NetApp

Descriptions of the Performance inventory pages

Active IQ Unified Manager 9.9

NetApp
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Descriptions of the Performance inventory pages

You use the Performance inventory pages to see a summary of performance information about each of the available storage objects, such as clusters, aggregates, volumes, and so on. You can link to the Performance object detail pages to view detailed information for a particular object.

Performance: All Clusters view

The Performance: All Clusters view displays an overview of the performance events, data, and configuration information for each cluster that is monitored by an instance of Unified Manager. This page enables you to monitor the performance of your clusters, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

See Cluster performance fields for descriptions of all the fields on this page.

Cluster performance fields

The following fields are available in the Performance: All Clusters view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon ( ). If the object has an active event, the event indicator icon identifies the event severity: critical events are red ( ), error events are orange ( ), and warning events are yellow ( ).

- **Cluster**

  The name of the cluster. You can click the cluster name to navigate to that cluster's performance details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **IOPS**

  The input/output operations per second on the cluster.

- **MB/s**

  The throughput on the cluster, measured in megabytes per second.

- **Free Capacity**

  The unused storage capacity for this cluster, in gigabytes.

- **Total Capacity**

  The total storage capacity for this cluster, in gigabytes.

- **Node Count**

  The number of nodes in the cluster. You can click the number to navigate to the Performance: All Nodes view.

- **Host Name or IP Address**

  The host name or IP address (IPv4 or IPv6) of the cluster management LIF.

- **Serial #**

  The unique identification number of the cluster.

- **OS Version**

  The version of ONTAP software that is installed on the cluster.

  > ⓘ If different versions of ONTAP software are installed on the nodes in the cluster, the lowest version number is listed. You can view the ONTAP version that is installed on each node from the Performance: All Nodes view.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Nodes view

The Performance: All Nodes view displays an overview of the performance events, data, and configuration information for each node that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the performance of your nodes, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed

first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

In the **Reports** menu, the **Hardware Inventory Report** option is provided when Unified Manager, and the clusters it is managing, are installed in a site with no external network connectivity. This button generates a `.csv` file that contains a complete list of cluster and node information; such as hardware model numbers and serial numbers, disk types and counts, installed licenses, and more. This reporting functionality is helpful for contract renewal within secure sites that are not connected to the NetAppActive IQ platform.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

See Node performance fields for descriptions of all the fields on this page.

Node performance fields

The following fields are available in the Performance: All Nodes view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon (). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (), error events are orange (), and warning events are yellow ().

- **Node**

  The name of the node. You can click the node name to navigate to that node's performance details page.

- **Latency**

  The average response time for all I/O requests on the node, expressed in milliseconds per operation.

- **IOPS**

  The average input/output operations per second on the node.

- **MB/s**

  The throughput on the node, measured in megabytes per second.

- **Flash Cache Reads**

  The percentage of read operations on the node that are satisfied by cache, instead of being returned from the disk.

(i) Flash Cache data is displayed only for nodes, and only when a Flash Cache module is installed in the node.

- **Performance Capacity Used**

  The percentage of performance capacity that is being consumed by the node.

- **Utilization**

  Indicates whether the CPU or memory on the node is being overused.

- **Available IOPS**

  The number of input/output operations per second that are currently available (free) on this node for additional workloads.

- **Free Capacity**

  The unused storage capacity of the node, in gigabytes.

- **Total Capacity**

  The total storage capacity of the node, in gigabytes.

- **Cluster**

  The cluster to which the node belongs. You can click the cluster's name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Aggregates view

The Performance: All Aggregates view displays an overview of the performance events, data, and configuration information for each aggregate that is monitored by an instance of Unified Manager. This page enables you to monitor the performance of your aggregates, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity,

and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

> ⓘ Root aggregates are not displayed on this page.

See Aggregate performance fields for descriptions of all the fields on this page.

Aggregate performance fields

The following fields are available in the Performance: All Aggregates view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon (✅). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (❌), error events are orange (🟠), and warning events are yellow (⚠️).

