



# **Configuring Active IQ Unified Manager**

## **Active IQ Unified Manager 9.9**

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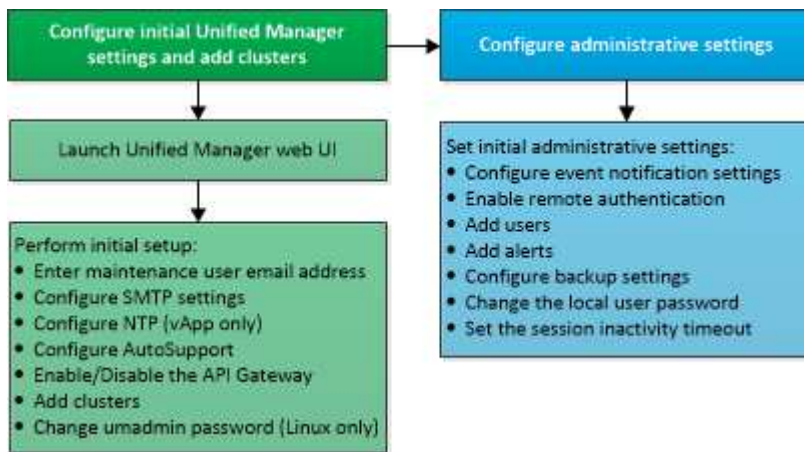
# Configuring Active IQ Unified Manager

After installing Active IQ Unified Manager (formerly OnCommand Unified Manager) you must complete the initial setup (also called the first experience wizard) to access the web UI. Then you can perform additional configuration tasks, such as adding clusters, configuring remote authentication, adding users, and adding alerts.

Some of the procedures described in this manual are required to complete the initial setup of your Unified Manager instance. Other procedures are recommended configuration settings that are helpful to set up on your new instance, or that are good to know about before you start the regular monitoring of your ONTAP systems.

## Overview of the configuration sequence

The configuration workflow describes the tasks that you must perform before you can use Unified Manager.



## Accessing the Unified Manager web UI

After you have installed Unified Manager, you can access the web UI to set up Unified Manager so that you can begin monitoring your ONTAP systems.

### Before you begin

- If this is the first time you are accessing the web UI, you must log in as the maintenance user (or umadmin user for Linux installations).
- If you plan to allow users to access Unified Manager using the short name instead of using the fully qualified domain name (FQDN) or IP address, then your network configuration has to resolve this short name to a valid FQDN.
- If the server uses a self-signed digital certificate, the browser might display a warning indicating that the certificate is not trusted. You can either acknowledge the risk to continue the access or install a Certificate Authority (CA) signed digital certificate for server authentication.

### Steps

1. Start the Unified Manager web UI from your browser by using the URL displayed at the end of the

installation. The URL is the IP address or fully qualified domain name (FQDN) of the Unified Manager server.

The link is in the following format: `https://URL`.

1. Log in to the Unified Manager web UI using your maintenance user credentials.

## Performing the initial setup of the Unified Manager web UI

To use Unified Manager, you must first configure the initial setup options, including the NTP server, the maintenance user email address, the SMTP server host, and adding ONTAP clusters.

### Before you begin

You must have performed the following operations:

- Launched the Unified Manager web UI using the URL provided after installation
- Logged in using the maintenance user name and password (umadmin user for Linux installations) created during installation

### About this task

The Active IQ Unified Manager Getting Started page appears only when you first access the web UI. The page below is from an installation on VMware.

**Active IQ Unified Manager**

### Getting Started

1 Email 2 AutoSupport 3 AFI Gateway 4 Add ONTAP Clusters 5 Finish

#### Notifications

Configure your email server to allow Active IQ Unified Manager to assist in the event of a forgotten password.

#### Maintenance User Email

Email

#### SMTP Server

Host Name or IP Address

Port

User Name

Password

☒ Use START / TLS ☐

☐ Use SSL

**Next**

If you want to change any of these options later, you can select your choice from the General options in the Unified Manager left-navigation pane. Note that the NTP setting is only for VMware installations, and it can be changed later using the Unified Manager maintenance console.

## Steps

1. In the Active IQ Unified Manager Initial Setup page, enter the maintenance user email address, the SMTP server host name and any additional SMTP options, and the NTP server (VMware installations only). Then click **Continue**.
2. In the **AutoSupport** page click **Agree and Continue** to enable the sending of AutoSupport messages from Unified Manager to NetAppActive IQ.

If you need to designate a proxy to provide internet access in order to send AutoSupport content, or if you want to disable AutoSupport, use the **General > AutoSupport** option from the web UI.

3. On Red Hat and CentOS systems you can change the umadmin user password from the default “admin” string to a personalized string.
4. In the **Set up API Gateway** page, select whether you want to use the API Gateway feature that allows Unified Manager to manage the ONTAP clusters you are planning to monitor using ONTAP REST APIs. Then click **Continue**.

You can enable or disable this setting later in the web UI from **General > Feature Settings > API Gateway**. For more information about the APIs, see [Getting started with Active IQ Unified Manager](#).

5. Add the clusters that you want Unified Manager to manage, and then click **Next**. For each cluster you plan to manage, you must have the host name or cluster management IP address (IPv4 or IPv6) along with the user name and password credentials - the user must have the “admin” role.

This step is optional. You can add clusters later in the web UI from **Storage Management > Cluster Setup**.

6. In the **Summary** page, verify that all the settings are correct and click **Finish**.

## Results

The Getting Started page closes and the Unified ManagerDashboard page is displayed.

## Adding clusters

You can add a cluster to Active IQ Unified Manager so that you can monitor the cluster. This includes the ability to obtain cluster information such as the health, capacity, performance, and configuration of the cluster so that you can find and resolve any issues that might occur.

