



Universal Compute Platform User Guide

Version 5.06.01

9038104-00 Rev. AA
March 2024



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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*.

Table 1: Notes and warnings






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

Table 2: Text

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> .
Key names	Key names are written in boldface, for example Ctrl or Esc . If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del
<i>Words in italicized type</i>	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 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
<i>italic text</i>	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.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, such as passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, <i>member [member...]</i> .
\	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

Some software files have been licensed under certain open source licenses. Information is available on the [Open Source Declaration](#) page.

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.



Welcome to Universal Compute Platform

The Universal Compute Platform serves as a service platform for an on-premises application offering. The Universal Compute Platform provides a performance validated hosting platform, supporting advanced orchestration of a catalog of applications. The Universal Compute Platform provides a container-based orchestration framework, in an Extreme Networks qualified and validated high-performance hardware configuration. The framework natively supports clustering, a distributed file system, and orchestration through Kubernetes, providing a highly resilient application operational base.



Dashboard

[Dashboard Overview](#) on page 10

Dashboard Overview

Universal Compute Platform offers dashboards and lists that help you monitor the cluster configuration and performance.

Universal Compute Platform offers the following dashboards and reports:

- Deployment Health
- System Health
- Dashboard Nodes
- Pods List
- Services List
- Volumes List

Deployment Health

The **Deployment Health** Dashboard provides information about the overall health of the node cluster. The top pane highlights each piece of the cluster network:

- Nodes. The number of appliances in your network. You have the option of configuring individual stand-alone nodes or a cluster of three nodes. Stand-alone configuration is supported for all engine types except ExtremeCloud IQ.



Note

When using an ExtremeCloud™ IQ engine, you must configure a cluster of three nodes. ExtremeCloud IQ is not supported in stand-alone mode, it requires three nodes, and it does not support engine types other than ExtremeCloud IQ.

- Pods. A group of managed containers that share networking and storage resources from the same node (appliance). Each pod is assigned an IP address. All the containers in the pod share the same storage, IP address, and network namespace.
- Services. Network Services running on the node cluster.
- Volumes. Storage that allows data to be accessible to containers within a pod.

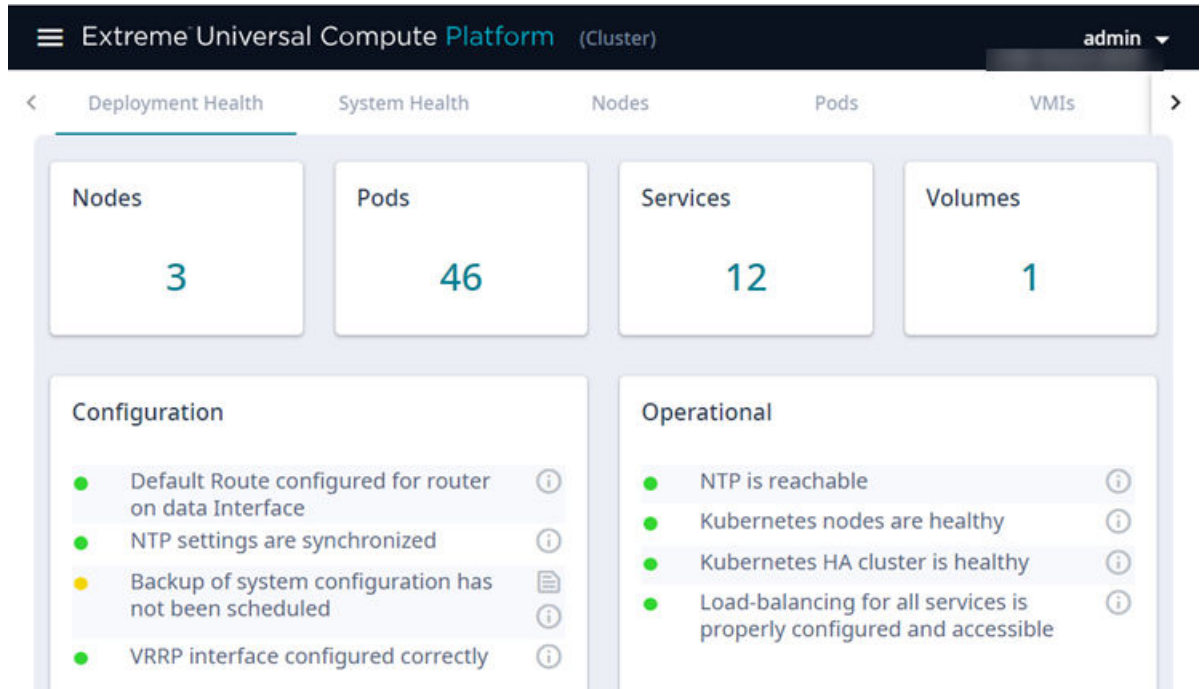


Figure 1: Deployment Health Dashboard

Deployment Health also provides best practice information for your Universal Compute Platform configuration. System Health checks are run against your configuration and operational setup to inform you of best practices.

- ● Green indicates that a best practice is being followed.
- ● Yellow indicates that your configuration is not optimal.
- ● Red indicates an error in your configuration.

Fix all error conditions. You have the option to ignore warnings. They are provided to inform and encourage best practice configuration.

- Select i for a description of each statement or warning.
- Select ☰ to list objects causing an issue, and to jump to that area of Universal Compute Platform to improve your configuration.

System Health Dashboard

The **System Health** dashboard provides the following information:

- System Uptime — The number of days and hours the system has been operational.
- CPU Utilization — CPU Utilization metrics over time.
- Memory Utilization — Memory Utilization metrics over time.

Nodes Dashboard

The **Nodes Dashboard** provides graphs for CPU utilization and memory utilization for each node in the cluster.

Pods List

The **Pods List** displays a list of pods in your cluster. A pod is a group of managed containers that share networking and storage resources from the same node. The following information is provided for each pod:

- Pod Name
- Ready status
- Status — Possible values are Running or Down.
- Restarts
- Age — Measured in minutes, hours, and days.
- IP address
- Node

Use the Search field to find a specific list item.

You can select the number of items to display on a page. Valid values are:

- 10
- 20
- 50
- 100

To jump to the next or previous page, or jump to the first or last page, select the arrows at the bottom of the page.

VMI List

VMI stands for Virtual Machine Instance. The following information is provided for each VMI:

- Name
- Phase
- Node Name
- QoS Class
- Namespace
- Created

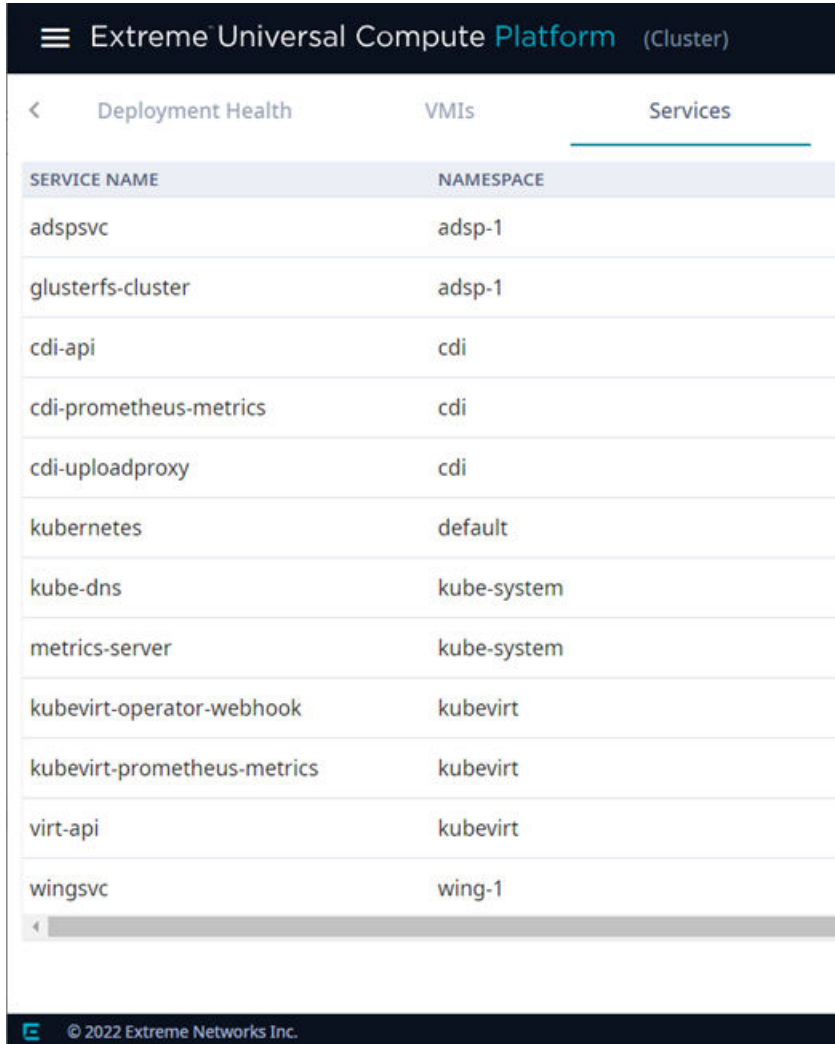
Expand each VMI to display the following information:

- CPU: Cores
- Volumes
- Interfaces: IP Address and MAC

Services List

The **Services List** displays a list of all services running in the cluster. The Service Name and Namespace are provided for each service.