- **Aggregate**

  You can click the aggregate name to navigate to that aggregate's performance details page.

- **Type**

  The type of aggregate:

  - HDD
  - Hybrid

    Combines HDDs and SSDs, but Flash Pool has not been enabled.

  - Hybrid (Flash Pool)

    Combines HDDs and SSDs, and Flash Pool has been enabled.

  - SSD
  - SSD (FabricPool)

    Combines SSDs and a cloud tier

  - HDD (FabricPool)

    Combines HDDs and a cloud tier

  - VMDisk (SDS)

    Virtual disks within a virtual machine

◦ VMDisk (FabricPool)

Combines virtual disks and a cloud tier

◦ LUN (FlexArray)

- **Latency**

  The average response time for all I/O requests on the aggregate, expressed in milliseconds per operation.

- **IOPS**

  The input/output operations per second on the aggregate.

- **MB/s**

  The throughput on the aggregate, measured in megabytes per second.

- **Performance Capacity Used**

  The percentage of performance capacity that is being used by the aggregate.

- **Utilization**

  The percentage of the aggregate's disks that are currently being used.

- **Available IOPS**

  The number of input/output operations per second that are currently available (free) on this aggregate for additional workloads.

- **Free Capacity**

  The unused storage capacity for this aggregate, in gigabytes.

- **Total Capacity**

  The total storage capacity for this aggregate, in gigabytes.

- **Inactive Data Reporting**

  Whether the inactive data reporting capability is enabled or disabled on this aggregate. When enabled, volumes on this aggregate display the amount of cold data in the Performance: All Volumes view.

  The value in this field is "N/A" when the version of ONTAP does not support inactive data reporting.

- **Cluster**

  The cluster to which the aggregate belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Node**

The node to which the aggregate belongs. You can click the node name to navigate to that node's details page.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Storage VMs view

The Performance: All Storage VMs view displays an overview of the performance events, data, and configuration information for each storage virtual machine (SVM) that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the performance of your SVMs, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

> The SVMs that are listed on this page include only Data and Cluster SVMs. Unified Manager does not use or display Admin or Node SVMs.

See SVM performance fields for descriptions of all the fields on this page.

Storage VM performance fields

The following fields are available in the Performance: All Storage VMs view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon ( ). If the object has an active event, the event indicator icon identifies the event severity: critical events are red ( ), error events are orange ( ), and warning events are yellow ( ).

- **Storage VM**

You can click the SVM name to navigate to that SVM's performance details page.

- **Latency**

  The average response time for all I/O requests, expressed in milliseconds per operation.

- **IOPS**

  The input/output operations per second for the SVM.

- **MB/s**

  The throughput on the SVM, measured in megabytes per second.

- **Free Capacity**

  The unused storage capacity of the SVM, in gigabytes.

- **Total Capacity**

  The total storage capacity of the SVM, in gigabytes.

- **Cluster**

  The cluster to which the SVM belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Volumes view

The Performance: All Volumes view displays an overview of the performance events, counter data, and configuration information for each FlexVol volume and FlexGroup volume that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the performance of your volumes, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed

data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

If you want to analyze the latency and throughput of a specific object, click the more icon ⋮ , then **Analyze Workload** and you can view performance and capacity charts on the Workload Analysis page.

ⓘ | For data protection (DP) volumes, only counter values for user-generated traffic are displayed.

ⓘ | Root volumes are not displayed on this page.

See Volume performance fields for descriptions of all the fields on this page.

Performance: Volumes in QoS Policy Group view

The Performance: Volumes in QoS Policy Group view displays an overview of the performance events, data, and configuration information for each volume that has a QoS policy assigned to it. This includes traditional QoS policies, adaptive QoS policies, and QoS policies assigned using performance service levels (PSLs).

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

If you want to analyze the latency and throughput of a specific object, click the more icon ⋮ , then **Analyze Workload** and you can view performance and capacity charts on the Workload Analysis page.

See Volume performance fields for descriptions of all the fields on this page.