### Before you begin

- You must have the Application Administrator or Storage Administrator role.
- You must have the following information:
  - Host name or cluster-management IP address

The host name is the FQDN or short name that Unified Manager uses to connect to the cluster. The host name must resolve to the cluster-management IP address.

The cluster-management IP address must be the cluster-management LIF of the administrative storage virtual machine (SVM). If you use a node-management LIF, the operation fails.

- The cluster must be running ONTAP version 9.1 software or greater.
- ONTAP administrator user name and password

This account must have the *admin* role with Application access set to *ontapi*, *ssh*, and *http*.

- The port number to connect to the cluster using the HTTPS protocol (typically port 443)
- You have the required certificates. Two types of certificates are required:

**Server certificates:** Used for registration. A valid certificate is required for adding a cluster. If the server certificate expires, you should regenerate it and restart Unified Manager for the services to be automatically registered again. For information about certificate generation, see the knowledge base (KB) article: [How to renew an SSL certificate in ONTAP 9](#)

**Client certificates:** Used for authentication. A valid certificate is required for adding a cluster. You cannot add a cluster to Unified Manager with an expired certificate and if the client certificate has already expired, you should regenerate it before adding the cluster. However, if this certificate expires for a cluster that is already added, and is being used by Unified Manager, EMS messaging continues to function with the expired certificate. You do not need to regenerate the client certificate.



You can add clusters which are behind a NAT/firewall by using the Unified Manager NAT IP address. Any connected Workflow Automation or SnapProtect systems must also be behind the NAT/firewall, and SnapProtect API calls must use the NAT IP address to identify the cluster.

- You must have adequate space on the Unified Manager server. You are prevented from adding a cluster to the server when greater than 90% of space in the database directory is already consumed.

## About this task

For a MetroCluster configuration, you must add both the local and remote clusters, and the clusters must be configured correctly.

You can monitor a single cluster by two instances of Unified Manager provided that you have configured a second cluster-management LIF on the cluster so that each instance of Unified Manager connects through a different LIF.

## Steps

1. In the left navigation pane, click **Storage Management > Cluster Setup**.
2. On the **Cluster Setup** page, click **Add**.
3. In the **Add Cluster** dialog box, specify the required values, such as the host name or IP address of the cluster, user name, password, and port number.

You can change the cluster-management IP address from IPv6 to IPv4 or from IPv4 to IPv6. The new IP address is reflected in the cluster grid and the cluster configuration page after the next monitoring cycle is complete.

4. Click **Submit**.
5. In the **Authorize Host** dialog box, click **View Certificate** to view the certificate information about the cluster.
6. Click **Yes**.

Unified Manager checks the certificate only when the cluster is added initially. Unified Manager does not check the certificate for each API call to ONTAP.

## Results

After all the objects for a new cluster are discovered (about 15 minutes), Unified Manager starts to gather historical performance data for the previous 15 days. These statistics are collected using the data continuity collection functionality. This feature provides you with over two weeks of performance information for a cluster immediately after it is added. After the data continuity collection cycle is completed, real-time cluster performance data is collected, by default, every five minutes.



Because the collection of 15 days of performance data is CPU intensive, it is suggested that you stagger the addition of new clusters so that data continuity collection polls are not running on too many clusters at the same time. Additionally, if you restart Unified Manager during the data continuity collection period, the collection will be halted and you will see gaps in the performance charts for the missing timeframe.



If you receive an error message that you cannot add the cluster, check to see if the clocks on the two systems are not synchronized and the Unified Manager HTTPS certificate start date is later than the date on the cluster. You must ensure that the clocks are synchronized using NTP or a similar service.

## Configuring Unified Manager to send alert notifications

You can configure Unified Manager to send notifications that alert you about events in your environment. Before notifications can be sent, you must configure several other Unified Manager options.

### Before you begin

You must have the Application Administrator role.

### About this task

After deploying Unified Manager and completing the initial configuration, you should consider configuring your environment to trigger alerts and generate notification emails or SNMP traps based on the receipt of events.

### Steps

1. [Configure event notification settings](#)

If you want alert notifications sent when certain events occur in your environment, you must configure an SMTP server and supply an email address from which the alert notification will be sent. If you want to use SNMP traps, you can select that option and provide the necessary information.

## 2. [Enable remote authentication](#)

If you want remote LDAP or Active Directory users to access the Unified Manager instance and receive alert notifications, then you must enable remote authentication.

## 3. [Add authentication servers](#)

You can add authentication servers so that remote users within the authentication server can access Unified Manager.

## 4. [Add users](#)

You can add several different types of local or remote users and assign specific roles. When you create an alert, you assign a user to receive the alert notifications.

## 5. [Add alerts](#)

After you have added the email address for sending notifications, added users to receive the notifications, configured your network settings, and configured SMTP and SNMP options needed for your environment, then you can assign alerts.

# Configuring event notification settings

You can configure Unified Manager to send alert notifications when an event is generated or when an event is assigned to a user. You can configure the SMTP server that is used to send the alert, and you can set various notification mechanisms—for example, alert notifications can be sent as emails or SNMP traps.

## Before you begin

You must have the following information:

- Email address from which the alert notification is sent

The email address appears in the “From” field in sent alert notifications. If the email cannot be delivered for any reason, this email address is also used as the recipient for undeliverable mail.

- SMTP server host name, and the user name and password to access the server
- Host name or IP address for the trap destination host that will receive the SNMP trap, along with the SNMP version, outbound trap port, community, and other required SNMP configuration values

To specify multiple trap destinations, separate each host with a comma. In this case, all other SNMP settings, such as version and outbound trap port, must be the same for all hosts in the list.