Use the Search field to find a specific list item.



SERVICE NAME	NAMESPACE
adpsvc	adsp-1
glusterfs-cluster	adsp-1
cdi-api	cdi
cdi-prometheus-metrics	cdi
cdi-uploadproxy	cdi
kubernetes	default
kube-dns	kube-system
metrics-server	kube-system
kubevirt-operator-webhook	kubevirt
kubevirt-prometheus-metrics	kubevirt
virt-api	kubevirt
wingsvc	wing-1

Figure 2: List of services running on the node cluster

You can select the number of items to display on a page. Valid values are:

- 10
- 20
- 50
- 100

To jump to the next or previous page, or jump to the first or last page, select the arrows at the bottom of the page.

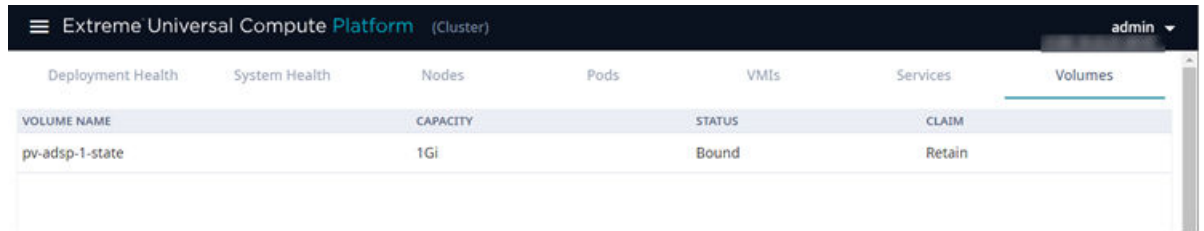
Volumes List

The **Volumes List** displays a list of all volumes in the cluster. A volume is storage that allows data to be accessible to containers within a pod. The following information is provided for each volume:

- Volume Name
- Capacity

- Status
- Claim. Associated with the volume type and how the data is handled in the volume. If the data will be retained, the Claim value is **Retain**.

Use the Search field to find a specific list item.



The screenshot shows the 'Volumes' tab in the Extreme Universal Compute Platform dashboard. The dashboard header includes 'Extreme Universal Compute Platform (Cluster)' and a user profile 'admin'. The navigation menu includes 'Deployment Health', 'System Health', 'Nodes', 'Pods', 'VMIs', 'Services', and 'Volumes'. The 'Volumes' table has the following data:

VOLUME NAME	CAPACITY	STATUS	CLAIM
pv-adsp-1-state	1Gi	Bound	Retain

Figure 3: List of Volumes associated with a node

You can select the number of items to display on a page. Valid values are:

- 10
- 20
- 50
- 100

To jump to the next or previous page, or jump to the first or last page, select the arrows at the bottom of the page.



Cluster Settings

[Cluster Configuration](#) on page 15

Cluster Configuration

The **Cluster Configuration** page outlines the settings provided when deploying the cluster.



Note

For information on how to deploy a Universal Compute Platform cluster, see the following guides:

- [ExtremeCloud Edge - Managed Orchestration Deployment Guide for Universal Compute Platform](#)
- [ExtremeCloud Edge - Self-Orchestration Deployment Guide for Universal Compute Platform](#)

Go to **Cluster Settings > Cluster Configuration** to view the cluster deployment settings.

The following information is provided:

Deployment Type

Universal Compute Platform supports ExtremeCloud IQ as a distributed cloud application or Universal Container on-premise controller applications.

Select the deployment type. Valid values are:

- Distributed Cloud — ExtremeCloud IQ as a distributed cloud application.
- Universal Container — A variety of on-premise controller applications.

Select **Next**.

Cluster Node Information

The number of nodes you configure here is directly related to the amount of CPU and memory you require. Universal Compute Platform supports a stand-alone mode and a full-cluster mode. Stand-alone mode requires only one defined node, but a cluster of applications can be housed on one, two, or three nodes depending on your resource requirements.

Configure only one node for stand-alone mode or configure up to three nodes for a full cluster.

**Note**

When using an ExtremeCloud™ IQ engine, you must configure a cluster of three nodes. ExtremeCloud IQ is not supported in stand-alone mode, it requires three nodes, and it does not support engine types other than ExtremeCloud IQ.

1. Provide the ICC IP Address for each node in the cluster.
2. Select **Next**.

When the Deployment Type is Universal Container, you have the option to configure the following engine type in stand-alone mode:

- ExtremeWireless WiNG™ Controller

Pod Network Configuration

Pods are groups of containers that share networking and storage resources from the same node.

1. Provide the following Pod Network configuration settings:
 - Pod Network IP Address
 - Pod Network CIDR
 - Service Network IP Address
 - Service Network CIDR
2. Select **Create Cluster**.

The cluster is created.

If a cluster previously existed, the cluster connections are reset. Then, you must reinstall the engines for each node in the cluster.

Related Topics

[Engine Options](#) on page 21

[Certificates](#) on page 16

Certificates

To ensure a secure website that takes advantage of encryption, Universal Compute Platform uses browser certificates for website security and RADIUS server certificates for certificate-based authentication to the network and for access to a captive portal. The browser certificate ensures security between the wireless clients and a VLAN, and the RADIUS server certificates ensure security between the RADIUS server and Network Access Control.

Both types of certificates offer the option to generate a new certificate or use a certificate and key file that you have saved. You can also reset the network interface to the default certificate and key, which yields a Self-Signed certificate.

Universal Compute Platform offers a factory installed self-signed certificate, which is used by the user interface HTTP Server to terminate the HTTPS browser requests served on port 5825. The certificate common name is *Network Services Engine*.

Related Topics

[Generate Certificates](#) on page 17

Generate Certificates

Browser certificates are used for website security or to secure the captive portal client communications. Generate a certificate or use a saved certificate and key from one or more files.

1. Select **Certificates**.

The **Certificates** dialog displays.

2. Select the Certificate option:

- **Replace or Install Topology's certificate**

Select this option and select **Generate CSR**. Complete the online form, then generate and download the certificate that can be presented to a public certificate authority.

- **Replace or Install Topology's certificate and key from a single file**

Select this option and navigate to the saved certificate file. Provide the password key provided with that file.

- **Replace or Install Topology's certificate file and key from separate files**

Select this option and navigate to the saved certificate file and separate key file.

- **Reset to Topology's default certificate and key**

Select this option to clear previous certificates and reset the Universal Compute Platform to the default configuration of the Self-Signed certificate.



Note

When certificates are applied or reset on the Admin topology, a server restart is triggered, and the browser loses connectivity with the server for a few seconds. When certificates are applied or reset on System topologies where **Management Traffic** is enabled, the server is also restarted.

Prepare to Replace a Node

1. Gather the IP address settings of the failed node.

Unless stated otherwise, you will set the new node with the same IP address values as the unit being replaced:

- ICC Interface IP Address—For the ICC interface, you must assign a new IP address to the replacement node.
- Data Port Interface IP Address
- DNS Server Address
- NTP Server Address

2. Configure the VRRP priority for the replacement node.

**Note**

To ensure that the replacement node successfully joins the cluster, set the VRRP node priority of the replacement node to a value that is lower than the value of the existing nodes. This ensures that the VRRP address is pointing at a working node in the cluster during the joining process. After the replacement node has joined the cluster, you can set the VRRP node priority to first priority if desired, but this is not required.

