Manage SolidFire Active IQ

SolidFire Active IQ

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All Clusters View

All Clusters View

The **All Clusters View** is the landing page for SolidFire Active IQ.

Learn about what you can access from the **All Clusters View**:

- All Clusters View dashboard
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- Capacity Licensing
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All Clusters View dashboard

On the **Dashboard** page of the **All Clusters View**, you can view performance, capacity, and cluster statistic details about the clusters associated with your account.

Heading	Description
Company	Company name assigned to the cluster.
Cluster	Name assigned to the cluster.
Cluster ID	Assigned cluster number when the cluster is created.
Version	Version of the cluster master running on each node.
Nodes	Number of nodes in the cluster.
Volumes	Number of volumes in the cluster.
Efficiency	The amount of efficiency the system is seeing due to compression, deduplication, and thin provisioning.
Used Block Capacity	Current used capacity of the cluster block.
Faults	Number of currently unresolved faults detected on the cluster.
SVIP	Storage virtual IP address assigned to the cluster.
MVIP	Management Virtual IP address assigned to the cluster.
Last Update	Time and date that the most recent cluster update.

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Alerts

From the **Alerts** drop-down menu within **All Clusters View**, you can view the alert history, create and manage alert policies, and view and suppress cluster notifications.

Learn about or perform alerts-related tasks:

- View alerts history
- Alerts history details
- View alert policies
- Create an alert policy
- Alert policy types
- Edit an alert policy
- Delete an alert policy
- View suppressed clusters
- Suppress cluster notifications
- End cluster suppression from a cluster
- Alert notification email

View alerts history

You can view the history for either unresolved or resolved alerts.

Steps

1. Select **Alerts** > **History**.
2. Select either the **Unresolved** or **Resolved** tab to view the history of alerts for the cluster.
3. (Optional) Select the  icon to export the data to a CSV file.

Alerts history details

The **History** page in the Alerts drop-down menu within All Clusters View shows up to 10000 entries of alert history, including all unresolved alerts and alerts resolved in the last 30 days.

The following list describes the details that are available to you:

Heading	Description
Alert ID	Unique ID for each alert.
Triggered	The time the alert was triggered in SolidFire Active IQ, not on the cluster itself.
Last Notified	The time the most recent alert email was sent.
Resolved	Shows if the cause of the alert has been resolved.
Resolution Time	The time an issue was resolved.
Policy	This is the user-defined alert policy name.
Severity	Severity assigned at the time the alert policy was created.
Destination	The email address or addresses selected to receive the alert email.
Company	Name of customer associated with the alert.
Cluster	Displays the cluster name for which the alert policy was added.
Trigger	The user-defined setting that triggered the alert.

View alert policies

The **Policies** page in the **Alerts** drop-down menu within **All Clusters View** shows the following policy information for all clusters.

The following list describes the details that are available to you:

Heading	Description
Policy Name	User-defined alert policy name.
Destination	Email address defined in the alert policy.
Severity	Severity assigned in the alert policy.
Clusters	Number and name of each cluster defined in the alert policy. Select the information icon to reveal associated clusters.
Condition	User-defined setting for when an alert should be triggered.

Heading	Description
Suppression Types	Determines which alerts and events are suppressed. The following types are possible: • **Full**: All alerts for the cluster are suppressed for the duration specified. No support cases or email alerts are generated. • **Upgrades**: Non-critical cluster alerts are suppressed for the duration specified. Critical alerts still generate support cases and emails. • **Compute**: Alerts that are triggered by VMware on the compute nodes are suppressed. • **NodeHardware**: Alerts associated with node maintenance are suppressed. For example, swapping out drives or taking nodes offline. • **Drive**: Alerts associated with drive health are suppressed. • **Network**: Alerts associated with network configuration and health are suppressed. • **Power**: Power redundancy alerts are suppressed. It does not suppress a *nodeOffline* alert which would occur in the event of a total power loss.
Actions	Select the vertical drop-down menu for edit and delete options for the selected policy.

Create an alert policy

You can create an alert policy to monitor information from the **All Clusters View** in SolidFire Active IQ. Alert policies allow you to be notified of a status or performance event with one or more clusters across an installation so that action can be taken in advance of, or in response to, a more serious event.

Steps

1. Select **Alerts** > **Policies**.
2. Select **Create Policy**.
3. Select an alert type from the **Policy Type** list. See Alert policy types.

There are additional policy-specific fields within the **Create Policy** dialog box depending on the policy type selected.

4. Enter a name for the new alert policy.

Alert policy names should describe the condition the alert is being created for. Descriptive titles help identify the alert easily. Alert policy names are displayed as a reference elsewhere in the system.

5. Select a severity level.

Alert policy severity levels are color coded and can be filtered easily from the **Alerts** > **History page**.

6. Determine the type of suppression for the alert policy by selecting a type from **Suppressible Types**. You can select more than one type.

Confirm that the associations make sense. For example, you have selected **Network Suppression** for a network alert policy.

7. Select one or more clusters to include in the policy.

   When you add a new cluster to your installation after you have created the policy, the cluster will not automatically be added to existing alert policies. You must edit an existing alert policy and select the new cluster you want to associate with the policy.

8. Enter one or more email addresses to which alert notifications will be sent. If you are entering multiple addresses, you must use a comma to separate each address.
9. Select **Save Alert Policy**.

Alert policy types

You can create alert policies based on available policy types listed in the **Create Policy** dialog box from **Alarms** > **Policies**.

Available policy alerts include the following types:

Policy Type	Description
Cluster Fault	Sends a notification when a specific type or any type of cluster fault occurs.
Event	Sends a notification when a specific event type occurs.
Failed Drive	Sends a notification when a drive failure occurs.
Available Drive	Sends a notification when a drive comes online in *Available* state.
Cluster Utilization	Sends a notification when the cluster capacity and performance being used is more than the specified percentage.
Usable Space	Sends a notification when usable cluster space is less than a specified percentage.
Provisionable Space	Sends a notification when provisionable cluster space is less than a specified percentage.
Collector Not Reporting	Sends a notification when the collector for SolidFire Active IQ that runs on the management node fails to send data to SolidFire Active IQ for the duration specified.
Drive Wear	Sends a notification when a drive in a cluster has less than a specified percentage of wear or reserve space remaining.
iSCSI Sessions	Sends a notification when the number of active iSCSI sessions is greater than the value specified.
Chassis Resiliency	Sends a notification when the used space of a cluster is greater than a user-specified percentage. You should select a percentage that is sufficient to give early notice before reaching the cluster resiliency threshold. After reaching this threshold, a cluster can no longer automatically heal from a chassis-level failure.
VMware Alarm	Sends a notification when a VMware alarm is triggered and reported to SolidFire Active IQ.

Policy Type	Description
Custom Protection Domain Resiliency	When used space increases beyond the specified percentage of custom protection domain resiliency threshold, the system sends a notification. If this percentage reaches 100, the storage cluster does not have enough free capacity to self-heal after a custom protection domain failure occurs.
Node Core/Crash Dump Files	When a service becomes unresponsive and must be restarted, the system creates a core file or crash dump file and sends a notification. This is not the expected behavior during regular operations.

Edit an alert policy

You can edit an alert policy to add or remove clusters from a policy or change additional policy settings.

Steps

1. Select **Alerts** > **Policies**.
2. Select the menu for more options under **Actions**.
3. Select **Edit Policy**.

   The policy type and type-specific monitoring criteria are not editable.

4. (Optional) Enter a revised name for the new alert policy.

   Alert policy names should describe the condition the alert is being created for. Descriptive titles help identify the alert easily. Alert policy names are displayed as a reference elsewhere in the system.

5. (Optional) Select a different severity level.

   Alert policy severity levels are color coded and can be filtered easily from the Alerts > History page.