You must have the Application Administrator or Storage Administrator role.

## Steps

1. In the left navigation pane, click **General > Notifications**.
2. In the **Notifications** page, configure the appropriate settings and click **Save**.

## Notes:



- If the From Address is pre-filled with the address “[ActiveIQUnifiedManager@localhost.com](mailto:ActiveIQUnifiedManager@localhost.com)”, you should change it to a real, working email address to make sure that all email notifications are delivered successfully.
- If the host name of the SMTP server cannot be resolved, you can specify the IP address (IPv4 or IPv6) of the SMTP server instead of the host name.

## Enabling remote authentication

You can enable remote authentication so that the Unified Manager server can communicate with your authentication servers. The users of the authentication server can access the Unified Manager graphical interface to manage storage objects and data.

### Before you begin

You must have the Application Administrator role.



The Unified Manager server must be connected directly with the authentication server. You must disable any local LDAP clients such as SSSD (System Security Services Daemon) or NSLCD (Name Service LDAP Caching Daemon).

### About this task

You can enable remote authentication using either Open LDAP or Active Directory. If remote authentication is disabled, remote users cannot access Unified Manager.

Remote authentication is supported over LDAP and LDAPS (Secure LDAP). Unified Manager uses 389 as the default port for non-secure communication, and 636 as the default port for secure communication.



The certificate that is used to authenticate users must conform to the X.509 format.

### Steps

1. In the left navigation pane, click **General > Remote Authentication**.
2. Check the box for **Enable remote authentication....**
3. In the **Authentication Service** field, select the type of service and configure the authentication service.

For Authentication type...	Enter the following information...
Active Directory	<ul style="list-style-type: none"> <li>• Authentication server administrator name in one of following formats: <ul style="list-style-type: none"> <li>◦ domainname \username</li> <li>◦ username@domainname</li> <li>◦ Bind Distinguished Name (using the appropriate LDAP notation)</li> </ul> </li> <li>• Administrator password</li> <li>• Base distinguished name (using the appropriate LDAP notation)</li> </ul>

For Authentication type...	Enter the following information...
Open LDAP	<ul style="list-style-type: none"> <li>• Bind distinguished name (in the appropriate LDAP notation)</li> <li>• Bind password</li> <li>• Base distinguished name</li> </ul>

If the authentication of an Active Directory user takes a long time or times out, the authentication server is probably taking a long time to respond. Disabling support for nested groups in Unified Manager might reduce the authentication time.

If you select the Use Secure Connection option for the authentication server, then Unified Manager communicates with the authentication server using the Secure Sockets Layer (SSL) protocol.

1. Add authentication servers, and test the authentication.
2. Click **Save**.

## Disabling nested groups from remote authentication

If you have remote authentication enabled, you can disable nested group authentication so that only individual users, and not group members, can remotely authenticate to Unified Manager. You can disable nested groups when you want to improve Active Directory authentication response time.

### Before you begin

- You must have the Application Administrator role.
- Disabling nested groups is only applicable when using Active Directory.

### About this task

Disabling support for nested groups in Unified Manager might reduce the authentication time. If nested group support is disabled, and if a remote group is added to Unified Manager, individual users must be members of the remote group to authenticate to Unified Manager.

### Steps

1. In the left navigation pane, click **General > Remote Authentication**.
2. Check the box for **Disable Nested Group Lookup**.
3. Click **Save**.

## Adding authentication servers

You can add authentication servers and enable remote authentication on the management server so that remote users within the authentication server can access Unified Manager.

Before you begin


- The following information must be available:
  - Host name or IP address of the authentication server
  - Port number of the authentication server
- You must have enabled remote authentication and configured your authentication service so that the management server can authenticate remote users or groups in the authentication server.
- You must have the Application Administrator role.

About this task

If the authentication server that you are adding is part of a high-availability (HA) pair (using the same database), you can also add the partner authentication server. This enables the management server to communicate with the partner when one of the authentication servers is unreachable.

Steps

1. In the left navigation pane, click **General > Remote Authentication**.
2. Enable or disable the **Use secure connection** option:

If you want to...	Then do this...
Enable it	<div><div><div>a. Select the <b>Use Secure Connection</b> option.</div><div>b. In the Authentication Servers area, click <b>Add</b>.</div><div>c. In the Add Authentication Server dialog box, enter the authentication name or IP address (IPv4 or IPv6) of the server.</div><div>d. In the Authorize Host dialog box, click View Certificate.</div><div>e. In the View Certificate dialog box, verify the certificate information, and then click <b>Close</b>.</div><div>f. In the Authorize Host dialog box, click <b>Yes</b>.</div></div><div><div></div><div>When you enable the <b>Use Secure Connection authentication</b> option, Unified Manager communicates with the authentication server and displays the certificate. Unified Manager uses 636 as default port for secure communication and port number 389 for non-secure communication.</div></div></div>

If you want to...	Then do this...
Disable it	<ol style="list-style-type: none"> <li>Clear the <b>Use Secure Connection</b> option.</li> <li>In the Authentication Servers area, click <b>Add</b>.</li> <li>In the Add Authentication Server dialog box, specify either the host name or IP address (IPv4 or IPv6) of the server, and the port details.</li> <li>Click <b>Add</b>.</li> </ol>

The authentication server that you added is displayed in the Servers area.

1. Perform a test authentication to confirm that you can authenticate users in the authentication server that you added.

## Testing the configuration of authentication servers

You can validate the configuration of your authentication servers to ensure that the management server is able to communicate with them. You can validate the configuration by searching for a remote user or remote group from your authentication servers, and authenticating them using the configured settings.