3. Use the Basic Configuration Wizard to configure the replacement unit.
This is required if you are replacing the unit hardware. Node Replacement initially resets the node connections. It may not require new hardware.

For information about the Basic Configuration Wizard, see the appropriate Deployment Guide.

4. [Upgrade the Universal Compute Platform](#) on page 46 for the new node to the current firmware version.

After you have gathered the necessary information and verified the firmware version of all nodes in the cluster, you can run the [Replace a Node](#) on page 18 procedure.

Replace a Node

Replacing a node in a cluster is performed when a node has failed and must be replaced. The replacement node gets delivered in a reset state. After initializing the node for its network presence, the new node is added to the cluster and assumes the service load of the removed node.

From the primary node in the cluster (Node 1), take the following steps:

1. Go to **Cluster Services > Node Replacement**.

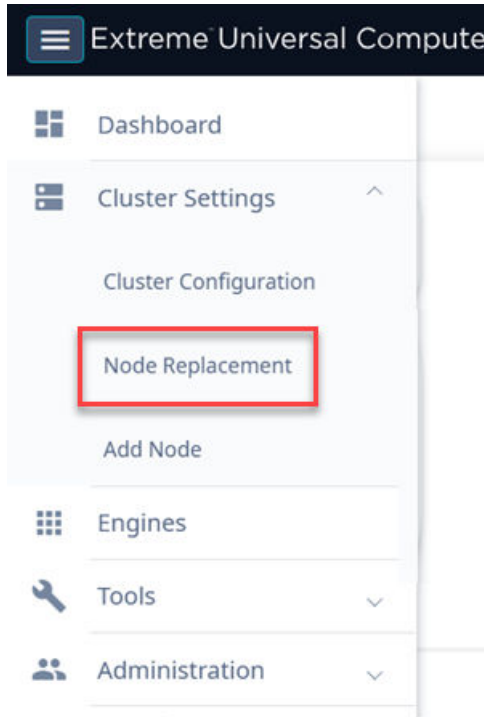


Figure 4: Node Replacement

2. Select the failed node and select **Next**.

Existing credentials are used to establish connection to the failed node.

Configuration and services information is transferred from the primary node to the failed node in an effort to re-establish a connection.

If it is necessary to replace the node hardware, refer to the [Universal Compute Platform Appliance 4120C Installation Guide](#) for detailed information.

Add Node



Note

Before adding a new node, you must configure the new controller and ensure that it is running the current firmware version. Refer to [Prepare to Replace a Node](#) on page 17.

**Note**

This option is not available in standalone deployments.

For detailed instructions on appliance installation and cluster planning and configuration, see the appropriate guide:

- [Universal Compute Platform 4120C Appliance Installation Guide](#)
- [ExtremeCloud Edge - Managed Orchestration Deployment Guide for Universal Compute Platform](#).

A node is one appliance. Universal Compute Platform clusters typically support up to three or more nodes, with the ability to scale up when the cluster reaches capacity.

To add a node to a cluster, take the following steps:

1. Go to **Cluster Settings > Add Node**.

Extreme Universal Compute Platform (Cluster)

1 Add Node

Node IP Address

10.48.4.51

Add Node

Finish

Figure 5: Add Node dialog

2. Provide the appliance IP address for the node and select **Add Node**.
The **Node Addition** confirmation dialog displays.

This will add the requested node to the cluster. Do you want to continue?

Cancel Ok

Figure 6: Add Node Confirmation Dialog

3. Select **OK** to begin the Add Node process.



Engines

[Engine Options](#) on page 21

[Engine Upgrades](#) on page 27

Engine Options

From the **Engines** menu you can install an engine and upgrade an engine application Docker image. The engines that are available depend on the deployment type that you selected under [Cluster Configuration](#) on page 15.

For more information on specific deployment types, see [Universal Compute Platform documentation](#).

Related Topics

[Distributed Cloud](#) on page 21

[Universal Container Deployment](#) on page 24

Distributed Cloud

Install the Engine

In a Distributed Cloud Deployment, ExtremeCloud™ IQ is the only available engine. Install ExtremeCloud IQ engine once to be automatically distributed across three nodes.

To install an engine instance:

1. Go to **Engines > Installation**.
2. From the ExtremeCloud IQ pane, select **Install**.

After installation is complete, a confirmation notice is displayed and a single XIQ instance displays. A single instance is all that is required for the cluster.

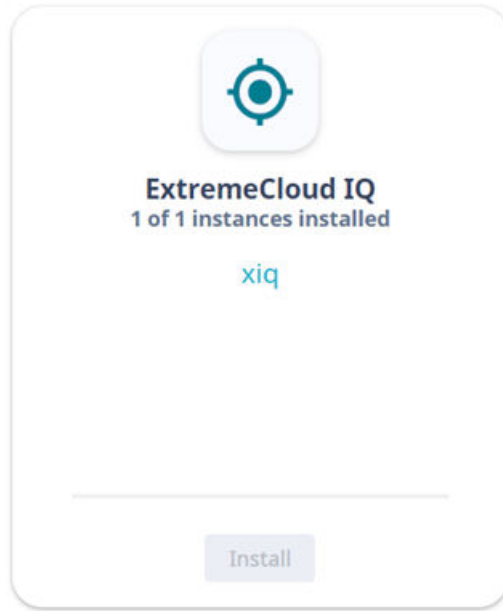


Figure 7: Installed ExtremeCloud IQ Engine Instance

Related Topics

[ExtremeCloud IQ Engine Settings](#) on page 22

ExtremeCloud IQ Engine Settings

When using an ExtremeCloud™ IQ engine, you must configure a cluster of three nodes. ExtremeCloud IQ is not supported in stand-alone mode, it requires three nodes, and it does not support engine types other than ExtremeCloud IQ.

For each engine instance, select the instance link to configure the application settings and view the following information:

- [Network Service Configuration](#)
- [Account Registration](#)

Network Service Configuration

The **Network Service Configuration** tab displays the mapping of each core service set to the corresponding Virtual Router Redundancy Protocol (VRRP).



Note

Network registration is configured during the initial Universal Compute Platform setup process. For complete instructions on registering a network account, see the .

ExtremeCloud IQ

Instance: xiq

Network Service Configuration

Account Registration

Assign a VRRP address to the service set

Services	Assigned VRRP
auth, cmtcp, cmudp, https, sshproxy	10.48.40.24 ▼
cstcp1, csudp1	10.48.40.25 ▼
cstcp2, csudp2	10.48.40.26 ▼

SAVE

Figure 8: ExtremeCloud IQ Network Service Configuration Details

Account Registration

Create an ExtremeCloud IQ user account through Universal Compute Platform. Go to **Engines > Account Registration** and fill out the form in [Figure 9](#). Then, select **Register**.

You will receive an email confirming your registration.

ExtremeCloud IQ

Instance: xiq

Network Service Configuration

Account Registration

Registration

Instructions to complete the registration will be sent to the account e-mail

Host Name

Token

First Name

Last Name

Email Address

Organization

Job Title

Figure 9: ExtremeCloud IQ Account Registration Form

Universal Container Deployment

Install an Engine

When the Deployment Type is Universal Container, you have the option to configure the following engine type in stand-alone mode:

- ExtremeWireless WING™ Controller

Initial Engine Application Installation

Installing an engine application in a Universal Container deployment involves the following tasks:

1. Download the Extreme Docker Application Image File.
2. Upload the Docker Application Image File to the UCP.
3. Install the application engine.
4. Deploy the application Docker image file.

Download the Extreme Docker Application Image File

Download the application Docker image file from the Extreme Networks [support portal](#).

To obtain the Docker image file, go to the Extreme Networks [support portal](#) to download the application Docker image.

For example, from the ExtremeWireless WiNG™ product page, download `cx-9000.tar`.

Upload the Docker Application Image File to the UCP

To upload an engine application Docker image, take the following steps:

1. Go to **Engines > Image Management**.
2. Choose one of the following:
 - Select the **Choose Image File** pane and navigate to the image file. Or,
 - Drag and drop the image file onto the **Image File** pane.

A list of uploaded image files is displayed below the **Choose Image File** pane.

To delete an uploaded image, select the check box next to the image file. Then, select

. To refresh the image file list, select .