6. Determine the type of suppression for the alert policy when it is active by selecting a type from **Suppressible Types**. You can select more than one type.

   Confirm that the associations make sense. For example, you have selected **Network Suppression** for a network alert policy.

7. (Optional) Select or remove cluster associations with the policy.

   When you add a new cluster to your installation after you have created the policy, the cluster is not automatically be added to existing alert policies. You must select the new cluster you want to associate with the policy.

8. (Optional) Modify one or more email addresses to which alert notifications will be sent. If you are entering multiple addresses, you must use a comma to separate each address.
9. Select **Save Alert Policy**.

Delete an alert policy

Deleting an alert policy removes it permanently from the system. Email notifications are no longer sent for that policy and cluster associations with the policy are removed.

Steps

1. Select **Alerts** > **Policies**.
2. Under **Actions**, select the menu for more options.
3. Select **Delete Policy**.
4. Confirm the action.

   The policy is permanently removed from the system.

View suppressed clusters

On the **Suppressed Clusters** page in the **Alerts** drop-down menu within the **All Clusters View**, you can view a list of clusters which have alert notifications suppressed.

NetApp Support or customers can suppress alert notifications for a cluster when performing maintenance. When notifications are suppressed for a cluster using upgrade suppression, common alerts that occur during upgrades are not sent. There is also a full alert suppression option that stops alert notification for a cluster for a specified duration. You can view any email alerts that are not sent when notifications are suppressed on the **History** page of the **Alerts** menu. Suppressed notifications resume automatically after the defined duration elapses.

The following information is available on **Suppressed Clusters** page.

Heading	Description
Company	Company name assigned to the cluster.
Cluster ID	Assigned cluster number when the cluster is created.
Cluster Name	Name assigned to the cluster.
Start Time	The exact time that the suppression of notifications started.
End Time	The exact time that the suppression of notifications is scheduled to end.

Heading	Description
Type	Determines which alerts and events are suppressed. The following types are possible: • **Full**: All alerts for the cluster are suppressed for the duration specified. No support cases or email alerts are generated. • **Upgrades**: Non-critical cluster alerts are suppressed for the duration specified. Critical alerts still generate support cases and emails. • **Compute**: Alerts that are triggered by VMware on the compute nodes are suppressed. • **NodeHardware**: Alerts associated with node maintenance are suppressed. For example, swapping out drives or taking nodes offline. • **Drive**: Alerts associated with drive health are suppressed. • **Network**: Alerts associated with network configuration and health are suppressed. • **Power**: Power redundancy alerts are suppressed. It does not suppress a *nodeOffline* alert which would occur in the event of a total power loss.
Actions	Select the option to suppress or resume notifications for a cluster.

Suppress cluster notifications

You can suppress alert notifications at the cluster level for a single cluster or multiple clusters.

Steps

1. Do one of the following:
   a. From the **Dashboard** overview, select the Actions menu for the cluster that you want to suppress.
   b. From **Alerts** > **Cluster Suppression**, select **Suppress Clusters**.
2. In the **Suppress Alerts for Cluster** dialog box, do the following:
   a. If you selected the **Suppress Clusters** button from the **Suppressed Clusters** page, select a cluster.
   b. Select an alert suppression type as either **Full**, **Upgrades**, **Compute**, **NodeHardware**, **Drive**, **Network** or **Power**. Learn about suppression types.

      A cluster can have multiple suppression types but cannot share a suppression type. For example, a cluster can have a **Full**, **Compute**, and **Drive** suppression, but not two **Full** suppressions. When a suppression already exists on a cluster, it is greyed out. To replace an existing suppression, select **Override Existing** and select the new suppression type.

   c. Select a common duration or enter a custom end date and time during which notifications should be suppressed.
3. Select **Suppress**.

   This action also suppresses certain or all notifications to NetApp Support. After cluster suppression is in effect, NetApp Support or any user that is entitled to view the cluster can update the suppression state.

End cluster suppression from a cluster

You can end cluster alert suppression on clusters that was applied using the Suppress Clusters feature. This enables clusters to resume their normal state of alert reporting.

Steps

1. From the **Dashboard** overview or **Alerts** > **Cluster Suppression**, end suppression for the single or multiple clusters that you want to resume normal alert reporting:
   a. For a single cluster, select the Actions menu for the cluster and select **End Suppression**.
   b. For multiple clusters, select the clusters and then select **End Selected Suppressions**.

Alert notification email

Subscribers to SolidFire Active IQ alerts receive different status emails for each alert that triggers on the system. There are three types of status emails associated with alerts:

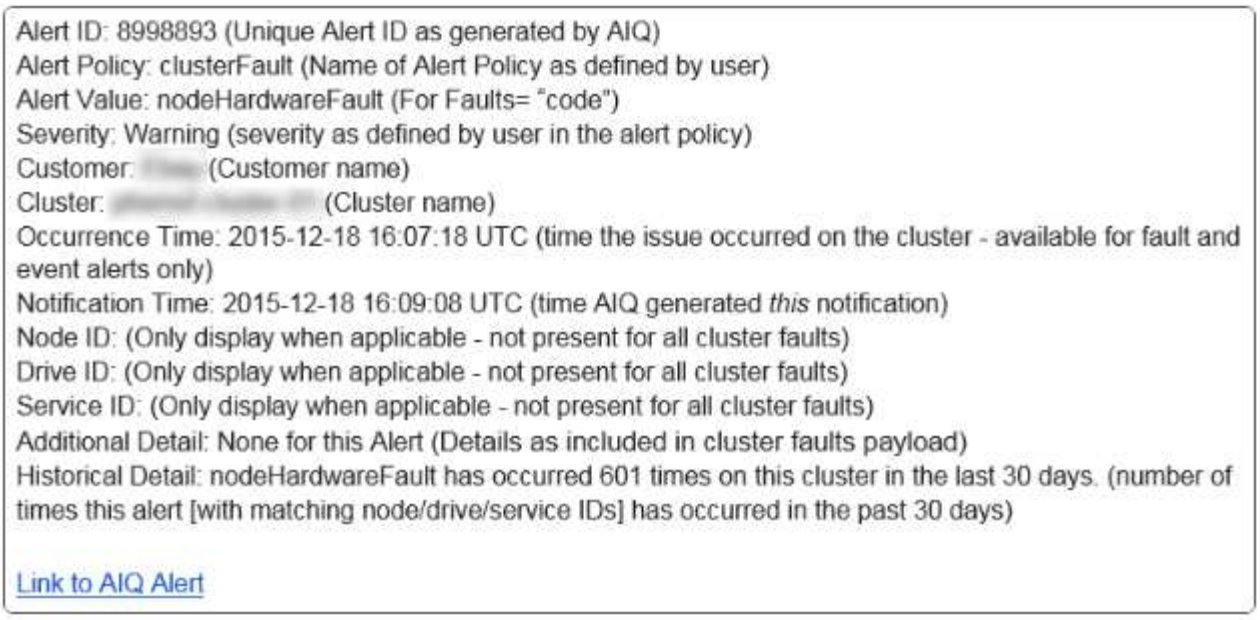
New Alert Email	This type of email is sent when an alert is triggered.
Reminder Alert Email	This type of email is sent once every 24 hours for as long as the alert remains active.
Alert Resolved Email	This type of email is sent when the issue is resolved.

After an alert policy is created, and if a new alert is generated for this policy, an email is sent to the designated email address (see Create an Alert Policy).

