, carry out the following overall process:

- Configure AAA authentication rule
- Create an LDAP user group
- · Edit the default Administrator policy role
- · Add a new rule to the Rule Engine
- 1. Configure AAA Authentication Rule

To handle the Management Login Access, a AAA authentication rule with Authentication Type Management is needed.

- a. From ExtremeControl main screen, go to Access Control > AAA > Default.
- b. If the AAA authentication rules are not visible, change the view to Advanced: Right-click **Default** and select **Make Advanced**.

ExtremeClo	oud IQ Site Engine			Q	004
r Network	Dashboard Policy Access Control End-S	Systems Reports			
Alarms & Events	Configuration -	Basic AAA Configuration -	Default		
Analytics	Configurations     Default     AAA     Default     Default	Authenticate Requests Local Primary RADIUS Server: Secondary RADIUS Server:	Vp for:         EV MAC (All)         MAC (PAP)         MAC (CHAP)           None         None         None         None	MAC (MsCHAP)	MAC (EAP-MDS)
Tasks	LDAP Conf Make Advanced Local Pass Used By RADIUS Se Delete AAA Configuratio	DAP Configuration: ocal Password Repository: n	None Default	*	
Z Connect	Profiles     Captive Portals     Notifications     Vendor RADIUS Attributes     Global & Engine Settings	Update Trusted Authorities	No information available.		

- 2. ExtremeControl authenticates administrators against a directory service such as Microsoft Active Directory.
  - a. Create a new rule with Authentication Type set to Management Login.
  - b. Change the Authentication Method to LDAP Authentication. The LDAP Authentication Type should show as NTLM Authentication with the supported RADIUS types.



#### Note

If using multiple LDAP servers, enable Fall-through if Authentication Fails option to authenticate against the next AAA authentication rule in case the first AAA authentication rule results in an authentication failure or the directory service is unreachable.

- c. Select the **LDAP policy** from the LDAP Configuration drop-down menu.
- d. Select **Save** to save all changes made to the AAA Authentication Rule.

Configuration	Advanced AAA Co	ofiguration Default					
		Edit User to Authenticatior	n Mapping	1	ĸ		
Configurations     Default	🗹 Authenticate Requ	Authentication Type:	Management Login	-	AP-I		
▼ AAA	Local Password Repos	User/MAC/Host:  Pattern	Group *				
Default	Join AD Domain:			_			
LDAP Configurations	Lindate Trusted Au	Location:	Any	•			
Local Password Repository	opuate musted Au	Authentication Method:>	LDAP Authentication	•			
RADIUS Servers	Authentication	LDAP Authentication Type:	NTLM Authentication				
<ul> <li>Profiles</li> </ul>	> ③ Add	Supported RADIUS Type:	MsCHAP, PEAP and EAP-MsCHAPV2				
Captive Portals	Authentica	Eall-through If Authenticat	ion Fails		5	Inject	Inject
<ul> <li>Notifications</li> </ul>	Туре					Authentica Attrs	Accountin; Attrs
Vendor RADIUS Attributes	Any	LDAP Configuration:	Idap	-		None	None
<ul> <li>Global &amp; Englite Settings</li> </ul>	802.1X	LDAP Policy Mapping:	None			None	None
				_	_		
Group Editor 🕂				K Cance			
Engines +	4						•

### 3. Create an LDAP User Group

In order for Access Control engine to find users in the Microsoft Active Directory, an LDAP user group with a **memberOf** attribute lookup can be used. This LDAP user group is later used as one of the match conditions in the Access Control rule engine.

- a. To create a new LDAP user group, select the **Group Editor** and select **User Groups** tab.
- b. Add a new User Group, name it **Administrator**, and change **Type** to **LDAP User Group**.
- c. To define the user group attributes, select **Attribute Lookup** and then select the available LDAP configuration from the drop-down menu.

### ExtremeControl Configuration

	- User Groups		
Group Editor –	🛶 🎯 Add 📑 Edit 📑 Copy 🤤 Delete 🛛 🕫 Refres	sh Import	
All Groups	Name † Category	Type	Used Bv
<ul> <li>Device Type Groups</li> </ul>	Create Group: Administrator		×
End-System Groups	Name: Administrator	Description:	Optionally add a description to this group.
<ul> <li>Time Groups</li> </ul>	Type: User: LDAP User Group		
🔻 User Groups 🛛 🗲	Mode: <ul> <li>Match Any</li> <li>Match All</li> <li>Exists</li> </ul>	1	
Administrators Corp users	🔕 Add 🔯 Edit 🐻 Copy 🤤 Delete 🛛 🐻 Attri	bute Lookup 0	DU Import
Domain Access	Attribute Name Attribute Value		Description
	≪ <   Page 0 of 0   > ≫   ☎    Res	Select LDA	P Configuration for Attribute Lookup P Configuration to query against.
	≪ <   Page 0 of 0   > ≫   <b>2</b>    Rest	Select LDA et Select an LDA You will be ab add to this gr	P Configuration for Attribute Lookup P Configuration to query against. Ile to select one or more attribute name/value pa oup from the results of the lookup.