Install an Engine Application

To install the engine application, take the following steps:

1. Go to **Engines > Installation**.
2. From the pane for the application that you want to install, select **Install**.



Note

If you have not yet uploaded the application Docker image file, you will be prompted to do so.



Note

The installation time will depend on a variety of factors, be prepared for it to take some time.

A confirmation notice is displayed after installation is complete. Only one instance is required for the cluster.

Deploy the Application Image File

After you have uploaded the application image file and installed the application Docker image, deploy the application to a node.

To deploy the application:

1. Go to **Engines > Installation**.
2. Select the engine instance link. For example, "cx9000 #1".
3. Select **Deploy**.
4. Save your changes.

Engine Application Settings

For each engine instance, select the instance link to configure the application settings and view the following information:

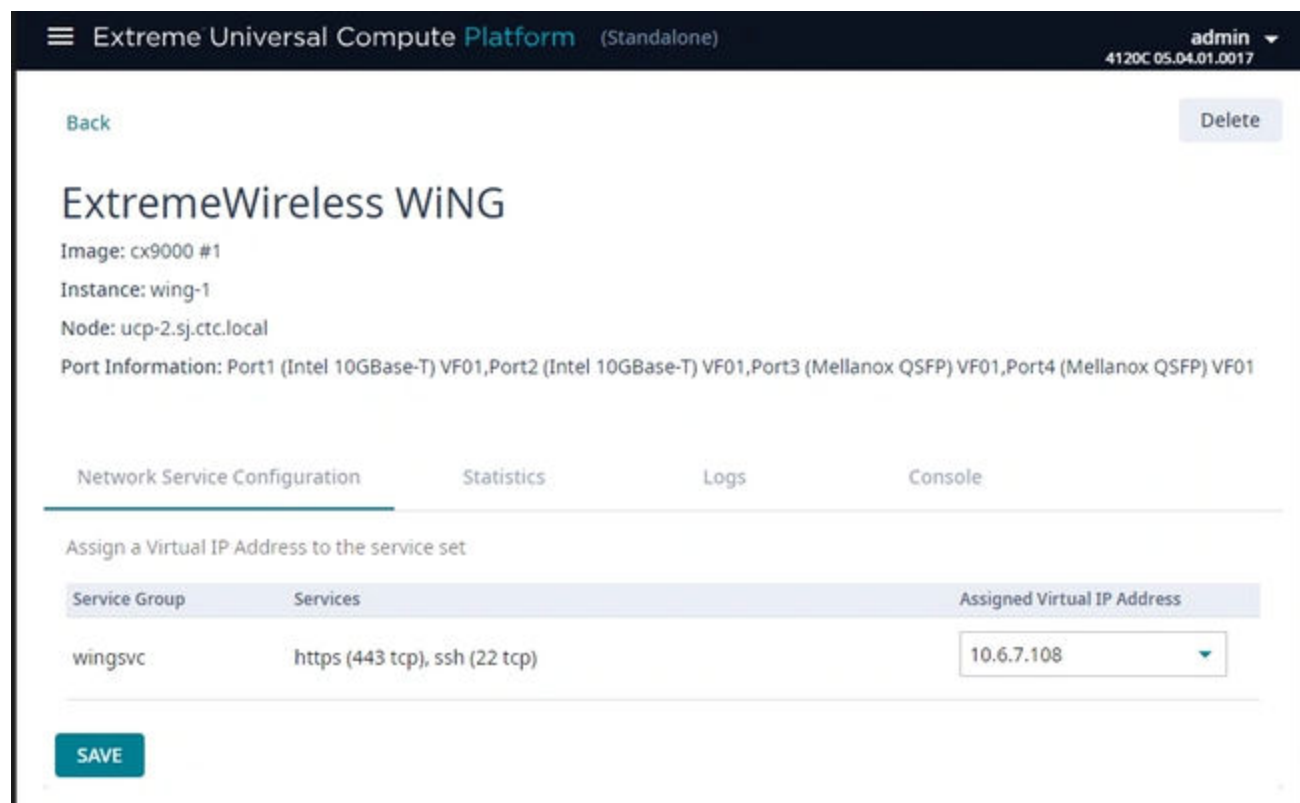


Figure 10: Example Engine Application Settings

Image

Controller image name.

Instance

Name of the node instance (provided by Universal Compute Platform)

Instance Web Interface

The assigned IP address of the Engine instance. This option provides the ability to log into the specific Engine instance.

1. Configure the interface from the **Interfaces** pane. Go to **Administration > Network Setup**.
2. Select the configured IP address from the **Assigned Virtual IP Address** field. Note, only IP addresses configured through **Network Setup > Interfaces** will appear in the drop-down list.
3. Log in through the console.

Network Service Configuration

The mapping of each core service set to the corresponding Virtual Router Redundancy Protocol (VRRP).

Select the VIP that you configured for the selected port, where the Engine instance will reside. For more information on Interface Configuration, see [Add Interface](#) on page 41.

VRRP enables a virtual router to act as the default network gateway, improving host network reliability and performance.

Statistics

Compute statistics and node drive volume statistics are available for CPU usage and memory usage.

Logs

A log file is available for each node instance. Log entries include the following:

- Timestamp of log entry
- System Component
- Message log level
- Message content

Console

A live console is available from each engine instance for diagnostics and troubleshooting. To open a live console and connect to a container or virtual machine instance (VMI), from the engine **Console** tab, select **Attach**.

Engine Upgrades

Universal Compute Platform has multiple methods for upgrading container applications. Select the upgrade method that fits your application type:

- **Self-Orchestrated applications**—For self-orchestrated applications that support external upgrades, see [Upgrade an Application \(Self-Orchestrated\)](#) on page 28.
- **Applications with built-in upgrade functionality**—For applications with built-in upgrade functionality, you can upgrade from the application interface. Refer to the application documentation for details.
- **Applications that do not support either upgrade method**—For these applications, uninstall the current image and then install the new image. Note that this method requires you to reconfigure your settings.

Upgrade an Application (Self-Orchestrated)

Use this procedure to upgrade a self-orchestrated engine application from the Universal Compute Platform user interface. This procedure upgrades the application while retaining existing settings.




Note

You must have the new application image file. For Extreme Networks applications, download the install image from the [Extreme Networks Support Portal](#) and save it to a local drive.

1. Log in to the Universal Compute Platform interface.
2. Upload the new application image file:
 - a. Go to **Engines > Image Management**.
A list of uploaded images displays under the **Choose Image File** pane.
 - b. To upload the new image, complete either of the following steps:
 - Select **Choose Image File**, then browse to the image file and select it. Or,
 - Drag the image from your local drive and drop it on the **Choose Image File** pane.



Note

To delete an image file, select the check box next to the image and select .

3. Upgrade the application:
 - a. Go to **Engines > Installation**.
 - b. Select the application instance that you want to upgrade.
 - c. Select **Upgrade application**.
 - d. Select **OK**.

Universal Compute Platform creates a new container with the upgraded application image and existing settings. The old container is terminated.



Tools

[Logs](#) on page 29

[Diagnostics](#) on page 30

Logs

Universal Compute Platform offers Event and Audit logs to help you understand and troubleshoot the network.

Events

To view a list of network events, go to **Tools > Logs > Events**. The following information is displayed for each event:

- Time the event occurred
- Type of event: Minor or Major
- Component of Universal Compute Platform that was affected. For example, Rest API or Startup Manager
- Description of the event

Audit Log

To view the Audit Log, go to **Tools > Logs > Audit Logs**. The following information is displayed in the Audit Log:

- Time logged item occurred
- Username of system administrator
- Context
- Description of logged item

To filter the Audit Log, provide a start and end date to display only log items that occur within the date window. Select **Reset** to clear the filter.

Use the Search field to find a specific list item.

You can select the number of items to display on a page. Valid values are:

- 10
- 20

- 50
- 100

To jump to the next or previous page, or jump to the first or last page, select the arrows at the bottom of the page.

Diagnostics

Universal Compute Platform offers diagnostic tools to help you troubleshoot your network.

Related Topics

[Network Utilities](#) on page 30

[TCP Dump Management](#) on page 31

Network Utilities

Use wireless controller utilities to test a connection to the target IP address (or Fully-Qualified Domain Name) and record the route through the Internet between your computer and the target address. You can also use controller utilities to capture exception traffic, which can be useful for network administrators when debugging network problems.