The alert email subject line uses one of the following formats depending on error type reported:

- Unresolved cluster fault: `[cluster fault code] fault on [cluster name] ([severity])`
- Resolved cluster fault: `Resolved: [cluster fault code] fault on [cluster name] ([severity])`
- Unresolved alert: `[policy name] alert on [cluster name] ([severity])`
- Resolved alert fault: `Resolved: [policy name] alert on [cluster name] ([severity])`

The content of the notification email will be similar to the following example:



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Capacity Licensing

On the **Capacity Licensing** page within the **All Clusters View**, you can view information about the NetApp Capacity Licensing model. Customers using standard SolidFire appliances should disregard this page.

Capacity Licensing is an alternative licensing option available from NetApp. Learn about or perform capacity licensing related tasks:

Heading	Description
Pool Name	Name of the customer associated with the license.
Entitled Capacity	Sum of software capacity licenses purchased.
Provisioned Capacity	Amount of allocated provisioned capacity on all capacity licensed nodes in a customer environment.
Used Capacity	Current used capacity by all clusters in a cluster pool.
Clusters	Number of clusters and their IDs, which comprise a cluster pool for a license.

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Term Capacity

On the **Term Capacity** page within the **All Clusters View**, you can view information about the NetApp term-capacity model.

Heading	Description
Company ID	Company ID associated with the license.
Company Name	Name of the company associated with the license.
Licenses	Number of licenses in a customer environment.
Clusters	Number of clusters and their IDs belonging to a customer.
Licensed Capacity	Amount of allocated capacity on the capacity licensed nodes in a customer environment.
Consumed Capacity	Current consumed capacity by all clusters belonging to a customer.

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Select a cluster

Select a cluster

You can view cluster information for a specific cluster when you select a cluster from the **Select a Cluster** drop-down list. Each category of cluster information is presented in either a table format or a graphical format.

Learn about the various lists and filters available from the **Dashboard** cluster overview or the **Reporting** drop-down menu in the side panel:

- Single cluster view dashboard
- Reporting options for a cluster

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Single cluster view dashboard

On the **Dashboard** page for a selected cluster, you can view high-level cluster details, including performance, capacity, and compute utilization.

Select the **Show Details** drop-down menu to view more information about the cluster or select the → icon next to a heading for more granular reporting information. You can also move the mouse pointer over graph lines and reporting data to display additional details.

Available details will vary based on your system:

- Storage-only system
- NetApp HCI system overview

Storage-only system

For a SolidFire storage-based solution, you can view details and performance information specific to your cluster when you select **Show Details** from the **Dashboard** page.

Heading	Description
Information bar	This top bar provides a quick overview of the current status of the selected cluster. The bar shows the number of nodes, number of volumes, fault details, real-time statistics about efficiency, and status about the block and metadata capacity. Links from this bar open to the corresponding data in the UI.
Cluster Details	Expand the information bar by selecting **Show Details** to show these values: • Element Version • iSCSI Sessions • Fibre Channel Sessions • Total Max Configured IOPS • Total Max IOPS • Node Types • Encryption at Rest • Vvols • Total Min Configured IOPS
Performance	This graph shows the IOPS and throughput usage.
Capacity	This shows the health and fullness of the installation's cluster: • Provisioned: The total capacity of all volumes created on the system. • Physical: The total amount of physical capacity (total block data capacity) on the system for data to be stored (after all efficiencies are applied). • Block Capacity: The amount of block data capacity currently in use. • Metadata Capacity: The amount of metadata capacity currently in use. • Efficiencies: The amount of efficiencies the system is seeing due to compression, deduplication, and thin provisioning.

NetApp HCI system overview

For a NetApp HCI-based solution, you can view details and performance information specific to your cluster when you select **Show Details** from the **Dashboard** page.

Heading	Description
Information bar	This top bar provides a quick overview of the current status of the selected cluster. The bar shows the number of compute and storage nodes, compute status, storage status, number of virtual machines, and number of volumes associated with your NetApp HCI system. Links from this bar open to the corresponding data in the UI.

Heading	Description
Installation Details	Expand the information bar by selecting **Show Details** to show these values: • Element Version • Hypervisor • Associated vCenter Instance • Associated Datacenter • Total Max Configured IOPS • Total Max IOPS • Compute Node Types • Storage Node Types • Encryption at Rest • Vvols • iSCSI Sessions • Total Min Configured IOPS
Compute Utilization	CPU and memory usage are represented in this graph.
Storage Capacity	This shows the health and fullness of the installation's cluster: • Provisioned: The total capacity of all volumes created on the system. • Physical: The total amount of physical capacity (total block data capacity) on the system for data to be stored (after all efficiencies are applied). • Block Capacity: The amount of block data capacity currently in use. • Metadata Capacity: The amount of metadata capacity currently in use. • Efficiencies: The amount of efficiencies the system is seeing due to compression, deduplication, and thin provisioning.
Storage Performance	IOPS and throughput are represented in this graph.

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Reporting options for a selected cluster

Learn about the **Reporting** drop-down menu in the side panel:

- Capacity
- Efficiency
- Performance
- Error log
- Events

- Alerts
- iSCSI Sessions
- Virtual Networks
- API Collection

Capacity

On the **Capacity** page of the **Reporting** drop-down menu for a selected cluster, you can view details about the overall cluster space that is provisioned into volumes. Capacity information bars provide the current state and forecasts of block and metadata storage capacity for the cluster. The corresponding graphs provide additional methods for analyzing the cluster data.

For details about severity levels and cluster fullness, see the Element Software documentation.

The following descriptions give details about the block capacity, metadata capacity, and provisioned space on the selected cluster.

Block capacity		
Heading	**Description**	**Forecast**
Used Capacity	Current used capacity of the cluster block.	Not applicable
Warning Threshold	The current warning threshold.	Forecast for when the warning threshold will be reached.
Error Threshold	The current error threshold.	Forecast for when the error threshold will be reached.
Total Capacity	The total capacity for the block.	Forecast for when the critical threshold will be reached.
Current State	Current state of the block.	For details about severity levels, see the Element Software documentation.
Metadata capacity		
Heading	**Description**	
Used Capacity	The metadata cluster capacity used for this cluster.	
Total Capacity	The total available metadata capacity for this cluster and the critical threshold forecast.	
Current State	The current state of the metadata capacity for this cluster.	
Provisioned space		
Heading	**Description**	
Provisioned Space	The amount of space that is currently provisioned on the cluster.	
Max Provisioned Space	The maximum space that can be provisioned on the cluster.	

Efficiency

On the **Efficiency** page of the cluster **Reporting** drop-down menu for a selected cluster, you can view details about thin provisioning, deduplication, and compression on the cluster when you move your mouse pointer over data points on the graph.

All combined efficiencies are calculated by simple multiplication of the reported factor values.

The following descriptions give details about calculated efficiencies on the selected cluster.

Heading	Description
Overall efficiency	The global efficiency of thin provisioning, deduplication, and compression multiplied together. These calculations do not take into account the double helix feature built into the system.
Deduplication and Compression	The combined effect of space saved by using deduplication and compression.
Thin Provisioning	The amount of space saved by using this feature. This number reflects the delta between the capacity allocated for the cluster and the amount of data actually stored.
Deduplication	The ratio multiplier of the amount of space that was saved by not storing duplicate data in the cluster.
Compression	The effect of data compression on stored data in the cluster. Different data types compress at different rates. For example, text data and most documents easily compress to a smaller space, but video and graphical images typically do not.

Performance

On the **Performance** page of the **Reporting** drop-down menu for a selected cluster, you can view details about IOPS usage, throughput, and cluster utilization by selecting the category and filtering based on time period.

Error log

On the **Error Log** page of the **Reporting** drop-down menu for a selected cluster, you can view information about unresolved or resolved errors that have been reported by the cluster. This information can be filtered and exported to a comma-separated values (CSV) file. For details about severity levels, see the Element Software documentation.

The following information is reported for the selected cluster.

Heading	Description
ID	ID for a cluster fault.
Date	The date and time the fault was logged.
Severity	This can be warning, error, critical, or best practice.
Type	This can be node, drive, cluster, service, or volume.