Volume performance fields

The following fields are available in the Performance: All Volumes view and can be used in custom views and in reports.

- **Status**

A healthy object with no active events displays a green check mark icon (✓). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (✕), error events are orange (❗), and warning events are yellow (⚠).

- **Volume**

  The volume name. You can click the volume name to navigate to the volume's performance details page.

- **Style**

  The style of volume; either FlexVol or FlexGroup.

- **Latency**

  For FlexVol volumes, this is the average response time of the volume for all I/O requests, expressed in milliseconds per operation. For FlexGroup volumes, this is the average latency of all constituent volumes.

- **IOPS**

  For FlexVol volumes, this is the number of input/output operations per second for the volume. For FlexGroup volumes, this is the sum of IOPS for all constituent volumes.

- **MB/s**

  For FlexVol volumes, this is the throughput on the volume, measured in megabytes per second. For FlexGroup volumes, this is the sum of MB/s for all constituent volumes.

- **IOPS/TB**

  The number of input/output operations processed per second based on the total space that is being consumed by the workload, in terabytes. This counter measures how much performance can be delivered by a given amount of storage capacity.

- **Free Capacity**

  The unused storage capacity of the volume, expressed in gigabytes.

- **Total Capacity**

  The total storage capacity of the volume, expressed in gigabytes.

- **QoS Policy Group**

  The name of the QoS Policy Group that is assigned to the volume. You can click the policy group name to navigate to the QoS details page to learn more about the policy group settings.

- **Tiering Policy**

  The tiering policy set on the volume. The policy takes affect only when the volume is deployed on a FabricPool aggregate. The available policies are:

  - None. The data for this volume always remains on the performance tier.
  - Snapshot Only. Only Snapshot data is moved automatically to the cloud tier. All other data remains on the performance tier.
  - Backup. On data protection volumes, all transferred user data starts in the cloud tier, but later client

reads can cause hot data to move back to the performance tier.

- ◦ Auto. Data on this volume is moved between the performance tier and the cloud tier automatically when ONTAP determines that the data is "hot" or "cold".

- ◦ All. The data for this volume always remains on the cloud tier.

- **Cold Data**

  The size of the user data stored on the volume that is inactive (cold).

  The value is listed as "N/A" in the following situations:

  - ◦ When "inactive data reporting" is disabled on the aggregate on which the volume resides.

  - ◦ When "inactive data reporting" is enabled, but the minimum number of days for collecting data has not been reached.

  - ◦ When using the "backup" tiering policy, or when using a version of ONTAP prior to 9.4 (when inactive data reporting is not available).

- **Cloud Recommendation**

  Unified Manager runs capacity analysis on each volume to determine if you can improve your storage system's disk utilization and save space on the performance tier by moving inactive (cold) data to the cloud tier. When the recommendation is "Tier", hover your cursor over the word **Tier** to view the recommendation. Possible recommendations are:

  - ◦ Learning. Not enough data has been collected to make a recommendation.

  - ◦ Tier. Analysis has determined that the volume contains inactive (cold) data and that you should configure the volume to move that data to the cloud tier.

  - ◦ No Action. Either the volume has very little inactive data, or the volume is already set to the "auto" or "all" tiering policy, or the version of ONTAP does not support FabricPool. If you are logged in to Unified Manager with the Application Administrator or Storage Administrator role, when you hover your cursor over the word **Tier** the **Configure Volume** link is available to launch System Manager so you can make the recommended change.

- **Cluster**

  The cluster to which the volume belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Node**

  The name of the node on which the FlexVol volume resides, or the number of nodes on which the FlexGroup volume resides.

  For FlexVol volumes, you can click the name to display node details in the Node details page. For FlexGroup volumes, you can click the number to display the nodes that are used in the FlexGroup in the Nodes inventory page.

- **Storage VM**

  The storage virtual machine (SVM) to which the volume belongs. You can click the SVM name to navigate

to that SVM's details page.