Table 4: Network Utilities

Field	Description
Target IP Address or Fully-Qualified Domain Name (FQDN)	IP address or FQDN for the test target.
Use specific source interface	Indicates if a specific interface will be selected for the test. Select the interface from the Select Interface field. When this option is cleared, Universal Compute Platform runs the test based on the interface selected in the routing table.
Select Interface	Used with Specific Source Interface option. See list of possible interfaces on the Interface tab.
Ping	Initiate the Ping network utility to determine reachability of the IP address or FQDN that you specify.
Trace Route	Initiate the Trace route command, which traces the path of a packet from Universal Compute Platform to the IP address or FQDN that you specify. It lists the routers it passes until it reaches its destination, or fails to. It also indicates the length of each hop.

Related Topics

[TCP Dump Management](#) on page 31

TCP Dump Management

Table 5: TCP Dump Management

Field	Description
Interface	Target interface. See the list of possible interfaces on the Interface tab.
Filename	Specify the name of the dump file.
Save File To	Specify where to save the dump file.
Capture File Size (MB)	Specify the maximum limit of the dump file in MB. This feature enables you to control the size of the resulting dump file so the file does not become too large.
Capture Files	List of previously created dump files. Select a file to take action.



Administration

[Manage User Accounts](#) on page 32

[System Configuration](#) on page 34

Manage User Accounts

This topic outlines how to manage user accounts on the Universal Compute Platform controller. For information about registering for an ExtremeCloud IQ user account, see [Account Registration](#) on page 23.

Universal Compute Platform offers the following levels of user access on the controller:

- Full Admin
- Read Only

Full Administrators can create and manage controller user accounts. This guide outlines the following procedures:

- Add new accounts
- Modify account settings
- Delete user accounts

Add a User Account

To add a user account:

1. Go to **Administration** > **Accounts**.
2. Select **New Account**.

3. Configure the [account settings](#).

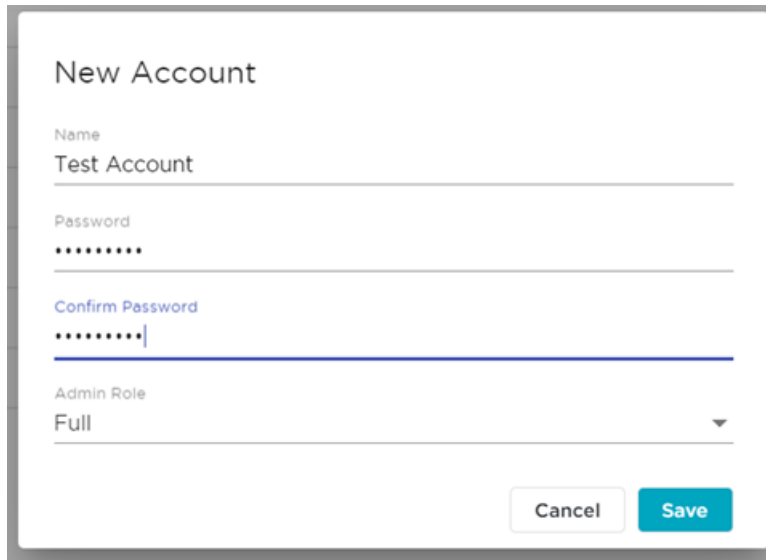



Figure 11: Create New Account

Modify a User Account

To modify a user account:

1. Go to **Administration > Accounts**.
2. Select  next to the account that you want to modify.
3. Select **Change Password**.

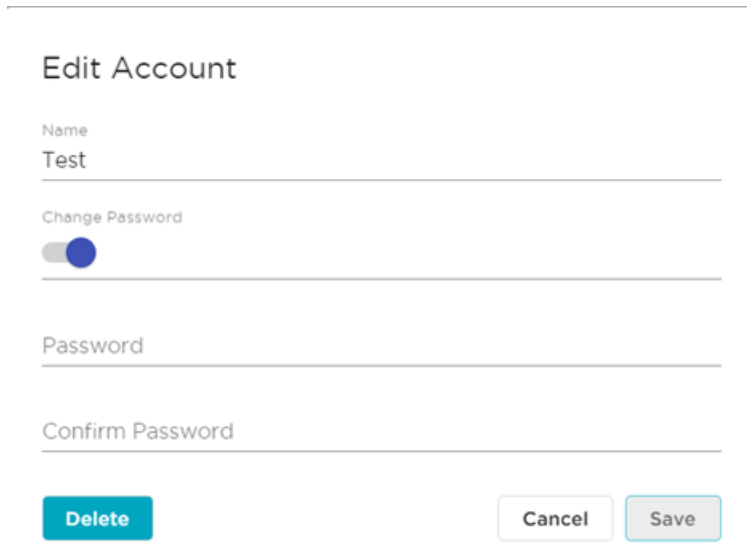



Figure 12: Edit Account Details Dialog

4. In the Password field, enter a password.
5. In the Confirm Password field, enter the same password again.

6. Select **Save**.

Delete a User Account

To delete a user account:

1. Go to **Administration > Accounts**.
2. Select  next to the account that you want to delete.
The **Account Settings** dialog opens.
3. Select **Delete**.
A confirmation dialog displays.
4. Select **OK** to confirm that you want to delete the account.

Related Topics

[Account Settings](#) on page 34

Account Settings

Configure the following user account settings:

Name

Name for the user account.

Password

Password for the user account. The password must be between 8 and 24 characters.

Confirm Password

Enter the password for the user account a second time.

Admin Role

The access level for the user account. Valid values are:

- Full Admin
- Read Only

System Configuration

System administrators can do the following from the **Administration > System** menu:

- Configure network interfaces and network time
- Manage Universal Compute Platform upgrades and system maintenance
- Configure availability mode for network failover and redundancy
- View system logs and information.

Related Topics

[Configuration](#) on page 35

[System Logging](#) on page 39

[Maintenance](#) on page 40

[Network Setup](#) on page 40

[Network Time](#) on page 45

[Cloud Visibility](#) on page 46

[Upgrade the Universal Compute Platform](#) on page 46

[System Information](#) on page 50

[Utilities](#) on page 52

Configuration

Go to **System > Configuration** to back up and restore the appliance, and schedule the backup procedure.

Related Topics

[Perform a Configuration Backup](#) on page 35

[Restore Backup File](#) on page 35

[Schedule a Backup](#) on page 38

Perform a Configuration Backup

This backup and restore procedure is limited to configuration files and, optionally, logs and audit files. A system backup is a different procedure. A system backup is a full system snapshot rescue file (*-rescue-user.tgz). Creating a full system rescue file is an option during the system upgrade process.

Before you perform a backup procedure, decide what to back up and where to save the backup file:

- Select back up configs, logs, and audit or back up configuration only.
- Select a location to store the backup file.
- Select **Local** as the backup location.
- (Optional) Configure a backup schedule.



Note

It is a best practice to set up a scheduled backup for all managed appliances.

On-demand backups can only be stored locally, while scheduled backups can be stored on a mounted flash drive or on a remote server.

Related Topics

[Schedule a Backup](#) on page 38

Restore Backup File

Restore the appliance from a selected backup file.