Heading	Description
Node ID	Node ID for the node that this fault refers to. Included for node and drive faults; otherwise set to - (dash).
Node Name	The system-generated node name.
Drive ID	Drive ID for the drive that this fault refers to. Included for drive faults; otherwise set to - (dash).
Resolved	Displays if the cause of the error has been resolved.
Resolution Time	Displays the time an issue was resolved.
Error Code	A descriptive code that indicates what caused the fault.
Details	Description of the fault with additional details.

Events

On the **Events** page of the **Reporting** drop-down menu for a selected cluster, you can view information about key events that have occurred on the cluster. This information can be filtered and exported to a CSV file.

The following information is reported for the selected cluster.

Heading	Description
Event ID	Unique ID associated with each event.
Event Time	The time the event occurred.
Type	The type of event being logged, for example, API event or clone events. See the Element Software documentation for more information.
Message	Message associated with the event.
Service ID	The service that reported the event (if applicable).
Node ID	The node that reported the event (if applicable).
Drive ID	The drive that reported the event (if applicable).
Details	Information that helps identify why the event occurred.

Alerts

On the **Alerts** page of the **Reporting** drop-down menu for a selected cluster, you can view unresolved or resolved cluster alerts. This information can be filtered and exported to a CSV file. For details about severity levels, see the Element Software documentation.

The following information is reported for the selected cluster.

Heading	Description
Triggered	The time the alert was triggered in SolidFire Active IQ, not on the cluster itself.
Last Notified	The time the most recent alert email was sent.
Resolved	Shows if the cause of the alert has been resolved.

Heading	Description
Policy	This is the user-defined alert policy name.
Severity	Severity assigned at the time the alert policy was created.
Destination	The email address or addresses selected to receive the alert email.
Trigger	The user-defined setting that triggered the alert.

iSCSI Sessions

On the **iSCSI Sessions** page of the **Reporting** drop-down menu for a selected cluster, you can view details about the number of active sessions on the cluster and the number of iSCSI sessions that have occurred on the cluster.

Expand the iSCSI Sessions example

You can move your mouse pointer over a data point on the graph to find the number of sessions for a defined time period:

- Active Sessions: The number of iSCSI sessions that are attached and active on the cluster.
- Peak Active Sessions: The maximum number of iSCSI sessions that have occurred on the cluster in the last 24 hours.

This data includes iSCSI sessions generated by FC nodes.

Virtual Networks

On the **Virtual Networks** page of the **Reporting** drop-down menu for a selected cluster, you can view the following information about virtual networks configured on the cluster.

Heading	Description
ID	Unique ID of the VLAN network. This is assigned by the system.
Name	Unique user-assigned name for the VLAN network.
VLAN ID	VLAN tag assigned when the virtual network was created.
SVIP	Storage virtual IP address assigned to the virtual network.
Netmask	Netmask for this virtual network.
Gateway	Unique IP address of a virtual network gateway. VRF must be enabled.
VRF Enabled	Shows if virtual routing and forwarding is enabled or not.
IPs Used	The range of virtual network IP addresses used for the virtual network.

API Collection

On the **API Collection** page of the **Reporting** drop-down menu for a selected cluster, you can view the API methods used by the NetApp SolidFire Active IQ. For detailed descriptions of these methods, see the Element Software API documentation.

> In addition to these methods, SolidFire Active IQ makes some internal API calls used by NetApp Support and engineering to monitor cluster health. These calls are not documented as they can be disruptive to cluster functionality if used incorrectly. If you require a complete list of SolidFire Active IQ API collections, you must contact NetApp Support.

Find more information

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Nodes

From the **Nodes** page, available from the side panel for a selected cluster, you can view information for the nodes in your cluster.

The available details vary based on your system:

- View SolidFire storage node details
- View NetApp HCI storage and compute node details

View SolidFire storage node details

Each node is a collection of SSDs. Each storage node comes with CPU, networking, cache, and storage resources. The storage node resources are pooled into a cluster of nodes.

On the **Nodes** page, the information bar provides a quick overview of the following data:

- MVIP: Management virtual IP address
- MVIP VLAN ID: Virtual LAN ID for the MVIP
- SVIP: Storage virtual IP address
- SVIP VLAN ID: Virtual LAN ID for the SVIP

View information about storage nodes

The following information is available for each storage node in the cluster:

Heading	Description
ID	System-generated ID for the node.
Status	The status of the node: • Healthy: The node has no critical errors associated with it. • Offline: The node cannot be accessed. Select the link to view the Error Log. • Fault: There are errors associated with this node. Select the link to view the Error Log.
Name	The system-generated node name.
Type	Displays the model type of the node.
Version	Version of Element software running on the node.
Serial Number	Unique serial number assigned to the node.
Management IP	Management IP MIP address assigned to node for 1GbE or 10GbE network admin tasks.
Cluster IP	Cluster IP address assigned to the node used for the communication between nodes in the same cluster.
Storage IP	Storage IP address assigned to the node used for iSCSI network discovery and all data network traffic.
Average Throughput Last 30 mins	Sum of average throughputs executed in the last 30 minutes against all volumes that have this node as their primary.
Average IOPS Last 30 mins	Sum of the average number of IOPS executed in the last 30 minutes against all volumes that have this node as their primary.
Average Latency (µs) Last 30 mins	The average time in microseconds, as measured over the last 30 minutes, to complete read and write operations to all volumes that have this node as their primary. To report this metric based on active volumes, only non-zero latency values are used.

Heading	Description
Role	Identifies what role the node has in the cluster: • Cluster Master: The node that performs cluster-wide administrative tasks and contains the MVIP and SVIP. • Ensemble Node: A node that participates in the cluster. There are either three or five ensemble nodes depending on cluster size. • Fibre Channel: An FC node in the cluster. • If a node does not have a role, the value is set to - (dash).

View NetApp HCI storage and compute node details

For NetApp H-series nodes, which comprise a NetApp HCI system, there are two types: compute and storage nodes.

On the **Nodes** page, the information bar provides a quick overview of the following data:

- MVIP: Management virtual IP address
- SVIP: Storage virtual IP address

Learn about viewing information about storage nodes and compute nodes in a NetApp HCI cluster:

- View information about storage nodes
- View information about compute nodes

View information about storage nodes

Select **Storage** to view the following information about the storage nodes in the cluster.

Heading	Description
ID	System-generated ID for the node.
Status	The status of the node: • Healthy: The node has no critical errors associated with it. • Offline: The node cannot be accessed. Select the link to view the Error Log. • Fault: There are errors associated with this node. Select the link to view the Error Log.
Name	The system-generated node name.
Type	Shows the model type of the node.
Chassis / Slot	Unique serial number assigned to the chassis and the slot location of the node.
Serial Number	Unique serial number assigned to the node.
Version	Version of Element software running on the node.

Heading	Description
Management IP	Management IP address assigned to node for 1GbE or 10GbE network admin tasks.
Storage IP	Storage IP address assigned to the node used for iSCSI network discovery and all data network traffic.
Average IOPS Last 30 mins	Sum of the average number of IOPS executed in the last 30 minutes against all volumes that have this node as their primary.
Average Throughput Last 30 mins	Sum of average throughputs executed in the last 30 minutes against all volumes that have this node as their primary.
Average Latency (µs) Last 30 mins	The average time in microseconds, as measured over the last 30 minutes, to complete read and write operations to all volumes that have this node as their primary. To report this metric based on active volumes, only non-zero latency values are used.
Role	Identifies what role the node has in the cluster: • Cluster Master: The node that performs cluster-wide administrative tasks and contains the MVIP and SVIP. • Ensemble Node: A node that participates in the cluster. There are either three or five ensemble nodes depending on cluster size. • If a node does not have a role, the value is set to - (dash).