- 4. a. On the next screen, search for a valid username to retrieve LDAP information for this user.
  - b. Select the **memberOf** parameter as the key attribute.
  - c. Select Save to complete the User Group settings.

×

#### LDAP Attribute Lookup

sAMAccountName:	Ovais		Search
Attribute Name		Attribute Value	
instanceType		4	
lastLogoff		0	
lastLogon		133148296733674412	
lastLogonTimes	tamp	133301451889730780	
logonCount		43	
🗌 mail		mqayyum@extremenetworks.com	
memberOf		CN=Domain Admins,CN=Users,DC=tmelab,DC=ca	
🗹 memberOf ┥		CN=Administrators,CN=Builtin,DC=tmelab,DC=ca	
msNPAllowDial	in	TRUE	
name		Ovais	
name		Ovais Add Selected	Ci

### 5. Edit Default Administrator Policy Role

- a. Go to **Configuration > Profiles > Policy Mappings > Default** and select the **Administrator** profile.
- b. Scroll-down and change the Access permission to Administrator.
- c. Save the settings.



# Note

This predefined profile is already set up to enable Super User access for management, if used.

#### ExtremeControl Configuration

Dashboard Policy Access Control End	d-Systems Repc	Edit Policy Mapping	×				
Configuration –	Default						
Staff Profile (Auto)	3 Add	RADIUS Attribute Lists					
Start-Guest Profile (Auto)		Organization 1:	1		Login-LAT-		Mamt
Test Profile (Auto)	Name 🕇		1		Port	Manageme	Service Type
TestPolicy Profile (Auto)	Access Point			int	0		
Unregistered NAC Profile	Administrator	Organization 2:		a	0		
Vendor Profile	Assessing				0		
VENDOR Profile (Auto)	BYOD						
VoIP Phone NAC Profile	Contractor	Organization 3:	•				
Vxadmin Profile (Auto)	Corp						
Policy Mappings	CSE-PortalAuthF						
Default 🚽 🗕	CSE-PortalNonA	Management	- 1				
<ul> <li>Assessment</li> </ul>	CSE-v2110corpA		1				
Captive Portals	CSE-v2110corpN	Access: Administrator					
<ul> <li>Notifications</li> </ul>	Deny Access	Management: mgmt=su:		ess	0		
<ul> <li>Vendor RADIUS Attributes</li> </ul>	Enterprise Acces	Mgmt Service 6		e	0		
<	Enterprise User	Type:		e	1		
Group Editor +	Enterprise User	CLI Access: 1		2	1	mgmt=su:	6
Engines 0+	Enterprise User		×	2	1	mgmt=ro:	1
	Enterprise Web	Preview with RADIUS Attributes	Cancel				-
Enforce      Refresh	Linterprise web	Line prise Any None Ontagged					
				_			,

### 6. Create a New Rule

Create a new Access Control rule so that ExtremeControl can assess the incoming administrative login requests.

- a. Go to the **Configuration** > **Default** > **Rules** tab.
- b. Select **Add** to add a new rule.
- c. Set Authentication Method to Management Login and User Group to the Administrator group you created earlier.

Dashboard Policy Acces	s Control End	l-Systems Re	ports				
Configuration	-	Rules	Edit Rule			×	
<ul> <li>Configurations</li> </ul>		🕨 🗿 Add	Description.				cations
<ul> <li>Default</li> </ul>		Enat					Profile
Rules 🗲 🗕		•				- 6	Quarantine N
AAA: Default		•	Group Label:	None	-	- 1	Notification N
Portal: Default		•					Administrator
AAA			Conditions			- 1	/xadmin Prof
Profiles		•	Authentication Method:	Management Login	n Invert	- 1	Access Point I
Captive Portals		•	User Group:	Administrators		- 1	Default NAC F
<ul> <li>Notifications</li> </ul>		•	oser droup.	, and a state of a		- 1	<u>\dministrator</u>
Vendor RADIUS Attributes		•	End-System Group:	Any	linvert	- 1	Registration [
<ul> <li>Global &amp; Engine Settings</li> </ul>		4	Device Type Group:	Any 👻	nvert	- 1	_
		« <	Location Group:	Any	lnvert		
		Accept Po	Time Group:	Any	Invert		
		Specify/(	Actions				
Group Editor	+	Role / Service					
			Profile:	Administrator NAC Profile	-		
Engines	0+				More	•	
❶ Enforce ▼ ◀	C Refresh			-	Save	Close	

- 7. a. Select Administrator NAC Profile in the Actions section. This profile returns the default Administrator policy role which has its Access permissions set to Administrator.
  - b. Save the settings to return to the **Rules** screen.
  - c. If working with multiple rules to handle authentication for different User or Device Groups, make sure to move the rules UP or Down based on the rule precedence.
  - d. Finally, select **Enforce** to enforce the configuration.