1. Go to **Administration > System > Configuration**.
2. Select the **Backup/Restore** tab.

3. Select the file to restore.

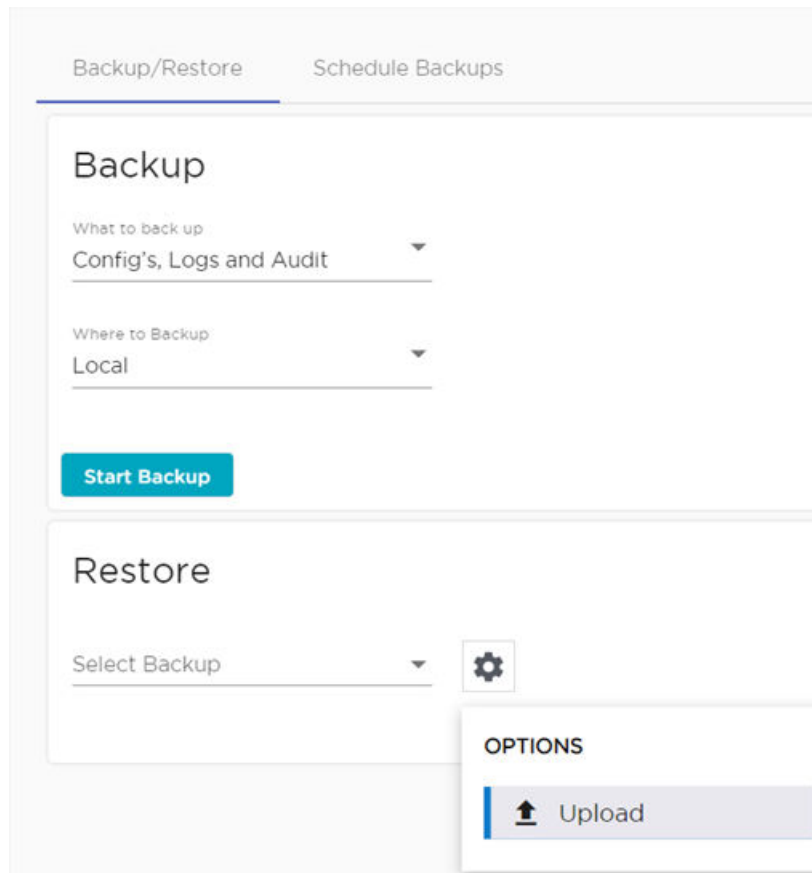



Figure 13: Upload Restore Image

4. Next to **Restore**, select , then select **Upload**.
5. Select the **Upload Method**. Valid values are:
 - HTTP
 - FTP
 - SCP

6. You can select the center pane and navigate to the backup file or drag and drop the file on the center pane.

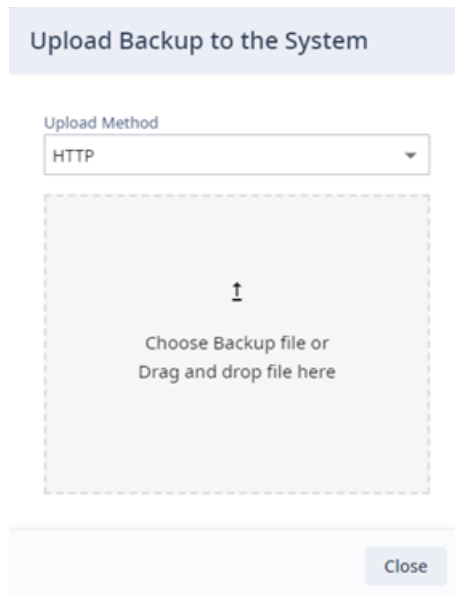


Figure 14: Upload Controller Image

Schedule a Backup

When you schedule a backup, you can choose to upload the backup to a server or have the scheduled backup saved locally or on an external flash drive. To schedule a backup:

1. Go to **Administration > System > Configuration > Schedule Backups**.
The **Schedule Backup** dialog displays.

Backup/Restore Schedule Backups

No Backup Schedule has been set

Backup Location
Local

What to back up
Config's, Logs and Audit

Schedule Task
Daily

Include Weekends

Timezone
America/Toronto

Time
00 : 00

SCHEDULE BACKUP

Figure 15: Schedule Backup Dialog

2. Configure the following parameters:

Backup Location

Indicates where to send the backup file. Valid values are: Local or Remote. When sending a backup to a remote server, configure the server properties.

What to back up

Indicates the content of the backup file. Valid values are: Configs, CDRs, Logs and Audit (which is a full backup), or Configuration files only.

Schedule Task

Indicates when the backup task runs. Valid values are: Daily, Weekly, Monthly.

Include Weekends

Select this check box to include weekends in the backup schedule.

Time

Set the time of day for the scheduled backup.

3. Select **Schedule Backup**.

Related Topics

[Perform a Configuration Backup](#) on page 35

System Logging

Syslog event reporting uses the syslog protocol to relay event messages to a centralized event server on the enterprise network. In the protocol, a device generates messages, a relay receives and forwards the messages, and a syslog server receives the messages.

System Log Level

Determines the error severity that is logged for the appliance and AP. Select the least severe log level that you want to receive: Information, Minor, Major, Critical. For example, if you select Minor, you receive all Minor, Major and Critical messages. If you select Major you receive all Major and Critical messages. The default is Minor.

Syslog

Provide the IP Address of 1-3 syslog servers and enable the type of messages that you want to send to the syslog servers.

- **Send all Service Messages**
- **Send Audit Messages**



Note

To synchronize the logs, the syslog daemon must be running on both the appliance and on the remote syslog server. When you change the log level on the appliance, you must modify the appropriate setting in the syslog configuration on remote syslog server.

Facility Codes

Facility codes identify log streams in the remote syslog server. Select a unique facility code (local.0 - local.6) for each Universal Compute Platform facility to differentiate the log streams and facilitate the filtering of messages.

The facility code applies to all servers. Select a facility code for each of the following:

- Application Facility
- Service Facility
- Audit Facility

Related Topics

[Logs](#) on page 29

Maintenance

Perform cluster maintenance and tech support from the **Maintenance** menu. Go to **Administration > System > Maintenance** .

System Actions

Reset the cluster configuration, restart the appliance, or shut down the appliance.

Reset Configuration

- Resets all user configurations
- Provides the option to reset the ICC (management) port configuration
- Resets the Kubernetes node
- Resets the shared file system

Reboot

The Universal Compute Appliance shuts down, then reboots. A warning message is displayed, asking you to confirm your selection.

Shut Down

The system enters the halted state, which stops all functional services, the application, and associated wireless APs. A warning message is displayed, asking you to confirm your selection. To restart the system, the power to the system must be reset.

Cluster Actions

Reset Node:

- Resets the Kubernetes node
- Resets the shared file system

Session

Determines the web session inactive window before the session times out. Enter the value as hours : minutes. The range is 1 minute to 168 hours (7 days).

Tech Support

Generate a tech support file for troubleshooting. Select the file criteria: **Appliance**, **Log**, or **All**. (All is the default value.)

1. Select **Generate Tech Support File**.

The generated file displays in the list.

2. To download the file, select the file and select .

Network Setup

Host Attributes

Attributes that define your network: Host Name, Domain Name, Default Gateway, and your DNS servers.

The Default Gateway IP address is the global default IP route setting for the appliance. Valid values are: the Admin topology gateway address and any IP address on the physical Interfaces or Bridge at AC VLAN topology subnets.

L2 Ports

Use the L2 Ports information to understand the OSI Layer 2 (Data Link Layer) physical topology of the data plane. These ports represent the actual Ethernet ports.

Select  to display port statistics.

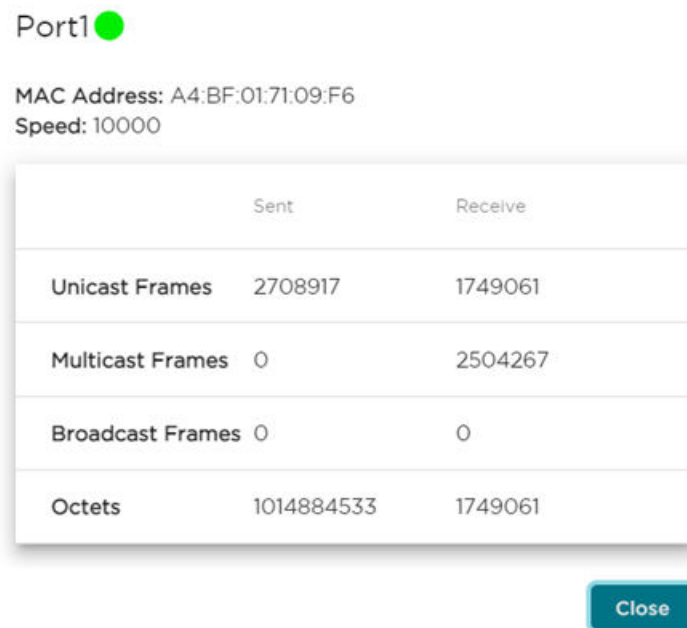


Figure 16: Port Statistics

Interfaces

Add network topologies. Topologies represent the networks with which the Universal Compute Appliance and its APs interact. The attributes of a topology are: VLAN ID, Port, IP address, Mode, and certificates. To add an interface, select **Add New Interface**.

Static Routes

Use static routes to set the default route of the Universal Compute Appliance so that device traffic can be forwarded to the default gateway. To add a static route, select **Add New Route**.