View information about compute nodes

Select **Compute** to view the following information about the compute nodes in the cluster.

Heading	Description
Host	IP address of the compute node.
Status	The value that comes back from VMware. Hover over this for the VMware description.
Type	Shows the model type of the node.
Chassis/Slot	Unique serial number assigned to the chassis and the slot location of the node.
Serial Number	Unique serial number assigned to the node.
vCenter IP	IP address of the vCenter Server.
vMotion IP	VMware vMotion network IP address of the compute node.

Find more information

NetApp Product Documentation

Drives

Each node contains one or more physical drives, which are used to store a portion of the data for the cluster. The cluster uses the capacity and performance of the drive after the

drive is successfully added to a cluster.

On the **Drives** page, available from the side panel for a selected cluster, you can filter the page by selecting from the **Active**, **Available**, and **Failed** tabs.

The following information is available for each drive in the cluster depending on the state of drive functionality:

Heading	Description
Drive ID	Sequential number assigned to the drive.
Node ID	Assigned node number when the node is added to the cluster.
Service ID	The current service ID of the block or slice service that is associated with the drive.
Slot	Slot number where the drive is physically located.
Capacity	Gigabyte size of the drive.
Firmware version	Version of the firmware on the drive.
Serial	Serial number of the SSD.
Wear	Remaining Wear level indicator.
Type	Drive type can be block or metadata.

Find more information

NetApp Product Documentation

Volumes

Volumes

On the **Volumes** page, available from the side panel for a selected cluster, you can view information about volumes that are provisioned on the cluster. Each category of volume information is presented in either a table format or a graphical format.

Learn about what is displayed from the **Volumes** page:

- Active Volumes
- Snapshots and Snapshot Schedules

Find more information

NetApp Product Documentation

Active Volumes

From the **Volumes** page, you can view details about active volumes, individual volumes and performance graphs:

- View active volume details

- View individual volume details
- View individual volume performance graphs

View active volume details

On the **Volumes** > **Active Volumes** page for a selected cluster, you can view the following information in the list of active volumes.

Heading	Description
ID	ID given when the volume was created.
Account ID	ID of the account assigned to the volume.
Volume Size	Size of the volume from which the snapshot was created.
Used Capacity	Current used capacity of the volume: • Green = up to 80% • Yellow = above 80% • Red = above 95%
Primary Node ID	Primary node for this volume.
Secondary Node ID	List of secondary nodes for this volume. Can be multiple values during transitory states, like change of secondary nodes, but will usually have a single value.
QoS Throttle	Identifies if the volume is being throttled due to high load on the primary storage node: • Green = up to 20% • Yellow = above 20% • Red = above 80%
Min IOPS	The minimum number of IOPS guaranteed for the volume.
Max IOPS	The maximum number of IOPS allowed for the volume.
Burst IOPS	The maximum number of IOPS allowed over a short period of time.
Average IOPS Last 30 mins	The average number of IOPS executed for all volumes that have this node as their primary. IOPS are collected over 500 millisecond intervals on the cluster side. SolidFire Active IQ collects these values at 60 second intervals. For each volume, the average IOPS is calculated from the SolidFire Active IQ values collected in the last 30 minutes.
Average Throughput Last 30 mins	The average throughput executed for all volumes that have this node as their primary. Throughput is collected over 500 millisecond intervals on the cluster side. SolidFire Active IQ collects these values at 60 second intervals. For each volume, the average throughput is calculated from the SolidFire Active IQ values collected in the last 30 minutes.

Heading	Description
Average Latency (µs) Last 30 min	The average time in microseconds to complete read and write operations to all volumes that have this node as their primary. Latency is measured over 500 millisecond intervals on the cluster side. SolidFire Active IQ collects these values at 60 second intervals. For each volume, the average latency is calculated from the SolidFire Active IQ values collected in the last 30 minutes. For more information, see this KB article.
Snapshots	The number of snapshots created for the volume.
Actions	Select the vertical drop-down menu for more details on an individual volume.

View individual volume details

From the **Volumes** page, you can view more information for an individual volume.

Steps

1. Select **Volumes** > **Active Volumes**.
2. In the Actions column, select the ⋮ icon for the volume you want and select **View Details**.

After the page opens for the active volume, you can view recent volume data from the information bar.

Heading	Description
Account ID	System-generated ID for the volume.
Volume Size	Total size of the volume.
Used Capacity	Shows how full the volume is: • Green = up to 80% • Yellow = above 80% • Red = above 95%.
Average IOPS	Average number of IOPS executed against the volume in the last 30 minutes.
Average Throughput	Average throughput executed against the volume in the last 30 minutes.
Average Latency	The average time, in microseconds, to complete read and write operations to the volume in the last 30 minutes. For more information, see this KB article.
You can view additional details from the Show Volume Details drop-down menu.	
Access	The read/write permissions assigned to the volume.
Access Groups	Associated volume access groups.
Non-Zero Blocks	Total number of 4KiB blocks with data after the last round of garbage collection operation has completed.
Zero Blocks	Total number of 4KiB blocks without data after the last round of garbage collection operation has completed.
Snapshot Count	The number of associated snapshots.
Min IOPS	The minimum number of IOPS guaranteed for the volume.

Heading	Description
Max IOPS	The maximum number of IOPS allowed for the volume.
Burst IOPS	The maximum number of IOPS allowed over a short period of time.
512e Enabled	Identifies if 512e is enabled on a volume.
QoS Throttle	Identifies if the volume is being throttled due to high load on the primary storage node.
Primary Node ID	Primary node for this volume.
Secondary Node ID	List of secondary nodes for this volume. Can be multiple values during transitory states, like change of secondary nodes, but will usually have a single value.
Volumes Paired	Indicates if a volume has been paired or not.
Create Time	The time the volume creation task was completed.
Block Size	Size of the blocks on the volume.
IQN	The iSCSI Qualified Name (IQN) of the volume.
scsiEUIDeviceID	Globally unique SCSI device identifier for the volume in EUI-64 based 16-byte format.
scsiNAADeviceID	Globally unique SCSI device identifier for the volume in NAA IEEE Registered Extended format.
Attributes	List of Name/Value pairs in JSON object format.

View individual volume performance graphs

From the **Volumes** page, you can view performance activity for each volume in a graphical format. This information provides real-time statistics for throughput, IOPS, latency, queue depth, average IO size, and capacity for each volume.

Steps

1. Select **Volumes** > **Active Volumes**.
2. In the **Actions** column, select the ⋮ icon for the volume you want and select **View Details**.

   A separate page opens to display an adjustable timeline, which is synced with the performance graphs.

3. On the left, select a thumbnail graph to view performance graphs in detail. You can view the following graphs:
   - Throughput
   - IOPS
   - Latency
   - Queue Depth
   - Average IO Size
   - Capacity
4. (Optional) You can export each graph as a CSV file by selecting the  icon.

Find more information

NetApp Product Documentation

Snapshots and Snapshot Schedules

Learn about viewing information about snapshots and snapshot schedules:

- Snapshots
- Snapshot Schedules

Snapshots

From the **Volumes** page that is available from the side panel for a selected cluster, you can view information about volume snapshots.

Steps

1. Select **Volumes** > **Snapshots**.
2. Alternatively, select **Volumes** > **Active Volumes** and in the Actions column, select the ⋮ icon for the volume you want and select **View Snapshots**.
3. (Optional) You can export the snapshot list as a CSV file by selecting the  icon.