### Before you begin

- You must have enabled remote authentication, and configured your authentication service so that the Unified Manager server can authenticate the remote user or remote group.
- You must have added your authentication servers so that the management server can search for the remote user or remote group from these servers and authenticate them.
- You must have the Application Administrator role.

### About this task

If the authentication service is set to Active Directory, and if you are validating the authentication of remote users who belong to the primary group of the authentication server, information about the primary group is not displayed in the authentication results.

### Steps

1. In the left navigation pane, click **General > Remote Authentication**.
2. Click **Test Authentication**.
3. In the **Test User** dialog box, specify the user name and password of the remote user or the user name of the remote group, and then click **Test**.

If you are authenticating a remote group, you must not enter the password.

## Adding users

You can add local users or database users by using the Users page. You can also add remote users or groups that belong to an authentication server. You can assign roles to

these users and, based on the privileges of the roles, users can manage the storage objects and data with Unified Manager, or view the data in a database.

### Before you begin

- You must have the Application Administrator role.
- To add a remote user or group, you must have enabled remote authentication and configured your authentication server.
- If you plan to configure SAML authentication so that an identity provider (IdP) authenticates users accessing the graphical interface, make sure these users are defined as “remote” users.

Access to the UI is not allowed for users of type “local” or “maintenance” when SAML authentication is enabled.

### About this task

If you add a group from Windows Active Directory, then all direct members and nested subgroups can authenticate to Unified Manager, unless nested subgroups are disabled. If you add a group from OpenLDAP or other authentication services, then only the direct members of that group can authenticate to Unified Manager.

### Steps

1. In the left navigation pane, click **General > Users**.
2. On the **Users** page, click **Add**.
3. In the **Add User** dialog box, select the type of user that you want to add, and enter the required information.

When entering the required user information, you must specify an email address that is unique to that user. You must avoid specifying email addresses that are shared by multiple users.

4. Click **Add**.

### Adding alerts

You can configure alerts to notify you when a particular event is generated. You can configure alerts for a single resource, for a group of resources, or for events of a particular severity type. You can specify the frequency with which you want to be notified and associate a script to the alert.

### Before you begin

- You must have configured notification settings such as the user email address, SMTP server, and SNMP trap host to enable the Active IQ Unified Manager server to use these settings to send notifications to users when an event is generated.
- You must know the resources and events for which you want to trigger the alert, and the user names or email addresses of the users that you want to notify.
- If you want to have a script execute based on the event, you must have added the script to Unified Manager by using the Scripts page.
- You must have the Application Administrator or Storage Administrator role.

## About this task

You can create an alert directly from the Event details page after receiving an event in addition to creating an alert from the Alert Setup page, as described here.

### Steps

1. In the left navigation pane, click **Storage Management > Alert Setup**.
2. In the **Alert Setup** page, click **Add**.
3. In the **Add Alert** dialog box, click **Name**, and enter a name and description for the alert.
4. Click **Resources**, and select the resources to be included in or excluded from the alert.

You can set a filter by specifying a text string in the **Name contains** field to select a group of resources. Based on the text string that you specify, the list of available resources displays only those resources that match the filter rule. The text string that you specify is case-sensitive.

If a resource conforms to both the include and exclude rules that you have specified, the exclude rule takes precedence over the include rule, and the alert is not generated for events related to the excluded resource.

5. Click **Events**, and select the events based on the event name or event severity type for which you want to trigger an alert.



To select more than one event, press the Ctrl key while you make your selections.

6. Click **Actions**, and select the users that you want to notify, choose the notification frequency, choose whether an SNMP trap will be sent to the trap receiver, and assign a script to be executed when an alert is generated.



If you modify the email address that is specified for the user and reopen the alert for editing, the Name field appears blank because the modified email address is no longer mapped to the user that was previously selected. Also, if you modified the email address of the selected user from the Users page, the modified email address is not updated for the selected user.

You can also choose to notify users through SNMP traps.

7. Click **Save**.

### Example of adding an alert

This example shows how to create an alert that meets the following requirements:

- Alert name: HealthTest
- Resources: includes all volumes whose name contains “abc” and excludes all volumes whose name contains “xyz”
- Events: includes all critical health events
- Actions: includes “[sample@domain.com](mailto:sample@domain.com)”, a “Test” script, and the user has to be notified every 15 minutes

Perform the following steps in the Add Alert dialog box:

1. Click **Name**, and enter HealthTest in the **Alert Name** field.

2. Click **Resources**, and in the Include tab, select **Volumes** from the drop-down list.
  - a. Enter `abc` in the **Name contains** field to display the volumes whose name contains “abc”.
  - b. Select **<<All Volumes whose name contains 'abc'>>** from the Available Resources area, and move it to the Selected Resources area.
  - c. Click **Exclude**, and enter `xyz` in the **Name contains** field, and then click **Add**.
3. Click **Events**, and select **Critical** from the Event Severity field.
4. Select **All Critical Events** from the Matching Events area, and move it to the Selected Events area.
5. Click **Actions**, and enter `sample@domain.com` in the Alert these users field.
6. Select **Remind every 15 minutes** to notify the user every 15 minutes.

You can configure an alert to repeatedly send notifications to the recipients for a specified time. You should determine the time from which the event notification is active for the alert.

7. In the Select Script to Execute menu, select **Test** script.
8. Click **Save**.

## EMS events that are added automatically to Unified Manager

The following ONTAP EMS events are added automatically to Unified Manager. These events will be generated when triggered on any cluster that Unified Manager is monitoring.