Related Topics

[Interface Properties](#) on page 42

[Static Route Properties](#) on page 45

Add Interface

1. Go to **Administration > System > Network Setup**.

2. Under Interfaces select **Add New Interface**.
The **Create New Interface** dialog displays.
3. Configure the Interface Properties.

Related Topics

[Interface Properties](#) on page 42

Interface Properties

The following table provides details about Interface Properties.

Table 6: Interface Properties

Field	Description
Name	Name of the interface.
Mode	Describes how traffic is forwarded on the interface topology. Options are: <ul style="list-style-type: none"> • Physical - The topology is the native topology of a data plane and it represents the actual Ethernet ports. • Management - The native topology of the Universal Compute Appliance management port.
VLAN ID	ID for the virtual network.
Tagged	Indicates if the interface tags traffic. When traffic is tagged, the VLAN ID is inserted into the packet header to identify which VLAN the packet belongs to. Tagging can identify the port or interface to send a broadcast message to.
Port	Physical port on the Universal Compute Platform for the interface.
Enable Device Registration	Enable or disable AP registration through this interface. When enabled, wireless APs use this port for discovery and registration. Other Universal Compute Appliances can use this port to enable inter-Universal Compute Appliance device mobility if this port is configured to use SLP or the Universal Compute Appliance is running as a manager and SLP is the discovery protocol used by the agents.
Management Traffic	Enable or disable Management Traffic through this interface. Enabling management provides access to SNMP (v1/v2c, v3), SSH, and HTTPs management interfaces.
MTU	Maximum Transmission Unit (MTU). Standard is 1500 bytes. Fixed value.
Layer 3	
IP Address	For an Admin topology, the Layer 3 check box is selected automatically. The IP address is mandatory for a Physical topology. This allows for IP Interface and subnet configuration together with other networking services.

Table 6: Interface Properties (continued)

Field	Description
CIDR	CIDR field is used along with IP address field to find the IP address range.
FQDN	Fully-Qualified Domain Name
DHCP	<p>Dynamic Host Configuration Protocol allows network administrators to centrally manage and automate the assignment of IP addresses on the corporate network. DHCP sends a new IP address when a computer is plugged into a different place in the network. The protocol supports static or dynamic IP addresses and can dynamically reconfigure networks in which there are more computers than there are available IP addresses. Valid values are:</p> <ul style="list-style-type: none"> • None • Local Server. Indicates that the Universal Compute Appliance is used for managing IP addresses.
VRRP	<p>Supports load balancing and high-availability functions for the Universal Compute Platform cluster.</p> <p>IP Addresses Record the IP address relationship between the cluster's direct interfaces (ICC, Service/Data ports), VRRP, and external access.</p> <p>Priority VRRP uses priority settings as a mechanism to arbitrate mastery of the state of exchanges across members of the cluster.</p> <p>Best Practice:</p> <ul style="list-style-type: none"> • Designate node 1 as the highest priority, node 2 for second highest priority, and node 3 as the lowest priority. • The same priority should be used across all services (ICC, Services). <p>Router ID Allows segmentation of a routing domain.</p> <p>It is important to separate from any other VRRP uses on the same network segment. The assigned value is arbitrary, but the value must not overlap when another VRRP usage is visible in the attached network segments.</p> <p>Note: In a stand-alone configuration, configure priority and router ID with a numeric value. However, in a stand-alone configuration, the specific value is not important. These attribute definitions are important in a multiple-node configuration.</p>

Configure LAG Ports


Link Aggregation (LAG) ports increase link throughput and provide redundancy in case of a link failure. When two ports are configured as LAG ports, the network bonds the ports and treats them as a single logical port interface.

Universal Compute Platform supports the IEEE 802.3ad implementation of Dynamic LAG, with control managed by the Link Aggregation Control Protocol (LACP). The following port combinations are supported as LAG ports:

- ICC1 and ICC2
- Data ports 1 and 2
- Data ports 3 and 4

Before You Begin

- To combine ports, the two ports must be in the same VLAN and must negotiate to the same data rate.
- LAG must also be enabled on the switch that connects to the LAG ports. Otherwise, the LAG connection fails.

1. Select the navigation menu  and select **Administration > System > Network Setup**.
2. To aggregate the ICC ports, enable the **LAG** toggle under **ICC Interfaces**.
3. To aggregate data ports, go to the **L2 Ports** section and do the following:
 - To aggregate data ports 1 and 2, enable the **LAG1** toggle
 - To aggregate data ports 3 and 4, enable the **LAG2** toggle
4. For each aggregated set of data ports, create a LAG interface:
 - a. Select **Add New Interface**.
 - b. For the **Port** field, select the LAG-enabled port.
 - c. Complete the fields in the **Create New Interface** window. For field descriptions, see the subsequent table.
 - d. Select **Save**.

Add Static Route

Static Routes define the default route to Universal Compute Platform for legitimate wireless traffic. You must be a system administrator to add a static route.



Note

Static Routes affect the settings for the Default Gateway IP address under **Host Attributes**. Adding a default static route (0.0.0.0/0) changes the Default Gateway IP address.

To add a static route, take the following steps:

1. Go to **Administration > System > Network Setup**.
2. Under Static Routes select **Add New Route**.

The **New Static Route** dialog displays.
3. Configure the Static Route Properties.

Related Topics

[Static Route Properties](#) on page 45

Static Route Properties

Details about Static Route Properties.

Table 7: Static Route Parameters

Field	Description
Destination	IP address of the destination Universal Compute Platform.
CIDR	CIDR field is used along with IP address field to find the IP address range.
Gateway	Gateway address of the Universal Compute Platform for any Admin or physical interfaces (B@AC L3 VLAN).

Related Topics

[Add Static Route](#) on page 44

Network Time

System administrators can configure network time and the NTP servers. Go to **Administration > System > Network Time**.

System Time — Displays the current system date and time.

Configured Time Zone — Displays current time zone settings.

Set New Time Zone — From the drop-down field, select a time zone, and select **Save** to manually change system date and time.

NTP — Check **NTP** to configure servers for Network Time Protocol (NTP).

NTP is an Internet Standard Protocol that assures accurate synchronization to the millisecond of computer clock times in a network of computers.

NTP Reachable — An icon indicates if the NTP server is reachable:

- Green. The server is reachable.
- Red. The server is not reachable. Check your NTP server settings. Universal Compute Platform has lost connectivity.



Note

Network Time settings on each appliance of an availability pair must be identical for the configuration update process to be successful.

Settings

Cloud Visibility

To enable Cloud Visibility:

1. Go to **Administration > System > Settings**.
2. Provide the fully-qualified host name of the ExtremeCloud IQ server.
This information is available from your ExtremeCloud IQ account. For example:

<RDC name>-cw.extremecloudiq.com where:

- <RDC name> is your Regional Data Center (RDC) information available under **About ExtremeCloud IQ**.
 - -cw indicates an Universal Compute Platform appliance.
 - .extremecloudiq.com is the ExtremeCloud IQ host address.
3. Select **Save**.




Note

The reporting interval is 5 minutes.

Add Web Proxy Server

For enhanced data security, you can add a web proxy server. A proxy server is an additional server in a client-server deployment that provides additional data security boundaries, protecting users from malicious activity on the internet.

1. Select the navigation menu  and select **Administration > System > Settings**.
2. Select the **Web Proxy** tab.
3. Enter the **IP Address** of the proxy server along with the server **Port** to which you should connect.
4. If the proxy server requires authentication, select **Authentication** and enter the **Username** and **Password** for an account that has access to the proxy server.
5. Select **Save**.

Upgrade the Universal Compute Platform

To upgrade the image file on one or more of your appliances, go to **Administration > System > Software Upgrade**.

Related Topics

[Universal Compute Platform Image Management](#) on page 47

[Upload Universal Compute Platform Image](#) on page 47

[Schedule Upgrade](#) on page 48

[Kubernetes Upgrade](#) on page 49

[Upgrade Logs](#) on page 49

Upload Universal Compute Platform Image

To upload an image file for the Universal Compute Platform:

1. Go to **Administration > System > Software > Image Management**.
2. Select the **Upload** tab to upload a new image file to the appliance.

Configure the following parameters:

Image Type

Indicates the type of image file used. Valid values are:

- Upgrade
- Backup

Destination

Destination of the uploaded image file:

- Local

Upload Method

Method used to upload image file to the appliance. Valid values are:

- HTTP — Indicates to upload from a local workstation.
- FTP
- SCP

Copy Image from Local Drive

Drag the image onto Universal Compute Platform or select the field to navigate to a local file directory.