- **Aggregate**

  The name of the aggregate on which the FlexVol volume resides, or the number of aggregates on which the FlexGroup volume resides.

  For FlexVol volumes, you can click the name to display aggregate details in the Aggregate details page. For FlexGroup volumes, you can click the number to display the aggregates that are used in the FlexGroup in the Aggregates inventory page.

- **Disk Types**

  Displays the type of disk on which the volume resides.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

- **QoS Policy Group**

  The name of the QoS Policy Group that is assigned to the volume. You can click the policy group name to navigate to the QoS details page to learn more about the policy group settings.

Performance: All LUNs view

The Performance: All LUNs view displays an overview of the performance events, data, and configuration information for each LUN that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the performance of your LUNs, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

If you want to analyze the latency and throughput of a specific object, click the more icon ⋮ , then **Analyze Workload** and you can view performance and capacity charts on the Workload Analysis page.

See LUN performance fields for descriptions of all the fields on this page.

Performance: LUNs in QoS Policy Group view

The Performance: LUNs in QoS Policy Group view displays an overview of the performance events, data, and configuration information for each volume that has a QoS policy assigned to it. This includes traditional QoS policies, adaptive QoS policies, and QoS policies assigned by NetApp Service Level Manager (SLM).

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

If you want to analyze the latency and throughput of a specific object, click the more icon ⋮ , then **Analyze Workload** and you can view performance and capacity charts on the Workload Analysis page.

See LUN performance fields for descriptions of all the fields on this page.

LUN performance fields

The following fields are available in the Performance: All LUNs view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon (✓). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (✗), error events are orange (!), and warning events are yellow (⚠).

- **LUN**

  You can click the LUN name to navigate to that LUN's performance details page.

- **Latency**

  The average response time for all I/O requests, expressed in milliseconds per operation.

- **IOPS**

  The input/output operations per second for the LUN.

- **MB/s**

  The throughput on the LUN, measured in megabytes per second.

- **Free Capacity**

  The unused storage capacity of the LUN, in gigabytes.

- **Total Capacity**

  The total storage capacity of the LUN, in gigabytes.

- **Cluster**

  The cluster to which the LUN belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Node**

  The node to which the LUN belongs. You can click the node name to navigate to that node's details page.

- **Storage VM**

  The storage virtual machine (SVM) to which the LUN belongs. You can click the SVM name to navigate to that SVM's details page.

- **Aggregate**

  The aggregate to which the LUN belongs. You can click the aggregate name to navigate to that aggregate's details page.

- **Volume**

  The volume to which the LUN belongs. You can click the volume name to navigate to that volume's details page.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

- **QoS Policy Group**

  The name of the QoS Policy Group that is assigned to the LUN. You can click the policy group name to navigate to the QoS details page to learn more about the policy group settings.

Performance: All NVMe Namespaces view

The Performance: All NVMe Namespaces view displays an overview of the performance events, data, and configuration information for each NVMe Namespace that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the

performance and health of your Namespaces, and to troubleshoot issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

See NVMe Namespace performance fields for descriptions of all the fields on this page.

NVMe Namespace performance fields

The following fields are available in the Performance: All NVMe Namespaces view and can be used in custom views and in reports.

- **Subsystem**

  The subsystem of the Namespace.

- **Status**

  A healthy object with no active events displays a green check mark icon ( ). If the object has an active event, the event indicator icon identifies the event severity: critical events are red ( ), error events are orange ( ), and warning events are yellow ( ).

- **Namespace**

  You can click the Namespace name to navigate to that Namespace's performance details page.

- **State**

  The current state of the Namespace.

  - Offline - Read or write access to the Namespace is not allowed.
  - Online - Read and write access to the Namespace is allowed.
  - NVFail - The Namespace was automatically taken offline due to an NVRAM failure.
  - Space Error - The Namespace has run out of space.

- **Storage VM**

  The storage virtual machine (SVM) to which the Namespace belongs. You can click the SVM name to navigate to that SVM's details page.