The following list describes the available details:

Heading	Description
ID	Displays the snapshot ID assigned to the snapshot.
Volume ID	ID given when the volume was created.
Account ID	ID of the account assigned to the volume.
UUID	Universally unique identifier.
Size	User-defined size of the snapshot.
Volume Size	Size of the volume from which the snapshot was created.
Create Time	The time at which the snapshot was created.
Retain Until	The day and time the snapshot will be deleted.
Group Snapshot ID	The group ID the snapshot belongs to if grouped together with other volume snapshots.
Replicated	Displays the status of the snapshot on the remote cluster: • Present: The snapshot exists on a remote cluster. • Not Present: The snapshot does not exist on a remote cluster. • Syncing: The target cluster is currently replicating the snapshot. • Deleted: The target replicated the snapshot and then deleted it.

Snapshot Schedules

From the **Volumes** > **Snapshot Schedules** page that is available from the side panel for a selected cluster, you can view snapshot schedule details.

You can export the snapshot schedule list as a CSV file by selecting the  icon.

The following list describes the available details:

Heading	Description
ID	The schedule ID assigned to the schedule.
Name	User-assigned name of the schedule.
Frequency	The frequency at which the schedule is run. The frequency can be set in hours and minutes, weeks, or months.
Recurring	Indicates whether or not the schedule is recurring.
Volume IDs	The volume IDs included in the scheduled snapshot.
Last Run	The last time the schedule executed.
Last Run Status	The outcome of the last schedule execution. Possible values: `Success` or `Error`
Manually Paused	Identifies whether or not the schedule has been manually paused.

Find more information

NetApp Product Documentation

Replication

The **Replication** page, available from the side panel for a selected cluster, provides information about cluster pairs and volumes pairs.

Learn more about the cluster pairs and volumes pairs pages:

- Cluster Pairs
- Volume Pairs

Cluster Pairs

On the **Replication** > **Cluster Pairs** page for a selected cluster, you can view the following information about cluster pairs.

Heading	Description
Cluster Pair ID	ID number given when the cluster pair was created.
Remote Cluster Name	Name of the remote cluster of the pair.
Remote MVIP	Management Virtual IP of the remote cluster.
Replicating Volumes	Represents the number of volumes that are replicated on the paired cluster.

Heading	Description
Status	State of the cluster pair.
UUID	Universally unique identifier.

Volume Pairs

On the **Replication** > **Volume Pairs** page for a selected cluster, you can view the following information about volume pairs.

Heading	Description
Volume ID	ID number given when the volume was created.
Account ID	ID of the account assigned to the volume.
Volume Status	State of the replicating volume.
Replication Mode	Type of mode selected for the volume pair.
Direction	Indicates the direction of the volume data: • Source: indicates data is being written to a target outside the cluster. • Target: indicates data is being written to the local volume from an outside source.
Async Delay	Length of time since the volume was last synced with the remote cluster. If the volume is not paired, this is null. A target volume in an active replication state always has an Async Delay of 0 (zero). Target volumes are system-aware during replication and assume async delay is accurate at all times.
Remote Cluster	Name of the remote cluster on which the volume resides.
Remote Volume ID	Volume ID of the volume on the remote cluster.

Find more information

NetApp Product Documentation

Virtual Volumes

From the **VVols page**, available from the side panel for a selected cluster, you can view information about virtual volumes and their associated storage containers, protocol endpoints, bindings, and hosts.

Learn about VVols-related tasks:

- Virtual Volumes

- Storage Containers
- Protocol Endpoints
- Hosts
- Bindings

Virtual Volumes

The **VVols** > **Virtual Volumes** page for a selected cluster provides information about each active virtual volume on the cluster.

Heading	Description
Volume ID	The ID of the underlying volume.
Snapshot ID	The ID of the underlying volume snapshot. The value is zero if the virtual volume does not represent a snapshot.
Parent Virtual Volume ID	The virtual volume ID of the parent virtual volume. If the ID is all zeros, the virtual volume is independent with no link to a parent.
Virtual Volume ID	The universal unique identifier of the virtual volume.
Name	The name assigned to the virtual volume.
Guest OS Type	Operating system associated with the virtual volume.
Type	The virtual volume type: Config, Data, Memory, Swap, or Other.
Access	The read/write permissions assigned to the virtual volume.
Size	The size of the virtual volume in gigabytes (GB) or gibibytes (GiB).
Used Capacity	Current used capacity of the volume: • Green = up to 80% • Yellow = above 80% • Red = above 95%
Snapshot	The number of associated snapshots. Select the number to link to the snapshot copy details.
Min IOPS	The minimum IOPS QoS setting of the virtual volume.
Max IOPS	The maximum IOPS QoS setting of the virtual volume.
Burst IOPS	The maximum burst QoS setting of the virtual volume.
VMW_VmID	Information in fields prefaced with "VMW_" are defined by VMware. See VMware documentation for descriptions.
Create Time	The time the virtual volume creation task was completed.
Actions	Select the vertical drop-down menu for more details on an individual virtual volume.

Storage Containers

On the **VVols** > **Storage Containers** page for a selected cluster, you can view the following information for all active storage containers on the cluster.

Heading	Description
Account ID	The ID of the account associated with the storage container.
Name	The name of the storage container.
Status	The status of the storage container: • Active: The storage container is in use. • Locked: The storage container is locked.
PE Type	Indicates the protocol endpoint type (SCSI is the only available protocol for Element software).
Storage Container ID	The universal unique identifier (UUID) of the virtual volume storage container.
Active Virtual Volumes	The number of active virtual volumes associated with the storage container.

Protocol Endpoints

The **VVols** > **Protocol Endpoints** page of the selected cluster provides protocol endpoint information such as primary provider ID, secondary provider ID, and protocol endpoint ID.

Heading	Description
Primary Provider ID	The ID of the primary protocol endpoint provider.
Secondary Provider ID	The ID of the secondary protocol endpoint provider.
Protocol Endpoint ID	The UUID of the protocol endpoint.
Protocol Endpoint State	The status of the protocol endpoint: • Active: The protocol endpoint is in use. • Start: The protocol endpoint is starting. • Failover: The protocol endpoint has failed over. • Reserved: The protocol endpoint is reserved.
Provider Type	The type of the protocol endpoint's provider: Primary or Secondary.
SCSI NAA Device ID	The globally unique SCSI device identifier for the protocol endpoint in NAA IEEE Registered Extended Format.

Hosts

The **VVols** > **Hosts** page for a selected cluster provides information about VMware ESXi hosts that host virtual volumes.

Heading	Description
Host ID	The UUID for the ESXi host that hosts virtual volumes and is known to the cluster.
Bindings	Binding IDs for all virtual volumes bound by the ESXi host.
ESX Cluster ID	The vSphere host cluster ID or vCenter GUID.
Initiator IQNs	Initiator IQNs for the virtual volume host.
SolidFire Protocol Endpoint IDs	The protocol endpoints that are currently visible to the ESXi host.

Bindings

The **VVols** > **Bindings** page for a selected cluster provides binding information about each virtual volume.

Heading	Description
Host ID	The UUID for the ESXi host that hosts virtual volumes and is known to the cluster.
Protocol Endpoint ID	The UUID of the protocol endpoint.
Protocol Endpoint In Band ID	The SCSI NAA device ID of the protocol endpoint.
Protocol Endpoint Type	Indicates the protocol endpoint type (SCSI is the only available protocol for Element software).
VVol Binding ID	The binding UUID of the virtual volume.
VVol ID	The UUID of the virtual volume.
VVol Secondary ID	The secondary ID of the virtual volume that is a SCSI second level LUN ID.

Find more information

NetApp Product Documentation

QoS Management

QoS Management

From the **QoS Management** page, available from the side panel for a selected cluster, you can view information on QoS recommendations and throttling for the nodes in a cluster.