The following EMS events are available when monitoring clusters running ONTAP 9.5 or greater software:

Unified Manager Event name	EMS Event name	Affected resource	Unified Manager severity
Cloud Tier Access Denied for Aggregate Relocation	arl.netra.ca.check.failed	Aggregate	Error
Cloud Tier Access Denied for Aggregate Relocation During Storage Failover	gb.netra.ca.check.failed	Aggregate	Error
FabricPool Mirror Replication Resync Completed	waf1.ca.resync.complete	Cluster	Error
FabricPool Space Nearly Full	fabricpool.nearly.full	Cluster	Error
NVMe-oF Grace Period Started	nvmf.graceperiod.start	Cluster	Warning

Unified Manager Event name	EMS Event name	Affected resource	Unified Manager severity
NVMe-oF Grace Period Active	nvmf.graceperiod.active	Cluster	Warning
NVMe-oF Grace Period Expired	nvmf.graceperiod.expired	Cluster	Warning
LUN Destroyed	lun.destroy	LUN	Information
Cloud AWS MetaDataConnFail	cloud.aws.metadataConnFail	Node	Error
Cloud AWS IAMCredsExpired	cloud.aws.iamCredsExpired	Node	Error
Cloud AWS IAMCredsInvalid	cloud.aws.iamCredsInvalid	Node	Error
Cloud AWS IAMCredsNotFound	cloud.aws.iamCredsNotFound	Node	Error
Cloud AWS IAMCredsNotInitialized	cloud.aws.iamNotInitialized	Node	Information
Cloud AWS IAMRoleInvalid	cloud.aws.iamRoleInvalid	Node	Error
Cloud AWS IAMRoleNotFound	cloud.aws.iamRoleNotFound	Node	Error
Cloud Tier Host Unresolvable	objstore.host.unresolvable	Node	Error
Cloud Tier Intercluster LIF Down	objstore.interclusterlifDown	Node	Error
Request Mismatch Cloud Tier Signature	osc.signatureMismatch	Node	Error
One of NFSv4 Pools Exhausted	Nblade.nfsV4PoolExhaust	Node	Critical
QoS Monitor Memory Maxed	qos.monitor.memory.maxed	Node	Error



<b>Unified Manager Event name</b>	<b>EMS Event name</b>	<b>Affected resource</b>	<b>Unified Manager severity</b>
QoS Monitor Memory Abated	qos.monitor.memory.abated	Node	Information
NVMeNS Destroy	NVMeNS.destroy	Namespace	Information
NVMeNS Online	NVMeNS.offline	Namespace	Information
NVMeNS Offline	NVMeNS.online	Namespace	Information
NVMeNS Out of Space	NVMeNS.out.of.space	Namespace	Warning
Synchronous Replication Out Of Sync	sms.status.out.of.sync	SnapMirror relationship	Warning
Synchronous Replication Restored	sms.status.in.sync	SnapMirror relationship	Information
Synchronous Replication Auto Resync Failed	sms.resync.attempt.failed	SnapMirror relationship	Error
Many CIFS Connections	Nblade.cifsManyAuths	SVM	Error
Max CIFS Connection Exceeded	Nblade.cifsMaxOpenSameFile	SVM	Error
Max Number of CIFS Connection Per User Exceeded	Nblade.cifsMaxSessPerUserConn	SVM	Error
CIFS NetBIOS Name Conflict	Nblade.cifsNbNameConflict	SVM	Error
Attempts to Connect Nonexistent CIFS Share	Nblade.cifsNoPrivShare	SVM	Critical
CIFS Shadow Copy Operation Failed	cifs.shadowcopy.failure	SVM	Error
Virus Found By AV Server	Nblade.vscanVirusDetected	SVM	Error
No AV Server Connection for Virus Scan	Nblade.vscanNoScannerConn	SVM	Critical

<b>Unified Manager Event name</b>	<b>EMS Event name</b>	<b>Affected resource</b>	<b>Unified Manager severity</b>
No AV Server Registered	Nblade.vscanNoRegdScanner	SVM	Error
No Responsive AV Server Connection	Nblade.vscanConnInactive	SVM	Information
AV Server too Busy to Accept New Scan Request	Nblade.vscanConnBackPressure	SVM	Error
Unauthorized User Attempt to AV Server	Nblade.vscanBadUserPrivAccess	SVM	Error
FlexGroup Constituents Have Space Issues	flexgroup.constituents.have.space.issues	Volume	Error
FlexGroup Constituents Space Status All OK	flexgroup.constituents.space.status.all.ok	Volume	Information
FlexGroup Constituents Have Inodes Issues	flexgroup.constituents.have.inodes.issues	Volume	Error
FlexGroup Constituents Inodes Status All OK	flexgroup.constituents.inodes.status.all.ok	Volume	Information
Volume Logical Space Nearly Full	monitor.vol.nearFull.inc.save	Volume	Warning
Volume Logical Space Full	monitor.vol.full.inc.save	Volume	Error
Volume Logical Space Normal	monitor.vol.one.ok.inc.save	Volume	Information
WAFL Volume AutoSize Fail	wafl.vol.autoSize.fail	Volume	Error
WAFL Volume AutoSize Done	wafl.vol.autoSize.done	Volume	Information
WAFL READDIR File Operation Timeout	wafl.readdir.expired	Volume	Error

# Subscribing to ONTAP EMS events

You can subscribe to receive Event Management System (EMS) events that are generated by systems that are installed with ONTAP software. A subset of EMS events are reported to Unified Manager automatically, but additional EMS events are reported only if you have subscribed to these events.

## Before you begin

Do not subscribe to EMS events that are already added to Unified Manager automatically as this can cause confusion when receiving two events for the same issue.

