



Introduction to Active IQ Unified Manager health monitoring

Active IQ Unified Manager

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Introduction to Active IQ Unified Manager health monitoring

Active IQ Unified Manager (formerly OnCommand Unified Manager) helps you to monitor a large number of systems running ONTAP software through a centralized user interface. The Unified Manager server infrastructure delivers scalability, supportability, and enhanced monitoring and notification capabilities.

The key capabilities of Unified Manager include monitoring, alerting, managing availability and capacity of clusters, managing protection capabilities, and bundling of diagnostic data and sending it to technical support.

You can use Unified Manager to monitor your clusters. When issues occur in the cluster, Unified Manager notifies you about the details of such issues through events. Some events also provide you with a remedial action that you can take to rectify the issues. You can configure alerts for events so that when issues occur, you are notified through email, and SNMP traps.

You can use Unified Manager to manage storage objects in your environment by associating them with annotations. You can create custom annotations and dynamically associate clusters, storage virtual machines (SVMs), and volumes with the annotations through rules.

You can also plan the storage requirements of your cluster objects using the information provided in the capacity and health charts, for the respective cluster object.

Physical and logical capacity

Unified Manager makes use of the concepts of physical and logical space used for ONTAP storage objects.

- **Physical capacity:** Physical space refers to the physical blocks of storage used in the volume. “Physical used capacity” is typically smaller than logical used capacity due to the reduction of data from storage efficiency features (such as deduplication and compression).
- **Logical capacity:** Logical space refers to the usable space (the logical blocks) in a volume. Logical space refers to how theoretical space can be used, without accounting for results of deduplication or compression. “Logical space used” is physical space used plus the savings from storage efficiency features (such as deduplication and compression) that have been configured. This measurement often appears larger than the physical used capacity because this does not reflect the data compression and other reductions in the physical space. Thus, the total logical capacity could be higher than the provisioned space.

Capacity measurement units

Unified Manager calculates storage capacity based on binary units of 1024 (2^{10}) bytes. In ONTAP 9.10.0 and earlier, these units were displayed as KB, MB, GB, TB, and PB. Beginning with ONTAP 9.10.1, they are displayed in Unified Manager as KiB, MiB, GiB, TiB, and PiB.



The units used for throughput continue to be kilobytes per second (Kbps), Megabytes per second (Mbps), Gigabytes per second (Gbps), or Terabytes per second (Tbps) and so forth, for all releases of ONTAP.

Capacity unit displayed in Unified Manager for ONTAP 9.10.0 and earlier	Capacity unit displayed in Unified Manager for ONTAP 9.10.1	Calculation	Value in bytes
KB	KiB	1024	1024 bytes
MB	MiB	1024 * 1024	1,048,576 bytes
GB	GiB	1024 * 1024 * 1024	1,073,741,824 bytes
TB	TiB	1024 * 1024 * 1024 * 1024	1,099,511,627,776 bytes

Unified Manager health monitoring features

Unified Manager is built on a server infrastructure that delivers scalability, supportability, and enhanced monitoring and notification capabilities. Unified Manager supports monitoring of systems running ONTAP software.

Unified Manager includes the following features:

- Discovery, monitoring, and notifications for systems that are installed with ONTAP software:
 - Physical objects: nodes, disks, disk shelves, SFO pairs, ports, and Flash Cache
 - Logical objects: clusters, storage virtual machines (SVMs), aggregates, volumes, LUNs, namespaces, qtrees, LIFs, Snapshot copies, junction paths, NFS shares, SMB shares, user and group quotas, QoS policy groups, and initiator groups
 - Protocols: CIFS, NFS, FC, iSCSI, NVMe, and FCoE
 - Storage efficiency: SSD aggregates, Flash Pool aggregates, FabricPool aggregates, deduplication, and compression
 - Protection: SnapMirror relationships (synchronous and asynchronous) and SnapVault relationships
- Viewing the cluster discovery and monitoring status
- MetroCluster over FC and IP configurations: viewing and monitoring the configuration, issues, and connectivity status of the cluster components. MetroCluster switches and bridges for MetroCluster over FC configurations
- Enhanced alerts, events, and threshold infrastructure
- LDAP, LDAPS, SAML authentication, and local user support
- RBAC (for a predefined set of roles)
- AutoSupport and support bundle
- Enhanced dashboard to show capacity, availability, protection, and performance health of the environment
- Volume move interoperability, volume move history, and junction path change history
- Scope of Impact area that graphically displays the resources that are impacted for events such as Some Failed Disks, MetroCluster Aggregate Mirroring Degraded, and MetroCluster Spare Disks Left Behind events

- Possible Effect area that displays the effect of the MetroCluster events
- Suggested Corrective Actions area that displays the actions that can be performed to address events such as Some Failed Disks, MetroCluster Aggregate Mirroring Degraded, and MetroCluster Spare Disks Left Behind events
- Resources that Might be Impacted area that displays the resources that might be impacted for events such as for the Volume Offline event, the Volume Restricted event, and the Thin-Provisioned Volume Space At Risk event
- Support for SVMs with FlexVol or FlexGroup volumes
- Support for monitoring node root volumes
- Enhanced Snapshot copy monitoring, including computing reclaimable space and deleting Snapshot copies
- Annotations for storage objects
- Report creation and management of storage object information such as physical and logical capacity, utilization, space savings, performance, and related events
- Integration with OnCommand Workflow Automation to execute workflows

The Storage Automation Store contains NetApp-certified automated storage workflow packs developed for use with OnCommand Workflow Automation (WFA). You can download the packs, and then import them to WFA to execute them. The automated workflows are available here:

[Storage Automation Store](#)

Unified Manager interfaces used to manage storage system health

These sections contain information about the two user interfaces that Active IQ Unified Manager provides for troubleshooting data storage capacity, availability, and protection issues. The two UIs are the Unified Manager web UI and the maintenance console.

If you want to use the protection features in Unified Manager, you must also install and configure OnCommand Workflow Automation (WFA).

Unified Manager web UI

The Unified Manager web UI enables an administrator to monitor and troubleshoot cluster issues relating to data storage capacity, availability, and protection.

These sections describe some common workflows that an administrator can follow to troubleshoot storage capacity, data availability, or protection issues displayed in the Unified Manager web UI.

Maintenance console

The Unified Manager maintenance console enables an administrator to monitor, diagnose, and address operating system issues, version upgrade issues, user access issues, and network issues related to the Unified Manager server itself. If the Unified Manager web UI is unavailable, the maintenance console is the only form of access to Unified Manager.

You can use this information for accessing the maintenance console and using it to resolve issues related to

the functioning of the Unified Manager server.

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