Learn about viewing information on QoS recommendations and throttling for a selected node:

- Recommendations
- Node Throttling

Find more information

NetApp Product Documentation

Recommendations

The **QoS Management** > **Recommendations** page, available from the side panel for a selected cluster, provides daily quality of service (QoS) recommendations for a cluster based on recent performance data. QoS recommendations are only supported for clusters on Element software 11.x or later.

SolidFire Active IQ makes performance recommendations based on volume statistics data for recent activity. Recommendations focus on QoS maximum and minimum guaranteed IOPS for a volume and are only visible in the UI when cluster improvements might be needed.

Find more information

- Performance and QoS for a SolidFire storage cluster
- Create and manage volume QoS policies
- NetApp Product Documentation

Node Throttling

From the **QoS Management** > **Node Throttling** page, available from the side panel for a selected cluster, you can view the percent throttling for the nodes in the cluster. The nodes are listed as thumbnail layouts on the left side of the display and are ordered depending on the degree of throttling for a selected time range.

Learn about viewing node throttling information:

- View graphs and select date ranges
- Export node throttling data

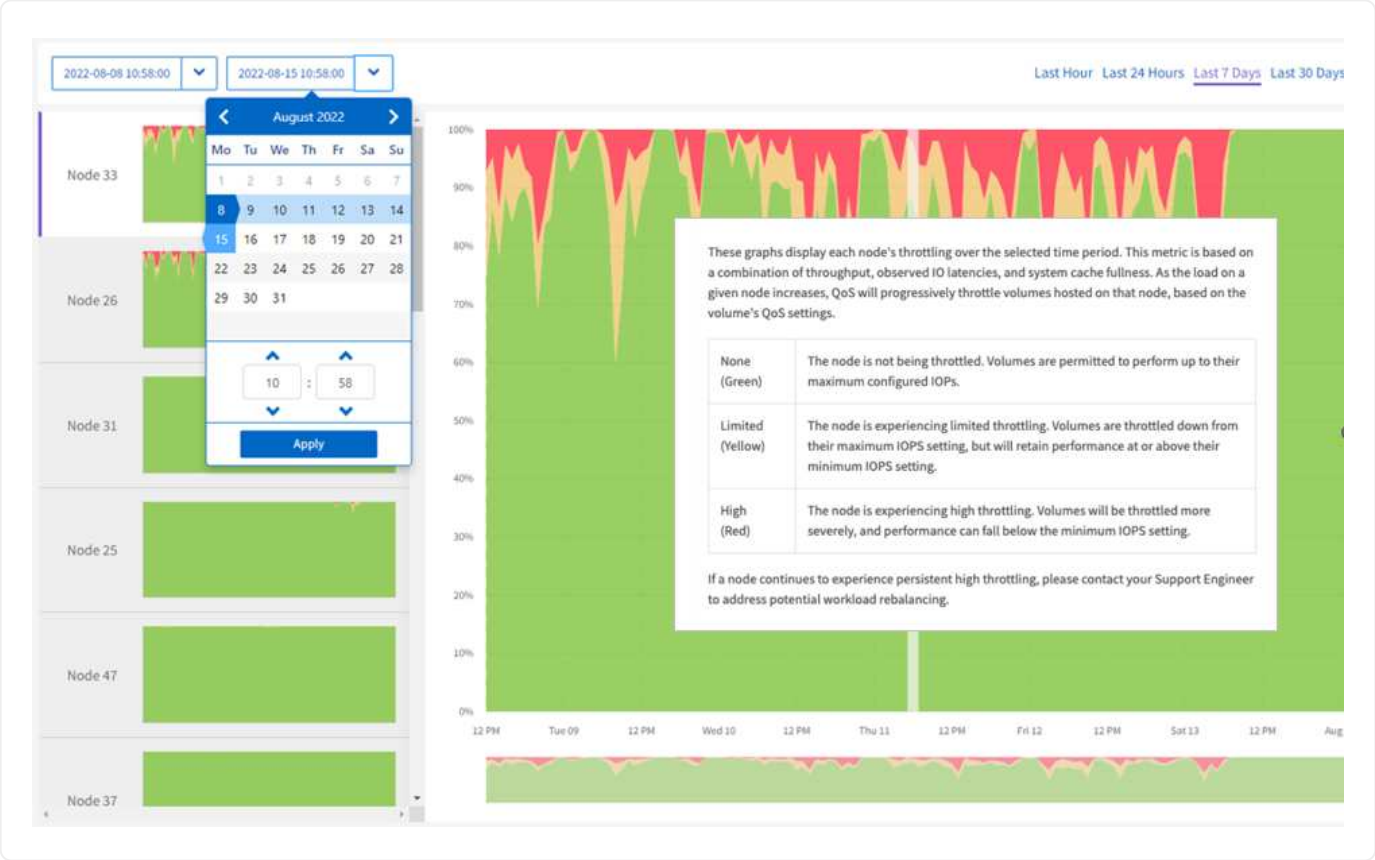
View graphs and select date ranges

The graphs and date ranges in SolidFire Active IQ are seamlessly integrated with each other. When selecting a date range, all graphs on that page adjust to the range selected. The default date range displayed for each graph is seven days.

You can select a date range from the calendar drop-down box or from a set of pre-defined ranges. Date ranges are calculated using the current browser time (at the time of selection) and the configured amount of time. Additionally, you can select a desired interval by brushing directly over the bar graph at the bottom. You can switch between graphs by selecting the thumbnail layouts on the left.

The graphs display node throttling over the selected time period based on the minimum and maximum IOPS settings for the volumes hosted on the selected node. The color represents the amount of throttling: green (none), yellow (limited), or red (high). For more information, see the following graph example:

Expand the graph example



Position the mouse pointer at any point in the graph to see point-in-time details.

Learn about QoS recommendations for a cluster.

> From the Node Throttling page, you can determine if there is QoS pushback in a storage cluster, see this KB article for information.

Export node throttling data

You can export graph data to a comma-separated values (CSV) format. Only the information displayed in the graph is exported.

Steps

1. In a list view or graph, select the icon.

Find more information

NetApp Product Documentation

Virtual Machines

From the **Virtual Machines** page, available from the side panel for a selected NetApp HCI cluster, you can view CPU and storage-related status information about virtual machines (VMs).

The **Virtual Machines** page is available only on a NetApp HCI cluster.

Learn about filtering and understanding VM data displayed in the UI.

View Virtual Machine details

The **Virtual Machines** page, available from the side panel for a selected cluster, provides information about each active VM associated with the cluster.

In addition to conventional filtering options that are available on all SolidFire Active IQ pages, the **Virtual Machines** page has quick filter buttons that you can select to determine common VM states of availability.

The information bar provides a quick overview of the following data:

- Virtual Machines: The number and various availability states of VMs associated with the storage cluster.
- Status: The number of warnings or errors for the VMs.
- Provisioned Resources: The total storage and memory resources for all VMs associated with the storage cluster.

Heading	Description
Name	The friendly name of the VM.
Status	The availability status of the VM: • Normal: The VM is responding as expected. • Warning: A warning has been reported. See vSphere for more details. • Critical: A critical error has been reported. See vSphere for more details. • Unknown: The VM is inaccessible.
Power State	Indicates whether the VM is powered on, powered off, or suspended.
vCenter IP	IP address of the vCenter Server.
Number of CPUs	The number of CPUs for each VM.
Host Memory Usage	The amount of ESXi host memory that is being used by a virtual machine.
CPU Usage	The percentage of actively used virtual CPU as a percentage of total available CPU in the VM.
Used Capacity	The percentage of VM storage resources in use.
Peak Disk Latency	The maximum detected disk latency in milliseconds.
Alarms	The number of triggered vSphere alarms on the VM.

Find more information

NetApp Product Documentation

VMware Alarms

From the **VMware Alarms** page, available from the side panel for a selected NetApp HCI cluster, you can view the VMware alarms related information about a cluster.