Related Topics

[Universal Compute Platform Image Management](#) on page 47

[Schedule Upgrade](#) on page 48

[Kubernetes Upgrade](#) on page 49

[Upgrade Logs](#) on page 49

Universal Compute Platform Image Management



Note

- Upgrade the engine application Docker image from **Engines > Image Management**.
- Upgrade the Universal Compute Platform middleware image from **Administration > System > Software > Image Management**.

To manage Universal Compute Platform image files, go to **Administration > System > Software > Image Management**. The **Image Management** tab displays a list of Universal Compute Platform image files.

Select an image and take one of the following actions:



Delete image file.



Upgrade appliance.

The upgrade dialog displays.

Upgrade to UCP-05.02.01.0018-1.rcx

Image
UCP-05.02.01.0018-1.rcx

Backup System Image to
Local

Upgrade
Now

Cancel Upgrade

Figure 17: Upgrade Platform Image Dialog

1. Select a platform image file.
2. Backup the platform image to the **Local** machine.
3. Upgrade **Now**.
4. Select **Upgrade**.



Refresh image list.

Related Topics

[Upload Universal Compute Platform Image](#) on page 47

[Schedule Upgrade](#) on page 48

[Kubernetes Upgrade](#) on page 49

[Upgrade Logs](#) on page 49

Schedule Upgrade

From the **Schedule** tab configure an upgrade schedule. Configure the following parameters:

Select Image

Name of the upgrade image file.

Backup Location

Indicates where to save the backup image file. Local is currently the only supported value. Save the backup image locally on Universal Compute Platform.

Backup File Name

Name of the backup file.

Timezone

Timezone of the appliance.

Time

The time of the scheduled upgrade in 24-hour format, HH-MM.

Date

The date of the scheduled upgrade in Month-Day format (MM-DD).

**Note**

When you supply a Date and Time that is in the past, the schedule is set for the following year at the specified date and time.

Select **Schedule**.

Related Topics

[Universal Compute Platform Image Management](#) on page 47

[Upload Universal Compute Platform Image](#) on page 47

[Kubernetes Upgrade](#) on page 49

[Upgrade Logs](#) on page 49

Kubernetes Upgrade

The **Kubernetes Upgrade** tab displays a list of nodes with the current Pod version and Kubernetes version for each node. All nodes should be running the same Pod and Kubernetes version.

Related Topics

[Universal Compute Platform Image Management](#) on page 47

[Upload Universal Compute Platform Image](#) on page 47

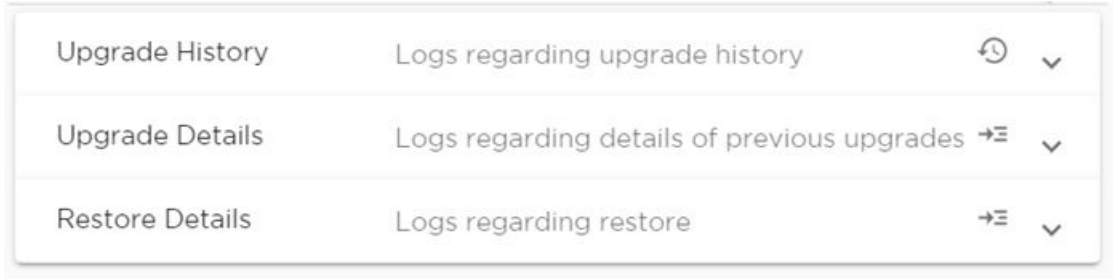
[Schedule Upgrade](#) on page 48

[Upgrade Logs](#) on page 49

Upgrade Logs

The **Logs** tab displays the following information for the appliance:

- Upgrade History
- Upgrade Details
- Restore Details



Upgrade History	Logs regarding upgrade history	🕒	▼
Upgrade Details	Logs regarding details of previous upgrades	→☰	▼
Restore Details	Logs regarding restore	→☰	▼

Figure 18: Logs tab

Select ^ to expand each log file.

You can copy text from each log file.

1. Select ^ to expand the log file.
2. Select the log text you want to copy and select 📄.

Related Topics

[Universal Compute Platform Image Management](#) on page 47

[Upload Universal Compute Platform Image](#) on page 47

[Schedule Upgrade](#) on page 48

[Kubernetes Upgrade](#) on page 49

System Information

Go to **Administration > System > System Information** to view the following information about your system:

- System Up Time
- CPU Utilization
- Memory Usage
- Disk Usage
- System Temperature
- Fan Speed
- Power Supply
- Port Interface Status

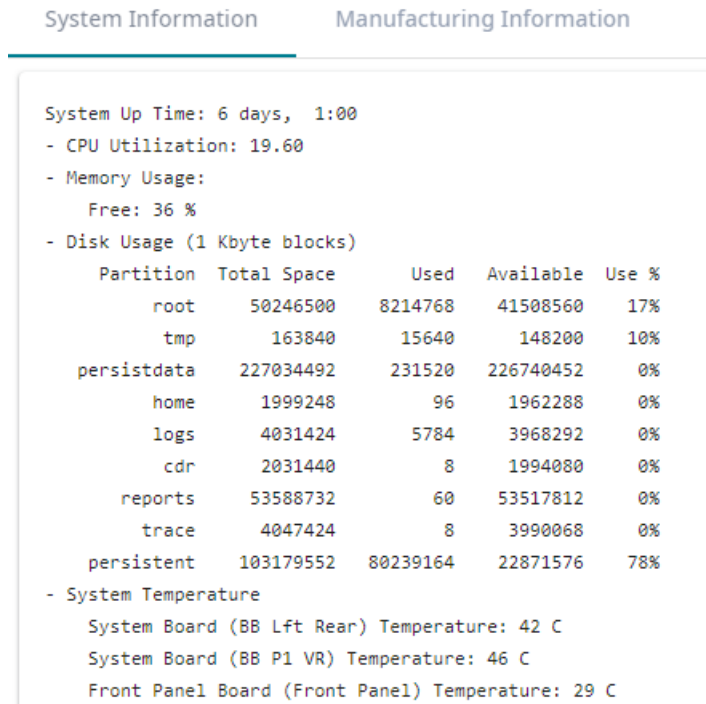


Figure 19: Example System Information

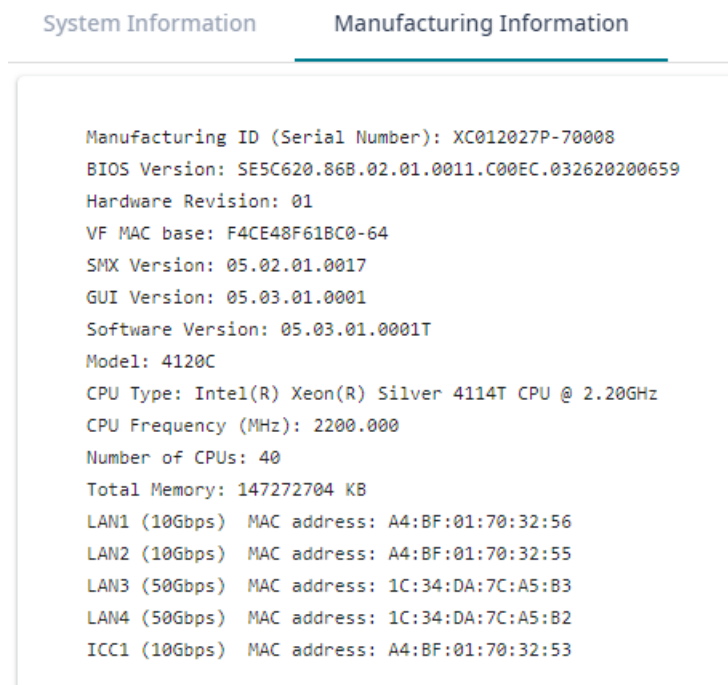


Figure 20: Example Manufacturing Information

Utilities

Universal Compute Platform provides a remote console to a node controller. Use the remote console to open a live SSH console session.

To open a remote console, go to **Administration > System > Utilities**.



Note

A live console is available from each engine instance for diagnostics and troubleshooting. To open a live console and connect to a container or virtual machine instance (VMI), from the engine **Console** tab, select **Attach**.

Select each engine instance to display engine settings and the **Console** tab for that instance.



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