- **Cluster**

The cluster to which the Namespace belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Volume**

  The volume to which the Namespace belongs. You can click the volume name to navigate to that volume's details page.

- **Total Capacity**

  The total storage capacity of the Namespace, in gigabytes.

- **Free Capacity**

  The unused storage capacity of the Namespace, in gigabytes.

- **IOPS**

  The input/output operations per second for the Namespace.

- **Latency**

  The average response time for all I/O requests on the Namespace, expressed in milliseconds per operation.

- **MB/s**

  The throughput on the Namespace, measured in megabytes per second.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Network Interfaces view

The Performance: All Network Interfaces view displays an overview of the performance events, data, and configuration information for each network interface (LIF) that is being monitored by this instance of Unified Manager. This page enables you to quickly monitor the performance of your interfaces, and to troubleshoot performance issues and threshold events.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons.

> ⓘ   The interfaces that are listed on this page include Data LIFs, Cluster LIFs, Node Management LIFs, and Intercluster LIFs. Unified Manager does not use or display System LIFs.

See Network Interface performance fields for descriptions of all the fields on this page.

Network Interface performance fields

The following fields are available in the Performance: All Network Interfaces view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon (✅). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (❌), error events are orange (⚠), and warning events are yellow (⚠).

- **Network Interface**

  You can click the network interface (LIF) name to navigate to the performance details page of that LIF.

- **Type**

  The interface type: Network (iSCSI, NFS, CIFS), FCP, or NVMf FC.

- **Latency**

  The average response time for all I/O requests, expressed in milliseconds per operation. Latency is not applicable to NFS LIFs and CIFS LIFs, and is displayed as N/A for these types.

- **IOPS**

  The input/output operations per second. IOPS is not applicable to NFS LIFs and CIFS LIFs, and is displayed as N/A for these types.

- **MB/s**

  The throughput on the interface, measured in megabytes per second.

- **Cluster**

  The cluster to which the interface belongs. You can click the cluster's name to navigate to that cluster's details page.

- **Cluster FQDN**

The fully qualified domain name (FQDN) of the cluster.

- **SVM**

  The storage virtual machine to which the interface belongs. You can click the SVM name to navigate to that SVM's details page.

- **Home Location**

  The home location for the interface, displayed as node name and port name, separated by a colon (:). If the location is displayed with an ellipsis (…), you can position your cursor over the location name to view the full location.

- **Current Location**

  The current location for the interface, displayed as node name and port name, separated by a colon (:). If the location is displayed with an ellipsis (…), you can position your cursor over the location name to view the full location.

- **Role**

  The interface role: Data, Cluster, Node Management, or Intercluster.

- **Threshold Policy**

  The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: All Ports view

The Performance: All Ports view displays an overview of the performance events, data, and configuration information for each port that is being monitored by an instance of Unified Manager. This enables you to quickly monitor the performance of your ports, and to troubleshoot performance issues and threshold events.

> ⓘ Performance counter values are displayed for physical ports only. Counter values are not displayed for VLANs or interface groups.

By default, objects in the view pages are sorted based on event criticality. Objects with critical events are listed first, and objects with warning events are listed second. This provides an immediate visual indication of issues that must be addressed.

The controls along the top of the page enable you to select a particular view (for health, performance, capacity, and so on), perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

You can assign performance threshold policies to, or clear threshold policies from, any object on the object inventory pages using the **Assign Performance Threshold Policy** and **Clear Performance Threshold**

Policy buttons.

See for descriptions of all the fields on this page.

Port performance fields

The following fields are available in the Performance: All Ports view and can be used in custom views and in reports.

- **Status**

  A healthy object with no active events displays a green check mark icon (✓). If the object has an active event, the event indicator icon identifies the event severity: critical events are red (✕), error events are orange (!), and warning events are yellow (⚠).

- **Port**

  You can click the port name to navigate to that port's performance details page.

- **Type**

  The port type is either Network or Fibre Channel Protocol (FCP).

- **MB/s**

  The throughput on the port, measured in megabytes per second.