#### Testing and Validation

Configuration	-	Rule	S					
<ul> <li>Configurations</li> </ul>		<b>O</b> A	dd 😡	Edit	Сору 🤤	Delete 🛛 👚	Up 🗣 Down 🛛 🎲 👻 🗸	
🔻 Default			Enabled	Rule Name	2		Conditions	
Rules		0	1	Blacklist			End-System is in <u>Blacklist</u>	
AAA: Default		0	1	Assessmer	nt Warning		End-System is in Assessment	
Portal: Default		•	1	Manageme	ent Login		Authentication is Managem	
► AAA		-	.1	V/V			Ret Set and Set	
Profiles	Acc	cess Co	ontrol Eng	ine Enforce	2		<b>∠^ ×</b> pin	
Captive Portals		] Engi	ne	IP Address	Status	Result	Details	
<ul> <li>Notifications</li> </ul>	•	10.4	10.49.224 10.49.224 Audit Com Pass					
Vendor RADIUS Attributes							ion	
<ul> <li>Global &amp; Engine Settings</li> </ul>	Force Reconfiguration for All Switches Force Reconfiguration for Captive Portal							
				Au	dit Preview	w Enforce	Enforce All	
		Acce	ept Policy	- Role Deta	ils : Specify a	Domain		
		潯 s	pecify/Chang	ge Domain	View/Edit Do	omain		
Group Editor	+	Role /	Service / Ru	le		Sumr	mary	
Engines	0+							
● Enforce ▼	efresh							

## Testing and Validation

 To test the configuration, log into the ExtremeCloud IQ Controller using the local admin account and go to Administration > Accounts > RADIUS. Select Test to test the login credentials.

	ACCOUNTS			Test RADIU	Test RADIUS Server				Test
\$ *	Authentication Order			Username	Ovais				
≗ ` ∢`		Order /	Authentication Mode	Password					
<b>器</b> >	RADIUS Servers	Add		_	-	CANCEL	ок	-	
		Order	IP Address	N	AS IP Address		NAS ID	Authentication Method	
		1	10.49.224.36	1	0.49.224.42		XIQ-C	MS-CHAP v2	

- 2. If the test is successful, you can change the order of Authentication Mode to RADIUS first and Local second. This is to ensure that if the RADIUS server is not reachable, administrators can still access ExtremeCloud IQ Controller using the local admin user account.
- 3. Go to the event log under **Tools** > **Logs** > **Events** to verify the new RADIUS authenticated user with Administrator access permissions is mapped to the internal admin user role.

		Search	Search L	.ogs	Exact match C
			From:	past month	CHANGE
			To:	latest	CHANGE
	Adv	anced Filtering	T		
E	/ENTS STATIO	IN EVENTS	AUDIT	AP EVENTS	
	Time		Туре	Component	Message
	Jun 5, 2023 4:02:3	3 PM	Info	PAM Log Filter	Jun 5 16:02:33 XIQ-C pam_radauth[1387]: (www) User [admin] has been rejected in authentication on radius server [10.49.224.36].
	Jun 5, 2023 3:45:1	2 PM	Info	PAM Log Filter	Jun 5 15:45:12 XIQ-C gui_s_mgr: pam_unix(www:session): session closed for user admin
0	Jun 5, 2023 3:44:5	9 PM	Info	PAM Log Filter	Jun 5 15:44:59 XIQ-C gui_s_mgr: pam_unix(www:session): session opened for user admin by (uid=0)
C	Jun 5, 2023 3:44:5	9 PM	Info	PAM Log Filter	Jun 5 15:44:59 XIQ-C pam_radauth[1387]: (www) User [admin] has been rejected in authentication on radius server [10.49.224.36].
	Jun 5, 2023 3:31:1	2 PM	Info	PAM Log Filter	Jun 5 15:31:12 XIQ-C gui_s_mgr: pam_unix(www:session): session closed for user admin
0	Jun 5, 2023 3:30:5	0 PM	Info	PAM Log Filter	Jun 5 15:30:50 XIQ-C gui_s_mgr: pam_unix(www:session): session opened for user admin by (uid=0)
-	Jun 5, 2023 3:30:5	0 PM	Info	PAM Log Filter	Jun 5 15:30:50 XIQ-C pam_radauth[1387]: (www) User [Ovais], mapped to [admin], has been authenticated successfully. The session will be opened.
	Time: Type: Component: Message:	Jun 5, 2023 3 Info PAM Log Filt Jun 5 15:30:5	:30:50 PM er i0 XIQ-C par	n_radauth[1387]: (www) Us	er [Ovais], mapped to [admin], has been authenticated successfully. The session will be opened.