## About this task

You can subscribe to any number of EMS events. All the events to which you subscribe are validated, and only the validated events are applied to the clusters you are monitoring in Unified Manager. The *ONTAP 9 EMS Event Catalog* provides detailed information for all of the EMS messages for the specified version of ONTAP 9 software. Locate the appropriate version of the *EMS Event Catalog* from the ONTAP 9 Product Documentation page for a list of the applicable events.

### [ONTAP 9 Product Library](#)

You can configure alerts for the ONTAP EMS events to which you subscribe, and you can create custom scripts to be executed for these events.



If you do not receive the ONTAP EMS events to which you have subscribed, there might be an issue with the DNS configuration of the cluster which is preventing the cluster from reaching the Unified Manager server. To resolve this issue, the cluster administrator must correct the DNS configuration of the cluster, and then restart Unified Manager. Doing so will flush the pending EMS events to the Unified Manager server.

## Steps

1. In the left navigation pane, click **Storage Management > Event Setup**.
2. In the **Event Setup** page, click the **Subscribe to EMS events** button.
3. In the **Subscribe to EMS events** dialog box, enter the name of the ONTAP EMS event to which you want to subscribe.

To view the names of the EMS events to which you can subscribe, from the ONTAP cluster shell, you can use the `event route show` command (prior to ONTAP 9) or the `event catalog show` command (ONTAP 9 or later).

### [How to configure and receive alerts from ONTAP EMS Event Subscription in Active IQ Unified Manager](#)

4. Click **Add**.

The EMS event is added to the Subscribed EMS events list, but the Applicable to Cluster column displays the status as “Unknown” for the EMS event that you added.

5. Click **Save and Close** to register the EMS event subscription with the cluster.
6. Click **Subscribe to EMS events** again.

The status “Yes” appears in the Applicable to Cluster column for the EMS event that you added.

If the status is not “Yes”, check the spelling of the ONTAP EMS event name. If the name is entered incorrectly, you must remove the incorrect event, and then add the event again.

## **After you finish**

When the ONTAP EMS event occurs, the event is displayed on the Events page. You can select the event to view details about the EMS event in the Event details page. You can also manage the disposition of the event or create alerts for the event.

# **Managing SAML authentication settings**

After you have configured remote authentication settings, you can enable Security Assertion Markup Language (SAML) authentication so that remote users are authenticated by a secure identity provider (IdP) before they can access the Unified Manager web UI.

Note that only remote users will have access to the Unified Manager graphical user interface after SAML authentication has been enabled. Local users and Maintenance users will not be able to access the UI. This configuration does not impact users who access the maintenance console.

## **Identity provider requirements**

When configuring Unified Manager to use an identity provider (IdP) to perform SAML authentication for all remote users, you need to be aware of some required configuration settings so that the connection to Unified Manager is successful.

You must enter the Unified Manager URI and metadata into the IdP server. You can copy this information from the Unified Manager SAML Authentication page. Unified Manager is considered the service provider (SP) in the Security Assertion Markup Language (SAML) standard.

## **Supported encryption standards**

- Advanced Encryption Standard (AES): AES-128 and AES-256
- Secure Hash Algorithm (SHA): SHA-1 and SHA-256

## **Validated identity providers**

- Shibboleth
- Active Directory Federation Services (ADFS)

## **ADFS configuration requirements**

- You must define three claim rules in the following order that are required for Unified Manager to parse ADFS SAML responses for this relying party trust entry.

Claim rule	Value
SAM-account-name	Name ID
SAM-account-name	urn:oid:0.9.2342.19200300.100.1.1
Token groups — Unqualified Name	urn:oid:1.3.6.1.4.1.5923.1.5.1.1

- You must set the authentication method to “Forms Authentication” or users may receive an error when logging out of Unified Manager . Follow these steps:
  - a. Open the ADFS Management Console.
  - b. Click on the Authentication Policies folder on the left tree view.
  - c. Under Actions on the right, click Edit Global Primary Authentication Policy.
  - d. Set the Intranet Authentication Method to “Forms Authentication” instead of the default “Windows Authentication”.
- In some cases login through the IdP is rejected when the Unified Manager security certificate is CA-signed. There are two workarounds to resolve this issue:
  - Follow the instructions identified in the link to disable the revocation check on the ADFS server for chained CA cert associated relying party:

#### [Disable Revocation Check per Relying Party Trust](#)

- Have the CA server reside within the ADFS server to sign the Unified Manager server cert request.

#### **Other configuration requirements**

- The Unified Manager clock skew is set to 5 minutes, so the time difference between the IdP server and the Unified Manager server cannot be more than 5 minutes or authentication will fail.

### **Enabling SAML authentication**

You can enable Security Assertion Markup Language (SAML) authentication so that remote users are authenticated by a secure identity provider (IdP) before they can access the Unified Manager web UI.

#### **Before you begin**

- You must have configured remote authentication and verified that it is successful.
- You must have created at least one Remote User, or a Remote Group, with the Application Administrator role.
- The Identity provider (IdP) must be supported by Unified Manager and it must be configured.
- You must have the IdP URL and metadata.
- You must have access to the IdP server.

#### **About this task**

After you have enabled SAML authentication from Unified Manager, users cannot access the graphical user

interface until the IdP has been configured with the Unified Manager server host information. So you must be prepared to complete both parts of the connection before starting the configuration process. The IdP can be configured before or after configuring Unified Manager.

Only remote users will have access to the Unified Manager graphical user interface after SAML authentication has been enabled. Local users and Maintenance users will not be able to access the UI. This configuration does not impact users who access the maintenance console, the Unified Manager commands, or ZAPIs.



Unified Manager is restarted automatically after you complete the SAML configuration on this page.

## Steps

1. In the left navigation pane, click **General > SAML Authentication**.
2. Select the **Enable SAML authentication** checkbox.

