Select a cluster

SolidFire Active IQ

NetApp
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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

Find more information

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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.

Heading	Description
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.

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