- **Utilization**

  The percentage of the port's available bandwidth that is currently being used.

- **Cluster**

  The cluster to which the port belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **Node**

  The node to which the port belongs. You can click the node name to navigate to that node's details page.

- **Speed**

  The maximum data transfer rate for the port.

- **Role**

  The network port function: either Data or Cluster. FCP ports cannot have a role, and the role is displayed as N/A.

- **Threshold Policy**

The user-defined performance threshold policy, or policies, that are active on this storage object. You can position your cursor over policy names containing an ellipsis (…) to view the full policy name or the list of assigned policy names. The **Assign Performance Threshold Policy** and **Clear Performance Threshold Policy** buttons remain disabled until you select one or more objects by clicking the check boxes located at the far left.

Performance: QoS Policy Groups view

The QoS Policy Groups view displays the QoS policy groups available on the clusters that Unified Manager is monitoring. This includes traditional QoS policies, adaptive QoS policies, and QoS policies assigned by using Performance Service Levels.

The controls along the top of the page enable you to select a particular view based on the type of QoS policy you are interested in, perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv` or `.pdf` file.

After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis.

See QoS Policy Group fields for descriptions of all the fields on this page.

QoS Policy Group fields

The following fields are available in the Performance: QoS Policy Groups page and can be used in custom views and in reports.

- **QoS Policy Group**

  The name of the QoS policy group.

  For NetApp Service Level Manager (NSLM) 1.3 policies that have been imported into Unified Manager 9.7 or greater, the name displayed here includes the SVM name and other information that is not in the name when the Performance Service Levelwas defined in NSLM. For example, the name "NSLM_vs6_Performance_2_0" means this is the NSLM system-defined "Performance" PSL policy created on SVM "vs6" with an expected latency of "2 ms/op".

- **Cluster**

  The cluster to which the QoS policy group belongs. You can click the cluster name to navigate to that cluster's details page.

- **Cluster FQDN**

  The fully qualified domain name (FQDN) of the cluster.

- **SVM**

  The storage virtual machine (SVM) to which the QoS policy group belongs. You can click the SVM name to navigate to that SVM's details page.

> ℹ️ This field is blank if the QoS policy has been created on the Admin SVM as this SVM type represents the cluster.

- **Min Throughput**

  The minimum throughput, in IOPS, that the policy group will be guaranteed to provide.

  For adaptive policies this is the minimum expected IOPS per TB allocated to the volume or LUN, based on the storage object allocated size.

- **Max Throughput**

  The throughput, in IOPS and/or MB/s, that the policy group must not exceed. When this field is blank it means the max throughout defined in ONTAP is infinite.

  For adaptive policies this is the maximum (peak) possible IOPS per TB allocated to the volume or LUN, based on either the storage object *allocated* size or the storage object *used* size.

- **Absolute Minimum IOPS**

  For adaptive policies this is the absolute minimum IOPS value that is used as an override when the expected IOPS is less than this value.

- **Block Size**

  The block size specified for the QoS adaptive policy.

- **Min Allocation**

  Whether "allocated space" or "used space" is used to determine the maximum throughput (peak) IOPS.

- **Expected Latency**

  The expected average latency for storage input/output operations.

- **Shared**

  For traditional QoS policies, whether the throughput values defined in the policy group are shared among multiple objects.

- **Associated Objects**

  The number of workloads that are assigned to the QoS policy group.

You can click the expand button (⌄) next to the QoS Policy Group Name to view more details about the policy group.

- **Allocated Capacity**

  The amount of space that the objects that are in the QoS policy group are currently using.

- **Associated Objects**

  The number of workloads that are assigned to the QoS policy group, separated into volumes and LUNs.

You can click the number to navigate to a page that provides more details about the selected volumes or LUNs.

- **Events**

  If an object, or objects, that are assigned to the QoS policy group have caused a QoS policy breach, the event indicator icon identifies the event severity (critical, error, or warning) and displays an error message.

  You can click the message to navigate to the Events page that is filtered to show the objects involved in the event.