The **VMware Alarms** page is available only on a NetApp HCI cluster.

Learn about the VMware alarms data displayed in the UI.

Heading	Description
vCenter IP	IP address of the vCenter Server.
Entity ID	The ID of the object in vSphere where the alarm originated.
Status	Severity of the VMware alarm.
Alarm Name	Name of the VMware alarm.
Description	Description of the VMware alarm.
Trigger Time	The time the alert was triggered in SolidFire Active IQ, not on the cluster itself.

Find more information

NetApp Product Documentation

All Nodes View

You can view information about all nodes for a company, including throttled nodes, when you select the company name from the **All Nodes View** drop-down list. After you select the company name, it replaces **All Nodes View** in the top navigation bar.

If your SolidFire Active IQ account has only one company name associated with it, the **All Nodes** and **Throttled Nodes** pages, available from the side panel, default to that company name.

Learn more about the All Nodes and Throttled Nodes pages:

- View information about all nodes
- View information about throttled nodes

View information about all nodes

On the **All Nodes** page, available from the side panel, you can view information about all nodes for your selected company.

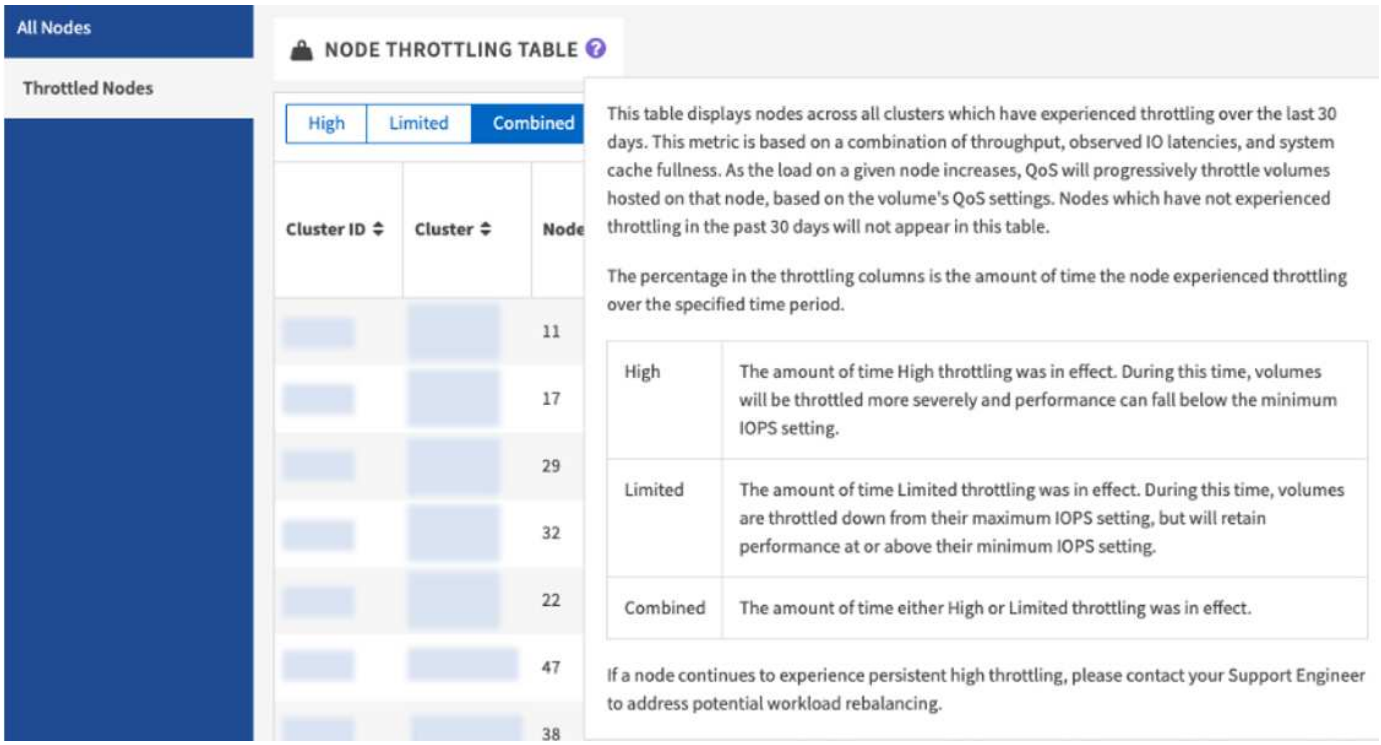
Heading	Description
Cluster ID	Assigned cluster number when the cluster is created.
Cluster	Name assigned to the cluster.

Heading	Description
Node ID	System-generated ID for the node.
Status	The status of the node: • Healthy: The node has no critical errors associated with it. • Offline: The node cannot be accessed. Select the link to view the Error Log. • Fault: There are errors associated with this node. Select the link to view the Error Log.
Name	The system-generated node name.
Type	Shows the model type of the node.
Serial Number	Unique serial number assigned to the node.
Version	Version of Element software running on the node.
Management IP	Management IP address assigned to node for 1GbE or 10GbE network admin tasks.
Storage IP	Storage IP address assigned to the node used for iSCSI network discovery and all data network traffic.
Role	Identifies what role the node has in the cluster: • Cluster Master: The node that performs cluster-wide administrative tasks and contains the management virtual IP address and storage virtual IP address. • Ensemble Node: A node that participates in the cluster. There are either three or five ensemble nodes depending on cluster size. • Fibre Channel: An FC node in the cluster. • If a node does not have a role, the value is set to - (dash).

View information about throttled nodes

On the **Throttled Nodes** page, available from the side panel, you can view information for all nodes with throttling greater than 1% in the last 30 days for your selected company.

You have the option to view nodes with a **High**, **Limited**, or **Combined** (high and limited) throttling time. You can also view descriptions for the node throttling table and the high, limited, and combined throttling options by selecting the  icon, as shown in the following example:



Learn more about the information available for throttled nodes.

Heading	Description
Cluster ID	Assigned cluster number when the cluster is created.
Cluster	Name assigned to the cluster.
Node ID	System-generated ID for the node.
Name	The system-generated node name.
Type	Shows the model type of the node.
Version	Version of Element software running on the node.
High throttling time view	
High Throttle Last 24 hours	The percentage of high node throttling in the last 24 hours.
High Throttle Last 7 days	The percentage of high node throttling in the last 7 days.
High Throttle Last 14 days	The percentage of high node throttling in the last 14 days.
High Throttle Last 30 days	The percentage of high node throttling in the last 30 days.
Limited throttling time view	
Limited Throttle Last 24 hours	The percentage of limited node throttling in the last 24 hours.
Limited Throttle Last 7 days	The percentage of limited node throttling in the last 7 days.

Heading	Description
Limited Throttle Last 14 days	The percentage of limited node throttling in the last 14 days.
Limited Throttle Last 30 days	The percentage of limited node throttling in the last 30 days.
Combined throttling time view	
Combined Throttle Last 24 hours	The percentage of combined node throttling in the last 24 hours.
Combined Throttle Last 7 days	The percentage of combined node throttling in the last 7 days.
Combined Throttle Last 14 days	The percentage of combined node throttling in the last 14 days.
Combined Throttle Last 30 days	The percentage of combined node throttling in the last 30 days.
Average Throughput Last 30 mins	Sum of average throughputs executed in the last 30 minutes against all volumes that have this node as their primary.
Average IOPS Last 30 mins	Sum of the average number of IOPS executed in the last 30 minutes against all volumes that have this node as their primary.
Average Latency (µs) Last 30 mins	The average time in microseconds, as measured over the last 30 minutes, to complete read and write operations to all volumes that have this node as their primary. To report this metric based on active volumes, only non-zero latency values are used.

Find more information

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