The fields required to configure the IdP connection are displayed.

3. Enter the IdP URI and the IdP metadata required to connect the Unified Manager server to the IdP server.

If the IdP server is accessible directly from the Unified Manager server, you can click the **Fetch IdP Metadata** button after entering the IdP URI to populate the IdP Metadata field automatically.

4. Copy the Unified Manager host metadata URI, or save the host metadata to an XML text file.

You can configure the IdP server with this information at this time.

5. Click **Save**.

A message box displays to confirm that you want to complete the configuration and restart Unified Manager.

6. Click **Confirm and Logout** and Unified Manager is restarted.

## Results

The next time authorized remote users attempt to access the Unified Manager graphical interface they will enter their credentials in the IdP login page instead of the Unified Manager login page.

## After you finish

If not already completed, access your IdP and enter the Unified Manager server URI and metadata to complete the configuration.



When using ADFS as your identity provider, the Unified Manager GUI does not honor the ADFS timeout and will continue to work until the Unified Manager session timeout is reached. You can change the GUI session timeout by clicking **General > Feature Settings > Inactivity Timeout**.

## Changing the local user password

You can change your local user login password to prevent potential security risks.

## Before you begin

You must be logged in as a local user.

## About this task

The passwords for the maintenance user and for remote users cannot be changed using these steps. To change a remote user password, contact your password administrator. To change the maintenance user password, see [Using the maintenance console](#).

## Steps

1. Log in to Unified Manager.
2. From the top menu bar, click the user icon and then click **Change Password**.

The **Change Password** option is not displayed if you are a remote user.

3. In the **Change Password** dialog box, enter the current password and the new password.
4. Click **Save**.

## After you finish

If Unified Manager is configured in a high-availability configuration, you must change the password on the second node of the setup. Both instances must have same password.

# Setting the session inactivity timeout

You can specify the inactivity timeout value for Unified Manager so that the session is terminated automatically after a certain period of time. By default the timeout is set to 4,320 minutes (72 hours).

## Before you begin

You must have the Application Administrator role.

## About this task

This setting affects all logged in user sessions.



This option is not available if you have enabled Security Assertion Markup Language (SAML) authentication.

## Steps

1. In the left navigation pane, click **General > Feature Settings**.
2. In the **Feature Settings** page, specify the inactivity timeout by choosing one of the following options:

If you want to...	Then do this...
Have no timeout set so that the session is never closed automatically	In the <b>Inactivity Timeout</b> panel, move the slider button to the left (off) and click <b>Apply</b> .
Set a specific number of minutes as the time out value	In the <b>Inactivity Timeout</b> panel, move the slider button to the right (on), specify the inactivity timeout value in minutes, and click <b>Apply</b> .

## Changing the Unified Manager host name

At some point, you might want to change the host name of the system on which you have installed Unified Manager. For example, you might want to rename the host to more easily identify your Unified Manager servers by type, workgroup, or monitored cluster group.

The steps required to change the host name are different depending on whether Unified Manager is running on a VMware ESXi server, on a Red Hat or CentOS Linux server, or on a Microsoft Windows server.

### Changing the Unified Manager virtual appliance host name

The network host is assigned a name when the Unified Manager virtual appliance is first deployed. You can change the host name after deployment. If you change the host name, you must also regenerate the HTTPS certificate.

#### Before you begin

You must be logged in to Unified Manager as the maintenance user, or have the Application Administrator role assigned to you to perform these tasks.

#### About this task

You can use the host name (or the host IP address) to access the Unified Manager web UI. If you configured a static IP address for your network during deployment, then you would have designated a name for the network host. If you configured the network using DHCP, the host name should be taken from the DNS. If DHCP or DNS is not properly configured, the host name “Unified Manager” is automatically assigned and associated with the security certificate.

Regardless of how the host name was assigned, if you change the host name, and intend to use the new host name to access the Unified Manager web UI, you must generate a new security certificate.

If you access the web UI by using the server’s IP address instead of the host name, you do not have to generate a new certificate if you change the host name. However, it is the best practice to update the certificate so that the host name in the certificate matches the actual host name.

If you change the host name in Unified Manager, you must manually update the host name in OnCommand Workflow Automation (WFA). The host name is not updated automatically in WFA.

The new certificate does not take effect until the Unified Manager virtual machine is restarted.



## Steps

### 1. [Generate an HTTPS security certificate](#)

If you want to use the new host name to access the Unified Manager web UI, you must regenerate the HTTPS certificate to associate it with the new host name.

### 2. [Restart the Unified Manager virtual machine](#)

After you regenerate the HTTPS certificate, you must restart the Unified Manager virtual machine.

## Generating an HTTPS security certificate

When Active IQ Unified Manager is installed for the first time, a default HTTPS certificate is installed. You might generate a new HTTPS security certificate that replaces the existing certificate.

### Before you begin

You must have the Application Administrator role.

### About this task

There can be multiple reasons to regenerate the certificate such as if you want to have better values for Distinguished Name (DN) or if you want a higher key size, or longer expiry period or if the current certificate has expired.

If you do not have access to the Unified Manager web UI, you can regenerate the HTTPS certificate with the same values using the maintenance console. While regenerating certificates, you can define the key size and the validity duration of the key. If you use the `Reset Server Certificate` option from the maintenance console, then a new HTTPS certificate is created which is valid for 397 days. This certificate will have an RSA key of size 2048 bits.


## Steps

1. In the left navigation pane, click **General > HTTPS Certificate**.
2. Click **Regenerate HTTPS Certificate**.

The Regenerate HTTPS Certificate dialog box is displayed.

3. Select one of the following options depending on how you want to generate the certificate:

If you want to...	Do this...
Regenerate the certificate with the current values	Click the <b>Regenerate Using Current Certificate Attributes</b> option.

If you want to...	Do this...
Generate the certificate using different values	<p>Click the <b>Update the Current Certificate Attributes</b> option.</p> <p>The Common Name and Alternative Names fields will use the values from the existing certificate if you do not enter new values. The “Common Name” should be set to the FQDN of the host. The other fields do not require values, but you can enter values, for example, for the EMAIL, COMPANY, DEPARTMENT, City, State, and Country if you want those values to be populated in the certificate. You can also select from the available KEY SIZE (The key algorithm is “RSA”.) and VALIDITY PERIOD.</p> <div>  <ul style="list-style-type: none"> <li>• The permitted values for key size are 2048, 3072 and 4096.</li> <li>• The validity periods are minimum 1 day to maximum 36500 days.</li> </ul> <p>Even though a validity period of 36500 days is permitted, it is recommended you use a validity period of not more than 397 days or 13 months. Because if you select a validity period of more than 397 days and plan to export a CSR for this certificate and get it signed by a well known CA, the validity of the signed certificate returned to you by the CA will be reduced to 397 days.</p> <ul style="list-style-type: none"> <li>• You can select the “Exclude local identifying information \(\e.g. localhost\)” checkbox if you want to remove the local identifying information from the Alternative Names field in the certificate. When this checkbox is selected, only what you enter in the field is used in the Alternative Names field. When left blank the resulting certificate will not have an Alternative Names field at all.</li> </ul> </div>

4. Click **Yes** to regenerate the certificate.
5. Restart the Unified Manager server so that the new certificate takes effect.

#### After you finish

Verify the new certificate information by viewing the HTTPS certificate.

#### Restarting the Unified Manager virtual machine

You can restart the virtual machine from the maintenance console of Unified Manager. You must restart after generating a new security certificate or if there is a problem with the virtual machine.

#### Before you begin

The virtual appliance is powered on.

You are logged in to the maintenance console as the maintenance user.

#### About this task

You can also restart the virtual machine from vSphere by using the **Restart Guest** option. See the VMware documentation for more information.

## Steps

1. Access the maintenance console.
2. Select **System Configuration > Reboot Virtual Machine**.

## Changing the Unified Manager host name on Linux systems

At some point, you might want to change the host name of the Red Hat Enterprise Linux or CentOS machine on which you have installed Unified Manager. For example, you might want to rename the host to more easily identify your Unified Manager servers by type, workgroup, or monitored cluster group when you list your Linux machines.

### Before you begin

You must have root user access to the Linux system on which Unified Manager is installed.

### About this task

You can use the host name (or the host IP address) to access the Unified Manager web UI. If you configured a static IP address for your network during deployment, then you would have designated a name for the network host. If you configured the network using DHCP, the host name should be taken from the DNS server.

Regardless of how the host name was assigned, if you change the host name and intend to use the new host name to access the Unified Manager web UI, you must generate a new security certificate.

If you access the web UI by using the server's IP address instead of the host name, you do not have to generate a new certificate if you change the host name. However, it is the best practice to update the certificate, so that the host name in the certificate matches the actual host name. The new certificate does not take effect until the Linux machine is restarted.

If you change the host name in Unified Manager, you must manually update the host name in OnCommand Workflow Automation (WFA). The host name is not updated automatically in WFA.

## Steps

1. Log in as the root user to the Unified Manager system that you want to modify.
2. Stop the Unified Manager software and the associated MySQL software by entering the following command: `systemctl stop ocieau ocie mysqld`
3. Change the host name using the Linux `hostnamectl` command: `hostnamectl set-hostname new_FQDN`  
  
`hostnamectl set-hostname nuhost.corp.widget.com`
4. Regenerate the HTTPS certificate for the server: `/opt/netapp/essentials/bin/cert.sh create`
5. Restart the network service: `service network restart`
6. After the service is restarted, verify whether the new host name is able to ping itself: `ping new_hostname`  
  
`ping nuhost`

This command should return the same IP address that was set earlier for the original host name.

7. After you complete and verify your host name change, restart Unified Manager by entering the following command: `systemctl start mysqld ocie ocieau`

## Enabling and disabling policy-based storage management

Starting with Unified Manager 9.7, you can provision storage workloads (volumes and LUNs) on your ONTAP clusters, and manage those workloads based on assigned performance service levels. This functionality is similar to creating workloads in ONTAP System Manager and attaching QoS policies, but when applied using Unified Manager you can provision and manage workloads across all clusters that your Unified Manager instance is monitoring.

### Before you begin

You must have the Application Administrator role.

### About this task

This option is enabled by default, but you can disable it if you do not want to provision and manage workloads using Unified Manager.

When enabled, this option provides many new items in the user interface:

New Content	Location
A page to provision new workloads	Available from <b>Common Tasks &gt; Provisioning</b>
A page to create performance service level policies	Available from <b>Settings &gt; Policies &gt; Performance Service Levels</b>
A page to create performance storage efficiency policies	Available from <b>Settings &gt; Policies &gt; Storage Efficiency</b>
Panels that describe your current Workload Performance and Workload IOPS	Available from the Dashboard

See the online help in the product for more information on these pages and on this functionality.

### Steps

1. In the left navigation pane, click **General > Feature Settings**.
2. In the **Feature Settings** page, disable or enable policy-based storage management by choosing one of the following options:

If you want to...	Then do this...
Disable policy-based storage management	In the <b>Policy-based storage management</b> panel, move the slider button to the left.

If you want to...	Then do this...
Enable policy-based storage management	In the <b>Policy-based storage management</b> panel, move the slider button to the right.

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